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EXPERIMENTS

VOL. 13 PART 2

UTTAR PRADESH

1954-59



सत्यमेव जयते

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FOREWORD

Increase in agricultural production is one of the main objectives of our agricultural planning. It is only by the exploitation of scientific methods of agriculture that we can hope to increase our agricultural production to the level needed for maintaining a reasonable standard of living to the country's population. The technical worth of improvement measures is best judged from carefully conducted field experiments. While it is true that a large number of agricultural field experiments are conducted in the country, the results of these experiments have not been brought together in an integrated manner for the use of research workers. The absence of such a unified account has often led to duplication of work and delay in the utilisation of results for practical farming. The Institute of Agricultural Research Statistics has rendered a very valuable service by preparing a compendium of agricultural field experiments conducted in the country. The first series of compendium containing the results of all agricultural field experiments during the period 1948-53 have already been published by the Institute.

The present compendium is the second in the series covering the period 1954-59. As in the earlier compendium, the present series also contains critical summaries of results of experiments bearing on important agronomic factors, such as the response of crops to fertilizers and manures, inter-relationship of fertilizers, varieties and cultivation practices and other information of value for giving sound advice to farmers in different regions. Judging from the demand for the first series of the compendium, I am sure that the present series will also prove equally useful.

A Standing Committee consisting of the Agricultural Commissioner with the Government of India, the Director, Indian Agricultural Research Institute, and the Statistical Adviser, Indian Council of Agricultural Research, has been set up to provide general guidance to the work under this scheme. I congratulate the members of this Committee and, in particular, the Statistical Adviser and his associates at the Institute of Agricultural Research Statistics for bringing out this compendium. The preparation of this compendium has been made possible only by the wholehearted co-operation of the States and other organisations in making available the results of their experimental researches for this purpose. My thanks are due to the officers of the State Departments of Agriculture and other institutions for participating in this work. I hope that the present series will be followed by periodical publications of similar compendia for later years, in order that the availability, in a consolidated form, of results of scientific experiments in agriculture in India may be maintained up-to-date.

NEW DELHI,
March 26, 1965.

A. D. PANDIT
Vice-President,
Indian Council of Agricultural Research.

PREFACE

The present set of volumes form Part II in the series of compendia of Agricultural Field Experiments being published by the Indian Council of Agricultural Research under the project for National Index of Field Experiments and contains a unified record of experiments conducted at agricultural research stations and institutes all over the country. Volumes in Part I in this series were published in 1962 and contained results of some 7,500 experiments conducted during the period 1948-53. The present set of volumes includes results of experiments conducted during the next period that is 1954-59. After the period, covered by Part I of the series, agricultural research and experimentation has expanded so much that for the period 1954-59, to which the present volumes refer, results of more than 15,000 experiments are available.

The present compendium is prepared on the same pattern as the previous one and is divided into 15 volumes one each for (1) Andhra Pradesh, (2) Assam, Manipur and Tripura, (3) Bihar, (4) Gujarat, (5) Kerala, (6) Madhya Pradesh, (7) Madras, (8) Maharashtra, (9) Mysore, (10) Orissa, (11) Punjab, Jammu and Kashmir and Himachal Pradesh, (12) Rajasthan, (13) Uttar Pradesh (14) West Bengal and (15) All Central Institutes. In each volume, background information of the respective state regarding its division into different soils and agro-climatic regions, rainfall and cropping pattern followed in each region and agricultural production and area under different crops in the State is given. The experiments reported in each volume have been arranged crop-wise for each State. All the experiments belonging to a particular crop at various research stations are Grouped together. For a particular crop, experiments are arranged according to the following classification :

Manurial (M), Cultural (C), Irrigational (I), Diseases, pests and chemicals other than fertilizers (D), Rotational (R), Mixed cropping (X) and combinations of these wherever they occur (*e.g.* CM as Cultural-cum-Manurial). Experiments in which crop varieties also form a factor are denoted by adding V to their symbol and are grouped together (*e.g.* MV as Manurial-cum-Varietal).

This publication owes its origin to the guidance and help of Dr. D.J. Finney, F.R.S., Professor of Statistics, Aberdeen University, Scotland, in formulating the project during his stay at the Institute of Agricultural Research Statistics as an F.A.O. expert in 1952-53.

At the Institute of Agricultural Research Statistics the work under the scheme was carried out under the supervision of Shri. T.P. Abraham, Assistant Statistical Adviser. The actual working of the scheme was conducted by Shri G.A. Kulkarni, Statistician till he left the Institute in July, 1964. The work was subsequently taken over by Shri O.P. Kathuria, Assistant Statistician. Messrs. L.B.S. Somayazulu, P.P. Rao, M.L. Sahni, Harbhajan Singh, A.L. Punhani, M.K. Joshi, N.K. Worrier, H.C. Jain and J.K. Kapoor of the statistical staff of the Institute deserve special mention for careful and painstaking work in editing and scrutiny of the manuscript as well as proofs of the compendium.

The burden of collecting the data from the various research stations and the analysis of a large number of experiments once again fell on the regional staff of the Council placed in different States. They deserve to be congratulated for the hard work they have put in.

Thanks are due to the State Departments of Agriculture, the Central Institutes and the Commodity Committees who made the data of the experiments conducted under their jurisdiction readily available to the staff of the Institute. The present publication has become possible only through their unstinted co-operation. The Institute is also thankful to the various

officers in the States who worked as Regional Supervisors for the project from time to time and took keen interest in the working of the Scheme. The list of the names of the regional supervisors and the regional staff of the project is given on the following page.

NEW DELHI,
March 25, 1965.

V.G. PANSE
Statistical Adviser,
Institute of Agricultural Research Statistics (I.C.A.R.).

REGIONAL SUPERVISORS AND REGIONAL STAFF FOR THE NATIONAL
INDEX OF FIELD EXPERIMENTS

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9. ORISSA (BHUBANESWAR)	L.B.S. SOMAYAZULU	SHRI B. MISRA, Deputy Director of Agriculture (Hq.) SHRI D. MISRA, Principal, Uttakal Krushi Mahavidyalaya, Bhubaneswar.
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11. MADRAS
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SHRI N. SHANKARA MENON
Director of Agriculture.
SHRI P.D. NAIR,
Director of Agriculture.

ABBREVIATIONS COMMON TO EXPERIMENTS ON ANNUAL AND PERENNIAL CROPS AND EXPERIMENTS ON CULTIVATORS' FIELDS.

Crops :- In the top left corner is given the name of the crop on which the experiment is conducted. Within brackets along side the crop is mentioned the season wherever the information is available.

Ref :- Against the sub-title 'reference' is mentioned the name of the State, the year in which the experiment is conducted and the serial number of the experiment for that year given in brackets.

Abbreviations adopted for States are as follows :-

- | | |
|---------------------------|------------------------|
| 1. A.P.—Andhra Pradesh | 9. M.—Madras |
| 2. As.—Assam | 10. Mh.—Maharashtra |
| 3. Bh.—Bihar | 11. Ms.—Mysore |
| 4. Gj.—Gujarat | 12. Or.—Orissa |
| 5. H.P.—Himachal Pradesh | 13. Pb.—Punjab |
| 6. J.K.—Jammu and Kashmir | 14. Rj.—Rajasthan |
| 7. K.—Kerala | 15. U.P.—Uttar Pradesh |
| 8. M.P.—Madhya Pradesh | 16. W.B.—West Bengal |

For the experiments conducted under the schemes sponsored by the Indian Council of Agricultural Research like the Model Agronomic Experiments or the Simple Fertilizer Trials scheme no serial numbers have been given at the source as the data of these experiments were collected at the Headquarters (New Delhi). In such cases the abbreviations MAE, SFT or TCM are given in the brackets against the year in which the experiment is conducted.

Site :- Name of the Research Station is mentioned alongwith the place where it is located, e.g. Agri. Res. Stn. for Agricultural Research Station.

For Central Institutes, the corresponding standard abbreviations have been adopted e.g. I.A.R.I. for the Indian Agricultural Research Institute.

In case of the experiments conducted on cultivators' fields whether under an Indian Council of Agricultural Research scheme or by the State Government, the abbreviation (c.f.) is given along with the site or centre as, for example, Cuttack (c.f.).

Type :- Abbreviations used against this item are one or more than one of the following :-

C—Cultural ; D—Control of Diseases and Pests ; I—Irrigational ; M—Manurial ; R—Rotational ; V—Varietal and X—Mixed cropping. e.g. CM is to be read as Cultural-cum-manurial.

Object :- A statement of the objective of the experiment is given indicating the main crop and type of the experiment. In case of M.A.E., S.F.T. and T.C.M. experiments, the type to which the experiment corresponds is also given, e.g. Type V, Type A or B or C etc.

Results :- Information under this heading should be read against the following items :-

(i) General mean. (ii) S.E. per plot. (iii) Results of test of significance. (iv) Summary table(s) with S.E. of comparison(s).

Other abbreviations used in the text of experiments :

Nitro. Phos.—Nitro. Phosphate	A/N—Ammonium Nitrate
Ammo. Phos.—Ammonium Phosphate	A/C—Ammonium Chloride
A/S—Ammonium Sulphate	C/N—Chilean Nitrate
A/S/N.—Ammonium Sulphate Nitrate	N—Nitrogen
C/A/N—Calcium Ammonium Nitrate	P—Phosphate

K—Potash	F.M.—Fish Manure
B.M.—Bone meal	G.N.C.—Groundnut cake
Mur. Pot.—Muriate of Potash	M.C.—Municipal Compost
Pot. Sul.—Potassium Sulphate	T.C.—Town Compost
Super—Super Phosphate	lb.—Pounds
Zn. Sul.—Zinc Sulphate	Srs.—Seers
C/S—Copper Sulphate	B.D.—Basal dressing
G.M.—Green Manure	C.L.—Cart load
F.Y.M.—Farm Yard Manure	ac.—Acre
F.W.C.—Farm Waste Compost	Dical. Phos.—Dicalcium Phosphate

Under the item (ii) (b) of the sub-heading 'Basal conditions' in the text of the experiment, the respective farm/station at which the experiment was conducted has been referred to for the soil analysis. The soil analysis of the farm, with other details of the research station is given under the background information of each state. The information regarding the details of experimental stations may be obtained under the respective items as given below :

DETAILS OF EXPERIMENTAL STATIONS

A. General information :

- (i) District and the nearest railway station with Latitude, Longitude and Altitude if available. General topography of the experimental area. (ii) Type of tract it represents. (iii) Year of establishment. (iv) Cropping pattern. (v) Programme of research.

B. Normal rainfall :

Average monthly rainfall specifying the period on which the figures are based.

C. Irrigation and drainage facilities :

- (i) (a) Whether available, if so, since when. (b) Type of facilities available. (ii) Whether there is a proper drainage system.

D. Soil type and soil analysis :

- (i) Broad soil type with depth, colour, and structure etc. (ii) Chemical analysis. (iii) Mechanical analysis.

E. No. of experiments :

No. of experiments conducted on different crops that have been included in the compendium.

Information under the following heads is to be read against the respective items as given below.

BASAL CONDITIONS

A. For experiments on annual crops :

- (i) (a) Crop rotation if any. (b) Previous crop. (c) Manuring of previous crop. (State amount and kind). (ii) (a) Soil type. (b) Soil analysis. (iii) Date of sowing/planting. (iv) Cultural practices. (a) Preparatory cultivation. (b) Method of sowing/planting. (c) Seed-rate. (d) Spacing. (e) No. of seedlings per hole. (v) Basal manuring with time and method of application. (vi) Variety. (vii) Irrigated or Unirrigated. (viii) Post-sowing/planting cultural operations. (ix) Rainfall during crop season (x) Date of harvest.

B. For experiments on perennial crops :

- (i) History of site including manuring and other operations. (ii) (a) Soil type. (b) Soil analysis. (iii) Method of propagation of plants. (iv) Variety. (v) Date and method of sowing/planting. (vi) Age of seedlings at the time of planting. (vii) Basal dressing with time and method of application. (viii) Cultural operations during the year. (ix) Inter cropping if any. (x) Irrigated or Unirrigated. (xi) Rainfall during crop season. (xii) Date of harvest.

C. For experiments on cultivators' fields :

(i) (a) Crop rotation, if any. (b) Previous crop. (c) Manuring of previous crop. (ii) Soil type in general. (iii) Basal manuring with time and method of application. (iv) Variety. (v) Cultural practices. (a) Preparatory cultivation. (b) Method of sowing. (c) Seed-rate. (d) Spacing. (e) No. of seedlings per hole. (vi) Period of sowing/planting. (vii) Irrigated or Unirrigated. (viii) Post-sowing/planting cultural operations. (ix) Rainfall during crop season. (x) Period of harvesting.

DESIGN

A. For experiments on annual crops :

(i) Abbreviations for design : C.R.D.—Completely Randomised Design. R.B.D.—Randomised Block Design, L. Sq.—Latin Square, Confd.—Confounded, Fact.—Factorial. (other designs and modifications of the above to be indicated in full.). (ii) (a) No. of plots per block. (b) Block dimensions. (iii) No. of replications. (iv) Plot size. (a) Gross (b) Net. (v) Border or guard rows kept. (vi) Whether treatments are randomised (separately in each block).

B. For experiments on perennial crops :

(i) Abbreviations for designs : C.R.D.—Completely Randomised Design ; R.B.D.—Randomised Block Design ; L.Sq.—Latin Square ; Confd.—Confounded. (other designs and modifications of the above indicated in full). (ii) (a) No. of plots per block. (b) Block dimensions. (iii) No. of replications. (iv) No. of trees/plot. (v) Border or guard rows kept. (vi) Are treatments randomised.

C. For experiments on cultivators' fields :

(i) Method of selection of experimental sites. (ii) No. and distribution of experiments. (iii) Plot size. (a) Gross. (b) Net. (iv) Whether treatments are randomised.

GENERAL

A. For experiments on annual crops :

(i) Crop conditions during growth with date of lodging, if any. (ii) Incidence of pests and diseases with control measures taken. (iii) Quantitative observations taken. (iv) In case of repetition in successive years—(a) from what year to what year, (b) whether treatments were assigned to the same plots in the same manner every year, (c) reference to combined analysis, if any. (v) In case of repetition in other places (a) names of the places along with reference and (b) reference to combined analysis, if any. (vi) Abnormal occurrences like heavy rains, frost, storm etc., if any. (vii) Any other important information.

B. For experiments on perennial crops :

(i) Crop condition during the year. (ii) Incidence of pests and diseases with control measures taken. (iii) Quantitative observations taken. (iv) In case of repetition in successive years—(a) from what year to what year, (b) reference to combined analysis, if any. (v) Abnormal occurrences like heavy rains, frost, storm etc., if any. (vi) Any other important information.

C. For experiments on cultivators' fields :

(i) Crop condition during growth. (ii) Incidence of pests and diseases with control measures taken. (iii) Quantitative observations taken. (iv) In case of repetition in successive years, (a) from what year to what year, (b) whether treatments were assigned to the same plots in the same manner every year, (c) reference to combined analysis, if any. (v) In case of repetition in other places names of places along with reference. (vi) Abnormal occurrences, like heavy rains, frost, storm etc., if any. (vii) Any other important information.

TABLE OF CONVERSIONS TO METRIC UNITS

1 foot	=	304.8 mm.
1 acre	=	0.404606 hectare.
1 gram	=	0.035274 ounce = 0.085735 tola = 0.017147 chatak
1 kg.	=	2.20462 pounds = 1.07169 seers.
1 metric tone	=	0.9842 ton = 26.7923 maunds.
1 maund	=	0.373242 quintal = 37.3242 kg.
1 lb./ac.	=	1.12085 kg./hectare.
1 md./ac.	=	92.23002 kg./hectare = 0.9223 quintal/hectare.
1 ton/ac.	=	2.51071 metric tones/hectare.
1 gallon (Imp.)	=	4.54596 litres.

GLOSSARY OF VERNACULAR NAMES OF CROPS

Sl. No.	Name of Crop	Botanical name	Assamese	Bengali	Oriya	Telugu	Tamil	Malayalam	Kannada	Marathi	Gujarati	Hindi	Punjabi
1.	Paddy	<i>Oryza sativa</i> L.	Dhan	Dhan	Dhano	Vadlu ; Biyyamu	Nel	Nellu	Bhatta	Bhat	Dangar	Dhan ; Chawal	Chaul ; Dhan
2.	Wheat	<i>Triticum sativum</i> Lamk. ; <i>Triticum aestivum</i> L.	Gaum ; Ghehu	Gam	Gaham	Godumalu	Kothumai	Gothambu	Godhi	Gahu	Ghahu	Gehon	Kanak
3.	Barley	<i>Hordeum vulgare</i> L.	Ja'dhan	Joba	Jaba, Barlhi or Jabadhana	Barley	Baarli arisi	Barley	Barley akki	Satu ; Jav	Jav	Jau	Jaun
4.	Oats	<i>Avena sterilis</i> Linn var. <i>culta</i>	Oat	Jai	Jaie, Ota	Yavalu	Oat Arisi	Oat	Thoke godhi	Jai	Jav	Jaie	Jaur, Jae
5.	Jowar	<i>Andropogon sorghum</i> Brot.	—	Jowar	Juara	Jonna	Cholam	Cholam	Jola	Jowari Jondhla	Jowari ; Juar	Jowar ; Juar	Jowar
6.	Bajra	<i>Pennisetum typhoides</i> Stapf Es Hubbard	—	Bajra	Bajra	Sajja	Kambu	Kambu	Sajje	Bajri	Bajri	Bajra	Bajra
7.	Maize	<i>Zea mays</i> L.	Gom dhan	Bhutta	Macca	Mokkajo- nna	Makka cholam	Cholam ; Makka cholam	Masukina jola	Makka	Makkai	Makka	Makki ; Makayee
8.	Potato	<i>Solanum tuberosum</i> L.	Alooguti	Alu	Bilati Alu	Bangala- dumpa, Urlagadda Benda	Ur. zhai Kilangu	Urala kizangu	Alu gedde	Batata	Aloo ; Batata	Aaloo	Alu
9.	Bhindi (Lady's finger)	<i>Hibiscus esculentus</i> ; <i>Abelmoschus esculentus</i> Moench.	Bhendi	Dhenrosh	Vendi		Bendai kai	Venda	Bende kayi	Bhendi	Bhida ; Bhinda	Bhindi	Bhindi ; Tori
10.	Brinjal ; Egg plant	<i>Solanum melongena</i> L.	Bengena	Begun	Baigan	Vankaya	Katharikai	Vazhuthana	Badane kayi	Vange	Vengan	Baingan	Bengan ; Bataun
11.	Cabbage	<i>Brassica oleracea</i> L. var. <i>capitata</i> L.	Randha Kabi	Bandhakabi	Bandha Kobi	L. Akugobi	Muttaikose	Muttakose	Yele kosu	Kobi	Kobij	Patgobhy	Band gobhi
12.	Cauliflower	<i>Brassica oleracea</i> L. var. <i>botrytis</i> L.	Phool Kabi	Fulkapi	Fula kobi	Poogobi	Gospoovu	Cauliflower	Hukosu	Phul kobi, Fulvar	Fulkobi ; Fulvar	Phool Gobhy	Phul gobh ;
13.	Onion	<i>Allium cepa</i> L.	Piyaz	Piaj	Pcas ; Ulli	Ulli	Vengayam ; Erangagan	Ulli	Eerulli	Kanda	Dungli ; Kando	Piaz	Ganda ; Payaz
14.	Radish	<i>Raphanus sativus</i> L.	Mula	Mula	Mula	Mullangi	Mullangi	Mullanki	Mullangi	Mula	Mulo	Mooli	Muli

GLOSSARY OF VERNACULAR NAMES OF CROPS—contd.

Sl. No.	Name of Crop	Botanical Name	Assamese	Bengali	Oriya	Telugu	Tamil	Malayalam	Kannada	Marathi	Gujarati	Hindi	Punjabi
15.	Pumpkin	<i>Cucurbita pepo</i> ; <i>Cucurbita moschata</i> Duch.	Kumura	Kumra	Bilati Kakharu (Scas)	Alugadda Seemagummadi	Poosani	Mathanga	Kumbalakai	Kashi Bhopla	Kohla	Sita phal	Halwa kadu ;
16.	Tomato	<i>Lycopersicon esculentum</i> Mill.	Bilahi	Bilati begun	Bilati baigan bapatblaghant	Tomato ; Ramamulaka ; Seema vankaya	Thakkali	Thakkali	Tomato	Welwangi ; Tambati	Vilaiti wagan ; Tameta	Tamatter	Tamatar
17.	Ash gourd	<i>Benincasa cerifera</i> Savi	Kumura	Chal kumra	Pani kakharu	Bud-dagummadi	Sambal poosani	Kumbalanga	Budugumbala	Kohala	Kohala	—	Petha
18.	Spinach	<i>Spinacia oleracea</i> L.	Palang sak	Palang	Mitha Palanga (Saga)	Teegabatchali	Vusavyeley keerai	—	Spinak soppu	Palak	Palak	Paalak	Palak
19.	Lettuce	<i>Lactuca sativa</i> L.	Salad	Letus	Salad	Letuse	Shallaathu	Lettuce	Lettuce	Salit ; Letu.	Salit	Salad	Salad
20.	Water melon	<i>Citrullus Vulgaris</i> S. hrad	Tarmuj	Tarmuj	Tarubhuja	Putchu or kalingarakaya	Tharbuza Palam Panna	Thannir mathan	Kallangadi	Kalingad	Tarbuz	Tarbooj	Tarbuz
21.	Arbi	<i>Colocasia antiquorum</i> Schott.	—	Kachu	Saru	Chemadumpalu	Sambu ; Sapan Kizhangu	Chembu	Kesavina gedde	Alu	Alvi	Akhi Dhueya	Arvi
22.	Turnip	<i>Brassica Campestris</i> var. <i>rapa</i> L.	Salgom	Shalgam	Salgum	Turnip	—	Seema mullanki	Turnip	Salgam	Salgham	Saljam	Gonglu ; Shalgam ; Thippar
23.	Pea	<i>Pisum Sativum</i> L.	Motor mah	Bara matar	Ma'ar	Batan elu	Pattani	Pattani	Batani	Mator	Vatana	Muttar	Mattar
24.	Gram	<i>Cicer arietinum</i> L.	Butmah	Chola	Boot	Sanagalu	Kadalai ; Sundal Kadalai	Kadala	Kadale	Harbara	Chana	Chana	Chhole ; Chana
25.	Urid	<i>Phaseolus mungo</i> var. <i>radiatus</i> Linn.	Matimah	Mashkalai	Biri	Minumula	Uzhundu	Uzhunnu	Uddu	Udid	Adad ; Udad	Urd	Mash ; Urd
26.	Masoor	<i>Lens esculenta</i> Moench ; <i>Lens culinaris</i> Medic.	Masurmah	Musuri	Masur	Chirusenaga	Masur Paruppu	—	Masoorubele	Masur	Masur	Masur	Massar
27.	Lobia, Cowpea	<i>Vigna catjang</i> Walp ; <i>Vigna sinensis</i> Savi.	—	Barbati	—	—	Thatapayaru	Mimbayar	Alasande	Chavli	Chola ; Choli	—	Lobia
28.	Moong	<i>Phaseolus aureus</i> Roxb.	Maguma	Sonamug	Murg	Pachape-salu	Pachaipayaru ; Pasipayaru	Cerupayaru ; Payaru	Hesaru	Mug ;	Mag	Moong	Moong, Mug

GLOSSARY OF VERNACULAR NAMES OF CROP—contd.

Sl. No.	Name of Crop	Botanical Name	Assamese	Bengali	Oriya	Telngu	Tamil	Malayalam	Kannada	Marathi	Gujarati	Hindi	Punjabi
29.	Sugarcane	<i>Saccharum officinarum</i> L.	Kuhlar	Akh	—	Cheruku	Karumbu	Karimbu	Kabbu	Oos	Sherdi	Ganna ; Kamad ; Naishakar	Kamad ; Ganna ; Eakh
30.	Cotton	<i>Gossypium</i> spp.	Kapah	Karpas	Kapa	Pratti	Paruthis	Paruthi	Hatti	Kapus	Kapas	Kapas	Kapah
31.	Jute	<i>Corchorus</i> spp.	Marapat	Shada pat Tosha pat Tamak	Jhota	Janumu	Chanapai	Chanambu	Senabu	Joot	Moti	Jute	Patsan
32.	Tobacco	<i>Nicotiana tabacum</i> L.	Dhopat		Uanpatra	Pogaku	Pugayilai	Pukayila	Hoge Soppu	Tambaku	Tamaku	Tambaku	Tamaku, Tambaku Mungfali
33.	Groundnut	<i>Arachis hypogaea</i> L.	China Badam	Cheena- badam	China- badam	Nelashanga	Nilakadalai	Nilakkadala	Kadale kayi	Bhuimug	Bhoising ; Magafali	Mungphali	
34.	Til (Sesamum)	<i>Sesamum orientale</i> L. <i>Sesamum indicum</i> L.	Til	Til	Rasi	Nuvvulu	Ellu	Ellu	Yellu	Til, Tili	Tal	Til	Til
35.	Soyabean	<i>Glycine hispida</i> ; <i>Glycine max</i> Merr.	Garomah	Gari kalai	—	Soya- chikkudu	Soya- payaru	Soybean	Soya bean	Soybin	Soyabin	Soyabean or Bhat	Soyabean
36.	Linseed	<i>Linum usitatissimum</i> L.	Tisi	Tishi	Peshi	Avise	Alivithai	Cherucha- navithu	Agase	Javas ; Alsi	Alsi	Alsi	Alsi
37.	Castor	<i>Ricinus communis</i> L.	Eri	Rehri	Jada	Amudalu	Amanakku	Avanakku	Haralu	Erandi	Diveli Erando	Rehri	Arnd, Harind, Rind
38.	Mustard	<i>Brassica juncea</i> Coss.	Sraiah	Rai Sarisha	Rai	Avalu	Kadugu	Kaduku	Kempu- sasive	Mohri	Rai	Rai	Rai
39.	Garlic	<i>Allium sativum</i> L.	Nohoyu	Rashun	Rasun	Vellulli	Poodu, Vella poodu	Veluthulli	Bellulli	Lasun	Lasan	Lehsoon	Thom, Lassan
40.	Berseem	<i>Trifolium alexandrinum</i> L.	—	Berseem	Gini ghasa	—	—	—	—	Bersim gavati	Barsim	Berseem	Berseem
41.	Cluster bean	<i>Cyamopsis psoraloides</i>	Thupi Urahi	Guar	Gunar chhuin	Goruchik- kudu	Kotha- varnkai Seenia- vara kai	Kothavara	Gori kayi	Guwar	Gavar	Guar	Guara
42.	Lucerne	<i>Medicago sativa</i> L.	Lucerne ghah	Lucern	Lusarna	Garam Masal	Kuthirai- masal	Lucerne	Kudure masale	Lasun ghas ; Vilaiti ghavat	Gadab Rajko	—	Lusan
43.	Apple	<i>Pyrus malus</i> L.	—	Apei	Seo	Apple ; Sabe	Appel	Apple	Sebu	Apple	Safarjan	Seb	Seo ; Seb

GLOSSARY OF VERNACULAR NAMES OF CROPS *contd.*

Sl. No	Name of Crop	Botanical Name	Assamese	Bengali	Oriya	Telugu	Tamil	Malayalam	Kannada	Marathi	Gujarati	Hindi	Punjabi
44.	Mango	<i>Mangifera indica</i> L.	Am	Am	Amba	Mamidi	Mangai	Mavu	Mavu	Amba	Keri	Aam	Amb
45.	Grape fruit	<i>Citrus pardisi</i> Macf.	Grape Fruit	---	---	Pamparapana	China bombili maas	---	---	Grape fruit	---	Grape fruit	Grape phal
46.	Sweet orange	<i>Citrus sinensis</i> Osbeck.	Malta ; Mozambique	Mosambi	Mitha kamala ; Mhata kamala	Battayi	Sathugudi ; Cheeni	Madura naranga	Sathkudi	Mosambi	Mosambi	Malta ; Mausmee	Malta
47.	Mandarin	<i>Citrus reticulata</i> Blanco	Kamala	Kamla lebu	Santra	Kamalaphalamu	Kamla ; Koorg Kudagu orange	Arangu	---	Santra	Santra ; Narangi	Santra	Santra
48.	Lime	<i>Citrus aurantifolia</i> Swingle	Kagzi	Kagzi lebu	Kagji Lumbu	Nimma	Elummi chai	Naranga	Kittale	Kagdi limbu	Limbu ; khata limbu	Kagzi Nemboo	Nimbu
49.	Guava	<i>Psidium guajava</i> L.	Madhuri	Peyara	Pijuli	Jama	Koyya	Pera	Sebe	Peru	Jamphal	Amrood	Amrud
50.	Pear	<i>Pyrus communis</i> L.	Naspati	Nashpati	Naspati	Beripallu	Berikai	---	Pear hannu	Pear	---	Naaspaati	Nakh Nashpati
51.	Peach	<i>Prunus persica</i> Buts.h.	Narabogori	Pich	---	Peech	---	---	Pichis hannu	Pich	---	Aaroo	Aru
52.	Litchi	<i>Litchi chinensis</i> Sonn.	Litchu	Litchu	Litchu	Lichi	---	---	Lichi	Lichi	Lichi	Leechi	Lichee
53.	Pium	<i>Prunus domestica</i> L.	Ahom Bogori	Alu-bokhra	Alu-bokhara	Ajubokarepallu	All P.kodda pazham	---	Albakora hannu	---	---	Aaloo Bukhara	Alucha
54.	Strawberry	<i>Fragaria vesca</i> L.	Garukhis	---	---	Strawberti	---	---	Strawberri hannu	---	---	Strawberry	Strawberri
55.	Apricot	<i>Prunus armeniaca</i> L.	Apricot	Khubani	Apricot	Apricot	Aaprikot	---	---	Aprikot	Akhrot	Khobani	Kuhrmani
56.	Papaya	<i>Carica papaya</i> L.	Amita	Peypey	Ambrut thanda	Boppayi (hadana-naba)	Pappali	Pappakka	Parangi hannu	Papai	Popya	Papita	Papita

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UTTAR PRADESH

1. General :

Uttar Pradesh lies between 23°52' N and 31°18' N latitudes and 77°3' E and 84°39' E longitude. On the north, its boundary runs along Tibet and Nepal. It is bounded by Bihar in the east, Madhya Pradesh in the south, Himachal Pradesh, Punjab and Rajasthan in the west and south-west. The State is divided into 54 districts which are grouped into the following 11 revenue divisions : 1. Meerut, 2. Agra, 3. Rohilkhand, 4. Allahabad, 5. Jhansi, 6. Varanasi, 7. Gorakhpur, 8. Lucknow, 9. Faizabad, 10. Kumaun and 11. Uttarakhand. The total geographical area according to village papers, during the year 1961-62 comes to 7,26,43,510 acres.

The land utilization statistics of Uttar Pradesh is given in Table 1 below :

TABLE 1
Land Utilization Statistics of Uttar Pradesh (1961-62).

(i) Plains Portion

<i>Classification</i>	<i>Area in acres</i>
1. Geographical area (according to village papers)	6,24,78,565
2. Forest	46,34,922
3. Barren and unculturable land	27,76,691
4. Land put to non-agricultural uses	47,70,240
5. Culturable waste	39,66,118
6. Permanent pastures and other grazing lands	1,17,896
7. Land under misc. tree crops and groves not included in net area sown	16,82,606
8. Current fallows	3,12,071
9. Other fallow-lands	30,42,845
10. Net area sown	4,11,75,176
11. Area sown more than once	1,18,07,560
Total cropped area	5,29,82,736

(ii) Hilly Portion

The conventional estimate of the classification of land for the hilly regions of the Kumaun and Uttarakhand Divisions of the State for the year 1961-62 is given below :

<i>Classification</i>	<i>Area in acres</i>
1. Geographical area (according to village papers)	1,01,64,945
2. Forest	46,32,415
3. Land not available for cultivation	35,84,720
4. Culturable land other than current fallows	4,29,138
5. Current fallows	69,641
6. Net area sown	15,49,031
7. Area sown more than once	1,95,530
Total cropped area	17,44,561

2. Topography :

The natural divisions of the State of Uttar Pradesh are Himalayas in the north, Gangetic plain in the centre and Plateau on the south of the river Yamuna. Geologically, Himalayas

form a region of their own, the central plain and the plateau form a large alluvium of the Gangetic valley. This is the central part of the Indo-Gangetic plain which stretches from east to west of the country in the north.

A part of Mirzapur and the trans-Ganges part of the old state of Banaras are different both from the Himalayas in the north and large alluvial tract in the centre. East Satpura hills touch the south-east of the State and form a small separate tract.

The largest part of the land lying between Yamuna-Ganga in the south and the Himalayas in the north, is a large stretch of even land sloping very gently along the course of the Ganga. The plateau in the south slopes along the course of the Yamuna before its confluence with the Ganga at Allahabad.

3. Soil Types and Agro-Climatic Regions :

The State has been divided into 11 soil-climatic regions each of which has a particular combination of soil and climate that makes it somewhat different from others. However, it cannot strictly be said that the soils and climate within a region are throughout uniform, for there are local differences and that in passing from one region to another there is always a gradual rather than an abrupt change in these conditions. The various soil-climatic regions are described below :

1. *Hilly Region* :—The hilly region includes the areas of Kumaun and Uttarakhand divisions and portions of Dehra Dun district of Meerut division, the soils of which form a part of the southern outer spurs of the Himalayas, comprising of the eight hill districts viz., Almora, Garhwal, Tehri, Nainital (excluding Kichha and Kashipur *tehsils*), Dehra Dun (Mussoorie and Chakrata), Chamoli, Uttarkashi and Pithoragarh.

Native vegetation consists of forests of Oak and Pine with grasses and weeds as undergrowth.

2. *Tarai Region* :—This region extends along the foot hills of Himalayas from east to west and consists of Kichha and Kashipur *tehsils* of Nainital district, the whole of district of Pilibhit excluding Bilaspur *tehsil*, entire area in Dehra Dun below 3000 ft. height, northern part of Rampur district, Kheri district except Mohammadi *tehsil*, district Bahraich except Kaiserganj *tehsil*, district Gonda except Gonda and Tarabganj *tehsils*, Basti district except Harraiya, Basti and Khalilabad *tehsils*, district Deoria except Deoria *tehsil* and district Gorakhpur except Gorakhpur and Bansagaon *tehsils*.

The vegetation consists of grasses, natural weeds and wild shrubby plants specially in the west *tarai*.

3. *Western Region* :—This region comprises the districts of Saharanpur, Muzaffarnagar, Meerut and Bulandshahr which are located in the upper half of the Ganga-Yamuna *doab* of U.P. The region is separated from the States of Punjab and Delhi by the river Yamuna, which flows southwards down the Himalayas, forming the western boundaries of the region.

The vegetation mostly consists of forests and hill shrubs and weeds in the north ; grasses and halophytic plants in the south.

4. *Mid-Western Region* :—The area south of the *tarai* region covering the districts of Bijnor, Moradabad, Budaun, Rampur, Bareilly, Shahjahanpur and Pilibhit is called Mid-Western region. River Ganga forms the western boundary of this tract and river Sharda forms the eastern boundary.

Native vegetation is the same as in the western region, but the area abounds in natural vegetative growth also.

5. *South-Western Region* :—This region consists of the districts of Aligarh, Etah, Mainpuri and a major portion of Agra and Mathura districts. The region constitutes a very important tract of Ganga-Yamuna *doab* and extends both in the upper and mid region of this

productive alluvial plain. River Ganga forms the eastern boundary and river Yamuna flows through the centre of Mathura and Agra districts touching the western and south-western borders of Mainpuri district.

Native vegetation consists of short shrubs, bushes, low grasses, number of wild dry land weeds and halophytic plants.

6. *Central Region* :—Central region is an area comprising of the districts of Kanpur, Fatehpur, Unnao, Lucknow, Sitapur, Hardoi, Farrukhabad and Etawah and forming a composite block of land in the middle and lower portions of Ganga-Yamuna *doab*. Besides the *doab* areas considerable portion of this region also occurs on the other side of the Ganga. River Yamuna forms the western boundary and flows in south-eastern direction. River Ganga also flows southward through the middle of this region.

7. *Mid-Eastern Region* :—The districts of Barabanki, Rae Bareli, Faizabad, Sultanpur, Pratapgarh and Allahabad are included in this region ; with the exception of last named district, the area is situated between the river courses of the Ganga and the Ghagra. The latter river flows at a greater velocity.

8. *North-Eastern Region* :—This region comprising of the non-*tarai* areas of the districts of Bahraich, Gonda, Basti, Gorakhpur and Deoria is bounded on the south by river Ghagra, northern boundary being the *tarai* belt. Great Gandak river separates the eastern-most districts of Gorakhpur and Deoria from the State of Bihar.

9. *Eastern Region* :—Areas of this region are distributed in the districts of Jaunpur, Azamgarh, Varanasi, Ghazipur and Ballia which are situated in south-eastern extremity of U.P. Ghazipur and Ballia districts adjoin the State of Bihar which is separated from these districts by the river Ganga. A number of important rivers viz., the Ganga, Sai, Gomati, Karmnasa and the Ghagra flow in this soil region. River Ghagra forms the northern boundary while the Ganga forms the southern boundary of this region.

10. *Bundelkhand Region* :—Jhansi, Jalaun, Hamirpur and Banda districts lying south-west of river Yamuna constitute this region.

Native vegetation consists of shrubs and grasses.

11. *Vindhyan Region* :—The Vindhyan region extends on the south of the river Ganga in Mirzapur and southern portions of Varanasi (*Chakia tehsil*) and Allahabad districts (*Meja and Karchhana tehsil*).

Native vegetation consists of wide range of forest trees and shrubs.

The soils in the eleven regions already described above are as follows :

1. *Hilly Region* : The soils have developed over biotite schists and phyllites. The soil classifications recognized so far are (i) Brown forest soils (ii) Podsollic soils and (iii) Wiesenboden or meadow soils. Brown forest soils are most productive. High acidity and deeper alluviation of nutrients are the main characteristics of Podsollic soils. Wiesenbodens have developed under water-logged conditions in valleys. Considerable correlation is found between soil condition and incidence of diseases and pests.

2. *Tarai Region* : The soils have developed over finer fractions of material of considerable thickness transported by innumerable streams and rivulets from the outer Himalayan and Siwalik ranges resulting from wide torrential rains during monsoon months. Parent gravelly material are often found in lower depths specially in the foothills. The thickness of the soil layers increases with distance from the base of the hills with simultaneous decline in the thickness of underlying pebble bed.

All grades of texturally varying soils of alluvial nature are found in this region. Soil types recognized in one of the *tarai* region in Nainital district are : (1) Matkota clay loam

(2) Matkota loam-highly calcareous (3) Matkota loam-slightly calcareous (4) Matkota loam-non-calcareous and (5) Matkota sandy loam.

Soils of *tarai* region are productive, possessing initial reserve of nitrogenous plant food which deplete within few years of intensive cultivation. These soils have been found to be extremely responsive to phosphatic fertilizers. Being younger in formation these soils respond favourably to the application of both macro and micro-elements. Major portion of the tract due to their light texture, necessitates occasional green manuring. Short term crops do well in these areas.

The two *tarai* tracts though developed under the influence of similar soil forming processes differ widely from one another in the fact that the soil in the north-western group are located in close proximity to the Himalayas and are less calcareous than the soils in the north-eastern *tarai* tracts, where the alluviums have to traverse larger distances. The latter thus are more calcareous and of much finer texture.

3. *Western Region* : The alluviums are fairly deep and except for certain tracts of Saharanpur, parent rocks are found nowhere. These alluviums are very varied and are essentially basic in character and have been developed from mild calcareous parent material. Like all alluvial regions, this tract contains all the four grades of the soil classes belonging to both the Ganga and Yamuna river system. The four categories of soils pertaining to each of the two river systems are : (i) Riverine soils, (ii) Soils developed on flats, (iii) Soils developed on uplands and (iv) Soils developed on low lands.

Soils on recent alluviums are of recent origin and generally calcareous and light textured and are found in the vicinities of the river courses. At certain distances from the rivers, soils developed on flat areas are found. These soils are partially mature and of considerably older origin. These soils are medium textured, generally belonging to loam or clay loam categories with a heavy strata of soil in the lower regions of the soil profile. They are neutral to slightly alkaline on the top but slightly to moderately alkaline at lower depths. Free calcium carbonate is occasionally found at lower depths. Soils of the upland class are generally found in the mid-interior of the region on the highest elevations and are the product of the oldest alluviums. They are lighter on the surface, the finer fractions having been alluviated to lower depths. These soils are brown to reddish brown in colour and are neutral to slightly alkaline in reaction. Free calcium is not commonly found in these soil types. Soils of low land are found extensively in low land tracts within the elevated regions. The soils are formed from the washing of the adjoining areas and on this account are generally fine textured. Considerable soil salinization found in these areas which give rise to various categories of *usar* formations. These soils are highly alkaline and usually contain a hard pan either of clay or of *kankar* nodules. Where salinity does not prevail these soils form very productive areas specially in respect of paddy crop.

The alluvial soils found in this region are productive and respond very well to fertilizer applications and other management practices. The water requirement of this region is generally high.

4. *Mid-Western Region* : Alluviums deposited by the river Ganga and its tributaries after the disintegration of Himalayan ranges in the north through which the rivers flow in southward direction, formed the soils. Those parent rocks are basic in character and calcareous in nature.

Soils of this region are closely related to the alluvial soils of the neighbouring western region and formed of similar parent material. Many of the characteristic features of those soils are also present in the soils of this region. All grades of soils viz., riverine, flat lands, up lands, and low lands distributed on topographical sequences are also found in this region.

These soils, however, differ from *doab* soils in their degree of development, the factors influencing the soil development in the two cases being slightly different. These soils are

generally finer in texture and have no impedence in drainage and on this account are, in general, comparatively free from hazards of soil salinity. They are generally calcareous except for the upland soils which have practically no lime.

The soils are freely drained and have a good moisture content. The water requirement of these soils is not as great as that of the soils of the adjoining western region. They are more productive and respond very well to improved management practices.

5. *South-Western Region* : The soils of this region greatly resemble the soils of the western region and all grades of soils pertaining to the two river systems obtained in that region are also present in this soil region. These soils, however, differ from the soils of the former region in their extent of soil salinization, this region having greatest concentration of saline and alkali lands. The drainage of this tract is extremely defective, resulting in formation of extensive tracts of *usar*. The soils of the Agra and Mathura districts, more so of their western and south western *tehsils* laying on the other side of Yamuna, are markedly different from the soils of the *doab* area, the former being more closely related to the desert soils of Rajasthan.

The soils are generally dry and have accordingly a high water requirement. Irrigation facilities in this area have brought spectacular responses and give record yields of *rabi* cereal crops. These soils, however, should be watched with caution for hazards of soil salinization and a well laid out drainage system seems to be a pre-requisite for any agricultural development programme of this area.

6. *Central Region* : Soils of this region also resemble closely the alluvial soils of the adjoining regions, more so of the *doab* areas. These soils due to slightly better climate, however, give rise to fully mature soils. Riverine, flat, upland and lowland soils of both the river systems as found in the *doab* area are also found in this region. Greater extent of soil salinization is noticeable in these soils.

These soils afford good crop yields under controlled management practices and constitute an important part of the well known wheat belt of U.P. Due to insufficient drainage a considerable area of this region suffers from soil salinity. Extra caution should be taken to check further spread of salinity, more so in areas where irrigation canals are being introduced by providing adequate drainage facilities.

7. *Mid-Eastern Region* : Practically all grades of soils including recent alluviums, flats, uplands and lowlands are found in this soil region. The region, however, differs from the other regions in the conspicuous absence of influence of Yamuna river which deposited alluviums primarily transported from more basic central Indian rock systems. The black, grey and the reddish brown soils found in the watersheds of the Yamuna river in *doab* areas are nowhere to be seen in this region. The districts adjoining Ganga river suffer from inadequate drainage facilities and on this account are subject to greater hazards of soil salinity. The districts worst affected from this hazard are, thus, Lucknow, Rae Bareli, Pratapgarh, Sultanpur and to a certain extent that of Barabanki. The area on the left bank of Gomati comprising of greater portion of Barabanki and Faizabad are comparatively less saline than the soils of the remaining districts in this soil region.

The soils of the region stand in need of more controlled management practices specially in respect of saline and alkali soil areas. Provision of adequate drainage and affording other soil conservation practices are very important for the improvement of these soils.

8. *North-Eastern Region* : The soils of this region have been rightly termed as calcimorphic soils due to the vast reserve of calcium present in them. Various stages of soil development found in other alluvial regions are also present in these areas even though they are inherently different in physical and chemical characteristics. The soils of the recent alluviums are highly calcareous, calcium carbonate at times being as high as 50 to 55 per cent. Soils are slightly to moderately alkaline in reaction and possess an excellent moisture region. Good crops are grown even without any irrigation.

The water table in these areas is usually very high which maintains moisture supply to the plants during the entire period of their growth. Soils of the plains in this region are also calcareous though not to the same extent as the youngest member of the soil family. Soil development which consists mainly of decalcification has considerably advanced in these areas and the surface soils have lost most of the calcium present in the recent alluviums. The lower regions are still fairly rich in free calcium carbonate and usually a zone of alluviated calcium present in the form of *kankar* nodules is found in these soil profiles. Soil salinity is not very common in these areas. Upland soils of this region are intensely leached, from which calcium carbonate has been completely washed out so much so that there is considerable depletion of exchangeable calcium. These soils thus are slightly acidic in reaction. There is excellent drainage and soil salinity is completely absent in these areas.

The soils of this region are fairly productive and afford bumper crops. Very intensive cultivation is practised in these areas and the fields are rarely left fallow. These areas have vast agricultural potential and given adequate plant foods, good crop yields can be maintained year after year. The upland soils due to the excessive rate of water percolation and their chemical and physical characteristics, hardly retain moisture for long period, and on this account stand in need of frequent irrigations. They respond remarkably well to fertilizer applications.

9. *Eastern Region* : The alluviums deposited in this region though related to other alluvial formations of the State are somewhat different than the soils of the upper areas. In general they are finer in texture than the soils of the upper regions. The soils of this region are more weathered and they distinctly exhibit the influences of various soil forming factors. The soils have been subjected to greater hydromorphic influences and have resulted in formation of a number of hydromorphic soil varieties more important of which are *Dhankar* and *Karail*, the former constituting extremely productive paddy soils of this State. In regions where Ganga flows in circuitous courses a group of very fine textured and black coloured soils, resembling in many aspects the black cotton soils of Central India plains, are found deposited in the interior depressed lands. They are calcareous and retain moisture for long periods. During dry months they crack and form deep fissures. They grow good crops of gram alone or mixed with barley and wheat even without much irrigation.

The soils of this region have a better moisture regime and are comparatively free from salt. They respond remarkably well to fertilizer application and more so to nitrogenous fertilizer. The soils are productive and given adequate irrigation facilities and suitable management, are liable to maintain high yields.

10. *Bundelkhand Region* : The soils have developed over granite and gneiss of the Deccan trap with highly ferruginous beds. Lime stones are occasionally found. Four broad soil types have been recognised. Type I-A is a reddish brown coarse grained soil, very shallow and underlain with the parent material locally known as *rakar*. Type II is found near the plains. It is deeper having a layer of calcium carbonate in lower depths. This is locally known as *parwa*. Type III and IV are clayey, black coloured and calcareous. These are the *kabar* and *mar* types.

The soils in general are devoid of moisture and afford only early crops needing less water. Type I soils are most suited for inferior crops. Types II are better suited for cultivation under irrigated conditions. Type III & IV soils are very fertile and grow wheat, linseed and gram. Methods of dry farming are practised throughout Bundelkhand region.

11. *Vindhyan Region* : A wide variety of rocks consisting of Vindhyan sand stones and shales, mixed conglomerates, calcareous shales, haematitic slates and schists, gneiss, granites, quartzite, trapezian and archean gneiss. Carboniferous rocks and lime stones give rise to different soils.

The topography already recognised has developed on (i) Vindhyan upland (ii) Vindhyan flats (iii) Vindhyan lowlands and categorized in five soil classifications viz., Vindhyan type 1 to 5.

Vindhyan type 1 soils are dark brown in colour and sandy loam in texture and are found on uplands. Types 2 soils are loam in texture and of brown colour underlain by reddish yellow mottled clay. Type 3 soils are yellowish grey in colour and comprise of heavy loams. They are developed on restricted drainage. Type 4 and 5 are associated with low lands. Type 4 soils have a compact surface of olive brown clay loam soil of strong acidic reaction. Type 5 soils have developed on extremely restricted drainage conditions with a high water table. These soils are grey coloured at the surface with a general fine texture and characterised by an underlying layer of *kankar* nodules. Signs of water logging are clearly marked in lower depths of the profile of this type.

Cultivated areas are found sparsely interspersed within hilly areas with a system of rocks all round. Such areas are only adjacent to villages which are a few in number and are very sparsely populated. With the exception of soils developed on low lands the area supports only inferior crops whose water requirements are necessarily low due to the general scarcity of water prevailing in that country. They are excessively drained. Soils found in the Belan Vallye, belonging to Vindhyan lowland tracts, respond remarkable well to phosphate and potasha applications.

The climate and rainfall of the eleven regions are described below :

1. *Hilly Region* :—The climate is good with temperature being cool and moist. Rainfall is over 60 inches. Summer is short and cool. Winter is long and cold with frost and snow at the higher altitudes.

2. *Tarai Region* :—The climate is sub-humid and cool specially during winter months. Rainfall ranges between 40 and 50 inches, maximum being from July to September. Summer is excessively hot, the temperature rarely crossing 108° F. Generally damp and excessive cold is experienced in the winter months.

3. *Western Region* :—The climate is sub-humid to semi-arid as one moves from north to south. Rainfall ranges between 30 and 50 inches, maximum being in the months of June to September. In north, the temperature is moderate all along the year.

4. *Mid-Western Region* :—The climate is sub-humid in the north getting drier as one proceeds southwards. The annual rainfall varies from 30 to 50 inches. The temperature is moderate with considerable fluctuations at different times of the year. Winters are very cold and summers are very hot. Almost the entire rainfall is received during the monsoon.

5. *South-Western Region* :—The climate is arid to desert-like with rainfall ranging from 20 to 25 inches. Summer is quite severe, the western most districts showing desert like conditions.

6. *Central Region* :—The climate is semi-arid to sub-humid with slightly greater monthly and annual rainfall than the preceding *doab* soil regions. Winters are very cold. Almost the entire rainfall is received during the monsoon months. Summers are very hot ranging only next to the adjoining south-west region.

7. *Mid-Eastern Region* :—The climate of this region is sub-humid resembling their western and northern counterparts. They are slightly less humid than the districts of mid-western region but slightly more humid than the western or south-western region. The rainfall ranges from 30 to 40 inches, nine tenth of the precipitations occur during the monsoon months. Summers and winters are extremes.

8. *North-Eastern Region* :—The climate is sub-humid. Rainfall is more than in the districts of plains and the northern *tarai*. The area, due to its geographical situation and its scooplike shape, is swampy and on this account is prone to numerous drainage and flood problems.

9. *Eastern Region* :—The climate is sub-tropic humid with annual rainfall ranging between 40 to 45 inches. The area due to the swampy nature maintains humidity almost through-

out the year. The temperatures are moderate and fluctuations during summer and winter are very marked.

10. *Bundelkhand-Region*—The climate is dry with hot summers and cool winters. Rainfall varies from 30 to 35 inches.

11. *Vindhyan Region*—The climate is sub-tropical with an annual rainfall of 40 to 45 inches. Months of July, August and September have the highest rainfall accounting for nine-tenths of the total rainfall. Temperatures are very high during summers and very low during winters. Marked difference between night and day temperatures is found.

4. Irrigation :

The net irrigated area in the plains of the State was 119.3 lakh acres during the year 1961-62. It represents about 29.0% of the net cultivated area. Irrigated area is concentrated in the western and north-western districts of the State. The sources of irrigation in order of importance are canals, wells, tube-wells and tanks. The distribution of irrigation from different sources is given below :

TABLE 2

The table shows the source-wise distribution of the Net Irrigated Area for the plains portion of the State for the year 1961-62.

Source		Irrigated area in acres
1. Canals	Government	46,83,093
	Private	1,146
	Total	46,84,239
2. Tube-wells	Government	12,21,842
	Private	1,28,819
	Total	13,50,661
3. Other wells	Government	18,804
	Private	43,54,123
	Total	43,72,927
4. Reservoirs		6,616
5. Tanks, lakes and ponds		9,73,583
6. Other sources		5,44,580
7. Net area irrigated		1,19,32,606
Area irrigated more than once		10,61,253
Gross irrigated area		1,29,93,859

5. Agricultural Production and Normal Cropping Pattern.

The main crops of the State are rice and wheat occupying about 10,312.9 and 10,130.8 thousands of acres respectively. The area, total production and average yield of important crops in the State are given in table 3 below :

TABLE 3

Area, production and average yield of principal crops for the year 1961-62.

Crop	Area in acres	Production in tons	Av. yield in lbs. acre
Rice	1,03,12,870	32,91,936	708*
Jowar	21,15,111	3,13,841*	332*
Bajra	23,95,078	3,79,042*	355*
Maize	26,82,959	6,83,339*	572*
Mandua	4,07,781	1,21,742	378
Sawan	4,36,239	68,322	351
Kodon	9,52,159	1,57,949	372

<i>Crop</i>	<i>Area in acres</i>	<i>Production in tons</i>	<i>Av. yield in lb./acre</i>
<i>Kakun</i>	27,795	3,366	272
<i>Kutki</i>	9,473	1,050	249
<i>Urd</i>	4,13,421	41,943	219
<i>Moong</i>	35,754	4,481	265
<i>Moth</i>	31,816	3,412	240
Total <i>kharif</i> foodgrains	1,98,20,456	50,70,423	
Wheat	1,01,30,801	40,88,990*	912*
Barley	45,07,920	17,26,714*	858*
Gram	63,65,859	14,94,118*	526*
Peas	25,65,411	9,94,629*	868*
<i>Arhar</i>	15,22,863	3,84,340*	565
<i>Masur</i>	4,68,103	79,655	374
Total <i>rabi</i> foodgrains	2,55,60,957	87,68,446	
Total foodgrains	4,53,81,413	1,38,38,869	
<i>Til</i> (pure)	1,55,303	8,505*	115*
Groundnut	6,40,093	2,21,600*	775*
Rapeseed and Mustard (pure)	4,10,860	70,240*	389*
Linseed (pure)	2,02,196	18,466*	204*
Castor	4,761	1,056	497
Total Oilseed (pure)	14,13,213	3,20,271	
<i>Til</i> (mixed)	13,79,733	70,843	115
Linseed (mixed)	15,40,557	1,40,238	204
Rap seed and Mustard (mixed)	44,28,068	7,69,339	389
Total Oilseeds (mixed)	73,48,358	9,80,420	
Total Oilseeds (pure and mixed)	87,61,571	13,00,691	
Sugarcane	33,67,150	5,04,46,916*	33,560*
Potato	2,78,722	6,51,605*	5,319
Cotton**	1,77,911	42,565 bales	94*
Jute**	58,650	1,91,593* bales	1,307*
Sannhemp (For fibre)	1,71,484	23,572	308
Tobacco	39,576	11,878	713

Note :—1. *Denotes that estimates are based on the results of crop-cutting experiments.

2. The production and average yield of Sugarcane are in terms of cane.

3. Production and average yield of rice are in terms of cleaned rice.

4. Figures of area and production are inclusive of the conventionally estimated figures for the hilly districts of Kumaun and Uttarakhand Divisions.

5. Figures of average yield are for the plains portion of the State only.

6. The figures of area under *Til*, Rapeseed (Mustard) and Linseed crops sown mixed are included in the crops with which these are sown mixed and have not been eliminated from the latter.

7. The production of rice in *Kharif* is 32,88,003 tons and is based on the results of crop-cutting experiments.

8. **The production of Cotton is in bales of 392 lb. and Jute in bales of 400 lb.

Crops in different seasons and different crop rotations adopted in different regions are described below :

The net cultivated area of the State, excluding the hills, in 1961-62 was about 411.8 lakh acres. Of this, about 28.7% is *Dofasli* area. The total cropped area of each season

is as follows :

<i>Kharif</i>	272.8 lakh acres.
<i>Rabi</i>	254.8 lakh acres.
<i>Zaid</i>	2.1 lakh acres.

(i) In the plains portions of the State the main *kharif* crops are paddy and millets which occupy 36.9 per cent and 26.3 per cent respectively of the total *kharif* cropped area. The heaviest concentration of these crops is in the eastern U.P. Among millets, *jowar*, *bajra*, and maize are the most important crops.

Sugarcane is included in *kharif* crops. It occupies only 12.3 per cent of the *kharif* area but from the monetary point of view, it is the most important cash crop of the State. The highest concentration of this crop is in the western districts of the Meerut and Rohilkhand Divisions but it is an important crop throughout the northern districts of the plain.

Cotton, jute, groundnut and *til* are the other important cash crops of *kharif* season. The cultivation of cotton increases from east to west due to the comparative aridity of the western portion of the upper Gangetic plains.

Jute cultivation found encouragement after the partition of the country and although its cultivation was not known before, it is extensively grown in the *tarai* belt in low lying areas near river beds where water is in plenty.

(ii) Among the *rabi* crops, wheat is the most important crop, which is grown in 37.9% of *rabi* area. Cultivation of wheat increases from eastern to western U.P. Western districts of Meerut and Rohilkhand Divisions and northern districts of Faizabad and Lucknow Divisions constitute the most important wheat growing tract. Gram and barley come next in importance with an area of 25.0% and 17.4% respectively, of the total *rabi* cropped area. Bundelkhand is most important gram producing area of the State. Barley which is next in importance to gram, has its largest concentration in the eastern districts.

Rapeseed, mustard, linseed, tobacco and potato are the other important crops of *rabi* season.

(iii) *Zaid* crops : Rice and tobacco are the important *zaid* crops of the State.

Crop rotations :—The crop rotations followed locally by the cultivators in the different soil-climatic regions of the State, already described above, are given below :—

1. Hilly Region :	Years
(1) Maize-Wheat	(1 year)
(2) Rice-Peas- <i>Mandua</i> -Wheat	(2 years)
(3) Fallow-Wheat	(1 year)
(4) Rice-Wheat	(1 year)
(5) Maize-Potato	(1 year)
6. <i>Mandua</i> or Soyabeen—wheat	(1 year)
2. Tarai Region :	
(1) Fallow- <i>Lahi</i> -Sugarcane	(2 years)
(2) Cowpea-Wheat	(1 year)
(3) Paddy-Peas-Green manure-Wheat	(2 years)
(4) Green manure- <i>Lahi</i> -Sugarcane	(2 years)
3. Western Region :	
(1) Paddy- <i>Berseem</i> or Peas	(1 year)
(2) Maize- <i>Berseem</i> -Sugarcane	(2 years)
(3) Maize-Peas-Sugarcane	(2 years)
(4) Maize-Wheat	(1 year)
(5) Fallow-Wheat alone or mixed with Gram	(1 year)
(6) Maize- <i>Methi</i> -Sugarcane	(2 years)
(7) Maize-Potato-Sugarcane	(2 years)

- (8) Green manure-Wheat-Sugarcane-*Ratoon* (3 years)
 (9) Green manure-Wheat-Cotton-Sugarcane (3 years)

4. Mid-Western Region :

- (1) *Jowar*, *Bajra* or *Arhar*-Fallow-Wheat (2 years)
 (2) Paddy-Gram or Peas (1 year)
 (3) Maize-Wheat (1 year)
 (4) Maize-Sugarcane-*Ratoon* (3 years)
 (5) Groundnut-Sugarcane (2 years)
 (6) *Chari*-Gram (1 year)
 (7) Paddy-Peas-Fallow-Wheat (2 years)
 (8) Groundnut-Sugarcane-Fallow-Wheat (3 years)

5. South-Western Region :

- (1) *Bajra* alone or mixed with *Arhar*-Fallow-Wheat (2 years)
 (2) *Jowar* alone or mixed with *Arhar*-Fallow-Wheat (2 years)
 (3) Cotton-Peas-Fallow-Wheat (2 years)
 (4) Paddy-Peas-Sugarcane (2 years)
 (5) Maize-Potato-Sugarcane (2 years)
 (6) Fallow-Wheat (1 year)
 (7) Green manure-Mustard-Sugarcane-*Ratoon* (3 years)

6. Central Region :

- (1) *Jowar* mixed with *Arhar*-Fallow-Wheat (2 years)
 (2) Maize-Potato-Tobacco (1 year)
 (3) Paddy-Peas-Sugarcane (2 years)
 (4) Groundnut-Sugarcane-Fallow-Wheat (3 years)
 (5) Cotton-Barley (1 year)
 (6) *Jowar* or *Bajra* alone or mixed with *Arhar*-Fallow-Wheat (2 years)
 (7) Paddy-Gram (1 year)

7. Mid-Eastern Region :

- (1) Maize-Sugarcane-Fallow-Wheat (3 years)
 (2) Paddy-Peas or Gram (1 year)
 (3) Paddy-Fallow (1 year)
 (4) Sugarcane-*Ratoon*-Maize (3 years)
 (5) Paddy-Gram-Fallow-Sugarcane (3 years)
 (6) *Sanai* seed-Barley (1 year)
 (7) *Sanai* (fibre)-Wheat (1 year)

8. North-Eastern Region :

- (1) Paddy-Fallow or *Chatrimatri* (1 year)
 (2) Paddy-Peas or Gram (1 year)
 (3) Sugarcane-*Ratoon*-Fallow-Wheat (3 years)
 (4) Sugarcane-Maize-Peas (2 years)
 (5) Paddy-Wheat (1 year)
 (6) Fallow-Wheat (1 year)
 (7) Paddy-Barley (1 year)

9. Eastern Region :

- (1) Paddy-Peas (1 year)
 (2) Paddy-Fallow (1 year)
 (3) Maize-Peas (1 year)
 (4) *Arhar*+*Bajra*-Fallow-Sugarcane (3 years)
 (5) *Jowar*+*Arhar*-Fallow-Barley (2 years)
 (6) Sugarcane-Fallow-Wheat-Paddy (3 years)

10. Bundelkhand Region :

(1) <i>Jowar</i> -Gram-Fallow-Wheat	(2 years)
(2) <i>Jowar</i> and <i>Arhar</i> -Fallow-Wheat	(2 years)
(3) Early Paddy-Wheat	(1 year)
(4) Fallow-Wheat and Gram mixed	(1 year)
(5) <i>Jowar</i> or <i>Bajra</i> -Fallow-Fallow-Linseed	(2 years)
(6) <i>Jowar</i> with <i>Til</i> -Fallow-Wheat	(2 years)
(7) <i>Til</i> -Fallow-Fallow-Wheat	(2 years)

11. Vindhyan Region :

(1) Early Paddy-Gram or Peas	(1 year)
(2) Paddy-Khesari	(1 year)
(3) Paddy-Fallow	(1 year)
(4) <i>Jowar</i> and <i>Bajra</i> -Fallow-Fallow-Wheat or Barley	(2 years)
(5) Maize-Linseed	(1 year)
(6) <i>Sawan</i> or <i>Kodon</i> -Barley	(1 year)
(7) Fallow-Wheat or Barley mixed with Gram	(1 year)

6. Experimentation and Agricultural Research Stations :

There are 1960 experiments conducted at different Agricultural Research Stations of U.P. State, reported for the period 1954-1959.

TABLE 4
Crop-wise and type-wise distribution of experiments
(1954-59)

Crop	M	MV	C	CV	CM	CMV	(I+IV+IM)	(D+DV+DC+DI)	Total
Paddy	139	—	45	—	29	1	—	10	224
Wheat	297	13	68	4	29	5	8	38	462
Barley	19	6	22	4	—	—	3	14	68
Oats	4	—	—	—	1	—	—	—	5
<i>Jowar</i>	6	1	—	—	1	—	—	6	14
<i>Bajra</i>	4	1	3	—	9	—	—	3	20
Maize'	12	—	9	—	5	1	—	4	31
<i>Mandua</i>	1	—	4	—	—	—	—	—	5
Potato	59	3	83	17	7	1	3	26	199
Other vegetables	15	1	11	—	8	1	5	51	92
Pulses	22	—	4	—	—	1	—	3	30
Sugarcane	112	—	66	32	14	—	39	77	340
Cotton	27	—	7	5	5	1	—	16	61
Jute	3	4	3	3	—	—	—	1	14
Tobacco	11	—	12	—	—	—	—	—	23
Oilseeds'	19	1	3	9	8	1	7	5	53
Fodder crops	50	1	6	2	4	—	—	2	65
Garlic	1	—	—	—	2	—	—	—	3
Mixed crops	—	—	—	—	—	—	—	—	108
Fruits	12	15	22	22	5	—	—	67	143
Total	813	46	368	98	127	12	65	323	1960

Crop-wise and type-wise distribution of the experiments is given in the table 4. Besides these about 880 experiments belonging to co-ordinated Model Agronomic Project of the Indian Council of Agricultural Research and the experiments conducted at cultivator's fields by the State which are also included in this compendium. The experiments are conducted on as many as 65 crops of which wheat, sugarcane, paddy and potato are the principal crops accounting for 62.5% of the State experiments. Agricultural Research Stations at Kanpur, Meerut, Nawabganj, Varanasi, Pura and Hardoi are some of the important ones where a good number of experiments are carried out on wheat crop. Experiments on paddy are reported mostly from Nawabganj and Varanasi farms. Research on Sugarcane is mainly carried out at Shahjahanpur and Muzaffarnagar farms and to some extent at Kunraghat farm also. Kanpur, Farrukhabad and Kausani are the main Research Centres for research on potato. A good number of experiments are carried out on cotton at the Raya farm.

Out of 1960 experiments reported from different Agricultural Research Stations, about 73% are laid out in Randomised Block Design. Split-plot design had been adopted in the case of 20% of the experiments. Maximum number of plots taken in a block in a R.B.D. is as high as 36. The net plot size varied from 15 square feet to 2420 sq. yards. Maximum number of replications taken in any design is 16.

The following is the list of Research Officers who conducted the experiments in Uttar Pradesh during 1954-59 :

<i>Sl. No.</i>	<i>Name and address of the Research Officer.</i>
1.	The Agricultural Chemist to Govt. Uttar Pradesh, Kanpur-2.
2.	The Principal, Allahabad Agricultural Institute, P.O. Agricultural Institute, Allahabad.
3.	The Director, Vivekananda Laboratory, Almora.
4.	The Officer-in-Charge, Allahabad and Jhansi, Division, 97/3, Civil Lines, Jhansi.
5.	The Research Officer, Jute Research Station, Bahraich.
6.	The Chief Horticulturist, Govt. Fruit Research Station, Basti.
7.	The Principal, Balwant Rajput College, Agra.
8.	The Economic Botanist (Cotton and Tobacco) to Govt. U.P., Bulandshahr.
9.	The Officer-in-Charge, Govt. Hill Fruit Research, Station, Chaubattia, District Almora.
10.	The Assistant Soil Conservation Officer, Soil Conservation Centre Govt. of India, Ministry of Food and Agriculture, (Department of Agriculture), 37, Vijaynagar Colony, Agra.
11.	The Cattle Utilization Officer, Dehra Dun.
12.	The Officer-in-Charge, Minor Forest Products Branch, Forest Research Institute, Dehra Dun.
13.	The Senior Soil Conservation Officer, Soil Conservation Research, Demonstration and Training Centre, Dehra Dun.
14.	The Jt. Director of Agriculture (Soil Conservation), Uttar Pradesh, Lucknow.
15.	The Jute Development Officer, U. P., Lucknow.
16.	The Officer-in-Charge, Regional Research Station, Hardoi.
17.	The Economic Botanist (Vegetable) to Govt. Uttar Pradesh, Govt. Vegetable Research Station, Kalianpur, Kanpur.
18.	The Head of the Centre, Regional Research Centre (Oilseeds and Millets), Pircom, I.C.A.R., G.T. Road, Kalianpur, Kanpur.
19.	The Crop Physiologist to Govt. Uttar Pradesh, Kanpur-2.
20.	The Economic Botanist (Oilseeds) to Govt. U. P., Kanpur-2.
21.	The Economic Botanist (<i>Rabi</i> Cereals) to Govt. Uttar Pradesh, Kanpur-2.
22.	The Entomologist to Govt. U. P., Kanpur-2.
23.	The Plant Pathologist to Govt. U. P., Kanpur-2.
24.	The Principal, Govt. Agricultural College, Kanpur-2.
25.	The Assistant Economic Botanist (Paddy) to Govt. U. P., Nagina, Distt. Bijnor.
26.	The Director, Indian Institute of Sugarcane Research, Govt. of India, Ministry of Food and Agriculture (Department of Food), Rae Bareli Road, Lucknow-2.

27. The Officer-in-Charge, Regional Research Station, Nawabganj, District Bareilly;
28. The Officer-in-Charge, Regional Research Station, Delhi Road, Meerut.
29. The Director, Irrigation Research Institute, Roorkee.
30. The Director, Horticultural Research Institute, Saharanpur.
31. The Manager, Sahu Chemicals and Fertilizers, P. O. Sahupuri, Varanasi.
32. The Principal, College of Agriculture, Banaras Hindu University, Varanasi-5.
33. The Officer-in-Charge Regional Research Station, Varanasi-4.
34. The Director, Sugarcane Research, Shahjahanpur.

PARTICULARS OF RESEARCH STATIONS AND SOIL ANALYSIS

1. Allahabad Agricultural Institute, Allahabad.

A. General information :

(i) In Karchhana *tehsil* of Allahabad district. 2 miles from Naini Railway Station. Not undulating land. (ii) Indo-Gangetic alluvium. (iii) It was established in 1912. (iv) Fodder Maize—Wheat—Cowpea ; Cowpea—Wheat—Fodder Maize ; *Jowar* fodder—Barley—Maize ; *Jowar* fodder—Barley+Gram—Maize are the normal rotations. (v) To conduct experiments on different aspects of crops.

B. Normal rainfall in cm. :

June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	March	April	May	Total
3	37	37	30	1	—	1	2	—	—	—	4	115

(The above is the average rainfall for the period 1960—1964).

C. Irrigation and drainage facilities :

(i) (a) Irrigation facilities exist since 1940 for 125 acres. (b) Source of irrigation—N.A. (ii) Most of the soils are well-drained.

D. Soil type and soil analysis :

(i) Sandy loam to loam, deep loam soil grey in colour with fairly loose cultivated structure. (ii) Chemical analysis : Base ex. capacity—6.0 to 29.3, available P_2O_5 32 to 656 lb./ac., absorbed P_2O_5 0 to 115 lb./ac., available K_2O 120 to 632 lb./ac., pH 7.0 to 9.25, organic carbon 0.30 to 99%, sticky point piper 14.6 to 28.35% and ratio of *kankar* 5 to 20 : 236. (iii) Mechanical analysis—N.A.

E. No. of experiments :

Wheat—13, Barley—1, Oats—2, *Jowar*—1, Maize—5, Potato—6, Onion—2, *Jowar* fodder—2, Lucerne—1, Cowpea—1, Papaya—1, Total=35.

2. Vivekananda Laboratory, Almora.

A. General information :

(i) In Almora *tehsil* of Almora district. About 65 miles from Kathgodam Railway Station. Terraced fields. (ii) Hilly tract. (iii) Established in 1924. (iv) *Kharif* : Maize—Sweet Potato—milo and G.M. ; *Rabi* : Wheat—Barley and Oats. (v) Combined scheme of plant physiology and cytology and plant introduction. Development of food and fodder crops, maize breeding, co-ordinated scheme of pre-soaking seeds in nutrient salts.

B. Normal rainfall in cm. :

June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	March	April	May	Total
15	30	27	12	16	20	2	7	5	5	4	6	149

(The average rainfall data is for the year 1957—1958).

C. Irrigation and drainage facilities :

(i) (a) and (b) Irrigated from rain storage tank since 1943. (ii) No drainage system exists.

D. Soil type and soil analysis :

(i) Sandy loam to clayey loam, medium deep soil, brownish in colour. (ii) Chemical analysis : pH 6.5 to 7, nitrate—low, ammonia—very low ; P_2O_5 (available) 0.01 to 0.02%, K_2O —traces, calcium 0.07 to 0.14%. (iii) Mechanical analysis—N.A.

E. *No. of experiments :*

Barley—1, *Jowar* fodder—1, Total=2.

3. **Regional Research Station, Amrukh.**A. *General information :*

(i) In Moth *tehsil* of Jhansi district. 6 miles from Moth Railway Station. Slope from west to east. Hill rock situated about 2 furlongs west of research station. (ii) Bundelkhand tract representing *kabar* and *parwa* soils. (iii) Established in 1956. (iv) G.M. (fallow)—Wheat ; Paddy—Gram ; Paddy—Pea and Maize—Wheat. (v) To conduct experiments on cultural, varietal, manurial and insecticidal aspects.

B. *Normal rainfall in cm. :*

June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	March	April	May	Total
16	14	29	29	—	—	1	—	—	—	—	2	91

(The rainfall data is for the year 1963—64).

C. *Irrigation and drainage facilities :*

(i) (a) and (b) Irrigation by Bhujonal canal minor from the year of establishment of farm. (ii) Drainage system is not perfect, specially during rainy season.

D. *Soil type and soil analysis :*

(i) *Kabar* and *parwa* 6" to 9" deep, brown to dark brown in colour, granular, circular and hexagonal in structure. (ii) Chemical analysis : pH 6.6 to 8.3, total soluble salt 0.022 to 0.066%, water holding capacity 40.22 to 58.73%, organic carbon .588 to 1.37, total nitrogen 980 to 1840 lb./ac., available P₂O₅ 12.0 to 110 lb./ac. and water soluble K₂O : 22 to 178 lb./ac. (iii) Mechanical analysis—N.A.

E. *No. of experiments :*

Wheat—24, Barley—2, *Jowar*—2, Maize—2, Pea—1, Gram—2, *Urd*—1, *Moong*—1 and Linseed—2, Mixed cropping—10, Total=47.

4. **Government Agricultural Farm, Atarra.**A. *General information :*

(i) In Naraini *tehsil* of Banda district. $\frac{1}{2}$ mile from Atarra Railway Station. (ii) *Parwa* tract. (iii) Established in 1912. (iv) Paddy—Sugarcane—Barley—Gram—Pea—Wheat and Potato. (v) N.A.

B. *Normal rainfall in cm. :*

June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	March	April	May	Total
1	46	39	22	10	—	—	10	1	0	0	3	132

(Period on which the figures are based is N.A.).

C. *Irrigation and drainage facilities :*

(i) (a) and (b) Irrigation by canal which depends upon rain. (ii) As the station is on low land area, there is no proper drainage.

D. *Soil type and soil analysis :*

(i) *Parwa*, light *kabar*, yellow and black. (ii) Chemical analysis and (iii) Mechanical analysis—N.A.

E. *No. of experiments :*

Paddy—9, Wheat—13, *Jowar* fodder—1, Mixed cropping—4, Total=27.

5. State Livestock-cum-Agricultural Farm, Babugarh.

A. General information :

(i) In Hapur *tehsil* of Meerut district. One mile from Babugarh Railway Station. Generally experiments are conducted in even land. The slope of the farm land is from west to east and it is about 10' in 1500 yds. from one corner to the other. (ii) N.A. (iii) Established in 1946. (iv) Paddy—*Berseem*, G.M.—Wheat—*Kharif* fodder—*Berseem*, G.M.—Sugarcane—Ratoon—*Kharif* fodder—G.M.—Wheat, *Kharif* fodder—Fallow (for unirrigated area) and Maize—Lucerne or *Berseem*—*Kharif* fodder—Barley are the different rotations in practice. (v) N.A.

B. Normal rainfall in cm. :

June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	March	April	May	Total
2	24	33	17	6	—	1	2	1	2	1	1	90

(Average is based on the period from June, 1958 to May, 1965).

C. Irrigation and drainage facilities :

(i) (a) and (b) Irrigated from tube well since 1946-1947. (ii) Natural drainage exists.

D. Soil type and soil analysis :

(i) Sandy loam and loam, 9" deep, grey in colour. (ii) Chemical analysis : pH 7 to 7.5, organic carbon 0.105 to 0.345%, available P_2O_5 9 to 18 lb./ac. and total soluble salt—normal. (iii) Mechanical analysis—N.A.

E. No. of experiments :

Sugarcane—2, Total=2.

6. Government Nursery, Bageshwar.

A. General information :

(i) In Almora *tehsil* of Almora district. 115 miles from Kathgodam Railway Station. 885 metres above mean sea level. The plots are laid on terracing pattern. (ii) It represents a valley area. (iii) Established in 1946. (iv) Production of sub-tropical and temperate fruit plants like citrus variety, peach, plum, apricot, walnut and mango. (v) Only production programme has been undertaken.

B. Normal rainfall in cm. :

June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	March	April	May	Total
5	12	56	12	—	—	2	1	4	2	2	2	98

(Average rainfall data is based on the period August, 1964 to July, 1965).

C. Irrigation and drainage facilities :

(i) (a) and (b) A canal has been constructed but it is not dependable. Besides this there is a diesel pump. (ii) No proper drainage system exists. Water logging is a problem.

D. Soil type and soil analysis :

(i) Top soil shallow with reddish brown and brownish yellow colour. Two types of soil structure are found *viz.* ferruginous sand stone having reddish brown to yellow brown lateritic types of soil of a light texture and chloritic phyllite from chloritic rock but still loam having a brownish yellow colour. (ii) Chemical analysis and (iii) Mechanical analysis—N.A.

E. No. of experiments :

Citrus=2, Total=2.

7. Government Agricultural Farm, Bahraich.

A. General information :

- (i) In Bahraich *tehsil* of Bahraich district. $2\frac{1}{2}$ miles from Bahraich Railway Station. (ii) It represents Saryu river tract. (iii) Established in 1926. (iv) Paddy, maize, wheat, pea and gram are the normal crops of the tract. (v) N.A.

B. Normal rainfall in cm. :

June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	March	April	May	Total
5	30	15	10	10	—	—	—	—	6	1	—	77

(Period on which the figures are based is N.A.)

C. Irrigation and drainage facilities :

- (i) (a) and (b) Irrigated from tube well since 1926. (ii) No proper drainage system exists.

D. Soil type and soil analysis :

- (i) Sandy loam, 3' deep, white in colour and poor structure. (ii) Chemical analysis and (iii) Mechanical analysis :

	Field No. 7	Field No. 1B	Field No. 19A	Field No. 10
Water holding capacity	33.18 to 41.12%	34.96 to 36.25	42.96 to 48.98%	47.13 to 55.03%
pH	7.0 to 7.4 %	7.3 to 7.7	7.3 to 7.6	7.5 to 7.7
P ₂ O ₅	0.09 to 0.12%	0.086 to 0.10%	0.11 to 0.16%	0.11 to 0.15%
CaO	2.76 to 3.95%	2.82 to 3.40%	4.27 to 7.22%	4.62 to 6.98%
K ₂ O	0.43 to 0.73%	0.35 to 1.45%	0.46 to 1.70%	0.71 to 1.08%
Total nitrogen	0.01 to 0.03%	0.01 to 0.02%	0.04 to 0.06%	0.04 to 0.06%
Total organic carbon	0.06 to 0.44%	0.04 to 0.17%	0.05 to 0.45%	0.10 to 0.36%
Total water soluble solids	0.06 to 0.07%	0.06 to 0.10%	0.05 to 0.09%	0.07 to 0.13%
Coarse sand	11.18 to 75.06%	46.78 to 66.51%	1.30 to 47.17%	0.88 to 7.53%
Fine sand	18.36 to 44.65%	26.46 to 42.82%	42.85 to 72.31%	42.95 to 76.45%
Silt	2.40 to 30.35%	0.65 to 2.70%	1.73 to 21.05%	4.20 to 39.10%
Clay	0.50 to 8.65%	0.80 to 2.6 %	0.9 to 0.30%	2.60 to 9.00%

E. No. of experiments :

Paddy—5, Wheat—7, Moong—1, Sugarcane—3, Mixed cropping—4, Total=20.

8. Government Agricultural Farm, Barabanki.

A. General information :

- (i) In Barabanki *tehsil* of Barabanki district. Barabanki Railway Station. (ii) It represents central range. (iii) Established in 1933. (iv) Paddy—Pea—Gram, Paddy—Pea, Sugarcane—Moong—G.M.—Wheat. (v) N.A.

B. Normal rainfall in cm. :

June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	March	April	May	Total
9	10	38	14	25	—	—	—	—	—	—	6	102

(The average rainfall data is for the year 1958—1959).

C. Irrigation and drainage facilities :

(i) (a) and (b) Irrigated from canal since beginning and tube well since 1957. (ii) No proper drainage system exists.

D. Soil type and soil analysis :

(i) Loam, 2' deep, light blackish in colour and compact in structure. (ii) Chemical analysis and (iii) Mechanical analysis—N.A.

E. No. of experiments :

Paddy—1, Total=1.

9. Baradari Farm, Baradari**A. General information :**

(i) In Bilaspur *tehsil* of Rampur district. 10 miles from Kiccha Railway Station. Newly cleared level land. This is a private farm belonging to Colonel Lal Singh and is situated at a distance of 2 miles from Rudrapur. This is one of the progressive farms of the area. Experiments at this farm were conducted by the Reg. Soil Lab. Rudrapur which has no farm of its own. (ii) *Tarai* soil of U.P. (iii) N.A. (iv) Paddy—wheat. (v) N.A.

B. Normal rainfall in cm. :

June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	March	April	May	Total
7	33	38	22	3	—	—	3	2	1	—	1	112

(The above is the average rainfall data for the period 1961 to 1964).

C. Irrigation and drainage facilities :

(i) (a) and (b) Irrigated from tubewell. (ii) No drainage facilities exist.

D. Soil type and soil analysis :

(i) Sandy loam to loam, 0" to 6" deep grey in colour and granular in structure. (ii) Chemical analysis : pH value 6.0 to 7.0, organic carbon 1.4% to 0.08%, total nitrogen—0.06% to 0.09%, available phosphate 18 lb./ac. and available potash below 100 lb./ac. (iii) Mechanical analysis—N.A.

E. No. of experiments :

Wheat—1, Total=1.

10. Government Agricultural Research Farm, Belatal.**A. General information :**

(i) In Mahoba *tehsil* of Hamirpur district. One mile from Belatal Railway Station. Uneven land. (ii) Bundelkhand tract. (iii) Established in 1922. (iv) G.M.—Linseed—G.M.—Wheat ; G.M.—Paddy—Pea/Gram ; *Jowar*—Gram/Barley/Pea—G.M.—Wheat—*Jowar* for fodder or *Til*—Gram. (v) Experiments are conducted on oil seeds, wheat, barley, gram and *jowar*.

B. Normal rainfall in cm. :

June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	March	April	May	Total
3	26	41	15	7	1	—	3	1	—	—	—	97

(The average rainfall data is for the period 1959—1965.)

C. Irrigation and drainage facilities :

(i) (a) and (b) Irrigated from tank since the year of establishment. (ii) No proper drainage system exists.

D. Soil type and soil analysis :

(1) Hard *kabar*, 3' deep, black in colour, black cotton soil. (ii) Chemical analysis and (iii) Mechanical analysis :—

	0 to 1'5"	1'—5" to 2'—10"
Moisture (natural)	7.94%	12.35%
Moisture (airdry)	2.010%	1.906%
Moisture equivalent	37.806%	38.615%
Water holding capacity	48.821%	52.033%
Loss on ignition	5.254%	5.478%
pH	6.8	6.8
Total HCl insolubles	78.901%	77.985%
Sesqui oxide	11.464%	12.334%
Fe ₂ O ₃	5.520%	6.440%
Total P ₂ O ₅	0.080%	0.074%
Available P ₂ O ₅	0.005%	0.004%
Al ₂ O ₃	5.864%	5.820%
CaO	0.980%	0.980%
MgO	1.149%	1.068%
Total K ₂ O	0.367%	0.645%
Available K ₂ O	0.008%	0.103%
Total nitrogen	0.056%	0.043%
Total organic carbon	0.370%	0.269%
Total water soluble solids	0.080%	0.110%
NaHCO ₃	0.044%	0.065%
Chlorides	0.008%	0.011%
Exchangeable calcium ME%	24.56%	23.68%
Coarse sand	1.692%	0.908%
Fine sand	39.536%	37.478%
Silt	20.500%	21.200%
Clay	34.050%	36.000%
Loss by solution	1.271%	1.767%

E. No of experiments :

Cotton—3, Linseed—1, Total=4.

11. State Livestock-cum-Agricultural Mechanised Farm, Bharari.

A. General information :

(i) In Jhansi *tehsil* of Jhansi district. 8 miles from Jhansi Railway Station. Uneven land. (ii) Typical Bundelkhand tract of *rakar*, *kabar* and *parwa* soils. (iii) Established in 1927. (iv) M.P. *Jowar* fodder—*Berseem*/Gram ; G.M.—Wheat—Barley. (v) Multiplication of seeds of fodder and cereals.

B. Normal rainfall in cm. :

June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	March	April	May	Total
4	22	30	15	6	1	—	3	—	—	—	—	81

(The average rainfall data is for the period 1960 to 1965.)

C. Irrigation and drainage facilities :

(i) (a) and (b) Irrigated from canal since 1948. (b) No proper drainage system exists.

D. Soil type and soil analysis :

(i) *Rakar*, *kabar* and *parwa*, 0 to 9" and 9" to 18" deep, brownish, greyish black, reddish and grey in colour ; crumbly, cloddy, single grained granular in structure. (ii) Chemical analysis—N.A. (iii) Mechanical analysis :

<i>Sample A.</i>	0-9"	9" to 13"
Conductivity in mhos.	0.214	0.233
Coarse sand%	5.03	2.78
Fine sand%	42.07	35.73
Clay%	29.92	37.03
Silt %	20.27	70.78
<i>Sample B.</i>		
Conductivity in mhos.	0.219	0.110
Coarse sand%	43.83	37.80
Fine sand %	24.82	17.87
Clay%	18.85	31.18
Silt %	11.06	10.71

Sample A consists of plot numbers 327/3, 272, 54, 285, 327/2, 123 to 130, 106 to 109, and sample B of 136 to 139, 253 to 258. 25 to 29, 32, 34, 37, to 39, 141 to 145, 246, 247 and 250.

E. No. of experiments :

Paddy—7, Wheat—7, *Jowar* fodder—1, *Berseem*—6, Mixed cropping—3, Total=24.

12. State Orchard, Bharsar.

A. General information :

(i) In Pauri *tehsil* of Pauri Garhwal district. 88 miles from Kotdwara Railway Station. Slopy land, sloping towards north and east with brownish clayey soil with humus in general. (ii) Hilly terraces. (iii) Established in 1951. (iv) Temperate fruit plants, vegetable seeds and fruit production. (v) The station is a garden for temperate fruit production with a nursery for supplying of the grafted plants.

B. Normal rainfall in cm. :

June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	March	April	May	Total
101	329	316	198	33	8	15	32	35	37	23	38	1165

(The average rainfall data is for the period 1958 to 1964.)

C. Irrigation and drainage facilities :

(i) (a) and (b) Irrigation facilities were made available from Aobour since 1955-56. (ii) No proper drainage system exists.

D. Soil type and soil analysis :

(i) Brownish and black at some places, 5' to 6' deep. Soft in general with brownish clay. (ii) Chemical analysis and (iii) Mechanical analysis :

	Sample No. I (2408)	Sample No. II (2409)	Sample No. III (2410)
Water holding capacity %	44.03	54.7	51.6
pH	5.9	5.5	5.7
Moisture %	4.13	3.69	4.75
Loss on ignition %	3.46	5.76	5.43
HCl insolubles %	74.44	74.22	75.74
Sesqui oxide (R_2O_3) %	15.30	13.66	12.12
Calcium oxide (CaO) %	0.14	0.15	0.13
Magnesium oxide (MgO) %	0.58	0.30	0.42
Potassium oxide (K_2O) %	0.89	0.94	0.32
Iron oxide Fe_2O_3 %	6.24	5.36	4.72
Aluminium oxide (Al_2O_3) %	8.67	7.96	7.07
Phosphorus pentoxide (P_2O_5) %	0.39	0.34	0.33
Organic carbon %	0.58	1.88	1.56

Coarse sand %	2.40	8.33	4.78
Fine sand %	33.34	35.39	39.22
Silt %	60.60	49.50	50.25
Clay %	2.15	4.30	4.90
Colour	Dark brown	Dark brown	Dark brown

E. No. of experiments :

Cabbage—1, Walnut—1, Total=2.

13. B.R. College Horticultural Gardens, Bichpuri.

A. General information :

(i) In Agra *tehsil* of Agra district. One mile from Bichpuri Railway Station. Well levelled fields. (ii) Semi-arid (Indo-Gangetic) tract. (iii) Established in 1950. (iv) Orchard of mango, guava and citrus trees along with small area under other fruit trees. Cole crops, tomato, onion, *bhindi* and cucurbits along with small area under other vegetables and ornamental gardens. (v) Research work is done in horticulture by M.Sc. (Ag.) and Ph. D. students.

B. Normal rainfall in cm. :

June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	March	April	May	Total
2	18	26	11	4	—	—	2	—	1	—	—	64

(The average rainfall data is for the period 1953 to 1963.)

C. Irrigation and drainage facilities :

(i) (a) and (b) Irrigated from canal and surface well from the very beginning, Tube well since 1954 and sewage since 1957. (ii) No proper drainage system exists.

D. Soil type and soil analysis :

(i) Sandy loam, 3' to 5' deep, brownish in colour and structureless. (ii) Chemical analysis : Nitrogen 0.045%, phosphorus 0.084% potash 1.213% and pH 7.2. (iii) Mechanical analysis : Coarse sand 0.445%, pure sand 58.925%, silt 22.821% and clay 16.66%.

E. No. of experiments :

Potato—4, Cauliflower—4, Onion—1, Total=9.

14. B.R. College Institutional Research Farm, Bichpuri.

A. General information :

(i) In Agra *tehsil* of Agra district. One mile from Bichpuri Railway Station. Well levelled land. (ii) Semi-arid (Indo-Gangetic). (iii) Established in 1943. (iv) *Kharif* : Jowar—Bajra—Sanai for G.M. and *Rabi* : Wheat—Gram—Peas—Potato—*Berseem* and Sugar-cane. (v) Research work is done in agriculture by M.Sc. and Ph.D. students and on research schemes of I.C.A.R., New Delhi.

B. Normal rainfall to D. Soil type and soil analysis :

Same as in B.R. College Hort. Gardens, Bichpuri.

E. No. of experiments :

Wheat—7, Jowar—1, Bajra—12, Maize—3, Potato—1, Cabbage—2, Tinda—2, Tomato—1, Water melon—1, Pea—3, Gram—1, Cotton—2, Sesamum—1, *Berseem*—1, Mixed cropping—4, Total=50.

15. Government Cotton Research Station, Bulandshahr.

A. General information :

(i) In Bulandshahr *tehsil* of Bulandshahr district. 3 miles from Bulandshahr Railway Station. The farm is well levelled and well laid. (ii) It represents the alluvial tract of

western U.P. (iii) Established in 1944. (iv) G.M.—Wheat—Cotton—Pea. (v) Evolution of long shaped strain of *desi* cotton through acclimatisation, selection and hybridisation which is suitable to mill industry. Improving quality of local survey selections by crossing them with quality cotton of other states. Research work is also done in tobacco and other fibre crop.

B. Normal rainfall in cm. :

June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	March	April	May	Total
2	17	29	17	11	—	—	2	1	1	0	1	81

(The average rainfall data is based on the period 1954 to 1963.)

C. Irrigation and drainage facilities :

(i) (a) and (b) Irrigated from tube well and Ganga canal. (ii) Fields are well drained.

D. Soil type and soil analysis :

(i) Loam, 6" deep, whitish in colour and granular and crumb in structure. (ii) Chemical analysis : pH 7.8, total soluble salt 0.03%, organic carbon 0.34% and average P_2O_5 9.2 lb./ac. (iii) Mechanical analysis : Coarse sand 4.50%, fine sand 61.20%, clay 14.50% and silt 16.5%.

E. No. of experiments :

Cotton—5, Tobacco—3, Total=8.

16. Usar Reclamation Farm, Chakeri.

A. General information :

(i) In Kanpur *tehsil* of Kanpur district. 2 miles from Chakeri Railway Station. Even land. (ii) Alluvial with halomorphic phase. (iii) Established in 1954. (iv) Paddy—Wheat. (v) Research is done in method of reclamation of saline alkali soils including manurial and cultural methods.

B. Normal rainfall in cm. :

N.A.

C. Irrigation and drainage facilities :

(i) (a) and (b) Sewage irrigation. (ii) Proper drainage system exists.

D. Soil type and soil analysis :

(i) Saline alkali soil, very deep, greyish brown to ash grey in colour, sub-angular blocky to cloddy in structure. (ii) Chemical analysis : pH 8.4, E. conductivity 0.5 m. mhos./cm., organic carbon 0.5%, available P_2O_5 36 lb./ac. (iii) Mechanical analysis : Sand 56.8%, silt 22.72% and clay 20.48%.

E. No. of experiments :

Paddy—3, Wheat—2, Barley—3, Oats—1, Total=9.

17. Government Hill Fruit Research Station, Chaubattia.

A. General information :

(i) In Pali (Ranikhet) *tehsil* of Almora district. 54 miles from Kathgodam Railway Station. Hilly tract with a northern aspect. (ii) Hilly tract. (iii) Established in 1934. (iv) Permanent plantation of temperate fruits with clean cultivation. (v) Research work is done on temperate and sub-tropical fruits.

B. Normal rainfall in cm. :

June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	March	April	May	Total
15	43	31	37	20	1	2	6	3	6	3	6	173

(The average rainfall data is for the period 1955 to 1964.)

C. Irrigation and drainage facilities :

(i) (a) and (b) No irrigation facility is available. Fruit trees raised under rainfed conditions. Pipe line is available only for nurseries and laboratories. (ii) Natural drainage exists.

D. Soil type and soil analysis :

(i) Usually shallow except at places, micaceous grey, brown in forest soils, at places red in laterite soil. Sandy quartzite, sandy micaceous, light loam, heavy loam and hard clay organic. (ii) Chemical analysis : Acidic soils of pH ranging from 4.0 to 6.0. Wide variation in chemical constituents. (iii) Mechanical analysis : Wide variation in soils not only from one acre to another but even in the same terrace.

E. No. of experiments :

Cabbage—7, Apple—50, Citrus—1, Pear—5, Peach—7, Plum—1, Apricot—1, Total = 72.

18. Soil Conservation Research, Demonstration and Training Farm, Chhalesar.**A. General information :**

(i) In Etmadpur *tehsil* of Agra district. Adjacent to Chhalesar Railway Station. Land on the bank of the Jamuna cut up by numerous ravines. (ii) Alluvial tract. (iii) Established in August, 1955. (iv) Bajra, cowpea and jowar in *kharif* followed by bengal gram, mustard, wheat etc. in *rabi*. (v) Reclamation of ravine land for agricultural purposes.

B. Normal rainfall in cm. :

June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	March	April	May	Total
4	24	35	15	3	—	—	2	—	1	—	1	85

(The average rainfall data is for the period 1958 to 1963.)

C. Irrigation and drainage facilities :

(i) (a) and (b) Irrigation facilities exist only for an area of about 2 acres since 1957. The existing well is being used for irrigation. (ii) Adequate surface drainage system exists.

D. Soil type and soil analysis :

(i) Loamy sand to sandy loam, several hundred feet, yellowish in colour and mostly single grain. (ii) Chemical analysis :

Depth	pH	Organic carbon %	Total nitrogen %	C/N ratio	Available P ₂ O ₅ %	Available K ₂ O %
0" to 6"	7.8	0.19	0.026	8.05	0.00056	0.0063
6" to 20"	7.6	0.11	0.020	5.05	0.00960	0.0036

(iii) Mechanical analysis : Depth 0" to 6", clay 13.89%, silt 7.44%, and sand 80.55%.

E. No. of experiments :

Wheat—2, Bajra—2, Mixed cropping—5, Total=9.

19. Government Seed Multiplication Farm, Chharara.**A. General information :**

(i) In Mathura *tehsil* of Mathura district. 6 miles from Mathura Railway Station. About 50% of the area is almost unlevelled and having high ups and downs. (ii) Alluvial.

(iii) Established in 1956. (iv) Fallow or G.M.—Wheat/Barley, Green fodder—Barley, Fallow—Guar+Bajra (non irrigated area), Fallow—Oilseed (irrigated area) are the crop rotations normally followed. (v) Breeder seeds are multiplied in an area of about 34 acres and varietal trials etc. are also conducted as per direction of the Regional Research Officer. Generally this is a seed multiplication farm.

B. Normal rainfall in cm. :

June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	March	April	May	Total
2	18	20	17	3	—	—	2	—	1	—	1	64

(The average rainfall data is for the period 1955 to 1964).

C. Irrigation and drainage facilities :

(i) (a) and (b) Irrigated from Mesoury well (fitted with Persian wheel) since 1956. Two tube wells one since 1957 and the other since 1960 and canal since beginning. (ii) No proper drainage system exists.

D. Soil type and soil analysis :

(i) Sandy and sandy loam, 8" to 10" deep, light brown in colour and very loose in structure. (ii) Chemical analysis : pH—7.52, total soluble salts 0.090%, organic carbon 0.31%, available P_2O_5 8.56 lb./ac. (iii) Mechanical analysis—N.A.

E. No. of experiments :

Sugarcane—1, Total=1.

20. Minor Forest Products Branch, Forest Research Institute, Dehra Dun.

A. General information :

(i) In Dehra Dun *tehsil* of Dehra Dun district. 4 miles from Dehra Dun Railway Station. Almost plain with good drainage. (ii) It represents sub-tropical tract. (iii) Established in 1906. (iv) Minor forest products like Rauwolfia. (v) Research conducted with a view to find out optimum methods of cultivation, exploitation, marketing, grading adulteration etc. of the important minor forest products. Studies on optimum methods of propagation and their effect on production of alkaoidal content of roots of Rauwolfia. Small scale statistically laid out cultural experiments.

B. Normal rainfall in cm. :

June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	March	April	May	Total
12	60	61	35	11	1	3	6	4	3	1	3	200

(The average rainfall is based on the period 1955 to 1964).

C. Irrigation and drainage facilities :

(i) (a) and (b) Canal irrigation facilities available in hot and dry season. (ii) Soil is porous and needs no special drainage system.

D. Soil type and soil analysis :

(i) Sandy loam to sandy clay loam. 10' to 12' deep thereafter murrum. Grey brown in colour and well drained. (ii) Chemical analysis : Layer 0'-9"—nitrogen 0.1029%, organic carbon 1.21%, organic matter 2.0855%, loss on ignition 4.4%, available P_2O_5 0.0083%, available K_2O 0.0043%. (iii) Mechanical analysis : Coarse sand 15.25%, fine sand 33.68%, silt 26.80% and clay 28.93%.

E. No. of experiments :

Rauwolfia serpentina—3, Total=3.

21. State Usar Reclamation Farm, Dhakauni.

A. General information :

(i) In Sandila *tehsil* of Hardoi district. 13 miles from Rahimabad and Sandila Railway Station. The experimental area was slightly slopy but got levelled before conducting the experiments. (ii) Saline-alkali soils. (iii) Established in 1950. (iv) *Kharif*—Paddy and *rabi*—Wheat and barley. (v) Experiments relating to reclamation of saline-alkali land are conducted.

B. Normal rainfall in cm. :

June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	March	April	May	Total
8	33	33	18	12	—	—	4	1	1	—	2	112

(The average rainfall data is for the period 1954—1964.)

C. Irrigation and drainage facilities :

(i) (a) and (b) Tube well in limited area since 1956—57 and canals since start. (ii) No proper drainage system exists.

D. Soil type and soil analysis :

(i) Gangetic alluvial soil, black and brownish in colour and variable type of structure. (ii) Chemical analysis : pH 9 to 10, K in M.E%—0.1 to 0.6, Na in M.E.%—5.5 to 7.7, permeability in inch/hour—0.0015 to 0.025. (iii) Mechanical analysis : Coarse sand 0.521 to 2.169%, fine sand 40.93 to 44.79%, silt 30.00 to 38.75%, clay 15.90 to 23.45% and *kankar* 5.71 to 8.8%.

E. No. of experiments :

Paddy—5, Wheat—7, Total=12.

22. Institute of Crop Physiology, Dilkusha.

A. General information :

(i) In Lucknow *tehsil* of Lucknow district. 5 miles from Charbagh, Lucknow Railway Station. The fields are even and uniform though the experimental area is in different tiers. (ii) Gangetic alluvium. (iii) Established in 1948. (iv) (a) *Kharif* : Paddy or other crops, *Rabi*—Gram or Pea. (b) *Kharif* : G.M. or a legume—Maize—*Jowar* or *Chari*, *Rabi* : Wheat/Barley—Gram or oilseed crops. (v) Mainly agro-physiological in nature. Undertaking of Agronomical and Physiological research on cultivated crops.

B. Normal rainfall in cm. :

June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	March	April	May	Total
8	29	39	20	10	—	—	4	1	1	—	2	114

(The average rainfall data is for the period 1954 — 1963.)

C. Irrigation and drainage facilities :

(i) (a) and (b) *Kachcha* well—since establishment of the farm upto 1960 and later tube well. (ii) No proper drainage system exists.

D. Soil type and soil analysis :

(i) Shallow, light brown and sandy loam to loam. (ii) Chemical analysis : Total N 0.0061%, organic carbon 0.684%, available P_2O_5 0.0065%, available K_2O 0.00025%, pH 7.5. (iii) Mechanical analysis : Clay 14.2%, silt 11.2% and sand 71.4%.

E. No. of experiments :

Paddy—8, Wheat—12, Barley—12, Potato—9, Gram—3, *Lobia*—1 *Moong*—2, *Berseem*—1, Mixed cropping—7, Total=55.

23. Government Agricultural Farm, Dhanauri.**A. General information to D. Soil type and soil analysis**

Details are N.A.

E. No. of experiments :

Wheat—2, Total=2.

24. Government Agricultural Farm, Etawah.**A. General information :**

(i) In Etawah *tehsil* of Etawah district. Nearest Railway Station is Etawah. (ii) N.A. (iii) Established in 1913. (iv) Wheat, barley, pea, gram, *berseem*, potato, paddy, cotton and sugarcane are the normal crops of the tract. (v) Nil.

B. Normal rainfall in cm. :

June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	March	April	May	Total
—	29	31	2	2	7	—	—	—	4	—	—	75

(The average rainfall data is for the year 1959-60.)

C. Irrigation and drainage facilities :

(i) (a) and (b) Irrigated from canal since 1913. (ii) Proper drainage system exists.

D. Soil type and soil analysis :

(i) Loam, light brown in colour. (ii) Chemical analysis and (iii) Mechanical analysis—N.A.

E. No. of experiments :

Wheat—3, Sugarcane—3, Mixed cropping—3, Total=9.

25. Central Rice Research Station, Masodha (Govt. Agri. Farm, Faizabad).**A. General information :**

(i) In Faizabad *tehsil* of Faizabad district. 5½ miles from Faizabad Railway Station. Well drained even land. (ii) Irrigated upland. (iii) Rice Research Station established in 1961 (Farm in 1918). (iv) Paddy—Pea ; Sugarcane—G.M.—Wheat/Barley are the normal rotations of the tract. (v) Research is done on rice breeding.

B. Normal rainfall in cm. :

June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	March	April	May	Total
7	27	26	19	4	—	1	1	1	—	—	—	86

(The average rainfall data is for the period 1961 to 1965.)

C. Irrigation and drainage facilities :

(i) (a) and (b) Irrigated from tube well since 1918. (ii) Proper drainage system exists.

D. Soil type and soil analysis :

(i) Loam to light loam, grey to light brown in colour and light loam in structure. (iii) Chemical analysis : pH 6.5, organic carbon 0.41 to 0.31%, available P_2O_5 9 to 18 lb./ac., K_2O 100 lb./ac. (iii) Mechanical analysis—N.A.

E. No. of experiments :

Paddy—9, Wheat—12, Barley—1, Potato—1, Sugarcane—2, Mixed cropping—3, Total =28.

26. Government Potato Research Station, Farrukhabad.

A. General information :

(i) In Farrukhabad *tehsil* of Farrukhabad district. 2½ miles from Farrukhabad Railway Station. Experimental area is levelled. (ii) Indo-Gangetic alluvium. (iii) Established in 1925. (iv) Wheat—Potato—Maize—*Sana* (G.M.). (v) Research work is done on potato.

B. Normal rainfall in cm. :

N.A.

C. Irrigation and drainage facilities :

(i) (a) and (b) Irrigated from tube well since 1925. (ii) No proper drainage system exists.

D. Soil type and soil analysis :

(i) Loam to sandy loam, pretty deep, light brown in colour and granular in structure. (ii) Chemical analysis : The soils of the farm are generally normal in respect of soluble salts and soil reaction. They are generally low in nitrogen content and are medium to rich in phosphorous content. pH varies from 7.8 to 8.1. Organic carbon—0.23 to 6.5%. (iii) Mechanical analysis—N.A.

E. No. of experiments :

Potato—45, Mixed cropping—1, Total=46.

27. Jute Experimental and Demonstration Farm, Gograhat.

A. General information :

(i) In Kaiserganj *tehsil* of Bahraich district. One furlong from Gograhat Railway Station. Low lying area. (ii) *Tarai* belt. (iii) Established in 1949. (iv) Jute—Barley—Wheat, Jute—Sugarcane are the normal rotations of the tract. (v) Experiments are conducted to study the optimum dose of N, P and K for jute.

B. Normal rainfall in cm. :

June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	March	April	May	Total
11	36	30	16	4	—	1	3	1	2	—	1	104

(Average rainfall data is for the period 1950 to 1964).

C. Irrigation and drainage facilities :

(i) (a) and (b) Irrigated from tube well since 1957. (ii) No drainage system exists.

D. Soil type and soil analysis :

(i) Sandy loam, 6" to 10" deep, light yellow in colour. (ii) Chemical analysis : pH 9.0 to 9.1, organic carbon 0.64 to 0.74%, total nitrogen 0.056 to 0.092%, carbon nitrogen ratio 6.96 to 13.21, total soluble salts 0.122 to 0.266%, available P₂O₅—18.20 to 19.60 lb./ac. (iii) Mechanical analysis—N.A.

E. No. of experiments :

Sugarcane—5, Jute—4 Total=9.

28. Jute Research Station, Gograhat.

A. General information :

(i) In Kaiserganj *tehsil* in Bahraich district. Two furlongs from Gograhat Railway Station. The farm has three types of land viz. high, medium and low. (ii) *Tarai*. (iii) Established in 1957. (iv) *Kharif*—low land : Jute, mid and high lands : Jute—*Sannhemp*—Millet and G.M. crops. *Rabi*—low land : fallow, mid and high land : Pulse, mustard,

wheat, barley etc. (v) Agronomy, Breeding and Genetics, Physiology, Agricultural Chemistry, Mycology and Entomology of jute, mesta and allied fibre.

B. Normal rainfall in cm. :

June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	March	April	May	Total
4	36	31	25	8	—	1	1	—	1	—	2	109

(The average rainfall data is for the period 1960—1964).

C. Irrigation and drainage facilities :

(i) (a) and (b) N.A. (ii) Not fully, as the land was once a river bed of the Gogra, with the rise of water level in Gogra river running adjacent to the farm, water enters into the farm by percolation and the draining out of percolatory and excess water is not possible.

D. Soil type and soil analysis :

(i) Sandy loam, 6" deep and light brown in colour. (ii) Chemical analysis : pH 7.5 to 7.9, organic carbon 0.03 to 0.88% and available P₂O₅ 0.8 to 14.4 lb./ac. (iii) Mechanical analysis : depth 0 to 9", coarse sand 0.33 to 2.25% silt 19.25 to 48.75%, clay 5.57 to 9.25% and fine sand 40.50 to 75.00%.

E. No. of experiments :

Jute—9, Total=9.

29. Government Regional Agricultural Research Station, Hardoi.

A. General information :

(i) In Hardoi *tehsil* of Hardoi district, 2 miles from Hardoi Railway Station. Flat land. (ii) Alluvial soil. (iii) Established in 1956. (iv) Paddy—*Berseem* ; *Sanai* (G.M.)/*Moong*/*Urd*/*Lobia*—Potato/Wheat/Barley ; Sugarcane—*Berseem*—Paddy—Pea—G.M., *Jowar*/*Maize*/*Bhindi*—Gram/*Berseem* and *Bhindi*/*Sanai* (G.M.)—Potato—Wheat—Tomato are the different rotations of the tract. (v) Varietal, manurial, cultural, rotational, irrigational, weed control, botanical, soil pests and diseases of crops etc.

B. Normal rainfall in cm. :

June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	March	April	May	Total
7	28	29	15	14	—	—	4	—	1	—	1	99

(The average rainfall is for the period 1955—1964.)

C. Irrigation and drainage facilities :

(i) (a) and (b) Irrigated from tube well and canal since the inception of the farm. (ii) No proper drainage system exists.

D. Soil type and soil analysis :

(i) Sandy loam, greyish black to brownish grey in colour. Structure less with iron concretions. (ii) Chemical analysis and (iii) Mechanical analysis :

Depth	0"—6"	6"—2'6"
Moisture	16.5%	16.6%
pH	6.7%	6.9
HCl insolubles	89.0%	82.2%
Sesqui oxide	4.3%	11.6%
Fe ₂ O ₃	2.48%	3.74%
P ₂ O ₅	0.11%	0.07%
Al ₂ O ₃	1.66%	7.74
CaO	0.20%	0.46%
MgO	0.79%	0.99%
K ₂ O	2.43%	2.79%

Total Nitrogen	0.07%	0.07%
Total organic carbon	0.43%	0.17%
Water soluble solids	0.06%	0.06%
Bicarbonates as NaHCO ₃	0.04%	0.04%
Chlorides as NaCl	0.02%	0.02%
Coarse sand	1.2%	2.1%
Fine sand	64.6%	50.4%
Silt	13.7%	22.0%
Clay	12.3%	21.1%

E. No. of experiments :

Paddy—2, Wheat—27, Barley—3, *Jowar*—2, *Bajra*—1, Maize—3, Potato—1, *Moong*—1, Mixed cropping—9, Total=49.

30. Vivekananda Laboratory Experimental Fields, Hawalbagh.

A. General information to D. Soil type and soil analysis :

Details are N.A.

E. No. of experiments :

Wheat—1, Total=1.

31. State Live stock-cum-Agricultural Farm, Hempur.

A. General information :

(i) In Kashipur *tehsil* of Nainital district. Nearest Railway Station is Gaushala. Generally the land is uneven but the experimental area is even. (ii) *Tarai* area. (iii) Established in 1924. (Reorganised as Mechanical State Farm in 1948). (iv) G.M. (*lahi*), wheat, barley, pea, paddy, *berseem*, cowpea, and sugarcane. (v) N.A.

B. Normal rainfall in cm. :

June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Jan.	Feb.	March	April	May	Total
10	35	40	25	12	1	1	4	2	2	0	1	133

(The average rainfall data is for the period 1956 to 1964.)

C. Irrigation and drainage facilities :

(i) (a) and (b) Very limited irrigation facilities are available in Dhela. Lift and canal irrigation. Only 600 acres are under irrigation. (ii) Generally the land is uneven and the drainage system is not upto the required standard.

D. Soil type and soil analysis :

(i) Clay loam and sandy. About 9" in sandy loam and 1' in clay soil. Clay loam—greyish, sandy loam—yellowish. (ii) Chemical analysis and (iii) Mechanical analysis :

	North	Central	South
Available P ₂ O ₅ as ppm.	20—40	15—20	15
Organic carbon	0.39 to 0.59	0.65 to 0.85	0.56 to 0.60
Available nitrogen	50.4 to 53.2	25.2 to 78.9	25.0 to 84.0
Total soluble salts	0.027 to 0.028%	0.026 to .366%	0.74 to 09.05
pH	6.6 to 6.7	6.4 to 6.7	6.2 to 6.6
Coarse sand	8.95%	7.28%	5.37%
Fine sand	62.12%	55.53%	62.96%
Silt	17.80%	20.40%	18.15%
Clay	9.17%	14.82%	12.05%

E. *No. of experiments :*

Paddy—1, Wheat—3, Total=4.

32. Horticultural Farm, Jeolikote.A. *General information :*

(i) In Nainital *tehsil* of Nainital district. 11 miles from Kathgodam (N.E.R.) Railway Station. Situated in the valley. (ii) Valley area with calcareous soil. (iii) Established in 1950. (iv) Strawberry, wheat and soyabean are the main crops. (v) No special research programme.

B. *Normal rainfall in cm. :*

Not maintained.

C. *Irrigation and drainage facilities :*

(i) (a) and (b) Irrigation facilities are available. Source and year—N.A. (ii) Natural and through drainage channels.

D. *Soil type and soil analysis :*

(i) Top soil is very shallow, reddish brown in colour. Calcareous transported soil full of lime stone gravel upto one cm. in diameter. (ii) Chemical analysis and (iii) Mechanical analysis : pH ranging from 6.0 to 6.8. Wide variation in chemical and mechanical constituents even in the same terrace.

E. *No. of experiments :*

Citrus—1, Guava—2, Strawberry—2, Total=5.

33. Government Agricultural Farm, Kalai.A. *General information :*

(i) In Aligarh *tehsil* of Aligarh district. 11 miles from Aligarh. Levelled land. (ii) Indo-Gangetic plain. (iii) Established in 1912. (iv) *Sanai/Dhaincha* (G.M.)—Wheat ; Maize—Barley ; Cotton—Sugarcane—*Ratoon*—*Moong*—Wheat, Cotton—Pea ; Paddy—Gram. (v) N.A.

B. *Normal rainfall in cm. :*

June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Jan.	Feb.	March	April	May	Total
—	35	20	38	—	—	—	—	1	1	1	—	96

(The average rainfall data is for the period 1960—1964.)

C. *Irrigation and drainage facilities :*

(i) (a) and (b) Irrigated from canal since the start of the farm. (b) Proper drainage system exists.

D. *Soil type and soil analysis :*

(i) Loam, 6" deep, light grey in colour and loose in structure. (ii) Chemical analysis :

Plot No.	pH	Conductivity	Organic carbon %	Available P ₂ O ₅ in lb./ac.
1	6.4	0.24	0.44	26.6
2	8.0	0.25	0.42	84.0
3	8.1	0.15	0.57	19.6
4	7.0	0.20	0.21	12.6
5	7.2	0.22	0.17	23.8
6	8.2	0.22	0.31	9.8
7	7.3	0.17	0.21	14.0
8	7.8	0.14	0.06	16.8
9	6.0	0.60	0.21	16.3

(iii) Mechanical analysis—N.A.

E. No. of experiments :

Paddy—1, Wheat—18, *Moong*—1, Sugarcane—4, Cotton—2, *Sanai*—1, *Berseem*—1, Cowpea—2, Mixed cropping—4, Total=34.

34. Government Agricultural Research Farm, Kalianpur.

A. General information :

(i) In Kanpur *tehsil* of Kanpur district. 1 mile from Kalianpur Railway Station. Plain land. (ii) Alluvial. (iii) Established in 1912. (iv) G.M.—Wheat ; Paddy—*Berseem* ; Paddy—Pea, *Moong*—Wheat ; *Lobia*—Sugarcane ; *Chari*—Pea or Gram. (v) To carry out the experiments on oilseeds, millets and legumes.

B. Normal rainfall in cm. :

June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	March	April	May	Total
3	22	28	14	12	—	—	3	—	—	—	1	83

(The average rainfall data is for the period 1955 to 1965.)

C. Irrigation and drainage of facilities :

(i) (a) and (b) Irrigated from canal since 1912. (ii) Proper drainage system exists.

D. Soil type and soil analysis :

(i) Loam soil, 9" to 3' deep, grey in colour and granular in structure. (ii) Chemical and (iii) Mechanical analysis :

Depth	0'—9"	9"—1' 6"	1'6" to 2'	2" to 2' 9"
Moisture (natural)	2.06	4.98	6.00	7.78
Moisture (air dry)	1.01	1.77	1.64	1.67
Moisture equivalent	14.09	23.02	24.08	23.87
Water holding capacity	44.87	45.25	45.19	47.09
Loss on ignition	1.44	1.93	1.89	2.30
pH	7.2	7.2	7.8	7.8
Total HCl in solubles	86.86	81.62	80.57	78.59
Sesquioxide	7.62	10.30	10.98	12.54
Fe ₂ O ₃	3.56	4.72	4.76	5.36
Al ₂ O ₃	4.06	5.58	6.22	7.18
CaO	0.36	0.45	0.83	0.98
MgO	0.97	1.30	1.32	1.41
Total nitrogen	0.06	0.05	0.05	0.05
Total water soluble salt	0.04	0.04	0.06	0.03
NaHCO ₃	0.03	0.02	0.03	0.02
Total exchangeable bases m.e%	10.00	15.20	29.04	31.04
Exchangeable calcium m.e.%	6.26	11.60	14.08	15.84
Coarse sand	0.34	0.24	0.17	1.21
Fine sand	59.66	45.71	42.99	42.41
Silt	22.35	24.70	25.50	25.40
Clay	16.00	25.95	28.60	29.15
Loss by solution	0.61	0.67	0.77	0.86
Total organic carbon	0.56	0.70	0.84	0.98
K ₂ O	0.46	0.42	0.35	0.22
P ₂ O ₅	0.23	0.20	.21	0.21

E. No. of experiments :

Paddy—10, Wheat—14, *Jowar*—2, *Bajra*—3, Maize—2, Potato—2, *Moong*—2, Cotton—2, Groundnut—5, Linseed—2, Castor—3, *Brassica*—20, Mixed cropping—3, Total=70.

35. Regional Research Centre (Oilseeds and Millets), PIRRCOM, I. C. A. R., Kalianpur.

A. General information :

(i) In Kanpur *tehsil* of Kaupur district. 2 km. from Rawatpur Railway Station. Level land. (ii) Indo-Gangetic plain, known as *Doab*. (iii) Established in 1958. (iv) *Bajra*--Peas, *Bajra*-Lentil, Paddy-Linseed, *Brassica*-G.M. (*Sanai* or *Dhaincha*) (v) Research on different aspects of crop.

B. Normal rainfall in cm. :

June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	March	April	May	Total
2	21	22	11	8	—	1	2	—	1	—	1	69

(The average rainfall data is for the period 1955 to 1964).

C. Irrigation and drainage facilities :

(i) (a) and (b) Since the commencement of the centre. Source-N.A. (ii) Proper drainage system exists.

D. Soil type and soil analysis :

(i) Alluvial, deep, light grey brown and granular. (ii) Chemical analysis : Total exchangeable bases m. e. 8.8 to 11.5, exchangeable calcium m. e. 6.0 to 8.0, pH 6.8 to 7.4, nitrogen 0.05 to 0.07%, available P_2O_5 ppm. 0.20 to 0.50%, organic carbon 0.6 to 0.7%. (iii) Mechanical analysis : Sand 60 to 70%, silt 10 to 12% and clay 19 to 21%.

E. No. of experiments :

Most of the experiments conducted are on *Brassica* crop. The experiments are included in the number of experiments of Govt. Agri. Res. Farm, Kalianpur at Sl. No. 34.

36. Government Vegetable Research Station, Kalianpur.

A. General information. :

(i) In Kanpur *tehsil* of Kanpur district. 1.5 miles from Rawatpur Railway Station. Plain land. (ii) Indo-Gangetic plain, known as *Doab*. (iii) Established in 1954. (iv) No crop pattern is strictly followed. (v) Breeding, Entomological, Mycological, Biochemical and Agronomical experiments are being conducted year to year.

B. Normal rainfall in cm. :

June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	March	April	May	Total
3	20	26	14	11	—	—	2	1	—	—	2	79

(The average rainfall data is for the period 1958 to 1964).

C. Irrigation and drainage facilities :

(i) (a) and (b) Irrigated from canal and one tube well since 1959. (ii) There is proper arrangement of drainage.

D. Soil type and soil analysis :

(i) Alluvial, extremely deep. Grey brown to brownish grey in colour at the surface and darker below the surface. Single grained and sub-blocky. (ii) Chemical analysis : Total HCl insolubles 86.86%, sesqui oxide 7.62%, Fe_2O_3 3.56%, Al_2O_3 4.06%, CaO 0.36%, MgO 0.97%, K_2O 0.46%, P_2O_5 0.23% and total nitrogen 0.06%. (iii) Mechanical analysis : Coarse sand 0.34%, fine sand 59.66%, silt 22.35% and clay 16.00%.

E. No. of experiments :

Bhindi—6, *Brinjal*—8, *Cabbage*—3, *Onion*—4, *Radish*—4, *Pumpkin*—1, *Arbi*—1, *Tea*—7, Total=34.

37. Botanical Garden, Government Agricultural College, Kanpur.

A. General information :

(i) In Kanpur *tehsil* of Kanpur district. $\frac{1}{2}$ mile from Rawatpur Railway Station. Levelled land. (ii) Sub-tropical. (iii) Established in 1906. (iv) Fruit, vegetables and flowers are grown in the garden. (v) Research is done on vegetables, plants and seasonal annuals.

B. Normal rainfall in mm. :

June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	March	April	May	Total
26	274	262	117	156	—	6	27	5	16	16	17	922

(The average rainfall data is for the period 1960 to 1964).

C. Irrigation and drainage facilities :

(i) (a) and (b) Irrigated from tank water and tube well since 1935. (ii) Proper drainage system exists.

D. Soil type and soil analysis :

(i) Yellow in colour and granular in structure. (ii) Chemical analysis : pH—8.0, conductivity—0.25%, organic carbon—0.03%, available P_2O_5 —40.0 lb./ac., total nitrogen—0.113%, moisture—1.018%, organic matter—2.839%, R_2O_3 —9.16%, Fe_2O_3 —4.88%, CaO—1.288%, MgO—0.322%, P_2O_5 —0.189% and K_2O —0.744%. (iii) Mechanical analysis : Coarse sand—1.235% and silt+clay—36.925%.

E. No. of experiments :

Bajra—2, *Brinjal*—2, *Onion*—1, *Radish*—3, *Tomato*—4, *Lettuce*—1, *Turnip*—2, *Pea*—2, *Groundnut*—1, *Litchi*—1, Total=19.

38. Government Research Farm, Kanpur.

A. General information :

(i) In Kanpur *tehsil* of Kanpur district. 8 k.m. from Rawatpur Railway Station. Levelled land. (ii) Alluvial. (iii) Established in 1902. (iv) *Maize*, *jowar*, *arhar*, *moong*, *urd*, *paddy*, *bajra*, *til*, *lobia*, and *guar* in *kharif* and *wheat*, *barley*, *oats*, *linseed*, *mustard*, *gram*, *pea* etc. in *rabi*. (v) Varietal, cultural and manurial experiments on *wheat*, *barley*, *legumes* and *oilseeds*.

B. Normal rainfall in cm. :

June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	March	April	May	Total
8	25	26	13	3	—	—	1	1	—	—	1	78

(The average rainfall is for the last 47 years).

C. Irrigation and drainage facilities :

(i) (a) and (b) Irrigated from canal and tube well. Tube well has now gone out of commission. (ii) No proper drainage system exists.

D. Soil type and soil analysis :

(i) Kanpur Ganga flates, greyish brown and sub-angular blocky. (ii) Chemical analysis and (iii) Mechanical analysis :

Depth	0" to 6"	6" to 12"	12" to 30"
Nitrogen	.04	.03	0.03
P_2O_5	.25	.30	0.18
K_2O	1.20	1.29	1.11
CaO	0.38	0.42	0.41
MgO	1.06	1.36	1.48
Organic carbon	0.35	0.40	0.31

pH	7.2	7.0	7.0
Coarse sand	0.21	1.61	0.27
Fine sand	48.37	37.78	35.34
Silt	26.90	27.25	28.15
Clay	20.25	28.85	31.20

E. No. of experiments :

Paddy—7, Wheat—73, Barley—32, *Jowar*—4, Maize—3, Potato—69, Pea—1, *Moong*—1, Linseed—2, *Jowar* fodder—7, *Sanai*—1, Total=200.

39. Old Dairy Farm, Government Agricultural College, Kanpur.

A. General information :

(i) In Kanpur *tehsil* of Kanpur district. Adjoining to Rawatpur Railway Station. It is purely a fodder growing farm and there is no experimental area. Levelled land. (ii) Gangetic alluvial. (iii) Established in 1936. (iv) *Jowar—Berseem* ; *Jowar—Lobia—Barley* ; *Jowar—Barley* ; *Jowar* or *Lobia—Oats* ; Pusa Giant Napier. (v) N.A.

B. Normal rainfall in cm. :

June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	March	April	May	Total
3	23	25	12	12	—	1	3	—	—	—	2	81

(The average rainfall data is for the period 1958 to 1964).

C. Irrigation and drainage facilities :

(i) (a) and (b) Irrigated from tube well and canal since the inception of the farm. (ii) Proper drainage system exists.

D. Soil type and soil analysis :

(i) Alluvial loam, light yellowish in colour and granular in structure. (ii) Chemical analysis and (iii) Mechanical analysis—N.A.

E. No. of experiments :

Jowar fodder—1, Total=1.

40. Student's Instructional Farm, Government Agricultural College, Kanpur.

A. General information :

(i) In Kanpur *tehsil* of Kanpur district. $1\frac{1}{2}$ miles from Rawatpur Railway Station. The farm is bench terraced except some slopy plots. (ii) Ganga alluvium. (iii) Established in 1930. (iv) *Kharif* : *Jowar* fodder, maize, *moong*, sugarcane, *arhar* and vegetables. *Rabi* : Wheat, barley, gram, pea and vegetables. (v) Mainly thesis work of post-graduate students on manurial and cultural problems.

B. Normal rainfall in cm. :

June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	March	April	May	Total
3	23	25	12	12	—	1	3	—	—	—	2	81

(The average rainfall data is for the period 1958 to 1964).

C. Irrigation and drainage facilities :

(i) (a) and (b) Irrigated from tube well and canal lift and flow irrigation. The facilities have been available for more than 30 years. (ii) Yes, there is good surface drainage.

D. Soil type and soil analysis :

(i) Sandy loam, calcareous ; 9" deep ; very light brown and hard on drying. (ii) Chemical analysis : Total nitrogen—0.065% , P_2O_5 —0.120% and pH—7.3. (iii) Mechanical analysis : Clay—12.25% , silt—21.14% , fine sand—61.36% and coarse sand—0.63%.

E. No. of experiments :

Paddy—6, Wheat—17, Maize—2, Potato—2, Gram—2, Sugarcane—1, Groundnut—2, Garlic—1, *Berseem*—3, Mixed cropping—2, Total=38.

41. State Usar Reclamation Farm, Katiyar.

A. General information :

(i) In Malihabad *tehsil* of Lucknow district. 8 miles from Rahimabad Railway Station. Even land. (ii) Alluvial tract, *usar* soils. (iii) Established in 1956. (iv) Paddy—Wheat—G.M. (*dhaincha*)—Wheat. (v) Experiments relating to reclamation of alkali and saline soils are conducted.

B. Normal rainfall in cm. :

June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	March	April	May	Total
5	28	30	15	11	—	—	3	1	1	—	1	95

(The average rainfall data is for the period 1954 to 1964).

C. Irrigation and drainage facilities :

(i) (a) and (b) Irrigated from tube well. (ii) Proper drainage system exists.

D. Soil type and soil analysis :

(i) Clay loam soil ; deep but hard *kankar* pan is found at 2' to 3' depth. Light to dark grey. (ii) Chemical analysis : pH—8.5 to 10.0, conductivity—0.406 to 1.016 mm./cm., total soluble salts : 0.163 to 0.406%. (iii) Mechanical analysis :

Depth	Coarse sand%	Fine sand%	Silt%	Clay%
0 — 6"	0.02	55.64	25.62	20.75
6"—18"	0.24	51.70	26.87	25.00
18"—36"	0.30	46.05	27.25	26.75

E. No. of experiments :

Paddy—4, Total=4.

42. Potato Sub-Station, Kausani.

A. General information :

(i) In Almora district. Nearest Railway Station is Kathgodam. Surrounded with Pine forest. (ii) Hilly tract. (iii) Established in 1949. Station closed in 1959. (iv) Paddy—Small-millet—Potato and wheat. (v) Breeding of potato to test varieties, cultural and manurial practices for potato suitable for recommendation to cultivators in hilly tract.

B. Normal rainfall in cm. :

N.A.

C. Irrigation and drainage facilities :

(i) (a) and (b) No irrigation facilities are available. (ii) No proper drainage system exists.

D. Soil type and soil analysis :

(i) Brown forest soil of the hills. (ii) Chemical analysis and (iii) Mechanical analysis—N.A.

E. No. of experiments :

Potato—37, Total=37.

43. Government Agricultural Research Farm, Keserwa.

A. General information :

(i) In Budaun *tehsil* of Budaun district. Six miles from Budaun Railway Station. Flat

land. (ii) Alluvial tract. (iii) Established in 1926. (iv) *Kharif*: Groundnut, *til* and *bajra* *Rabi*: *Sarson*, *laha* and gram. (v) Dry farming, mainly trials as instructed by the Economic Botanist (Oil seeds) to Govt. of U.P. are conducted.

B. Normal rainfall in cm. :

June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan	Feb.	March	April	May	Total
—	53	6	39	1	—	—	—	—	—	—	—	99

(The average data is for the period 1964—1965).

C. Irrigation and drainage facilities :

- (i) (a) and (b) Irrigated from tube well situated at a distance of 4 furlongs, since 1940.
- (ii) No proper drainage system exists.

D. Soil type and soil analysis :

- (i) Alluvial soil, light grey and colloidal in structure. (ii) Chemical analysis and (iii) Mechanical analysis :

	Upper surface	Lower surface
Moisture	0.74%	1.01%
Loss on ignition	1.54%	1.72%
HCl insoluble	90.16%	89.08%
R ₂ O ₃	5.44%	6.59%
Available P ₂ O ₅	Very low	Very low
Organic carbon	0.30%	0.32%
T.S.S.	0.11%	0.02%
pH	6.2	6.0
Clay	13.00%	9.25%
Silt	16.50%	7.75%
Fine and coarse sand	66.25%	80.67%

E. No. of experiments :

Groundnut—8, Mixed cropping—1, Total=9.

44. B.R. College Institutional Research Farm, Khandari.

A. General information :

(i) In Agra *tehsil* of Agra district. One mile from Rajakimandi Railway Station. Well levelled. (ii) Semi-arid (Indo-Gangetic). (iii) Established in 1940. (iv) *Kharif*: *Jowar*, *guar*, *bajra*, maize, *lobia* and G.M. *Rabi*: Wheat, barley, gram, oats, *berseem*, potato. (v) Research programme for M.Sc. (Agri.), Ph. D. and research work of I.C.A.R., New Delhi.

B. Normal rainfall in cm. :

June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	March	April	May	Total
2	18	26	11	5	—	—	2	—	1	—	—	65

(The average rainfall data is for the period 1953 to 1963).

C. Irrigation and drainage facilities :

- (i) (a) and (b) Irrigated from canal since long and tube wells from 1952 and 1954. (ii) No proper drainage system exists.

D. Soil type and soil analysis :

(i) Alluvial soil, 16" deep, brownish and structureless. (ii) Chemical analysis : Nitrogen—0.047%, P₂O₅—0.085%, K₂O—1.22% and pH—7.75. (iii) Mechanical analysis : Coarse sand—0.45%, fine sand—58.93%, silt—22.8% and clay—16.66%.

E. No. of experiments :

Wheat—3, Total=3.

45. Rice Research Sub-Station, Kunraghat.

A. General information :

(i) In Gorakhpur *tehsil* of Gorakhpur district. 4 furlongs from Kunraghat Railway Station. Flat land. (ii) Low land, alluvial soils with sandy texture and free drainage. (iii) Established in 1939. (iv) Early Paddy—Pea/Gram/Barley. (v) Varietal and manurial trials on paddy are conducted.

B. Normal rainfall in cm. :

June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	March	April	May	Total
16	31	40	26	11	1	1	2	1	1	1	2	133

(The average rainfall data is for the period 1955 to 1964).

C. Irrigation and drainage facilities :

(i) (a) and (b) Irrigated from tube well since 1957. (ii) Proper drainage system exists.

D. Soil type and soil analysis :

(i) Sandy loam, 20' deep, yellowish brown to greyish brown, structureless. (ii) Chemical analysis and (iii) Mechanical analysis :

Depth	0 to 7.5"	7.5' to 17.5"	17.5" to 35.5"
Moisture	0.99%	1.60%	1.83%
Loss on ignition	2.05%	2.22%	3.72%
HCl insoluble	87.53%	84.38%	80.18%
R ₂ O ₃	7.45%	10.01%	11.75%
Al ₂ O ₃	4.49%	6.65%	7.83%
Fe ₂ O ₃	2.96%	3.36%	3.92%
CaO	0.84%	0.87%	0.81%
MgO	0.41%	0.70%	0.62%
K ₂ O	0.44%	0.45%	0.47%
P ₂ O ₅	0.05%	0.05%	0.05%
Nitrogen	0.03%	0.01%	0.02%
Organic carbon	0.39%	0.12%	0.16%
C/N ratio	11.16	8.86	7.81
Total soluble salts	0.12%	0.13%	0.08%
Bicarbonates	0.03%	0.03%	—
Chlorides	0.01%	0.01%	—
Sulphate	0.02%	0.04%	—
pH	7.00	7.0	7.2
Coarse sand	11.78%	10.78%	12.56%
Fine sand	60.79%	51.40%	43.87%
Silt	9.65%	9.10%	15.45%
Clay	15.05%	25.55%	23.00%

E. No. of experiments :

Paddy—11, Mixed cropping—1, Total=12.

46. Sugarcane Research Sub-Station, Kunraghat.

A. General information :

(i) In Gorakhpur *tehsil* of Gorakhpur district. 3 miles from Gorakhpur Railway Station. Flat, high lying land. (ii) Sandy loam, well drained soils. (iii) Established in 1939. (iii) G.M./leguminous crop for grain—Sugarcane—G.M.—Wheat. (v) To evolve high yielding and better quality cane at economic cost. The programme comprises varietal selection, evolving suitable manurial and cultural schedules for eastern U.P. and controlling diseases and pests etc. A soil survey unit is also located for soil extension work.

B. Normal rainfall in cm. :

June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	March	April	May	Total
16	31	40	26	11	1	1	2	1	1	1	2	133

(The average rainfall data is for the period 1955 to 1964).

C. Irrigation and drainage facilities :

(i) (a) and (b) Irrigated from tube well since start of the farm. (ii) Proper drainage system exists.

D. Soil type and soil analysis :

Same as in Rice Research Sub-Station, Kunraghat at Sl. No. 41.

E. No. of experiments :

Sugarcane—44, Total=44.

47. State Live-Stock-cum-Agricultural Farm, Madhurikund.**A. General information :**

(i) In Mathura *tehsil* of Mathura district. 16 miles from Mathura Railway Station. The farm falls on the right bank of Agra Canal (Lower Yamuna Canal). (ii) Loam soil mixed with 30% *usar* patches. (iii) Established in 1913. (iv) G.M.—Barley; *Lobia* fodder—Barley; G.M.—Wheat; *Jowar*—Gram; M.P. *Chari*—*Lobia* and Pusa Giant Naphier—Pusa Giant Napier. (v) N.A.

B. Normal rainfall in cm. :

June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	March	April	May	Total
2	22	26	16	2	—	—	1	—	1	—	1	71

(The average rainfall data is for the period 1957 to 1964).

C. Irrigation and drainage facilities :

(i) (a) and (b) Irrigated from canal since 1913. (ii) Drainage project has been sanctioned and will be implemented soon.

D. Soil type and soil analysis :

(i) N.A. (ii) Chemical analysis : In field No. A—3 pH varies from 7.02 to 7.9 and in field No. D—1 it varies from 7.0 to 8.2. (iii) Mechanical analysis :

Field No. A—3.

Depth	0'—11'	11'—26"	26"—36"
Coarse sand	0.15%	0.11%	0.04%
Fine sand	46.00%	41.45%	37.00%
Silt	31.00%	31.20%	34.65%
Clay	19.00%	25.05%	25.75%

Field No. D—1.

Depth	0"—13"	13"—26"	26"—39"
Coarse sand	0.07%	0.05%	0.05%
Fine sand	55.62%	41.27%	40.84%
Silt	23.50%	32.05%	31.37%
Clay	15.10%	24.30%	25.05%

E. No. of experiments :

Wheat—1, *Berseem*—2, Total=3.

48. Groundnut Research Station, Mainpuri.**A. General information :**

(i) In Mainpuri *tehsil* of Mainpuri district. 2 miles from Mainpuri Railway Station.

Plain land. (ii) Alluvial tract. (iii) Established in July, 1958. (iv) *Kharif*: Groundnut and paddy. *Rabi*: Wheat, potato and pea. (v) Research is done on intensive breeding of groundnut.

B. Normal rainfall in cm. :

June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	March	April	May	Total
4	25	29	13	9	—	—	3	1	1	—	—	85

(The average rainfall data is for the period 1954 to 1964).

C. Irrigation and drainage facilities :

(i) (a) and (b) Irrigated from tube well since 1918. (ii) A drainage system exists leading drain water to nearby *nala*.

D. Soil type and soil analysis :

(i) Sandy loam (alluvial soil), quite deep and brown in colour. (ii) Chemical analysis and (iii) Mechanical analysis :

	Surface soil	Sub-soil
pH	7.7	7.7
Total solubles salts	0.13%	0.17%
Organic carbon	0.31%	0.13%
Available P ₂ O ₅	Very low	Very low
Coarse sand	1.94%	1.86%
Fine sand	76.00%	72.62%
Silt	11.56%	13.70%
Clay	9.43%	11.34%
Water holding capacity	32.88%	32.48%

E. No. of experiments :

Groundnut—1, Mixed cropping—2, Total = 3.

49. Hill Paddy Research Sub-Station, Majhera.

A. General information :

(i) In Nainital *tehsil* of Nainital district. 35 miles by bus and 2 miles by bridle path Kathgodam Railway Station. Terraces are not well levelled and are irregular in shape. General gradation of slope is west to east. (ii) Valley area of hill tract of district Nainital. (iii) Established in 1956. (v) Paddy—Fallow—Paddy ; Paddy—Wheat—*Mandua*—Fallow—Paddy ; Paddy—Wheat or Potato—Paddy. (v) Experiments are conducted on the following aspects of crops i.e. isolation of pure lines from locals, introductions, hybridization, cultural studies and varietal trials.

B. Normal rainfall in cm. :

N.A.

C. Irrigation and drainage facilities :

(i) (a) and (b) Majhera canal runs at the top of the farm since the establishment of the station. (ii) There is no drainage system.

D. Soil type and soil analysis :

(i) Sandy loam, 6" to 1½' deep. Greyish brown to grey. (ii) Chemical analysis and (iii) Mechanical analysis :

Depth	0" to 6"	6" to 12"	12" to 18"
Water holding capacity	37.02%	32.28%	27.53%
pH	6.7	6.4	6.9
Moisture	1.41%	1.00%	0.82%
Loss on ignition	4.69%	3.42%	3.12%
HCl insolubles	84.07%	85.00%	85.75%

Sesquioxides	7.96%	8.27%	8.15%
Calcium oxide	0.48%	0.39%	0.39%
Magnesium oxide	1.36%	1.31%	1.36%
Potassium oxide	0.72%	0.73%	0.54%
Iron oxide	4.08%	4.00%	4.00%
Aluminium oxide	3.79%	4.25%	4.13%
Phosphorus pentoxide	0.09%	0.03%	0.03%
Organic carbon	0.98%	0.62%	0.64%
Stone	18.20%	21.20%	36.00%
Coarse sand	27.52%	31.57%	40.06%
Fine sand	60.90%	54.63%	39.55%
Silt	6.40%	6.90%	10.75%
Clay	3.15%	3.35%	6.30%

E. *No. of experiments :*

Paddy—5, Total=5.

50. Regional Research Station, Majhera.

A. *General information :*

(i) In Nainital *tehsil* of Nainital district. 35 miles from Kathgodam Railway Station and 2½ miles from Garampani Research Station. Terraces are irregular in shape—general gradation of slope is from west to east. (ii) Valley area of hill tract of district Nainital. (iii) Established in 1956—57. (iv) *Kharif* : Mandua—Urd or Til, *Rabi* : Wheat—Barley—Oats—Sarson or Pea. (v) Isolation of pure line cultures. Introduction and testing the varietal performances of different varieties of different crops evolved or recommended for the region by different Economic Botanists of the State.

B. *Normal rainfall in cm.*

Informations—N.A.

C. *Irrigation and drainage facilities :*

(i) (a) and (b) Majhera Canal is running at the top of the farm since the establishment of the Stn., but this water supply is very irregular and insufficient. (ii) No proper drainage system exists.

D. *Soil type and soil analysis :*

Same as in Hill Paddy Research Sub-Station, Majhera.

E. *No. of experiments :*

Wheat—7, Barley—2, Maize—2, Mahuwa—5, Soyabean—1, Mixed cropping—3, Total =20.

51. Tarai State Farm, Matkota.

A. *General information :*

(i) In Kichha *tehsil* of Nainital district. 10 miles from Phool Bagh Railway Station. Low lying to high lying land, levelled and sloping to west. (ii) Tarai. (iii) Established in 1949. (iv) G.M.—*lahi*—sugarcane, G.M.—wheat ; Jute for seed—sugarcane ; *dhaincha* for seed—sugarcane ; *Jowar* fodder—*berseem* and maize—peas and gram. (v) N.A.

B. *Normal rainfall in cm. :*

June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	March	April	May	Total
13	42	41	26	13	—	1	6	2	2	—	4	150

(The average rainfall data is for the period 1954 to 1963.)

C. Irrigation and drainage facilities :

(i) (a) and (b) Not available except some tubewell having very poor discharge and insufficient for the purpose. (ii) No proper drainage system exist.

D. Soil type and soil analysis :

(i) Clay loam, loam (highly calcareous loam) and sandy loam ; dark grey to dark brown in colour. Moderate fine crumb structure to granular and coarse structure. (ii) Chemical analysis and (iii) Mechanical analysis :

Matkota clay loam

Depth	0 - 8"	8" to 16"	16" to 25"	25"—38"
Moisture (air dry)	1.48%	2.26%	1.68%	1.82%
Loss on ignition	8.77%	4.12%	4.95%	4.56%
HCl insoluble	73.25%	74.41%	72.81%	73.32%
Sesquioxide	15.10%	15.24%	17.45%	17.51%
Fe ₂ O ₃	6.00%	6.64%	7.84%	8.40%
Al ₂ O ₃	9.43%	8.45%	9.49%	8.96%
CaO	0.97%	1.20%	1.04%	1.0%
MgO	0.89%	0.83%	0.81%	0.27%
K ₂ O	0.79%	0.75%	0.66%	0.60%
P ₂ O ₅	0.07%	0.15%	0.14%	0.15%
Coarse sand	0.88%	0.86%	0.56%	1.44%
Fine sand	20.03%	21.14%	13.73%	14.01%
Silt	51.63%	54.10%	59.15%	56.70%
Clay	25.20%	23.90%	24.00%	22.70%
Water holding capacity	64.50%	64.40%	64.21%	64.09%
pH	7.5	6.8	7.2	7.00
Organic carbon	1.63%	1.02%	0.80%	0.78%
Total nitrogen	0.15%	0.09%	0.06%	0.08%
C/N	9.1	11.3	13.4	9.4
Moisture equivalent	34.0%	34.0%	35.10%	36.4%

Matkota loam (highly calcareous)

Depth	0"—9"	9"—25"	25" - 38"
Moisture (air dry)	2.46%	1.40%	1.12%
Loss on ignition	5.49%	5.06%	3.25%
HCl Insoluble	69.19%	69.11%	73.55%
Sesquioxide	17.35%	16.09%	16.38%
Fe ₂ O ₃	6.48%	5.32%	5.40%
Al ₂ O ₃	10.72%	10.61%	10.82%
CaO	2.41%	5.51%	2.87%
MgO	0.88%	0.75%	0.83%
K ₂ O	0.77%	0.34%	0.53%
P ₂ O ₅	0.15%	0.18%	0.16%
Coarse sand	7.87%	2.63%	0.8%
Fine sand	31.35%	39.39%	33.27%
Silt	36.60%	35.75%	48.20%
Clay	25.00%	19.75%	15.00%
Water holding capacity	51.00%	57.99%	56.52%
Moisture equivalent	31.00%	30.53%	30.98%
pH	7.2	7.2	7.4
Organic carbon	1.23%	0.84%	0.45%
Total nitrogen	0.13%	0.0%	0.04%
C/N	9.8	10.1	10.7

Matkota loam (slightly calcareous)

Depth	0"—9"	9"—15"	15"—20"	24"—32"
Moisture (air dry)	2.41%	2.84%	2.39%	2.74%
Loss on ignition	5.68%	4.22%	5.42%	4.01%
HCl insoluble	73.76%	74.48%	75.60%	73.65%
Sesquioxide	16.21%	14.79%	13.20%	16.30%
Fe ₂ O ₃	7.52%	5.72%	4.48%	4.86%
Al ₂ O ₃	8.63%	8.96%	8.61%	11.54%
CaO	1.64%	1.08%	0.66%	1.19%
MgO	0.83%	0.81%	0.78%	0.80%
K ₂ O	0.86%	0.81%	0.96%	0.80%
P ₂ O ₅	0.07%	0.11%	0.11%	0.08%
Coarse sand	2.50%	4.55%	3.08%	1.35%
Fine sand	20.34%	27.05%	30.61%	17.90%
Silt	45.18%	38.00%	37.80%	49.20%
Clay	29.65%	28.00%	24.00%	30.70%
Water holding capacity	53.20%	57.06%	53.10%	57.10%
Moisture equivalent	24.50%	21.60%	20.55%	27.10%
pH	7.3	7.3	7.5	7.6
Organic carbon	0.72%	0.89%	0.83%	0.62%
Total nitrogen	0.07%	0.08%	0.09%	0.06%
C/N	10.3	10.5	10.5	10.2

Matkota sandy loam

	0—9"	9"—13"	18"—32'
Moisture (air dry)	1.41%	1.41%	1.16%
Loss on ignition	1.64%	2.24%	1.90%
HCl insoluble	84.56%	83.72%	84.21%
Sesquioxide	9.91%	9.56%	10.10%
Fe ₂ O ₃	4.08%	4.08%	4.16%
Al ₂ O ₃	5.72%	5.36%	5.83%
CaO	0.45%	0.60%	0.42%
MgO	0.82%	0.73%	0.73%
P ₂ O ₅	0.11%	0.12%	0.11%
K ₂ O	0.56%	0.65%	0.43%
Coarse sand	25.50%	29.28%	35.28%
Fine sand	45.30%	43.60%	42.22%
Silt	15.60%	12.33%	10.30%
Clay	12.22%	12.80%	10.40%
Water holding capacity	38.73%	38.90%	55.82%
Moisture equivalent	11.70%	12.20%	9.73%
pH	7.4	7.2	6.2
Organic carbon	0.81%	0.62%	0.36%
Total nitrogen	0.06%	0.06%	0.04%
C/N	13.7	11.2	9.2

E. No. of experiments :

Wheat—4, Jute—1, Total=5.

52. Regional Research Station, Meerut.**A. General information :**

(i) In Meerut *tehsil* of Meerut district. 3 miles from Meerut Railway Station. Plain land. (ii) Alluvial soils. (iii) Established in 1956. (iv) Sugarcane—wheat—cotton—pea,

Maize—potato, Paddy—*berseem*. (v) Varietal, manurial and cultural trials on important *rabi* and *kharif* crops are conducted.

B. Normal rainfall in cm. :

June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	March	April	May	Total
4	30	29	29	14	—	2	4	1	2	—	1	117

(The average rainfall data is for the period 1955 to 1964).

C. Irrigation and drainage facilities :

(i) (a) and (b) Tube well since 1956. (ii) Natural drainage system exists.

D. Soil type and soil analysis :

(i) Sandy loam, brownish grey in colour and granular in structure. (ii) Chemical analysis : Organic carbon—0.384%, total nitrogen—0.069%, available P_2O_5 —18 to 36 lb./ac., available K_2O —100 lb./ac. and pH—7.9. (iii) Mechanical analysis : Coarse sand—4.30%, fine sand—58.12%, silt—18.86% clay—15.70%, water holding capacity—42.36%.

E. No. of experiments :

Paddy—7, Wheat—34, Barley—4, Maize—3, Potato—4, *Urd*—2, *Moong*—1, Sugarcane—4, Cotton—1, *Jowar* fodder—1, *Berseem*—2, Cowpea—1, Cluster bean—2, Mixed cropping - 13. Total=88.

53. Sugarcane Research Sub-Station, Muzaffarnagar.

A. General information :

(i) In Muzaffarnagar *tehsil* of Muzaffarnagar district. 1½ miles from Muzaffarnagar Railway Station. Even land. (ii) Indo-gangetic plains (old alluvium with free drainage). (iii) Established in 1934. (iv) Sugarcane—G.M.—wheat—cotton ; Paddy—*berseem*—sugarcane ; Paddy—pea—sugarcane. (v) Agronomic, Entomological, Mycological, Physiological and soil studies in relation to sugarcane. The main object is to evolve high yielding and better quality cane at economic cost under the conditions of Western U.P.

B. Normal rainfall in cm. :

June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	March	April	May	Total
8	32	28	25	9	1	1	4	3	2	—	1	114

(The average rainfall data is for the period 1954 to 1963).

C. Irrigation and drainage facilities :

(i) (a) and (b) Tube well since 1934. (ii) No under ground drainage and flow drainage in rainy season.

D. Soil type and soil analysis :

(i) (i) Loam and clay loam, surface soil—Brown to brownish yellow in colour and granular to crumby in structure and sub-soil—Brownish yellow to yellow in colour and crumby to compact in structure. (ii) Chemical analysis and (iii) Mechanical analysis :

Type IV loam soil

Depth	0—9"	9"—18"	18"—42"
Moisture	0.41%	0.84%	0.88%
Loss on ignition	1.35%	2.98%	3.60%
HCl insoluble	88.65%	82.46%	80.22%
pH	6.7	6.8	6.4
HCl—soluble silica	1.05%	1.23%	1.28%
R_2O_3	6.67%	11.46%	12.39%
Al_2O_3	3.87%	7.38%	7.99%
Fe_2O_3	2.80%	4.08%	4.40%
CaO	0.84%	0.50%	0.50%

MgO	0.87%	1.09%	0.87%
K ₂ O	0.33%	0.40%	0.42%
P ₂ O ₅	0.04%	0.02%	0.04%
Nitrogen	0.04%	0.03%	0.02%
Organic carbon	0.34%	0.29%	0.25%
Coarse sand	12.71%	13.70%	9.54%
Fine sand	59.38%	48.02%	49.64%
Silt	14.37%	16.27%	18.22%
Clay	11.21%	19.43%	20.03%

E. *No. of experiments :*

Sugarcane—92, Cotton—2, Jowar fodder—2, Total=96.

54. **Rice Research Station, Nagina.**

A. *General information :*

(i) In Nagina *tehsil* of Bijnor district. 1½ miles from Nagina Railway Station. The slope of the farm is from north to south and east to west. Canal runs from north to south. Nearest Himalyan range in the east about 8 miles. (ii) Semi Tarai area. (iii) Established in 1926. (iv) *Chari* fodder—gram; Paddy—*berseem*, *Dhaincha*—paddy—pea—wheat—barley and cotton—sugarcane—wheat. (v) Plant breeding and agronomy are the main aspects of research work.

B. *Normal rainfall in cm. :*

June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	March	April	May	Total
8	39	30	23	9	1	1	4	1	2	—	2	120

(The average rainfall data is for the period 1955 to 1964).

C. *Irrigation and drainage facilities :*

(i) (a) and (b) Canal and tube well from 1926 and 1927 respectively. (ii) No proper drainage system exists, but no difficulty of drainage.

D. *Soil type and soil analysis :*

(i) Loam to sandy loam, 6" deep, light brown in colour and medium compact in structure. (ii) Chemical analysis and (iii) Mechanical analysis :

Field No. G—5

Depth	0—9"	9"—21"	21"—33"
Moisture	0.17%	1.05%	0.67%
Loss on ignition	1.45%	1.81%	2.02%
HCl insoluble	92.05%	85.65%	86.24%
R ₂ O ₃	5.06%	9.54%	9.61%
Al ₂ O ₃	3.22%	6.26%	5.69%
Fe ₂ O ₃	1.84%	3.28%	3.92%
CaO	0.17%	0.20%	0.20%
MgO	0.95%	0.40%	0.61%
K ₂ O	0.40%	0.70%	0.52%
P ₂ O ₅	0.09%	0.16%	0.24%
Nitrogen	0.04%	0.03%	0.03%
Organic carbon	0.30%	0.29%	0.24%
C/N	7.9	9.3	8.5
pH	7.0	6.8	6.9
Coarse sand	19.49%	13.57%	16.23%
Fine sand	55.61%	44.47%	43.36%
Silt	11.00%	17.90%	17.40%
Clay	12.00%	21.45%	19.90%

Field No. B—16

Depth	0—9"	9"—21"	21"—33"
Moisture	0.52%	1.06%	1.11%
Loss on ignition	2.70%	3.24%	2.26%
HCl insoluble	84.33%	78.80%	80.66%
P ₂ O ₅	10.58%	14.31%	13.71%
Al ₂ O ₃	6.90%	9.43%	8.67%
Fe ₂ O ₃	3.68%	4.88%	5.04%
CaO	0.63%	0.31%	0.45%
MgO	0.36%	0.77%	0.64%
K ₂ O	0.70%	0.94%	0.85%
P ₂ O ₅	0.12%	0.07%	0.09%
Nitrogen	0.05%	0.04%	0.04%
Organic Carbon	0.52%	6.44%	0.33%
C/N	10.5	9.8	8.1
pH	7.3	7.1	7.1
Coarse sand	1.55%	0.61%	0.26%
Fine sand	48.57%	27.67%	27.42%
Silt	9.00%	38.45%	41.35%
Clay	37.30%	28.95%	27.45%

E. No. of experiments :

Paddy—9, Total=9.

55. Tarai State Farm, Nagla.

A. General information :

(i) In Kichha *tehsil* of Nainital district. 4 furlongs from Pantnagar Railway Station. Undulated land. (ii) Tarai. (iii) Established in 1950. (iv) G.M.—wheat—G.M.—lahi—sugarcane—sugarcane *ratoon*, G.M.—lahi—sugarcane—sugarcane *ratoon*, G.M.—wheat—maize—lahi—gram ; Paddy—peas. (v) N.A.

B. Normal rainfall in cm. :

June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	March	April	May	Total
17	34	44	28	13	—	1	4	1	2	—	2	146

(The average rainfall data is for the period 1958 to 1964).

C. Irrigation and drainage facilities :

(i) (a) and (b) Artision well and canals since 1952. Only partial irrigation is available. (ii) No proper drainage system exists.

D. Soil type and soil analysis :

(i) Clay loam, loam, sandy loam and sandy, 9" to 18", grey brown, olive, dark grey and pale brown in colour and even soils. (ii) Chemical analysis :

Type	Texture	pH
Tarai clay loam calcareous	Clay loam to silty loam	6.8 to 7.5
Tarai clay loam non calcareous	Clay loam even upto 40"	6.8 to 7.5
Tarai loam highly calcareous	Loam to silty loam	1.0 to 5.5
Tarai loam slightly calcareous	Loam to silty loam	7.3 to 7.6
Tarai loam non calcareous	Loam to sandy loam	0.5 to 0.6
Tarai sandy loam	Sandy loam to sandy	0.3 to 0.6

(iii) Mechanical analysis—N.A.

E. No. of experiments :

Paddy—4, Wheat—9, Total=13.

56. Regional Research Station, Nawabganj.

A. General information :

(i) In Nawabganj *tehsil* of Bareilly district. 3 miles from Bijauria Railway Station. The experimental area is low lying and gets water logged during rainy season. The general slope is towards east. (ii) Sub-Tarai tract of Rohilkhand division. (iii) Established in 1956. (iv) Early paddy—Wheat or barley, Medium paddy—wheat or pea, barley or gram, late paddy—oats, linseed or lentil, sugarcane—G.M. (*dhaincha*)—wheat; *Moong*, *lobia* (fodder)—wheat. (v) Varietal, cultural, manurial, rotational, mixed cropping as well as pests diseases problems of all crops, arising in Rohilkhand and Kumaun division of the State.

B. Normal rainfall in cm. :

June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	March	April	May	Total
7	34	43	23	11	—	1	6	1	1	—	1	128

(The average rainfall is for the period 1960 to 1964).

C. Irrigation and drainage facilities :

(i) (a) N.A. (b) Canal and Tube well. (ii) No proper drainage system exists.

D. Soil type and soil analysis :

(i) Clay loam, varying from 6" to 2' depending upon fluctuating water table. Blackish grey and cloddy. (ii) Chemical analysis and (iii) Mechanical analysis :

Depth	0—6"	6"—16"	16"—24"	24"—36"
pH	7.1	7.2	7.3	7.4
Moisture	2.82%	2.59%	1.99%	1.19%
Loss on ignition	4.20%	3.46%	3.39%	2.11%
HCl insoluble	75.93%	N.A.	N.A.	N.A.
Sesquioxide	14.31%	14.36%	10.79%	8.55%
Calcium oxide	0.64%	1.06%	0.63%	0.43%
Magnesium oxide	—	1.39%	0.71%	0.55%
P ₂ O ₅	0.18%	0.20%	0.13%	0.16%
K ₂ O	0.72%	—	—	—
Organic carbon	1.11%	0.60%	0.38%	0.19%
Nitrogen	0.12%	0.05%	0.03%	0.03%
Coarse sand	1.78%	3.43%	16.52%	30.07%
Fine sand	20.20%	25.83%	34.25%	33.94%
Silt	49.38%	33.48%	41.03%	32.58%
Clay	26.73%	35.88%	7.73%	2.23%

E. No. of experiments :

Paddy—38, Wheat—27, Barley—1, *Jowar*—1, Potato—1, Pea—1, Gram—1, *Masoor*—2, Sugarcane—2, Brassica—1, *Jowar* fodder—1, *Berseem*—1, Cowpea—1, Mixed cropping—5, Total=83.

57. Government Sugarcane Research Sub-Station, Neoli.

A. General information :

(i) In Kasganj *tehsil* of Etah district. 3 miles from Manpurnagar Railway Station. The land was situated in the Khadar tract of river Ganga which flows just on the north eastern boundary of farm. (ii) Mostly low lying tract. (iii) Established in 1951 and terminated in 1956. (iv) Sugarcane—wheat—*dhaincha*. (v) Varietal and cultural trials are conducted on different crops.

B. Normal rainfall in cm. :

June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	March	April	May	Total
5	18	24	14	13	—	—	1	—	1	—	—	76

(The average rainfall data is for the period 1955 to 1964).

C. Irrigation and drainage facilities :

(i) (a) and (b) Tube wells since 1933. (ii) No proper drainage system exists.

D. Soil type and soil analysis :

(i) Sandy soil (*Bhur*), 6" to 9" deep, Grayish white, 20 to 30% clay soil. (ii) Chemical analysis—N.A. (iii) Mechanical analysis : Coarse sand—50%, fine sand—30% and silt—20%.

E. No. of experiments

Sugarcane—11 Total=11.

58. Government Late Paddy Research Sub-Station, Pachperva.**A. General information :**

(i) In Gonda district. (ii) It represents late paddy growing tract. (iii) Established in 1949. (iv) and (v) N.A.

B. Normal rainfall in cm. :

Information—N.A.

C. Irrigation and drainage facilities :

(i) (a) N.A. (b) Canal. (ii) No proper drainage system exists.

D. Soil type and soil analysis :

(i) Light loam to loam. (ii) Chemical analysis and (iii) Mechanical analysis—N.A.

E. No. of experiments :

Paddy—2, Total=2.

59. Tarai Sugarcane Research Centre, Phoolbagh.**A. General information :**

(i) In Kichha *tehsil* of Nainital district. 5½ miles from Pant Nagar Railway Station. Not levelled. (ii) Tarai tract. (iii) Established in 1956-1957. (iv) Fallow or lahi—sugarcane. (v) Varietal, cultural and manurial trials are conducted on different crops.

B. Normal rainfall in cm. :

June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	March	April	May	Total
14	45	37	28	11	—	—	5	2	1	—	—	143

(The average rainfall data is for the period 1955 to 1964).

C. Irrigation and drainage facilities :

(i) (a) and (b) The area is partly irrigated by the Artision wells from the very beginning. (ii) Natural drainage exists.

D. Soil type and soil analysis :

(i) Sandy loam, 0" to 9", dark grey brown to grey brown, granular in structure. (ii) Chemical analysis : Fe_2O_3 —4.20%, P_2O_5 —0.15%, Al_2O_3 —4.56%, CaO —0.52%, MgO —0.50%, K_2O —0.37%, organic carbon 0.77%, nitrogen 0.06%, and pH 6.0. (iii) Mechanical analysis : Coarse sand—27.89%, fine sand—44.34%, silt—15.60% and clay 10.60%.

E. No. of experiments :

Sugarcane—15. Total=15.

60. Tarai State Farm, Phoolbagh.**A. General information :**

(i) In Kichha *tehsil* of Nainital district. Nearest Railway Station is Phoolbagh. Undulated land. (ii) Tarai area. (iii) Established in 1950. (iv) Maize, sugarcane, G.M., *lahi*, wheat, gram and pea. (v) Multiplication and demonstration farm.

B. Normal rainfall in cm. :

June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	March	April	May	Total
11	46	19	57	17	1	2	1	—	—	2	—	156

(The average rainfall data is for the year 1958—1959).

C. Irrigation and drainage facilities :

(i) (a) and (b) Limited facilities are available. There are only five artisons and two tube wells on the farm. The cultivation depends on rainfall only. (ii) Natural drainage system exists.

D. Soil type and soil analysis :

(i) There are six types of soils. Clay loam, loam, loam highly calcareous, slightly calcareous, sandy loam and sandy. 18" deep, brownish black in colour. The sandy soil is loose structured and other soils are sticky. Soil particles are fine, have got the capacity of retaining fertility. (ii) Chemical analysis—Soils are deficient in N, P₂O₅ and K₂O. (iii) Mechanical analysis—N.A.

E. No. of experiments :

Paddy—2, Wheat—7, Brassica—1, *Jowar* fodder—2. Total=12.

61. Pilkini farm, Pilkini.**A. General information :**

(i) In Varansi *tehsil* of Varanasi district. About 2 miles from Lohta Railway Station. Flat land. (ii) Upland tract. (iii) N.A. (iv) Fallow—wheat or barley, E. Paddy—pea and sugarcane. (v) It is a private farm and no definite research programme is carried out.

B. Normal rainfall in cm. :

June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	March	April	May	Total
8	32	28	24	7	—	—	3	—	—	—	1	103

(The average rainfall data is for the period 1955 to 1964.)

C. Irrigation and drainage facilities :

(i) (a) and (b) Tube well since 1942. (ii) Proper drainage system exists.

D. Soil type and soil analysis :

(i) Upland (major soil) and Dhanker (minor soil). Greyish white to light grey mottled with rusty brown spots, loose to granular in structure. (iii) Chemical analysis and (iii) Mechanical analysis :

	Upland soil (0 to 6")	Dhanker (0 to 6")
pH	7.5	7.9
Moisture (air dry)	1.43%	1.28%
Loss on ignition	2.13%	1.67%
HCl insoluble	85.52%	87.57%
R ₂ O ₃	8.48%	6.59%
CaO	0.76%	0.59%
MgO	0.61%	1.05%

K ₂ O	0.28%	0.27%
Fe ₂ O ₃	2.80%	3.12%
P ₂ O ₅	0.09%	0.08%
Al ₂ O ₃	5.59%	3.39%
Coarse sand	1.36%	0.60%
Fine sand	44.44%	52.21%
Silt	31.32%	28.60%
Clay	16.00%	14.65%

E. No. of experiments :

Wheat—3. Total=3.

62. Government Agricultural Farm, Pratapgarh.

A. General information :

(i) In Pratapgarh (Sadar) *tehsil* of Pratapgarh district. 1 mile from Pratapgarh Railway Station. Even land. (ii) N.A. (iii) Established in 1905. (iv) Sugarcane—*sanai* G.M.—wheat/barley, paddy/*gowar*—*berseem*, paddy—gram/peas, *sanai* (G.M.)—wheat/barley. (v) No research work is being done at the farm.

B. Normal rainfall in cm. :

June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	March	April	May	Total
5	30	26	19	4	—	—	1	—	—	—	2	87

(The average rainfall data is for the period 1954 to 1965).

C. Irrigation and drainage facilities :

(i) (a) and (b) Tube well, since 1957. (ii) Proper drainage system exists.

D. Soil type and soil analysis :

(i) Sandy loam. (ii) Chemical analysis—pH 7.7, organic carbon—0.18%, total soluble salts—0.42% and available P₂O₅—31.2 lb./ac. (iii) Mechanical analysis—N.A.

E. No. of experiments :

Wheat—4, Sugarcane—1, Total=5.

63. Government Research Farm, Pusa.

A. General information :

(i) In Bilhaur *tehsil* of Kanpur district. 1 mile from Uttari Pura Railway Station. Flat. land. (ii) Alluvial. (iii) Established in 1953. (iv) Paddy—pea, fallow or legume—wheat or barley. (v) Research is done on different fertilizers.

B. Normal rainfall in cm. :

Information—N.A.

C. Irrigation and drainage facilities :

(i) (a) N.A. (b) Canal irrigation. (ii) Proper drainage system exists.

D. Soil type and soil analysis :

(i) Alluvial, gangetic, very deep, light brown and single grained. (ii) Chemical analysis : pH 6.95, E. conductivity—0.56 m. mhos/cm., organic carbon—0.48%, available P₂O₅—8.0 lb /ac. (iii) Mechanical analysis : sand—68.8%, silt—20.72% and clay—10.48%.

E. No. of experiments :

Paddy—11, Wheat—24, Potato—5, Gram—2, Moong—1, *Sanai*—1, *Berseem*—5, Cluster bean—1, *Dhaincha*—1, Total=51.

64. State Usar Reclamation Farm, Rahimabad.**A. General information :**

(i) In Malihabad *tehsil* of Lucknow district. $\frac{1}{4}$ mile from Rahimabad Railway Station. The experimental area was slightly slopy but got levelled before conducting the experiments. (ii) Saline alkaline soils, alluvial tract. (iii) Established in 1950. (iv) *Kharif* : *Dhaincha* (G.M.)—paddy ; *Rabi* : Wheat and barley. (v) Experiments relating to reclamation of saline and alkaline lands are conducted.

B. Normal rainfall in cm. :

June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	March	April	May	Total
7	31	30	16	12	—	—	3	—	1	—	2	102

(The average rainfall data is for the period 1955 to 1964).

C. Irrigation and drainage facilities :

(i) (a) and (b) Tube well, canal but in limited area since 1957. (ii) On the farm, as a whole there is no proper drainage system.

D. Soil type and soil analysis :

(i) Gangetic alluvial soil, halomorphic phase. Sufficient soil depth are available. Light to dark grey. Platy and granular. (ii) Chemical analysis : pH—8.4 to 9.7, E. conductivity—0.406 to 5.097, total soluble salts—0.103 to 2.37. (iii) Mechanical analysis :

Depth	Coarse sand	Fine sand	Silt	Clay
0—6"	0.21%	64.08%	20.50%	19.00%
6"—18"	0.25%	53.45%	25.00%	27.00%
18"—30"	0.25%	51.88%	20.00%	27.00%

E. No. of experiments :

Paddy—3, Total=3.

65. Government Cotton Research Sub-Station, Raya.**A. General information :**

(i) In Mat *tehsil* of Mathura district. 3 km. from Raya Railway Station. The farm is well levelled and well laid out, but the drainage of a part of it is defective. (ii) The tract is characterised by dry climate and scanty rainfall. (iii) Established in 1918. (iv) G.M.—wheat—cotton—pea ; other crops grown—barley, gram, *moong*, *urd* and fodder. (v) Experiments are conducted on breeding, agronomic-cum-physiological, pest and disease aspects.

B. Normal rainfall in cm. :

June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	March	April	May	Total
2	21	30	19	5	1	—	1	1	1	—	1	82

(The average rainfall data is for the period 1955 to 1964).

C. Irrigation and drainage facilities :

(i) (a) and (b) Canal since long. (ii) No proper drainage system exists.

D. Soil type and soil analysis :

(i) Loam to sandy loam with moderate fertility. The south strip is characterised by gravelly sub-soil, greyish yellow and granular in structure. (ii) Chemical analysis : Organic carbon—0.55%, total nitrogen—0.43%, available nitrogen—0.014%, pH—7.0, available P_2O_5

0.00037% and conductivity in m. mhos/cm—0.69. (iii) Mechanical analysis: Clay—19.53% fine silt—9.17%, fine sand—54.09%, silt—13.78%, coarse sand—1.4% and misc.—2.03%.

E. No. of experiments :

Wheat—5, Pea—1, Sugarcane—1, Cotton—34, Mixed cropping—1, Total=42.

66. State Soil Conservation Research Demonstration and Training Centre, Rehmankhera.

A. General information :

(i) In Malihabad *tehsil* of Lucknow district. 3 miles from Kakon Railway Station. Slopy with 1 to 2.5% slopes. (ii) Alluvial tract. (iii) Established in 1956—1957. (iv) G.M.—wheat or potato, *jowar—arhar*, fallow—barley or gram; *urd—barley*, (v) Research pertaining to soils fertilizers, grasses and forest under eroded land.

B. Normal rainfall in cm :

June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	March	April	May	Total
7	28	34	17	9	—	—	2	1	1	—	2	101

(The average rainfall data is for the period 1954 to 1964.)

C. Irrigation and drainage facilities :

(i) (a) and (b) About 33% area is irrigated with the help of pumping set fitted on Behta Nala, which is perennial riverlet since beginning. (iii) Proper drainage system exists.

D. Soil type and soil analysis :

(i) Sandy loam to loamy sand, Deep alluvium, light brown and variable structure. (ii) Chemical analysis: pH—6.7 to 7.4, P_2O_5 —10 to 40% nitrogen 0.03 to 0.06%, K_2O —0.33 to 0.65% and organic matter—0.25 to 0.54%. (iii) Mechanical analysis: Sand—45.85%, silt—10.40% and clay—5.10%.

E. No. of experiments :

Wheat—14, Maize—6, Ashground—3, Sugarcane—3, Grass—1, Mixed cropping—11, Total=38.

67. Regional Research Station, Rudrapur.

A. General information :

(i) In Kichha *tehsil* of Nainital district. 9 miles from Kichha Railway Station. Slopy from north to south. (ii) Tarai region. (iii) Established in 1958. (iv) Wheat—barley—gram—pea—oats—*toria*, sugarcane—paddy, maize, *dhaincha—lobia* and *jowar*. (v) Varietal, manurial and weed control experiments are conducted.

B. Normal rainfall in cm. :

June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	March	April	May	Total
14	45	37	28	12	—	1	5	2	1	—	5	150

(The average rainfall data is for the period 1955 to 1964).

C. Irrigation and drainage facilities :

(i) (a) and (b) No irrigation facilities exist. (b) No proper drainage system exists.

D. Soil type and soil analysis :

(i) Loam to clay loam, 0 to 9" deep, grey and sticky in structure. (ii) Chemical analysis: pH 8.0 to 8.1, organic carbon 0.17 to 1.0%, nitrogen 0.07 to 0.10%, P_2O_5 0.065 to 0.071%. K_2O —0.79 to 0.86%. (iii) Mechanical analysis: Coarse sand—2.0 to 10.0%, fine sand—20 to 22%, silt—45 to 50% and clay 25 to 29%.

E. No. of experiments :

Wheat—4, Pea—1, Gram—1, Sugarcane—2, Cowpea—1. Total=9.

68. Government Horticultural Research Institute, Saharanpur.

A. General information :

(i) In Saharanpur *tehsil* of Saharnpur district. One mile from Saharanpur Railway Station. Generally levelled, but slightly sloping towards the river Dhomola on the eastern side of the experimental area. (ii) Foot hill area of Shiwalek extending into the plains of west U.P. (iii) Established in 1949. (iv) Mango, *litchi*, *loquat*, citrus, papaya, *guava*, pear, plum, peach, banana and grape wine. (v) Investigation resulting to the problem of tropical and sub tropical fruit growing in U.P.

B. Normal rainfall in 'cm. :

June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	March	April	May	Total
11	36	40	22	10	1	2	8	4	2	—	1	137

(The average rainfall data is for the period 1954 to 1963).

C. Irrigation and drainage facilities :

(i) (a) and (b) Tube well and canal since 1949. (ii) There is a proper drainage system.

D. Soil type and soil analysis :

(i) Loam, sandy loam, 6' to 14' deep, grey on the top and brown to redish brown sub soil. Generally structureless but at places showing blocky structure. (ii) Chemical analysis and (iii) Mechanical analysis :

Depth	0—12"	12'—31"
Moisture (air dry)	1.35%	2.05%
Loss on ignition	2.34%	3.93%
Si O ₂	84.86%	83.56%
Al ₂ O ₃	6.38%	6.51%
Fe ₂ O ₃	0.83%	1.79%
CaO	0.39%	0.29%
MgO	1.21%	1.26%
P ₂ O ₅	0.11%	0.10%
K ₂ O	0.51%	0.46%
C	0.66%	0.34%
N	0.02%	0.02%
pH	6.00%	N.A.
Coarse sand	11.44%	7.39%
Fine sand	56.47%	47.79%
Silt	16.45%	17.75%
Clay	14.55%	24.02%
Water holding capacity	33.89%	38.04%
Moisture equivalent	23.09%	25.69%

E. No of experiments :

Potato—2, Grass—1, Mangc—19, Citrus—5, Sweet organe—10, Mandarin—11, Lime—5, *Guava*—6, Peach—2, *Lichi*—5, *Papaya*—2. Total=68.

69. Sahupuri Agricultural Farm, Sahupuri.

A. General information to D. Soil type and soil analysis :

Information—N.A.

E. No. of experiments :

Paddy—1, Sugarcane—1, Cotton—1. Total=3.

70. Government Agricultural Farm, Saini.**A. General information :**

(i) In Sirathu *tehsil* of Allahabad district. 1 mile from Sirathu Railway Station. (ii) N.A. (iii) Established in 1958. (iv) Paddy—gram, paddy—pea, fodder—pea, cotton, *lobia*, sugarcane, early *urd*, *til*—barley ; G.M.—barley, G.M.—wheat and G.M.—paddy. (v) It is a seed multiplication farm.

B. Normal rainfall in cm. :

June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Jan.	Feb.	March	April	May	Total
3	30	20	17	5	—	—	2	1	1	—	1	80

(The average rainfall is for the period 1959 to 1964).

C. Irrigation and drainage facilities :

(i) (a) and (b) Tube well since 1958. (ii) No proper drainage system exists.

D. Soil type and soil analysis :

Information—N.A.

E. No. of experiments :

Sugarcane—1. Total=1.

71. Government Tobacco Research Station, Saraimiran.**A. General information :**

(i) In Kannauj *tehsil* of Farrukhabad district. Just adjacent to Kannauj Railway Station. The experimental area at the farm is not levelled to the desired standard. (ii) Alluvial soils. (iii) Established in 1954. (iv) *Kharif*: Maize—*dhaincha*—*jowar*—*arhar* and paddy, *Rabi*: Wheat—barley—gram—tobacco—pea—*berseem*, and potato. (v) Work on the improvement of indigenous tobacco under a scheme of Indian Central Tobacco Committee, Madras.

B. Normal rainfall in cm. :

June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Jan.	Feb.	March	April	May	Total
5	22	33	14	10	—	1	3	—	1	—	2	91

(The average rainfall is for the period 1955 to 1964.)

C. Irrigation and drainage facilities :

(i) (a) and (b) Tube well since 1951. (ii) Proper drainage system exist.

D. Soil type and soil analysis :

(i) Sandy loam to loam, 9" deep, greyish to light brown and crumbling in structure. (ii) Chemical analysis : pH—6.1 to 7.9, total soluble salts—0.09%, organic carbon—0.40 to 0.75%, available P_2O_5 —1.6 to 15.2 lb./ac. (iii) Mechanical analysis : Sand—65.08 to 74.08%, silt—17.28 to 20.28% and clay 8.64 to 15.64%.

E. No. of experiments :

Tobacco—20, Total=20.

72. Soil Conservation Research Station, Selakui.**A. General information :**

(i) In Dehra Dun *tehsil* of Dehra Dun district. 12 miles from Dehra Dun Railway Station. Rolling topography. (ii) Alluvial soils. (iii) Established in 1954. (iv) Maize—

wheat. (v) Soil and water conservation research covering the disciplines of soils, agronomy, agri-engineering and forestry.

B. Normal rainfall in cm. :

June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	March	April	May	Total
13	55	52	22	11	2	3	7	5	3	1	3	177

(The average rainfall data is for the period 1950 to 1963).

C. Irrigation and drainage facilities :

(i) (a) and (b) No. (ii) Soils are well-drained.

D. Soil type and soil analysis :

(i) Alluvial soils, mostly greyish brown to greyish yellow for surface soil and yellowish brown to brownish yellow for sub-soil, blocky, sub-angular, blocky or single grained. (ii) Chemical analysis and (iii) Mechanical analysis :

	Surface soil	Sub-soil
pH	6.0 to 7.2	4.8 to 7.8
Organic matter	0.4 to 2.5	0.1 to 1.3
Nitrogen	0.05 to 0.16	0.02 to 0.10
HCl Solubles		
Total CaO	0.14 to 1.00	0.10 to 1.00
Total P ₂ O ₅	0.13 to 0.23	0.020 to 2.20
Coarse sand	2.4 to 35.0	0.7 to 85.0
Fine sand	5.5 to 86.0	2.6 to 92.0
Silt	1.6 to 48.5	0.3 to 65.0
Clay	2.7 to 45.7	2.2 to 50.0

E. No. of experiments :

Wheat—6, Grass—1, Total=7.

73. Sugarcane Research Station, Shahjahanpur.

A. General information :

(i) In Shahjahanpur *tehsil* of Shahjahanpur district. 3 miles from Shahjahanpur Railway Station. In general there are uplands with even surface except in 3 blocks where there are slight slopes from north to south-west or east to west. (ii) Type—3, well drained soils. (iii) Established in 1941. (iv) *Sanai* (G.M.)—wheat/barley—russian giant *lobia*—sugarcane, *Sanai* (G.M.)—wheat/barley—*lobia*—sugarcane *ratoon*. (v) The main object is to evolve high yielding sugarcane varieties at economic cost suitable for different tracts of the State and suitable manurial and cultural schedule as well as methods for controlling diseases and pests.

B. Normal rainfall in cm. :

June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	March	April	May	Total
11	28	32	18	6	1	1	3	1	1	1	1	104

(The average rainfall data is for the period 1941 to 1960).

C. Irrigation and drainage facilities :

(i) (a) and (b) Canal and tube well. (ii) Proper drainage system exists.

D. Soil type and soil analysis :

(i) Type-3 sandy loam, 9" deep, greyish brown and granular in structure (ii) Chemical analysis and (iii) Mechanical analysis :

Field No. H₂

Depth	0"—9"	9"—32"
Moisture	0.67%	1.79%
Loss on ignition	2.07%	3.01%
HCl insoluble	82.18%	72.95%
P ₂ O ₅	13.33%	18.39%
Al ₂ O ₃	8.09%	12.67%
Fe ₂ O ₃	5.24%	5.7½%
CaO	0.42%	0.44%
MgO	0.99%	—
K ₂ O	0.10%	0.21%
P ₂ O ₅	0.09%	0.72%
Nitrogen	0.03%	0.04%
Organic carbon	0.34%	0.21%
C/N	12.44%	4.95%
C/P	3.73%	0.94%
Coarse sand	1.34%	0.29%
Fine sand	55.52%	10.72%
Silt	23.47%	52.57%
Clay	17.40%	33.60%
Water holding capacity	42.66%	58.30%
Moisture equivalent	22.49%	27.13%
Sticky pt. moisture	18.38%	26.35%
Basic exchange capacity	13.80%	18.20%
Exchangeable Ca m.e.	8.01%	9.00%
Total exchangeable bases m.e.	11.00%	14.00%
pH	6.6	6.2

E. No. of experiments :

Sugarcane—137, Total=137.

74. Rice Research Sub-Station, Tissuhi.*A. General information :*

(i) In Mirzapur *tehsil* of Mirzapur district. 19 miles from Mirzapur Railway Station. Even and flat land. (ii) Bindhyan soil. (iii) Established in 1935. (iv) Late paddy followed by fallow, linseed, gram, pea, *masoor* etc. (v) Usually varietal and manurial experiments on paddy are being conducted.

B. Normal rainfall in cm. :

Information—N.A.

C. Irrigation and drainage facilities :

(i) (a) N.A. (b) Canal. (ii) No proper drainage system exists.

D. Soil type and soil analysis :

(i) Karail (Khankar), 8' deep, grey in colour, silt cloddy in structure. (ii) Chemical analysis—Moisture—3.79 ; loss on ignition—4.20%, HCl insoluble 76.96%, R₂O₃ 12.28%, CaO 0.81%, MgO 0.91%, K₂O 0.50%, CO₂ 0.51, Fe₂O₃ 4.32%, P₂O₅ 0.04%, Al₂O₃ 7.93%. (iii) Mechanical analysis—Coarse sand 1.8%, fine sand—32.33%, silt—25.75% and clay—33.88%.

E. No. of experiments :

Paddy—16, Wheat—6, *Berseem*—1. Total=23.

75. Agricultural Farm, College of Agriculture, B.H.U., Varanasi.**A. General information :**

(i) In Varanasi *tehsil* of Varanasi district. 6 miles from Varanasi Cantt Railway Station. Uniformly level except certain portion of the farm which is low and suited for paddy cultivation. (ii) Gangetic alluvium. (iii) Established in 1932. (iv) As required by the teaching programme. (v) No fixed line of work.

B. Normal rainfall in cm. :

June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	March	April	May	Total
6	36	31	26	7	—	—	4	—	—	—	—	110

(The average rainfall data is for the period 1958 to 1964).

C. Irrigation and drainage facilities :

(i) (a) and (b) Tube well since 1955. (ii) General drainage good except on certain area in the farm where deep ditches are provided for removing surplus and standing water.

D. Soil type and soil analysis :

(i) Medium alluvium soil suited for cultivation of all most all crops. Korezons not distinctly formed. Light [brownish yellow and structureless to compact. (ii) Chemical analysis—pH—7.42%, N—0.05% to 0.04%, K₂O—0.50% to 0.30%, P₂O₅—0.5% to 0.10%, CaO—0.08% and organic carbon 0.5%. (iii) Mechanical analysis—Clay—20.0%, silt—25.0%, fine sand—35.0% and coarse sand—15.0%.

E. No. of experiments :

Paddy—3, Wheat—5, Barley—3, Oats—2, *Jowar*—1, Potato—1, Onion—3, Spinch—3, Pea—1, Gram—1, Brassica—2, Garlic—2. Total=27.

76. Regional Research Station, Varanasi.**A. General information :**

(i) In Varanasi *tehsil* of Varanasi district. 3 miles from Varanasi Cantt Railway Station. Flat (at slightly lower level than the surrounding fields). (ii) Brown grey alluvial soil. (iii) Established in 1856. (iv) No definite cropping pattern is observed on account of the experiments. (v) As per approved programme of research by the department of Agriculture, U.P.

B. Normal rainfall in cm. :

June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	March	April	May	Total
8	32	27	24	7	—	—	3	—	—	—	1	102

(The average rainfall data is for the period 1955 to 1964.)

C. Irrigation and drainage facilities :

(i) (a) and (b) Tube well since 1954. (ii) Proper drainage system exists.

D. Soil type and soil analysis :

(i) Banaras type III, brownish grey, moderately drained soil, 6" to 9" surface soil brownish grey and crumb in structure. (ii) Chemical analysis and (iii) Mechanical analysis :

Depth	0 to 9"	9" to 22"	22" to 33"
pH	6.8	6.6	6.2
Moisture (air dry)	1.46%	1.06%	1.28%
Loss on ignition	2.12%	2.56%	2.62%
HCl insoluble	84.67%	80.27%	75.46%
R ₂ O ₃	8.05%	12.29%	16.99%
CaO	0.28%	0.34%	0.45%

Mgo	1.29%	0.93%	1.13%
F ₂ O ₃	2.52%	1.60%	3.68%
P ₂ O ₅	0.0%	0.04%	0.05%
K ₂ O	1.03%	0.99%	1.06%
Water soluble salts	0.06%	0.07%	0.04%
MaHCO ₃	0.01%	0.01%	0.01%
NaCl	0.005%	0.008%	0.006%
Organic carbon	0.55%	0.23%	0.22%
Total Nitrogen	0.05%	0.03%	0.02%
Coarse sand	0.90%	3.20%	2.80%
Fine sand	42.25%	25.45%	25.07%
Silt	34.75%	34.50%	32.46%
Clay	17.13%	33.85%	35.93%

E. No. of experiments :

Paddy—34, Wheat—29, Barley—2, Potato—2, Pea—4, Sugarcane—5, Jowar fodder—4
Cowpea—1, Dhaincha—1, Mixed cropping—9. Total=91.

77. Udai Pratap College Farm, Varanasi.

A. General information :

(i) In Varanasi *tehsil* of Varanasi district. 2 miles from Varanasi Cantt Railway Station. Well levelled. (ii) Banaras type 3. (iii) Established in 1942. (iv) N.A. (v) No research work is done here.

B. Normal rainfall in cm. :

June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	March	April	May	Total
8	32	27	24	7	—	—	3	—	—	—	1	102

(The average rainfall data is for the period 1953 to 1964.)

C. Irrigation and drainage facilities :

(i) (a) and (b) Tube well since 1957. (ii) Surface drainage exists.

D. Soil type and soil analysis :

(i) Banaras type 3 (moderately drained loam soil), more than 10', grey in colour. (ii) Chemical analysis : pH—7.2, Total soluble salts—0.035% (normal), organic carbon—0.380%, P₂O₅—34.74 lb./ac. (iii) Mechanical analysis : Coarse sand—3.089%, fine sand—48.55%, silt—27.55% and clay—19.25%.

E. No. of experiments :

Wheat—5. Total=5.

Crop :- Gram (Rabi).**Ref :- U.P. 59(353).****Centre :- Rath (Hamirpur, c.f.).****Type :- 'M'.**

Object :—To study the effect of different doses of P alone and in combinations with N on Gram.

1. BASAL CONDITIONS :(i) (a) to (c) N.A. (ii) *Kabar* in 2 cases and *parwa* in 1. (iii) to (vi) N.A. (vii) Irrigated. (viii) to (x) N.A.**2. TREATMENTS :**

0 = Control.

P₁ = 30 lb./ac. of P₂O₅ as Super.P₂ = 60 lb./ac. of P₂O₅ as Super.n₁P₁ = 30 lb./ac. of P₂O₅ as Super + equivalent amount of N as available in 30 lb./ac. of Ammo. Phos.n₂P₂ = 60 lb./ac. of P₂O₅ as Super + equivalent amount of N as available in 60 lb./ac. of Ammo. Phos.P₁' = 30 lb./ac. of P₂O₅ as Ammo. Phos.P₂' = 60 lb./ac. of P₂O₅ as Ammo. Phos.**3. DESIGN :**(i) and (ii) 3 villages were selected and 1 field in each village was selected. (iii) (a) N.A. (b) 33' × 33'.
(iv) Yes.**4. GENERAL :**

(i) and (ii) N.A. (iii) Yield of grain. (iv) (a) 1959—only. (b) and (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 1333 lb./ac. (ii) 51.1 lb./ac. (iii) Treatment differences are highly significant. (iv) Av. yield of grain in lb./ac.

Treatment	0	P ₁	P ₂	n ₁ P ₁	n ₂ P ₂	P ₁ '	P ₂ '
Av. yield	997	1237	1352	1371	1483	1403	1491

S.E./mean = 29.5 lb./ac.

Crop :- Gram (Rabi).**Ref :- U.P. 59(354).****Centre :- Hamirpur (Hamirpur, c.f.).****Type :- 'M'.**

Object :—To study the effect of different doses of P alone and in combination with N on Gram.

1. BASAL CONDITIONS :(i) (a) to (c) N.A. (ii) *Parwa* in 2 cases and *kabar* in 1. (iii) to (vi) N.A. (vii) Irrigated. (viii) to (x) N.A.**2. TREATMENTS to 4. GENERAL :**

Same as in expt. no. 59(353) above.

5. RESULTS :

(i) 1248 lb./ac. (ii) 68.1 lb./ac. (iii) Treatment differences are highly significant. (iv) Av. yield of grain in lb./ac.

Treatment	0	P ₁	P ₂	n ₁ P ₁	n ₂ P ₂	P ₁ '	P ₂ '
Av. yield	941	1115	1253	1283	1387	1331	1427

S.E./mean = 39.3 lb./ac.

Crop :- Gram (Rabi).**Ref :- U.P. 58(191).****Centre :- Rath (Hamirpur, c.f.).****Type :- 'M'.**

Object :—To study the effect of different doses of P through different sources on the yield of Gram.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Light *kabir*. (iii) to (vi) N.A. (vii) Irrigated. (viii) to (x) N.A.

2. TREATMENTS :

All combinations of (1) and (2)+one control

(1) 2 levels of P_2O_5 : $P_1=30$ and $P_2=60$ lb./ac.

(2) 2 sources of P_2O_5 : $S_1=$ Super and $S_2=B.M.$

P_2O_5 applied deep in furrows before sowing.

3. DESIGN :

(i) and (ii) 3 villages were selected in the *tehsil* and one field in each village was selected. (iii) (a) N.A. (b) $33' \times 33'$. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Grain yield. (iv) (a) 1958 and (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 1392 lb./ac. (ii) 59.6 lb./ac. (iii) P effect and 'control vs. others' are highly significant. (iv) Av. yield of grain in lb/ac.

Control = 1136 lb./ac.

	S_1	S_2	Mean
P_1	1381	1397	1389
P_2	1517	1531	1524
Mean	1449	1464	1456

S.E. of any marginal mean = 24.3 lb./ac.

S.E. of body of table = 34.4 lb./ac.

Crop :- Gram (*Rabi*).

Ref :- U.P. 54(337).

Centre :- Zamaina (Ghazipur c.f.).

Type :- 'M'.

Object :—To study the effect of different levels of P on the yield of Gram.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Early paddy in 2 trials and fallow in 2 trials. (c) N.A. (ii) Clayey loam. (iii) to (v) N.A. (vi) 17.10.1954 to 22.10.1954. (vii) Unirrigated. (viii) and (ix) N.A. (x) 25.2.1955 to 14.3.1955.

2. TREATMENTS :

3 levels of P_2O_5 as Super : $P_0=0$, $P_1=30$ and $P_2=50$ lb./ac.

Super placed deep in furrows.

3. DESIGN :

(i) and (ii) 2 villages were selected in the *tehsil*. In each village 2 fields were selected. (iii) Different sizes. (b) $33' \times 33'$. (iv) Yes.

4. GENERAL :

(i) Poor in 2 trials due to drought and fair in 2 trials. (ii) N.A. (iii) Yield of grain and straw. (v) (a) No. (b) and (c) N.A. (v) N.A. (vi) Nil. (vii) As the interaction villages \times treatments comes out non significant when tested with treatments \times fields within villages, these two have been pooled together to get error for testing treatments.

5. RESULTS :

(i) 656.7 lb./ac. (ii) 29.6 lb./ac. (iii) Treatment differences are highly significant. (iv) Av. yield of grain in lb/ac.

Treatment	P ₀	P ₁	P ₂
Av. yield	600	665	705

S.E./mean = 14.8 lb./ac.

Crop :- Gram (Rabi).

Ref :- U.P. 54(336).

Centre :- Mahamadabad (Ghazipur, c.f.).

Type :- 'M'.

Object :—To draw out suitable fertilizer schedule for agriculturally important soil type.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Fallow. (c) Nil. (ii) Clayey loam. (iii) to (v) N.A. (vi) 18.10.1954 to 21.10.1954. (vii) Unirrigated. (viii) and (ix) N.A. (x) 25.2.1955 to 2.3.1955.

2. TREATMENTS :

3 levels of P₂O₅ as Super : P₀=0, P₁=30 and P₂=50 lb./ac.
Super placed deep in furrows.

3. DESIGN :

(i) and (ii) 3 villages were selected in the *Tehsil*. In 2 villages 1 field each and in 1 village 2 fields were selected. (iii) (a) Different sizes. (b) 33' × 33'. (iv) Yes.

4. GENERAL :

(i) Fair. (ii) N.A. (iii) Yield of grain and straw. (iv) (a) and (b) No. (c) Nil. (v) (a) and (b) N.A. (vi) Nil. (vii) As the interaction villages × treatments comes out non-significant when tested with treatments × fields within villages, these two have been pooled together to get error for testing treatments.

5. RESULTS :

(i) 1583 lb./ac. (ii) 162.7 lb./ac. (iii) Treatment differences are not significant. (iv) Av. yield of grain in lb./ac.

Treatment	P ₀	P ₁	P ₂
Av. yield	1450	1550	1750

S.E./mean = 81.3 lb./ac.

Crop :- Bengal Gram (Rabi).

Ref :- U.P. 58(SFT).

Centre :- Aligarh (c.f.).

Type :- 'M'.

Object :—Type C—To compare the responses of leguminous crops to alternative levels of phosphate.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Alluvial. (iii) to (v) N.A. (vi) October—November. (vii) Unirrigated. (viii) and (ix) N.A. (x) April.

2. TREATMENTS :

3 levels of P₂O₅ as Super : P₀=0, P₁=30 and P₂=60 lb./ac.

3. DESIGN :

(i) and (ii) The district has been divided into four agriculturally homogeneous zones and one field assistant has been posted in each zone. The field assistant conducts the trials in one revenue circle or *thana* in the zone and the circle/*thana* is changed once in two years within the same zone. Each field assistant is required to conduct 31 trials in a year, 8 on a *kharif* cereal, 8 on a *rabi* cereal, 8 on cash crops, 4 on an oilseed crop and 3 on a leguminous crop. Half the number of trials conducted are of type A and the other half of type B on crops other than the legumes. The three trials on legumes are of type C. Residual effects of phosphate application are studied on type C trials in two out of the four zones in each district every year. The experiments are laid out in randomly located fields in randomly selected villages in each of the 4 zones at the rate of one experiment per village. (iii) (a) N.A.. (b) 1/80 ac. (iv) Yes.

4. GENERAL :

(i) Normal. (ii) N.A. (iii) Grain yield. (iv) (a) 1958—contd. (b) No. (c) N.A. (v) As per design. (vi) and (vii) N.A.

5. RESULTS :

Treatment	P ₀	P ₁	P ₂
Av. yield of grain in lb./ac.	946	1070	1185

G.M. = 1067 lb./ac. ; S.E./mean = 37.2 lb./ac. and no. of trials = 3.

Crop :- Bengal gram (Rabi).

Ref :- U.P. 58(SFT).

Centre :- Farrukhabad (c.f.).

Type :- 'M'.

Object :— Type C—To compare the responses of leguminous crops to alternative levels of phosphate.

1. BASAL CONDITIONS to 4. GENERAL :

Same as in expt. no. 58(SFT) type C on page 899, conducted at Aligarh.

5. RESULTS :

Treatment	P ₀	P ₁	P ₂
Av. yield of grain in lb./ac.	1424	2098	2279

G.M. = 1934 lb./ac. ; S.E./mean = 63.4 lb./ac. and no. of trials = 6.

Crop :- Bengal gram (Rabi).

Ref :- U.P. 59(SFT).

Centre :- Farrukhabad, (c.f.).

Type :- 'M'.

Object :— Type C—To compare the responses of leguminous crops to alternative levels of phosphate.

1. BASAL CONDITIONS to 4. GENERAL :

Same as in expt. no. 58(SFT) type C on page 899 conducted at Aligarh.

5. RESULTS :

Treatment	P ₀	P ₁	P ₂
Av. yield of grain in lb./ac.	1481	1703	1851

G.M. = 1678 lb./ac. ; S.E./mean = 18.0 lb./ac. and no. of trials = 5.

Crop :- Bengal gram (Rabi).

Ref :- U.P. 58(SFT).

Centre :- Fatehpur (c.f.).

Type :- 'M'.

Object :— Type C—To compare the responses of leguminous crops to alternative levels of phosphate.

1. BASAL CONDITIONS to 4. GENERAL :

Same as in expt. no. 58(SFT) type C on page 899 conducted at Aligarh.

5. RESULTS :

Treatment	P ₀	P ₁	P ₂
Av. yield of grain in lb./ac.	1045	1111	1259

G.M. = 1138 lb./ac. ; S.E./mean = 36.1 lb./ac. and no. of trials = 12.

Crop :- Bengal gram (Rabi).**Ref :- U.P. 58(SFT).****Centre :- Kanpur (c.f.).****Type :- 'M'.**

Object :— Type C—To compare the responses of leguminous crops to alternative levels of phosphate.

1. BASAL CONDITIONS to 4. GENERAL :

Same as in expt. no. 58(SFT) type C on page 899 conducted at Aligarh.

5. RESULTS :

Treatment	P ₀	P ₁	P ₂
Av. yield of grain in lb./ac.	1004	1201	1415

G.M. = 1207 lb./ac. ; S.E./mean = 34.9 lb./ac. and no. of trials = 11.

Crop :- Bengal gram (Rabi).**Ref :- U.P.59 (SFT).****Centre :- Kanpur (c.f.).****Type :- 'M'.**

Object :— Type C—To compare the responses of leguminous crops to alternative levels of phosphate.

1. BASAL CONDITIONS to 4. GENERAL :

Same as in expt. no. 58(SFT) type C on page 899 conducted at Aligarh.

5. RESULTS :

Treatment	P ₀	P ₁	P ₂
Av. yield of grain in lb./ac.	1185	1004	1514

G.M = 1234 lb./ac. ; S.E./mean = 22.1 lb./ac. and no. of trials = 9.

Crop :- Bengal gram (Rabi).**Ref :- U.P. 58(SFT).****Centre :- Lakhimpur (c.f.).****Type :- 'M'.**

Object :— Type C—To compare the responses of leguminous crops to alternative levels of phosphate.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Tarai and sub-montane. (iii) to (v) N.A. (vi) October—November. (vii) Unirrigated. (viii) and (ix) N.A. (x) April.

2. TREATMENTS to 4. GENERAL :

Same as in expt. no. 58(SFT) type C on page 899 conducted at Aligarh.

5. RESULTS :

Treatment	P ₀	P ₁	P ₂
Av. yield of grain in lb./ac.	946	1234	1514

G.M. = 1231 lb./ac. ; S.E./mean = 43.6 lb./ac. and no. of trials = N.A.

Crop :- Bengal gram (Rabi).**Ref :- U.P. 59(SFT).****Centre :- Lakhimpur (c.f.).****Type :- 'M'.**

Object :—Type C—To compare the responses of leguminous crops to alternative levels of phosphate.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) *Tarai* and sub-montane. (iii) to (v) N.A. (vi) October—November, 1959. (vii) Unirrigated. (viii) and (ix) N.A. (x) April 1960.

2. TREATMENTS to 4. GENERAL :

Same as in expt. no. 58(SFT) type C on page 899 conducted at Aligarh.

5. RESULTS :

Treatment	P ₀	P ₁	P ₂
Av. yield of grain in lb./ac.	527	708	773
G.M. = 669 lb./ac. ; S.E./mean = 30.3 lb./ac. and no. of trials = 6.			

Crop :- Bengal gram (*Rabi*).

Ref :- U.P. 58(SFT).

Centre :- Lucknow (c.f.).

Type :- 'M'.

Object :—Type C—To compare the responses of leguminous crops to alternative levels of phosphate.

1. BASAL CONDITIONS to 4. GENERAL :

Same as in expt. no. 58(SFT) type C on page 899 conducted at Aligarh.

5. RESULTS :

Treatment	P ₀	P ₁	P ₂
Av. yield of grain in lb./ac.	1580	1794	2041
G.M. = 1805 lb./ac. ; S.E./mean = 12.2 lb./ac. and no. of trials = 12.			

Crop :- Bengal gram (*Rabi*).

Ref :- U.P. 59(SFT).

Centre :- Lucknow (c.f.).

Type :- 'M'.

Object :—Type C—To compare the responses of leguminous crops to alternative levels of phosphate.

1. BASAL CONDITIONS to 4. GENERAL :

Same as in expt. no. 58(SFT) type C on page 899 conducted at Aligarh.

5. RESULTS :

Treatment	P ₀	P ₁	P ₂
Av. yield of grain in lb./ac.	1103	1300	1506
G.M. = 1303 lb./ac. ; S.E./mean = 15.7 lb./ac. and no. of trials = 12.			

Crop :- Bengal gram (*Rabi*).

Ref :- U.P. 58(SFT).

Centre :- Moradabad, (c.f.).

Type :- 'M'.

Object :—Type C—To compare the responses of leguminous crops to alternative levels of phosphate.

1. BASAL CONDITIONS to 4. GENERAL :

Same as in expt. no. 58(SFT) type C on page 899 conducted at Aligarh.

5. RESULTS :

Treatment	P ₀	P ₁	P ₂
Av. yield of grain in lb./ac.	1070	1522	1621

G.M. = 1404 lb./ac. ; S.E./mean = 31.4 lb./ac. and no. of trials = 3.

Crop :- Bengal gram (*Rabi*).

Ref :- U.P. 59(SFT).

Centre :- Moradabad (c.f.).

Type :- 'M'.

Object :—Type C—To compare the responses of leguminous crops to alternative levels of phosphate.

1. BASAL CONDITIONS to 4. GENERAL :

Same as in expt. no 58(SFT) type C on page 899 conducted at Aligarh.

5. RESULTS :

Treatment	P ₀	P ₁	P ₂
Av. yield of grain in lb./ac.	1284	1744	1868

G.M. = 1632 lb./ac. ; S.E./mean = 54.7 lb./ac. and no. of trials = 9.

Crop :- Bangal gram (*Rabi*).

Ref :- U.P. 58(SFT).

Centre :- Muzaffarnagar (c.f.).

Type :- 'M'.

Object :—Type C—To compare the responses of leguminous crops to alternative levels of phosphate.

1. BASAL CONDITIONS to 4. GENERAL :

Same as in expt. no. 58(SFT) type C on page 899 conducted at Aligarh.

5. RESULTS

Treatment	P ₀	P ₁	P ₂
Av. yield of grain in lb./ac.	1210	1588	2008

G.M. = 1602 lb./ac. ; S.E./mean = 28.5 lb./ac. and no. of trials = 6.

Crop :- Bengal gram (*Rabi*).

Ref :- U.P. 58(SFT).

Centre :- Muzaffarnagar (c.f.).

Type :- 'M'.

Object :—Type C—To compare the responses of leguminous crops to alternative levels of phosphate.

1. BASAL CONDITIONS to 4. GENERAL :

Same as in expt. no. 58(SFT) type C on page 899 conducted at Aligarh.

5. RESULTS :

Treatment	P ₀	P ₁	P ₂
Av. yield of grain lb./ac. in	1111	1695	2222

G.M. = 1676 lb./ac. ; S.E./mean = 43.6 lb./ac. and no. of trials = 3.

Crop :- Bengal gram (Rabi).

Ref :- U.P. 58(SFT).

Centre :- Pilibhit (c.f.).

Type :- 'M'.

Object :—Type C—To compare the responses of leguminous crops to alternative levels of phosphate.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) *Tarai* and Sub-montane. (iii) to (v) N.A. (vi) October—November. (vii) Unirrigated. (viii) and (ix) N.A. (x) April, 1959.

2. TREATMENTS to 4. GENERAL :

Same as in expt. no. 58 (SFT) type C on page 899 conducted at Aligarh.

5. RESULTS :

Treatment	P ₀	P ₁	P ₂
Av. yield of grain in lb. ac.	650	732	815

G.M. = 732 lb./ac. ; S.E./mean = 12.2 lb./ac. and no. of trials = N.A.

Crop :- Bengal gram (Rabi).

Ref :- U.P. 59(SFT).

Centre :- Pilibhit (c.f.).

Type :- 'M'.

Object :—Type C—To compare the responses of leguminous crops to alternative levels of phosphate.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) *Tarai* and Sub-montane. (iii) to (v) N.A. (vi) October—November, 1959. (vii) Unirrigated. (viii) and (ix) N.A. (x) April, 1960.

2. TREATMENTS to 4. GENERAL :

Same as in expt. no. 51 (SFT) type C on page 899 conducted at Aligarh.

5. RESULTS :

Treatment	P ₀	P ₁	P ₂
Av. yield of grain in lb. /ac.	798	996	1094

G.M. = 963 lb./ac. ; S.E./mean = 28.5 lb./ac. and no. of trials = 18.

Crop :- Bengal gram (Rabi).

Ref :- U.P. 59(SFT).

Centre :- Rae Bareilly (c.f.).

Type :- 'M'.

Object :—Type C—To compare the responses of leguminous crops to alternative levels of phosphate

1. BASAL CONDITIONS :

Same as in expt. no. 51 (SFT) type C on page 899 conducted at Aligarh.

5. RESULTS :

Treatment	P ₀	P ₁	P ₂
Av. yield of grain in lb./ac.	1481	1679	1843

G.M. = 1668 lb./ac. ; S.E./mean = 17.5 lb./ac. and no. of trials = 6.

Crop :- Bengal gram (Rabi).

Ref :- U.P. 58(SFT).

Centre :- Raebareilly (c.f.).

Type :- 'M'.

Object :—Type C—To compare the responses of leguminous crops to alternative levels of phosphate.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) *Tarai* and sub-montane. (iii) to (v) N.A. (vi) October—November, 1958. (vii) Unirrigated. (viii) and (ix) N.A. (x) April, 1959.

2. TREATMENTS to 4. GENERAL :

Same as in expt. no. 58(SFT) type C on page 899 conducted at Aligarh.

5. RESULTS :

Treatment	P ₀	P ₁	P ₂
Av. yield of grain in lb./ac.	831	1177	1333

G.M. = 1114 lb./ac. ; S.E./mean = 47.7 lb./ac. and no. of trials = 12.

Crop :- Bengal gram (*Rabi*).

Ref :- U.P. 59(SFT).

Centre :- Rampur (c.f.).

Type :- 'M'.

Object :—Type C—To compare the responses of leguminous crops to alternative levels of phosphate.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) *Tarai* and sub-montane. (iii) to (v) N.A. (vi) October—November, 1959. (vii) Unirrigated. (viii) and (ix) N.A. (x) April, 1960.

2. TREATMENTS to 4. GENERAL :

Same as in expt. no. 58(SFT) type C on page 899 conducted at Aligarh.

5. RESULTS :

Treatment	P ₀	P ₁	P ₂
Av. yield of grain in lb./ac.	938	1160	1366

G.M. = 1155 lb./ac. ; S.E./mean = 35.5 lb./ac. and no. of trials = 8.

Crop :- Bengal gram (*Rabi*).

Ref :- U.P. 59(SFT).

Centre :- Varanasi (c.f.).

Type :- 'M'.

Object :—Type C—To compare the responses of leguminous crops to alternative levels of phosphate.

1. BASAL CONDITIONS to 4. GENERAL :

Same as in expt. no. 58(SFT) type C on page 899 conducted in Aligarh.

5. RESULTS :

Treatment	P ₀	P ₁	P ₂
Av. yield of grain in lb./ac.	1292	1473	1646

G.M. = 1470 lb./ac. ; S.E./mean = 21.5 lb./ac. and no. of trials = 6.

Crop :- Gram (*Rabi*).

Ref :- U.P. 57(268).

Site :- B.R. College Insttl. Res. Farm, Bichpuri.

Type :- 'MV'.

Object :—To study the effect of different levels of P on different varieties of Gram.

1. BASAL CONDITIONS :

- (i) (a) N.A. (b) Maize. (c) \uparrow .A. (ii) (a) Sandy loam. (b) Refer soil analysis, Bichpuri. (iii) 17.10.1957.
 (iv) (a) 2 ploughings. (b) Behind the plough. (c) 30 srs./ac. (d) Rows 1' apart. (e) N.A. (v) N.A. (vi)
 As per treatments (vii) N.A. (viii) 1 ridge making, thinning and weeding. (ix) N.A. (x) 27.3.1958.

2. TREATMENTS :

All combinations of (1) and (2)

(1) 4 levels of P_2O_5 as Supe : $P_0=0, P_1=30, P_2=60$ and $P_3=90$ lb./ac.

(2) 3 varieties : $V_1=T-8, V_2=T-7$ and $V_3=Local$.

P_2O_5 applied in furrows by *desi* plough at a depth of 4" to 6".

3. DESIGN :

- (i) Fact. in R.B.D. (ii) (a) 12. (b) N.A. (iii) 4. (iv) (a) N.A. (b) $22' \times 17'$. (v) N.A. (vi) Yes.

4. GENERAL :

- (i) Normal. (ii) N.A. (iii) Plant : height, flowering and yield of grain and straw. (iv) (a) and (b) No. (c)
 Nil. (v) to (vii) Nil.

5. RESULTS :

- (i) 1714 lb./ac. (ii) 465.5 lb./ac. (iii) Main effect of P alone is highly significant. (iv) Av. yield of grain
 in lb./ac.

	P_0	P_1	P_2	P_3	Mean
V_1	208	1510	2047	2541	1826
V_2	035	1397	1992	2339	1691
V_3	904	1375	1851	2372	1626
Mean	049	1427	1963	2417	1714

S.E. of V marginal mean = 116.4 lb./ac.
 S.E. of P marginal mean = 134.4 lb./ac.
 S.E. of body of table = 232.7 lb./ac.

Crop :- Gram (Rabi).

Ref :- U.P. 57(354).

Site :- Reg. Res. Stn., Alwarukh.

Type :- 'C'.

Object :- To study the effect of varying seed rates on the yield of Gram.

1. BASAL CONDITIONS :

- (i) (a) Nil. (b) Fallow. (c) Nil. (ii) (a) *Parwa+kabar*. (b) N.A. (iii) 21.10.1957. (iv) (a) 4 cultivations
 and 3 plankings. (b) By seed drill. (c) As per treatments. (d) and (e) N.A. (v) Nil. (vi) T-1. (vii)
 Irrigated. (viii) and (ix) N.A. (x) 7.2.1958.

2. TREATMENTS :

6 seed rates : $R_1=10, R_2=15, R_3=20, R_4=25, R_5=30$ and $R_6=35$ srs./ac.

3. DESIGN :

- (i) R.B.D. (ii) (a) 6. (b) N.A. (iii) 1. (iv) (a) N.A. (b) $29' \times 25'$. (v) N.A. (vi) Yes.

4. GENERAL :

- (i) N.A. (ii) Nil. (iii) Yield of grain and straw. (iv) (a) 1957-1958. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

- (i) 1089 lb./ac. (ii) 277.8 lb./ac. (iii) Treatment differences are not significant. (iv) Av. yield of grain
 in lb./ac.

Treatment	R ₁	R ₂	R ₃	R ₄	R ₅	R ₆
Av. yield	935	809	1120	1022	1400	1246

S.E./mean = 138.9 lb./ac.

Crop :- Gram (Rabi).

Ref :- U.P. 58(133).

Site :- Reg. Res. Stn., Amrukh.

Type :- 'C'.

Object :— To study the effect of varying seed rates on the yield of Gram.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) and (c) N.A. (ii) (a) *Kabar*. (b) N.A. (iii) N.A. (iv) (a) 8 *bakhras*. (b) N.A. (c) As per treatments. (d) and (e) N.A. (v) Nil. (vi) T—1. (vii) N.A. (viii) Nil. (ix) and (x) N.A.

2. TREATMENTS :

Same as in expt. no. 57(354) on page 906.

3. DESIGN :

(i) R.B.D. (ii) (a) 6. (b) N.A. (iii) 4. (iv) (a) and (b) 29' × 25'. (v) Nil. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Nil. (iii) Yield of grain. (iv) (a) 1957—1958. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 1114 lb./ac. (ii) 273.2 lb./ac. (iii) Treatment differences are not significant. (iv) Av. yield of grain in lb /ac.

Treatment	R ₁	R ₂	R ₃	R ₄	R ₅	R ₆
Av. yield	934	809	1119	1021	1477	1323

S.E./mean = 136.6 lb./ac.

Crop :- Gram (Rabi).

Ref :- U.P. 56(241).

Site :- Student's Instrtl. Farm, Govt. Agri. College, Kanpur. Type :- 'C'.

Object :— To study the effect of toppings on Gram.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) *Chari*. (c) N.A. (ii) (a) Medium loam. (b) Refer soil analysis, Kanpur. (iii) 28.10.1956. (iv) (a) 2 victory ploughings, 1 harrowing and 1 cultivator followed by planking. (b) Behind the plough. (c) 30 srs./ac. (d) 12" between rows. (e) N.A. (v) Nil. (vi) T—87. (vii) Unirrigated. (viii) As per treatments. (ix) 2.19". (x) 25.3.1957.

2. TREATMENTS :

3 cultural treatments : T₀=No topping, T₁=1 topping (41 days after sowing) and T₂=2 toppings (41 and 62 days after sowing).

About 1" length of the top was nipped off from each branch by hand.

3. DESIGN :

(i) R.B.D. (ii) (a) 3. (b) N.A. (iii) 5. (iv) (a) 33' × 22'. (b) 29' × 18'. (v) 2' × 2'. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Nil. (iii) Germination, height of plant and grain yield. (iv) (a) and (b) No. (c) Nil. (v) (a) and (b) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 806 lb./ac. (ii) 440.8 lb./ac. (iii) Treatment differences are not significant. (iv) Av. yield of grain in lb./ac.

Treatment	T ₀	T ₁	T ₂
Av. yield	849	855	714

S.E./mean = 197.2 lb./ac.

Crop :- Gram (Rabi).

Ref :- U.P. 57(323).

Site :- Students. Instrtl. Farm, Govt. Agri. College, Kanpur. Type :- 'C'.

Object :-To determine the effect of hot weather cultivation on the yield of Gram.

1. BASAL CONDITIONS :

(i) (a) *Jowar*—Gram—Wheat. (b) *Jowar*. (c) Nil. (ii) (a) Sandy loam. (b) Refer soil analysis, Kanpur. (iii) 2.11.1957. (iv) (a) 1 victory ploughing, 3 plankings and 2 *desi* ploughings followed by plankings. (b) Behind the plough. (c) 30 srs./ac. (d) 12" between rows. (e) N.A. (v) Nil. (vi) T—87. (vii) Irrigated. (viii) 1 weeding. (ix) 1.50". (x) 24.3.1958.

2. TREATMENTS :

T₀=Control (no hot weather cultivation) and T₁=Hot weather cultivation.

3. DESIGN :

(i) R.B.D. (ii) (a) 2. (b) N.A. (iii) 6. (iv) (a) 29'×25'. (b) 26'×22'. (v) 1.5' around. (vi) Yes.

4. GENERAL :

(i) N.A. (ii) Nil. (iii) Grain yield. (iv) (a) and (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 1181 lb./ac. (ii) 377.5 lb./ac. (iii) Treatment difference is not significant. (iv) Av. yield of grain in lb./ac.

Treatment	T ₀	T ₁
Av. yield	1159	1203

S.E./mean = 154.1 lb./ac.

Crop :- Gram (Rabi).

Ref :- U.P. 59(224).

Site :- Agri. College Farm, B.H.U., Varanasi.

Type :- 'CMV'.

Object :-To study the effect of topping and different levels of P on different varieties of Gram.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) *Jowar* (fodder). (c) N.A. (ii) (a) Medium alluvial soil. (b) Refer soil analysis, Varanasi. (iii) 28.10.1959. (iv) (a) 3 ploughings, planking, harrowing and levelling. (b) Behind the plough. (c) 40 srs./ac. (d) and (e) N.A. (v) Nil. (vi) As per treatments. (vii) Irrigated. (viii) 1 weeding. (ix) N.A. (x) 25.3.1960.

2. TREATMENTS :

All combination of (1), (2) and (3)

(1) 3 levels of P₂O₅ as Super : P₁=25, P₂=50 and P₃=75 lb./ac.

(2) 2 toppings : T₀=No topping and T₁=1 topping.

(3) 2 varieties : V₁=T—87 and V₂=T—1.

P₂O₅ applied before sowing at 3" deep. Topping was done when the plants were 38 days old (at the initiation of branching). About 1" length of tops were nipped off from each branch by hand.

3. DESIGN :

(i) Fact. in R.B.D. (ii) (a) 12. (b) N.A. (iii) 4. (iv) (a) 36'×24'. (b) 32'×20'. (v) 2'×2'. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of grain. (iv) (a) and (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 2363 lb./ac. (ii) 252.7 lb./ac. (iii) Main effect of P is highly significant and that of V is significant. (iv) Av. yield of grain in lb./ac.

	P ₁	P ₂	P ₃	Mean	V ₁	V ₂
T ₀	2146	2422	2461	2343	2261	2425
T ₁	2150	2488	2510	2383	2314	2452
Mean	2148	2455	2486	2363	2288	2438
V ₁	2053	2353	2458			
V ₂	2243	2557	2513			

S.E. of V or T marginal mean	= 51.6 lb./ac.
S.E. of P marginal mean	= 63.2 lb./ac.
S.E. of body of T×P or P×V table	= 89.3 lb./ac.
S.E. of body of T×V table	= 72.9 lb./ac.

Crop :- Gram (Rabi).

Ref :- U.P. 58(30).

Site :- Reg. Res. Stn., Meerut.

Type :- 'D'.

Object :-To study the effect of insecticides in controlling the Gram diseases.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Cotton. (c) No. (ii) (a) Silt loam. (b) Refer soil analysis, Meerut. (iii) 28.11.1958. (iv) (a) 3 ploughings. (b) Behind the plough. (c) 35 srs./ac. (d) Rows 1' apart. (e) Nil. (v) Nil. (vi) T-87 (early). (vii) Irrigated. (viii) 1 weeding. (ix) 8.84". (x) 19.4.1959.

2. TREATMENTS :

T₀=Control no spray (2 plots), T₁=Spraying with 0.3% D.D.T suspension at 50 gallons/ac., T₂=Spraying with 0.5 % D.D.T. suspension at 50 gallons/ac., T₃=Spraying with 0.2 % Endrin emulsion at 50 gallons/ac., T₄=Dusting with 10% D.D.T. at 30 lb./ac., T₅=Spraying with 0.05% Diazion emulsion at 50 gallons/ac. and T₆=Spraying with 0.1 % Lindane emulsion at 50 gallons/ac.
Sprayings done on 11.4.1959.

3. DESIGN :

(i) R.B.D. (ii) (a) 8. (b) 306'×150'. (iii) 4. (iv) (a) 33'×33'. (b) 30'×30'. (v) 1½'×1½'. (vi) Yes.

4. GENERAL :

(i) Poor. (ii) Gram pod borer attack. Control measures as per treatments. (iii) Yield of grain and damaged pod percentage. (iv) (a) and (b) No. (c) Nil. (v) (a) and (b) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 906 lb./ac. (ii) 123.3 lb./ac. (iii) Treatment differences are not significant. (iv) Av. yield of grain in lb./ac.

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄	T ₅	T ₆
Av. yield	929	920	865	811	904	947	944

S.E./mean except control = 61.6 lb./ac.

S.E. of control mean = 43.6 lb./ac.

(i) 14.80 degrees. (ii) 3.80 degrees. (iii) Treatment differences are not significant. (iv) Mean % of damaged pods in degrees.

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄	T ₅	T ₆
Mean angle	15.80	14.42	13.74	13.53	14.90	14.90	15.32

S.E./mean except control = 1.50 degrees.

S.E. of control mean = 1.34 degrees.

% of damaged pods after applying bias correction 7.84 6.64 6.08 5.92 7.04 7.04 7.41

Crop :- Gram (Rabi).

Ref :- U.P. 56(401).

Site :- Reg. Res. Stn., Rudrapur.

Type :- 'D'.

Object :—To study the effect of insecticides against the Gram pod borer.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) (a) Loam to clay loam. (b) Refer soil analysis, Rudrapur. (iii) to (v) N.A. (vi) *Kabuli white*. (vii) to (ix) N.A. (x) 22.4.1957.

2. TREATMENTS :

7 spraying treatments : T₀=Control, T₁=Spraying with 0.5 % D.D.T. at 50 gallons/ac. during middle of March, T₂=Spraying with 0.5 % D.D.T. at 50 gallons/ac. in the first and 2nd application at 2 weeks interval, T₃=Spraying with 0.2 % Endrin at 50 gallons/ac. during middle of March, T₄=Spraying with 0.2 % Endrin at 50 gallons/ac. in the first and 2nd application at 2 weeks interval, T₅=Spraying with 10 % D.D.T. at 30 lb./ac. during March and T₆=Spraying with 10 % D.D.T. at 30 lb./ac. in the first and 2nd application at weeks interval.

1st application was done on 22.3.1957 and 2nd application was done on 5.4.1957.

3. DESIGN :

(i) R.B.D. (ii) (a) 7. (b) 279' × 33'. (iii) 5. (iv) (a) and (b) 33' × 33'. (v) Nil. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Number of bored pods and yield of grain. (iv) (a) and (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 999 lb./ac. (ii) 180.3 lb./ac. (iii) Treatment differences are highly significant. (iv) Av. yield of grain in lb./ac.

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄	T ₅	T ₆
Av. yield	607	1003	1262	1067	1277	812	967

S.E./mean = 80.6 lb./ac.

(i) 17.60 degrees. (ii) 3.45 degrees. (iii) Treatment differences are highly significant. (iv) Mean % of bored pods in degrees.

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄	T ₅	T ₆
Mean angle	34.55	15.73	14.40	14.22	12.27	16.44	15.62

S.E./mean = 1.54 degrees.

% of bored pods after applying bias correction 32.35 7.78 6.62 6.47 4.96 8.43 7.68

Crop :- Gram (Rabi).**Ref :- U.P. 56(449).****Centre :- Mahhabad (Lucknow, c.f.).****Type :- 'D'.**

Object :—To study the effect of insecticides to control the pests and diseases in Gram.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Paddy. (c) N.A. (ii) to (x) N.A.

2. TREATMENTS :

6 insecticidal treatments: T_0 =Control, T_1 =Dusting with 5% D.D.T. at 30 lb./ac., T_2 =Dusting with 10% D.D.T. at 30 lb./ac., T_3 =Dusting with 10% B.H.C. (Hexamar) dust at 25 lb./ac., T_4 =Dusting with 1.5% Parathion dust (Folidol E 605) at 20 lb./ac. and T_5 =Dusting with 5% Aldrin dust at 20 lb./ac.

Racking of soil was done after every treatments. One application with premier rotary duster done on 11.11.1956. Miking the insecticides in the soil was done by hand immediately after the application of insecticidal treatments.

3. DESIGN :

(i) and (ii) R.B.D. with 5 replications. (iii) (a) and (b) 35'×31'. (iv) Yes.

4. GENERAL :

(i) N.A. (ii) *Tanymecus*, *Indicus* and *fst.* pests. Control measures as per treatments. (iii) The number of weevils both found living and dead. 4 sq. ft. area at 4 places selected at random, in each plot were separately recorded after 48 and 72 hours of application of treatments. The mortality was calculated. (iv) to (vii) Nil.

5. RESULTS :

(i) 48.04 degrees. (ii) 6.29 degrees. (iii) Treatment differences are highly significant. (iv) Mean % mortality 72 hours after the application in degrees.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5
Mean angle	23.34	51.37	49.16	53.26	50.66	60.46
S.E./mean = 2.81 degrees.						
% of mortality	15.91	60.92	57.16	64.08	59.72	75.43

Crop :- Gram (Rabi).**Ref :- U.P. 59(244).****Site :- B.R. College Insttl. Res. Farm, Bichpuri.****Type :- 'DC'.**

Object :—To study the effect of different doses of weedicides and extra cultivation on the yield of Gram.

1. BASAL CONDITIONS :

(i) (a) Sesame+Urd—Wheat, Fallow—Gram. (b) Fallow. (c) Nil. (ii) (a) Sandy loam. (b) Refer soil analysis, Bichpuri. (iii) 9.10.1959. (iv) (a) 1 ploughing by one-way disc plough. (b) N.A. (c) 35 srs./ac. (d) and (e) N.A. (v) N.A. (vi) T—87. (vii) N.A. (viii) Ridge making. (ix) 25". (x) 9.4.1960.

2. TREATMENTS :

All combinations of (1), (2), (3) and (4)

(1) 3 weedicides: W_1 =Sod. salt of 2, 4—D (Ferroxone), W_2 =Amine form of 2, 4—D (Weeder '64') and W_3 =Ethyl ester of 2, 4—D (Dicotox).

(2) 3 doses of weedicides: D_1 =1.5, D_2 =2.0 and D_3 =2.5 lb./ac. of acid equivalent.

(3) 3 times of application: T_1 =Once, T_2 =Twice (at 4 weeks interval) and T_3 =Thrice (at 4 weeks interval).

(4) 3 extra cultivations: C_1 =1 extra cultivation with country plough, C_2 =2 extra cultivations with country plough and C_3 =3 extra cultivations with country plough.

Weedicide was applied after the emergence of *cyperns rotundus*. The extra cultivations were given a fortnight after spraying in addition to preparatory cultivations, common to all treatments.

3. DESIGN :

(i) 3⁴ confd. (ii) (a) 9 plots/block ; 9 blocks/replication. (b) N.A. (iii) 1. (iv) (a) 22' × 22'. (b) 20' × 20'. (v) 1' × 1'. (vi) Yes.

4. GENERAL :

(i) Satisfactory. (ii) N.A. (iii) Yield of grain. (iv) (a) and (b) No. (c) Nil. (v) and (vi) Nil. (vii) Original data and two-way tables were not available.

5. RESULTS :

(i) 1399 lb./ac. (ii) 531.8 lb./ac. (iii) None of the effects is significant. (iv) Av. yield of grain in lb./ac.

Treatment	W ₁	W ₂	W ₃	D ₁	D ₂	D ₃	T ₁	T ₂	T ₃	C ₁	C ₂	C ₃
Av. yield	1368	1373	1457	1405	1403	1391	1415	1377	1406	1308	1475	1414

S.E./mean = 102.3 lb./ac.

Crop :- Urid (*Kharif*).

Ref :- U.P. 58(142).

Site :- Reg. Res. Stn., Amrukh.

Type :- 'M'.

Object :—To study the residual effect of P applied to previous kharif crop on Urid.

1. BASAL CONDITIONS :

(i) (a) and (b) N.A. (c) As per treatments. (ii) (a) *kabar*. (b) N.A. (iii) 17.7.1958. (iv) (a) 2 *bakherin* s. (b) to (e) N.A. (v) 32 srs./ac. of A/S. (vi) Local. (vii) Unirrigated. (viii) 1 weeding. (ix) N.A. (x) 15.10.1958.

2. TREATMENTS :

5 levels of P₂O₅ as Super : P₀=0, P₁=30, P₂=60, P₃=90 and P₄=120 lb./ac.
P₂O₅ applied to previous *kharif* crop.

3. DESIGN :

(i) R.B.D. (ii) (a) 5. (b) N.A. (iii) 4. (iv) (a) and (b) 16½' × 66'. (v) Nil. (vi) Yes.

4. GENERAL :

(i) N.A. (ii) Nil. (iii) Yield of grain and straw. (iv) (a) 1958—N.A. (b) N.A. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 62.2 lb./ac. (ii) 36.8 lb./ac. (iii) Treatment differences are not significant. (iv) Av. yield of grain in lb./ac.

Treatment	P ₀	P ₁	P ₂	P ₃	P ₄
Av. yield	57.9	57.9	41.1	50.1	104.1

S.E./mean = 18.4 lb./ac.

Crop :- Masoor (*Rabi*).

Ref :- U.P. 59(122).

Site :- Reg. Res. Stn., Nawabganj.

Type :- 'M'.

Object :—To study the residual effect of departmental mixture of manure applied to previous crop of paddy on Masoor.

1. BASAL CONDITIONS :

(i) Paddy—*Masoor*. (b) Paddy. (c) As per treatments. (ii) (a) Clayey loam. (b) Refer soil analysis, Nawabganj. (iii) to (x) N.A.

2. TREATMENTS :

2 manurial treatments : T₁=Departmental mixture to give 50 lb./ac. of N+25 lb./ac. of P₂O₅, and T₂=50 lb./ac. of N as A/S+25 lb./ac. of P₂O₅ as Super.

Treatments applied to previous crop i.e. paddy.

3. DESIGN :

(i) Paired-plot. (ii) (a) 2. (b) N.A. (iii) 12. (iv) (a) 36'×15'. (b) 33'×13.5'. (v) 1.5'×.75'. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Grain yield. (iv) 1959—contd. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 500 lb./ac. (ii) 122.9 lb./ac. (iii) Treatment difference is not significant. (iv) Av. yield of grain in lb./ac.

Treatment	T ₁	T ₂
Av. yield	508	492

S.E./mean = 35.5 lb./ac.

Crop :- Masoor (Rabi).

Ref :- U.P. 59(130).

Site :- Reg. Res. Stn., Nawabganj.

Type :- 'M'.

Object :— To study the residual effect of manures applied to previous paddy crop on the yield of Masoor.

1. BASAL CONDITIONS :

(i) (a) Paddy—Masoor. (b) Paddy. (c) As per treatments. (ii) (a) Clayey loam. (b) Refer soil analysis, Nawabganj. (iii) N.A. (iv) (a) N.A. (b) Broadcasting. (c) 20 srs./ac. (d) and (e) N.A. (v) Nil. (vi) T—36. (vii) to (ix) N.A. (x) 27.3.1960.

2. TREATMENTS :

10 manurial treatments : M₀=Control, M₁=20 lb./ac. of N as A/S, M₂=2 M₁, M₃=40 lb./ac. of P₂O₅ as Super, M₄=M₁+M₃, M₅=20 lb./ac. of N as F.Y.M., M₆=2 M₅, M₇=M₅+M₃, M₈=M₁+M₅, M₉=M₁+M₃+M₅.

Treatments applied to previous paddy crop.

3. DESIGN :

(i) R.B.D. (ii) (a) 10. (b) N.A. (iii) 4. (iv) (a) 36'×15'. (b) 31.5'×13.5'. (v) 2.25'×.75'. (vi) Yes.

4. GENERAL :

(i) N.A. (ii) No. (iii) Yield of grain and straw. (iv) (a) and (b) No. (c) Nil. (v) to (vii) N.A.

5. RESULTS :

(i) 507 lb./ac. (ii) 100.3 lb./ac. (iii) Treatment differences are highly significant. (iv) Av. yield of grain in lb./ac.

Treatment	M ₀	M ₁	M ₂	M ₃	M ₄	M ₅	M ₆	M ₇	M ₈	M ₉
Av. yield	349	528	573	478	598	401	378	553	460	747

S.E./mean = 50.1 lb./ac.

Crop :- Lobia (Kharif).

Ref :- U.P. 57(339).

Site :- Instt. of Crop Physiology, Dilkusha.

Type :- 'M'

Object :— To study the effect of trace-elements on growth and yield of Lobia.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Barley. (c) N.A. (ii) (a) Light sandy loam. (b) Refer soil analysis, Dilkusha. (iii) 14.7.1957. (iv) (a) N.A. (b) Dibbling. (c) N.A. (d) 24"×2". (e) N.A. (v) N.A. (vi) T—1. (vii) Unirrigated. (viii) to (x) N.A.

2. TREATMENTS :

6 trace-elements : T₀=Control, T₁=13 lb./ac. of Ca(NO₃)₂, T₂=5 lb./ac. of Ammo. molybdate, T₃=10 lb./ac. of MnSO₄, T₄=5 lb./ac. of Boric acid, and T₅=10 lb./ac. of MgSO₄.

3. DESIGN :

(i) R.B.D. (ii) (a) 6. (b) N.A. (iii) 3. (iv) (a) N.A. (b) 27'×24'. (v) N.A. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Grain yield. (iv) (a) 1957—N.A. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 117 lb./ac. (ii) 19.9 lb./ac. [(iii) Treatment differences are not significant. (iv) Av. yield of grain in lb./ac.

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄	T ₅
Av. yield	104	121	127	144	98	109

S.E./mean = 11.5 lb./ac.

Crop :- Moong (Kharif).

Ref :- U.P. 57(144).

Site :- Reg. Res. Stn., Amrukh.

Type :- 'M'.

Object :-To study the effect of Super on Moong and residual effect on succeeding rabi crop.

1. BASAL CONDITIONS :

(i) (a) No. (b) and (c) N.A. (ii) (a) *Kabar* soil. (b) N.A. (iii) 5.8.1957. (iv) (a) Ploughing and *bakhering*. (b) to (e) N.A. (v) N.A. (vi) T—1. (vii) to (ix) N.A. (x) 29.9.1957 and 5.10.1957.

2. TREATMENTS :

4 levels of P₂O₅ as Super : P₀=0, P₁=40, P₂=80 and P₃=120 lb./ac.

3. DESIGN :

(i) R.B.D. (ii) (a) 4. (b) N.A. (iii) 6. (iv) (a) and (b) 43'×36'. (v) Nil. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of grain. (iv) (a) and (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 158 lb./ac. (ii) 81.2 lb./ac. (iii) Treatment differences are not significant. (iv) Av. yield of grain in lb./ac.

Treatment	P ₀	P ₁	P ₂	P ₃
Av. yield	132	148	212	140

S.E./mean = 33.2 lb./ac.

Crop :- Moong (Kharif).

Ref :- U.P. 56(161).

Site :- Govt. Agri. Farm, Bahraich.

Type :- 'M'.

Object :-To study the effect of Super on Moong and its residual effect on succeeding rabi crop.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Wheat. (c) N.A. (ii) (a) Sandy loam. (b) Refer soil analysis, Bahraich. (iii) 10.7.1956. (iv) (a) 4 ploughings. (b) Behind the plough. (c) 6 srs./ac. (d) and (e) N.A. (v) N.A. (vi) T—1. (vii) Unirrigated. (viii) and (ix) N.A. (x) 14, 15.9.1956.

2. TREATMENTS :

4 levels of P₂O₅ as Super : P₀=0, P₁=40, P₂=80 and P₃=120 lb./ac.

Super applied by placement 3" to 4" deep in soil behind plough 2-3 days before sowing.

3. DESIGN :

(i) R.B.D. (ii) (a) 4. (b) N.A. (iii) 6. (iv) (a) 43'×36'. (b) 40'×33'. (v) 1.5'×1.5'. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of grain. (iv) (a) and (b) N.A. (c) Nil. (v) (a) and (b) N.A. (vi) Crop suffered a lot due to drought condition and scarcity of rains. (vii) N.A.

5. RESULTS :

(i) 118.8 lb./ac. (ii) 26.5 lb./ac. (iii) Treatment differences are highly significant. (iv) Av. yield of grain in lb./ac.

Treatment	P ₀	P ₁	P ₂	P ₃
Av. yield	41.7	113.9	143.6	176.1

S.E./mean = 10.8 lb./ac.

Crop :- Moong (*Kharif*).

Ref :- U.P. 57(340).

Site :- Instt. of Crop Physiology, Dilkusha.

Type :- 'M'.

Object :—To study the effect of Super on growth and yield of Moong.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Barley. (c) N.A. (ii) (a) Light sandy loam. (b) Refer soil analysis, Dilkusha. (iii) 21.7.1957. (iv) (a) and (b) N.A. (c) 5 srs./ac. (d) 18" × 9". (e) N.A. (v) N.A. (vi) T-1. (vii) Un-irrigated. (viii) and (ix) N.A. (x) 10.10.1957.

2. TREATMENTS :

4 levels of P₂O₅ as Super : P₀=0, P₁=40, P₂=80 and P₃=120 lb./ac.
Manures applied on 13.7.1957.

3. DESIGN :

(i) R.B.D. (ii) (a) 4. (b) N.A. (iii) 6. (iv) (a) N.A. (b) 31' × 26'. (v) N.A. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of grain. (iv) (a) to (c) N.A. (v) to (vii) Nil.

5. RESULTS :

(i) 221 lb./ac. (ii) 39.2 lb./ac. (iii) Treatment differences are not significant. (iv) Av. yield of grain in lb./ac.

Treatment	P ₀	P ₁	P ₂	P ₃
Av. yield	195	299	211	250

S.E./mean = 16.0 lb./ac.

Crop :- Moong (*Kharif*).

Ref :- U.P. 57(344).

Site :- Instt. of Crop Physiology, Dilkusha.

Type :- 'M'.

Object :—To study the residual effect of N, P and K applied to Potato on succeeding Moong crop.

1. BASAL CONDITIONS :

(i) (a) Paddy—Potato. (b) Potato. (c) As per treatments. (ii) (a) Light sandy loam. (b) Refer soil analysis, Dilkusha. (iii) 15.7.1957. (iv) (a) N.A. (b) Dibbling. (c) N.A. (d) 11" × 9". (e) N.A. (v) N.A. (vi) T-1. (vii) to (ix) N.A. (x) 7.9.1957 to 10.9.1957.

2. TREATMENTS :

All combinations of (1), (2) and (3)

(1) 2 levels of N as A/S : N₀=0 and N₁=100 lb./ac.

(2) 2 levels of P₂O₅ as Super : P₀=0 and P₁=60 lb./ac.

(3) 2 levels of K₂O as Potash : K₀=0, and K₁=75 lb./ac.

Manures applied to the previous potato crop.

3. DESIGN :

(i) Fact. in R.B.D. (ii) (a) 8. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 23.5'×13'. (v) N.A. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of grain. (iv) (a) to (c) N.A. (v) to (vii) Nil.

5. RESULTS :

(i) 359 lb./ac. (ii) 57.4 lb./ac. (iii) None of the effects is significant. (iv) Av. yield of grain in lb./ac.

	P ₀	P ₁	Mean	K ₀	K ₁
N ₀	322	362	342	326	358
N ₁	368	384	376	368	384
Mean	345	373	359	347	371
K ₀	322	372			
K ₁	368	374			

S.E. of any marginal mean = 14.4 lb./ac.

S.E. of body of any table = 20.3 lb./ac.

Crop :- Moong (Kharif).

Ref :- U.P. 57(26).

Site :- Reg. Res. Stn., Hardoi.

Type :- 'M'.

Object :— To study the effect of P on Moong.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) (a) Loam. (b) Refer soil analysis, Hardoi. (iii) 20.7.1957. (iv) and (v) N.A. (vi) Moong T-1. (vii) N.A. (viii) Weeding. (ix) N.A. (x) 14 and 15.9.1957.

2. TREATMENTS :

4 levels of P₂O₅ as Super : P₀=0, P₁=40, P₂=80 and P₃=120 lb./ac.

3. DESIGN :

(i) R.B.D. (ii) (a) 4. (b) 172'×39'. (iii) 6. (iv) (a) 43'×39'. (b) 40'×36'. (v) 1.5'×1.5'. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of green pod. (iv) (a) and (b) N.A. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 406 lb./ac. (ii) 504 lb./ac. (iii) Treatment differences are not significant. (iv) Av. yield of grain in lb./ac.

Treatment	P ₀	P ₁	P ₂	P ₃
Av. yield	428	404	405	389

S.E./mean = 20.6 lb./ac.

Crop :- Moong (Kharif).

Ref :- U.P. 56(162).

Site :- Govt. Agri. Farm, Kalai.

Type :- 'M'.

Object :— To study the effect of P on the growth and yield of Moong and its residual effect on the succeeding rabi crop.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Wheat+Gram. (c) N.A. (ii) (a) Loam. (b) N.A. (iii) 6.7.1956. (iv) (a) 2 ploughings. (b) Behind the plough. (c) 5 srs./ac. (d) and (e) N.A. (v) N.A. (vi) T—1. (vii) Unirrigated. (viii) to (x) N.A.

2. TREATMENTS :

4 levels of P_2O_5 as Super : $P_0=0$, $P_1=40$, $P_2=80$ and $P_3=120$ lb./ac.

P_2O_5 was applied by placement 3" to 4" deep in soil behind the plough 2 to 3 days before sowing.

3. DESIGN :

(i) R.B.D. (ii) (a) 4. (b) N.A. (iii) 6. (iv) (a) 43'×36'. (b) 40'×33'. (v) 1.5'×1.5'. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of grain. (iv) (a) N.A. (b) No. (c) Nil. (v) and (vi) Nil. (vii) Pods picked in 3 instalments and crop ploughed in for G.M.

5. RESULTS :

(i) 309 lb./ab. (ii) 33.3 lb./ac. (iii) Treatment differences are highly significant. (iv) Av. yield of grain in lb./ac.

Treatment	P_0	P_1	P_2	P_3
Av. yield	234	297	295	412

S.E./mean = 13.6 lb./ac.

Crop :- Moong (Kharif).

Ref :- U.P. 54(277).

Site :- Govt. Agri. Res. Farm, Kalianpur.

Type :- 'M'.

Object :—To study the residual effect of P applied to previous Wheat crop on the yield of Moong.

1. BASAL CONDITIONS :

(i) (a) *Moong*—Wheat. (b) Wheat. (c) As per treatments. (ii) (a) Loam. (b) Refer soil analysis, Kalianpur. (iii) 14.7.1957. (iv) (a) 2 ploughings by soil turning plough and 1 ploughing by cultivator. (b) to (e) N.A. (v) to (vii) N.A. (viii) 2 interculturings and 1 weeding by *khurpi*. (ix) N.A. (x) 6.9.1954.

2. TREATMENTS :

7 levels of P_2O_5 as Super : T_0 =Control (no P_2O_5), $T_1=120$ lb./ac. in the 1st year 1952-1953 only, $T_2=60$ lb./ac. in the 1st year and 60 lb./ac. in the 3rd year, $T_3=30$ lb./ac. every year, $T_4=240$ lb./ac. in first year only, $T_5=120$ lb./ac. in first year and 120 lb./ac. 3rd year and $T_6=60$ lb./ac. every year.

3. DESIGN :

(i) R.B.D. (ii) (a) 7. (b) 44'×191.25'. (iii) 6. (iv) (a) and (b) 44'×24.75'. (v) Nil. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of grain and green plants. (iv) (a) 1953—1955. (b) Yes. (c) Nil. (v) and (vi) Nil. (vii) *Moong* plants turned under on 8.9.1954.

5. RESULTS :

(i) 41.14 lb./ac. (ii) 20.77 lb./ac. (iii) Treatment differences are not significant. (iv) Av. yield of grain in lb./ac.

Treatment	T_0	(T_1+T_5)	T_2	T_3	T_4	T_6
Av. yield	36.85	39.86	43.71	41.14	54.00	32.57

S.E./mean except (T_1+T_5) = 8.58 lb./ac.

S.E. of (T_1+T_5) mean = 6.00 lb./ac.

Crop :- Moong (Kharif).**Ref :- U.P. 55(323).****Site :- Govt. Agri. Res. Farm, Kalianpur.****Type :- 'M'.**

Object :—To study the residual effect of P applied to Wheat crop on Moong.

1. BASAL CONDITIONS :

(i) (a) Wheat—Moong. (b) Wheat. (c) As per treatments. (ii) (a) Loam. (b) Refer soil analysis, Kalianpur. (iii) 22.6.1955. (iv) (a) 3 ploughings with different ploughs, 1 *palewa*, digging of corners twice and 2 plankings. (b) Behind *desi* plough. (c) N.A. (d) Rows 1½' apart. (e) N.A. (v) N.A. (vi) T-1 (early). (vii) N.A. (viii) 1 hoeing by cultivator and 1 weeding by *khurpi*. (ix) N.A. (x) 3.9.1955.

2. TREATMENTS to 4. GENERAL :

Same as in expt. no. 54(277) on page 917.

5. RESULTS :

(i) 156 lb./ac. (ii) 36.5 lb./ac. (iii) Treatment differences are not significant. (iv) Av. yield of grain in lb./ac.

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄	T ₅	T ₆
Av. yield	162	156	151	149	148	157	165

S.E./mean = 14.9 lb./ac.

Crop :- Moong (Kharif).**Ref :- U.P. 54(181).****Site :- Govt. Res. Farm, Kanpur.****Type :- 'M'.**

Object :—To study the effect of spraying trace elements on the yield of Moong.

1. BASAL CONDITIONS :

(i) (a) Moong—Wheat. (b) Wheat. (c) N.A. (ii) (a) Loam. (b) Refer soil analysis, Kanpur. (iii) 18.7.1954. (iv) (a) and (b) N.A. (c) 6 srs./ac. (d) and (e) N.A. (v) N.A. (vi) T-1 (early). (vii) to (ix) N.A. (x) 20.9.1954.

2. TREATMENTS :

5 levels of trace elements : T₀=No trace element, T₁=5 lb./ac. of MnSO₄, T₂=5 lb./ac. of Zn Cl₂, T₃=5 lb./ac. of CuSO₄ and T₄=4 lb./ac. of Boric acid.

Elements sprayed on 20.8.1954.

3. DESIGN :

(i) R.B.D. (ii) (a) 5. (b) 36.3' × 116'. (iii) 4. (iv) (a) and (b) 36.3' × 20'. (v) Nil. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of grain. (iv) (a) and (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 416 lb./ac. (ii) 52.5 lb./ac. (iii) Treatment differences are highly significant. (iv) Av. yield of grain in lb./ac.

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄
Av. yield	448	486	369	303	475

S.E./mean = 26.3 lb./ac.

Crop :- Moong (Kharif).**Ref :- U.P. 56(168).****Site :- Reg. Res. Stn., Meerut.****Type :- 'M'.**

Object :—To study the effect of P on growth and yield of Moong and its residual effect on succeeding rabi crop.

1. BASAL CGNDITIONS :

(i) (a) *Moong*—Wheat. (b) Wheat. (c) N.A. (ii) (a) Sandy loam. (b) Refer soil analysis, Meerut. (iii) 8.6.1956. (iv) 2 ploughings. (b) Dibbling. (c) 5 srs./ac. (d) and (e) N.A. (v) Nil. (vi) T—1. (vii) Irrigated. (viii) 4 hoeings and 4 weedings. (ix) N.A. (x) 22 and 25.8.1956.

2. TREATMENTS :

4 levels of P_2O_5 as Super : $P_0=0$, $P_1=40$, $P_2=80$ and $P_3=120$ lb./ac.
 P_2O_5 applied by placement 3"-4" deep in soil behind plough 2 to 3 days before sowing.

3. DESIGN :

(i) R.B.D. (ii) (a) 4. (b) N.A. (iii) 6. (iv) (a) 43' × 36'. (b) 40' × 33'. (v) 1.5' × 1.5'. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of grain. (iv) (a) to (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 58.0 lb./ac. (ii) 10.3 lb./ac. (iii) Treatment differences are not significant. (iv) Av. yield of grain in lb./ac.

Treatment	P_0	P_1	P_2	P_3
Av. yield	55.9	55.5	55.8	64.7

S.E./mean = 4.2 lb./ac.

Crop :- Moong (*Kharif*).

Ref :- U.P. 56(387).

Site :- Govt. Res. Farm, Pura.

Type :- 'M'.

Object :—To study the residual effect of N and P applied to the previous crop of Wheat on *Moong*.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Wheat. (c) *Moong* (G.M.) + as per treatment. (ii) (a) Sandy loam. (b) Refer soil analysis, Pura. (iii) to (ix) N.A. (x) 23.8.1956.

2. TREATMENTS :

All combinations of (1) and (2) + 2 extra treatments

(1) 3 sources of 30 lb./ac. of N : $S_1=A/S$, $S_2=F.Y.M.$ and $S_3=\frac{1}{2} A/S + \frac{1}{2} F.Y.M.$

(2) 2 levels of P_2O_5 as Super : $P_0=0$ and $P_1=40$ lb./ac.

2 extra treatments : $E_0=Control$ and $E_1=30$ lb./ac of N as castor cake.

Above treatments were applied to previous Wheat crop.

3. DESIGN :

(i) R.B.D. (ii) (a) 8. (b) 60'5" × 167'. (iii) 4. (iv) (a) and (b) 60'5" × 20'. (v) Nil. (vi) Yes.

4. GENERAL :

(i) (a) and (ii) N.A. (ii) Yield of grain. (iv) (a) and (b) No. (c) Nil. (v) and (vi) Nil. (vii) No reason for very low grain yields are given in the records. Hence yield of *moong* fodder has been analysed. Yields of treatments $F_2 P_0$ and $F_3 P_1$ are missing and data have been analysed by applying missing plot technique.

5. RESULTS :

(i) 2576 lb./ac. (ii) 1030 lb./ac. (iii) None of the effects is significant. (iv) Av. yield of fodder in lb./ac.

$$E_0 = 2442 \text{ lb./ac. ; } E_1 = 3293 \text{ lb./ac.}$$

	P ₀	P ₁	Mean
S ₁	2733	2822	2777
S ₂	2307	1994	2150
S ₃	2643	2419	2531
Mean	2561	2412	2486

S.E. for S ₁ marginal mean	= 364 lb./ac.
S.E. for S ₂ or S ₃ marginal mean	= 447 lb./ac.
S.E. for P marginal mean	= 349 lb./ac.
S.E. of body of table except S ₂ P ₀ or S ₃ P ₁ mean	= 515 lb./ac.
S.E. for S ₂ P ₀ or S ₃ P ₁ mean	= 505 lb./ac.

Crop :- Gram and Pea.

Ref :- U.P. 59(415).

Site :- Govt. Agri. Farm, Faizabad.

Type :- 'M'.

Object :- To study the effect of P on legumes.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Paddy. (c) N.A. (ii) (a) Loam. (b) Refer soil analysis, Faizabad. (iii) 7.11.1959. (iv) (a) 5 ploughings. (b) Behind the plough. (c) 30 seers in both crops. (d) Rows 1' apart. (e) N.A. (v) Nil. (vi) Gram : T-87 (medium) and Pea : T-163 (medium). (vii) Irrigated. (viii) N.A. (ix) 1.52°. (x) Pea on 16.3.1960 and Gram on 3.4.1960.

2. TREATMENTS :

3 levels of P₂O₅ as Super : P₀=0, P₁=40 and P₂=80 lb./ac.
Super applied deep in furrows behind the plough on 6.11.1959.

3. DESIGN :

(i) R.B.D. (ii) (a) 3. (b) 251'×68'. (iii) 3 plots for each crop. (iv) (a) and (b) 2'×125'. (v) Nil. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of grain and straw. (iv) (a) 1959-1960. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

I : Pea.

(i) 683 lb./ac. (ii) 59.6 lb./ac. (iii) Treatment differences are not significant. (iv) Av. yield of pea in lb./ac.

Treatment	P ₀	P ₁	P ₂
Av. yield	657	702	689

S.E./mean = 34.4 lb./ac.

II : Gram.

(i) 298 lb./ac. (ii) 87.1 lb./ac. (iii) Treatment differences are not significant. (iv) Av. yield of grain in lb./ac.

Treatment	P ₀	P ₁	P ₂
Av. yield	297	289	310

S.E./mean = 50.3 lb./ac.

Crop :- Gram and Pea.
Site :- Reg. Res. Stn., Hardoi.

Ref :- U.P. 59(461).
Type :- 'M'.

Object :—To study the effect of P on legumes.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Fallow. (c) Nil. (ii) (a) Loam. (b) Refer soil analysis. Hardoi. (iii) 8.11.1959. (iv to (vi) N.A. (vii) Irrigated. (viii) to (x) N.A.

2. TREATMENTS :

3 levels of P_2O_5 : $P_0=0$, $P_1=40$ and $P_2=80$ lb./ac.

3. DESIGN :

(i) R.B.D. (ii) (a) 3 plots for each crop. (b) N.A. (iii) 3. (iv) (a) and (b) $66' \times 25'$. (v) N.A. (vi) Yes.

4. GENERAL :

(i) to (vii) N.A.

5. RESULTS :

I Pea.

(i) 1153 lb./ac. (ii) 302.4 lb./ac. (iii) Treatment differences are not significant. (iv) Av. yield of peas in lb./ac.

Treatment	P_0	P_1	P_2
Av. yield	1079	1104	1276

S.E./mean = 174.6 lb./ac.

II Gram.

(i) 1777 lb./ac. (ii) 335.6 lb./ac. (iii) Treatment differences are not significant. (iv) Av. yield of grain in lb./ac.

Treatment	P_0	P_1	P_2
Av. yield	1661	1819	1850

S.E./mean = 193.8 lb./ac.

Crop :- Gram and Pea.
Site :- Govt. Agri. Farm, Kalai.

Ref :- U.P. 59(413).
Type :- 'M'.

Object :—To study the effect of P on legumes.

1. BASAL CONDITIONS :

(i) N.A. (b) Paddy. (c) N.A. (ii) (a) Loam. (b) N.A. (iii) 14.10.1959. (iv) (a) 2 ploughings by *desi* plough. (b) Line sowing. (c) Gram : 20 srs./ac. and Pea : 30 srs./ac. (d) Rows 9" apart. (e) N.A. (v) Nil. (vi) Gram : T—87 (medium) and Pea : T—163 (medium). (vii) Irrigated. (viii) 1 weeding. (ix) N.A. (x) Pea on 16 and 17.3.1960, Gram on 4.4.1960.

2. TREATMENTS :

3 levels of P_2O_5 as Super : $P_0=0$, $P_1=40$ and $P_2=80$ lb./ac.
 Super applied on 13.10.1959.

3. DESIGN :

(i) R.B.D. (ii) (a) 3. (b) $99.25' \times 175'$. (iii) 3. (iv) (a) and (b) $31'1" \times 28'$. (v) Nil. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of grain. (iv) (a) 1959—1961. (b) Yes. (c) Nil. (v) (a) and (b) N.A. (vi) Nil. (vii) The moisture in the plots at the time of sowing was less.

5. RESULTS :

I Pea.

(i) 473 lb./ac. (ii) 39.7 lb./ac. (iii) Treatment differences are significant. (iv) Av. yield of peas in lb./ac.

Treatment	P ₀	P ₁	P ₂
Av. yield	389	467	562

S.E./mean = 22.9 lb./ac.

II Gram

(i) 764 lb./ac. (ii) 112.3 lb./ac. (iii) Treatment differences are significant. (iv) Av. yield of grain in lb./ac.

Treatment	P ₀	P ₁	P ₂
Av. yield	578	706	1007

S.E./mean = 64.8 lb./ac.

Crop :- Groundnut and Arhar.**Ref :- U.P. 58(16).****Site :- Reg. Res. Stn., Hardoi.****Type :- 'M'.**

Object :—To study the effect of P on legumes.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) (a) Loam. (b) Refer soil analysis, Hardoi. (iii) 21.7.1958. (iv) (a) and (b) N.A. (c) Groundnut at 30 lb./ac. and *arhar* at 2.5 srs./ac. (d) and (e) N.A. (v) N.A. (vi) *Arhar* T 17 and groundnut A.K.—12—24. (vii) Irrigated. (viii) and (ix) N.A. (x) 9.1.1959.

2. TREATMENTS :

2 levels of P₂O₅ as Super : P₀=0 and P₁=8 lb./ac.

3. DESIGN :

(i) R.B.D. (ii) (a) 2. (b) N.A. (iii) 12. (iv) (a) N.A. (b) 15' × 24'. (v) and (vi) N.A.

4. GENERAL ;

(i) and (ii) N.A. (iii) Yield of *arhar* and groundnut. (iv) (a) and (b) No. (c) Nil. (v) (a) and (b) N.A. (vi) and (vii) Nil.

5. RESULTS :

I Groundnut.

(i) 29.5 lb./ac. (ii) 10.7 lb./ac. (iii) Treatment difference is not significant. (iv) Av. yield of seed in lb./ac.

Treatment	P ₀	P ₁
Av. yield	31.8	27.2

S.E./mean = 3.1 lb./ac.

II Pea

(i) 1864 lb./ac. (ii) 114.0 lb./ac. (iii) Treatment difference is not significant. (iv) Av. yield of peas in lb./ac.

Treatment	P ₀	P ₁
Av. yield	1871	1856

S.E./mean = 32.9 lb./ac.

Crop :- Wheat and Gram.**Ref :- U.P. 57(442).****Centre :- Karchana (Allahabad, c.f.).****Type :- 'M'**

Object :—To study the effect of N and P on Wheat and Gram mixture.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Fallow for 3 trials and paddy for 1 trial. (b) and (c) N.A. (ii) Clayey soil. (iii) to (v) N.A. (vi) 26 to 30.10.1957. (vii) Unirrigated. (viii) and (ix) N.A. (x) 18 to 22.3.1958.

2. TREATMENTS :

5 manurial treatments : M_0 =Control, M_1 =25 lb./ac. of N as A/S, M_2 = M_1 +30 lb./ac. of P_2O_5 as Super. M_3 = M_1 +60 lb./ac. of P_2O_5 as Super and M_4 = M_1 +60 lb./ac. P_2O_5 as Ammo. Phos. A/S and Ammo. Phos. surface dressed and Super applied deep in furrows behind the plough.

3. DESIGN :

(i) and (ii) 2 villages in the *tehsil* and 2 fields in each village were selected randomly. (iii) (a) N.A. (b) 1/40 ac. (iv) Yes.

4. GENERAL :

(i) Crop stand fair in 3 trials and poor in one trial. (ii) N.A. (iii) Yield of mixture of grains. (iv) (a) and (b) No. (c) Nil. (v) N.A. (vi) Lack of winter rains affected the crop badly. (vii) Nil.

5. RESULTS :

(i) 459 lb./ac. (ii) 17.8 lb./ac. (iii) Treatment differences are highly significant. (iv) Av. yield of grain mixture in lb./ac.

Treatment	M_0	M_1	M_2	M_3	M_4
Av. yield	395	420	475	515	490

S.E./mean = 8.9 lb./ac.

Crop :- Wheat and Gram.

Ref :- U.P. 57(444).

Centre :- Karchana (Allahabad, c.f.).

Type :- 'M'.

Object :—To study the effect of N, P and K on Wheat and Gram mixture.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Fallow. (c) Nil. (ii) Clayey soil. (iii) to (v). N.A. (vi) 28 to 30.10.1957. (vii) Unirrigated. (viii) and (ix) N.A. (x) 20 to 23.3.1958.

2. TREATMENTS :

5 manurial treatments : M_0 =Control, M_1 =30 lb./ac. of N, M_2 = M_1 +40 lb./ac. of K_2O , M_3 = M_1 +40 lb./ac. of P_2O_5 and M_4 = M_2 +40 lb./ac. of P_2O_5 . N as A/S surface dressed, P_2O_5 as Super and K_2O as Mur. Pot. placed deep in furrows.

3. DESIGN :

(i) and (ii) 2 villages in the *tehsil* and one field in each village was selected randomly. (iii) (a) 29'×75' and 35'×62' (b) 16.5'×66' and 26'×42'. (iv) Yes.

4. GENERAL :

(i) Crop stand poor in one trial and fair in one trial. (ii) N.A. (iii) Yield of mixture of grains. (iv) (a) and (b) No. (c) Nil. (v) N.A. (vi) In one trial, the field remained water logged during rains. Lack of winter rains affected the crop. (vii) Nil.

5. RESULTS :

(i) 416 lb./ac. (ii) 19.0 lb./ac. (iii) Treatment differences are significant. (iv) Av. yield of grain mixture in lb./ac.

Treatment	M_0	M_1	M_2	M_3	M_4
Av. yield	370	390	410	460	450

S.E./mean = 13.4 lb./ac.

Crop :- Wheat and Gram.**Ref :- U.P. 57(443).****Centre :- Meja (Allahabad, c.f.).****Type :- 'M'.**

Object :—To study the effect of N and P on Wheat and Gram mixture

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Fallow. (c) Nil. (ii) Clayey soil. (iii) to (v) N.A. (vi) 7 to 11.11.1957. (vii) Unirrigated. (viii) and (ix) N.A. (x) 28 to 31.3.1958.

2. TREATMENTS :

Same as in expt. no. 57(442) on page 922.

3. DESIGN :(i) and (ii) 2 villages in the *tehsil*, 4 fields in one village and 2 fields in the other were selected randomly. (iii) (a) N.A. (b) 1/40 ac. (iv) Yes.**4. GENERAL :**

(i) Crop stand fair in 4 trials and poor in 2 trials. (ii) N.A. (iii) Yield of mixture of grains. (iv) (a) and (b) No. (c) Nil. (v) N.A. (vi) Lack of winter rains affected the crop. (vii) Nil.

5. RESULTS :

(i) 447 lb./ac. (ii) 34.3 lb./ac. (iii) Treatment differences are significant. (iv) Av. yield of grain in lb./ac.

Treatment	M ₀	M ₁	M ₂	M ₃	M ₄
Av. yield	397	417	453	487	480

S.E./mean = 14.0 lb./ac.

Crop :- Wheat and Gram.**Ref :- U.P. 57(445).****Centre :- Meja (Allahabad, c.f.).****Type :- 'M'.**

Object :—To study the effect of N, P and K on Wheat and Gram mixture.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Fallow. (c) Nil. (ii) Clayey soil. (iii) to (v) N.A. (vi) 7 to 12.11.1957. (vii) Unirrigated. (viii) and (ix) N.A. (x) 28 to 31.3.1958.

2. TREATMENTS :

Same as in expt. no. 57(444) on page 923.

3. DESIGN :(i) and (ii) 2 villages in the *tehsil*, 2 fields in 1 village and 1 field in another were selected randomly. (iii) (a) N.A. (b) 1/40 ac. (iv) Yes.**4. GENERAL :**

(i) Crop stand fair in two trials and poor in one trial. (ii) N.A. (iii) Yield of mixture of grains. (iv) (a) and (b) No. (c) Nil. (v) N.A. (vi) Lack of winter rains affected the crop. (vii) Nil.

5. RESULTS :

(i) 428 lb./ac. (ii) 21.0 lb./ac. (iii) Treatment differences are highly significant. (iv) Av. yield of grain in lb./ac.

Treatment	M ₀	M ₁	M ₂	M ₃	M ₄
Av. yield	360	407	427	467	480

S.E./mean = 12.1 lb./ac.

Crop :- Wheat and Gram.**Ref :- U.P. 58(439).****Centre :- Malihabad (Lucknow, c.f.).****Type :- 'D'.**

Object :—To devise control measures against gujha weevil pest attacking Wheat and Gram mixture.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Paddy. (c) N.A. (ii) to (v) N.A. (vi) 1st week of November, 1958. (vii) to (x) N.A.

2. TREATMENTS :4 dusting treatments : D_0 =Control (2 plots), D_1 =Dusting with 10 % D.D.T. dust at 10 lb./ac. and raking it into the soil, D_2 =Dusting with 10 % B.H.C. dust at 30 lb./ac. and raking it into the soil and D_3 =Dusting with 5 % Aldrin dust at 25 lb./ac. and raking it into the soil.

Raking of the insecticides into the soil was done after the application of insecticidal dusts.

3. DESIGN :

(i) and (ii) R.B.D. with 2 replications. (iii) (a) and (b) 66' × 66'. (iv) Yes.

4. GENERAL :

(i) N.A. (ii) Attack of weevils. (iii) Number of weevils found living and dead in 9 sq. ft. area at 10 places, selected randomly, in each experimental bed separately were recorded after 24 hrs., 48 hrs, and 72 hrs, of the application of treatments and the percentage mortality of the weevils calculated. (iv) and (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 38.72 degrees. (ii) 6.18 degrees. (iii) Treatment differences are highly significant. (iv) Mean value of percentage mortality of weevils (72 hours after application of treatments) in degrees.

Treatment	D_0	D_1	D_2	D_3
Mean angle	7.60	52.24	60.02	64.46
	S.E./mean (except D_0) = 4.37 degrees.			
	S.E. of D_0 mean = 3.09 degrees.			
Mortality %	2.23	65.69	74.78	81.10

Crop :- Sugarcane.**Ref :- U.P. 54(241).****Site :- Govt. Agri. Farm, Bahraich.****Type :- 'M'.**

Object :—To study the effect of P in combination with G.M. on the yield of Sugarcane.

1. BASAL CONDITIONS :(i) (a) N.A. (b) and (c) As per treatments. (ii) (a) Sandy loam. (b) Refer soil analysis, Bahraich. (iii) 5.2.1954. (iv) (a) 4 ploughings by mould board plough, 2 ploughings by *desi* plough and 1 harrowing. (b) Flat planting. (c) to (e) N.A. (v) N.A. (vi) CO. 453. (vii) Irrigated. (viii) 5 hoeings. (ix) 45°. (x) February, March 1955.**2. TREATMENTS :**5 manurial treatments : M_0 =Control (fallow in previous season), M_1 =150 lb./ac. of P_2O_5 applied 3" deep at the sowing of sugarcane, M_2 =*Sanai* without P_2O_5 as G.M., M_3 =150 lb./ac. of P_2O_5 to *sanai* and *sanai* turned in as G.M. to sugarcane crop and M_4 =*Sanai* G.M. +150 lb./ac. of P_2O_5 applied at turning in of *sanai*.**3. DESIGN :**

(i) R.B.D. (ii) (a) 5. (b) N.A. (iii) 4. (iv) (a) and (b) 58' × 33'. (v) Nil. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of sugarcane. (iv) (a) 1954—contd. (b) No. (c) Nil. (v) (a) Faizabad. (b) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 32.89 tons/ac. (ii) 6.53 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of grain in lb./ac.

Treatment	M ₀	M ₁	M ₂	M ₃	M ₄
Av. yield	28.54	33.34	30.33	39.15	33.10

S.E./mean = 3.26 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 55(258).

Site :- Govt. Agri. Farm, Bahraich.

Type :- 'M'.

Object :—To study the effect of P in combination with G.M. on the yield of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) and (c) As per treatments. (ii) (a) Sandy loam. (b) Refer soil analysis, Bahraich. (iii) 22.1.1955. (iv) (a) 5 ploughings. (b) Flat planting. (c) N.A. (d) 3' between rows. (e) N.A. (v) 100 mds./ac. of F.Y.M. + 10 mds./ac. of castor cake. (vi) CO. 453. (vii) Irrigated. (viii) 2 harrowings and 6 hoeings. (ix) 45". (x) 16 and 18.1.1956.

2. TREATMENTS to 4. GENERAL :

Same as in expt. no. 54(241) on page 925.

5. RESULTS :

(i) 24.79 lb./ac. (ii) 3.89 lb./ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	M ₀	M ₁	M ₂	M ₃	M ₄
Av. yield	21.40	23.34	27.85	24.14	27.21

S.E./mean = 1.95 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 57(164).

Site :- Govt. Agri. Farm, Etawah.

Type :- 'M'.

Object :— To study the effect of P and different sources of N on the yield of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (b) (a) Loam. (b) N.A. (iii) 7, 8.4.1957. (iv) (a) N.A. (b) Flat planting. (c) 75 setts (3 budded)/row. (d) and (e) N.A. (v) 60 lb./ac. of N as F.Y.M. (vi) CO. S. 245. (vii) Irrigated. (viii) 3 hoeings with cultivator and 1 earthing up. (ix) N.A. (x) 3.3.1958 to 23.4.1958.

2. TREATMENTS :

All combinations of (1) and (2)

(1) 3 levels of P₂O₅ as Super : P₀=0, P₁=50 and P₂=100 lb./ac.

(2) 4 sources of 60 lb./ac. of N : S₀=Control (no application), S₁=A/S, S₂=Urea and S₃=G.N.C.

Manures applied in furrows just before planting.

3. DESIGN :

(i) Fact. in R.B.D. (ii) (a) 12. (b) 56' × 180'. (iii) 4. (iv) (a) 56' × 15'. (b) 56' × 9'. (v) N.A. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of sugarcane. (iv) (a) and (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 9.92 tons/ac. (ii) 2.16 tons/ac. (iii) Main effects of P and S are significant. (iv) Av. yield of sugarcane in tons/ac.

	S ₀	S ₁	S ₂	S ₃	Mean
P ₀	7.42	10.48	7.84	8.45	8.55
P ₁	7.38	12.36	12.22	12.16	11.03
P ₂	10.16	11.15	8.55	10.91	10.19
Mean	8.32	11.33	9.54	10.51	9.92

S.E. of S marginal mean = 0.62 tons/ac.
 S.E. of P marginal mean = 0.54 tons/ac.
 S.E. of body of table = 1.08 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 58(165).

Site :- Govt. Agri. Farm, Etawah.

Type :- 'M'.

Object :— To study the effect of P and different sources of N on the yield of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) *Dhaincha*—Sugarcane. (b) *Dhaincha* for seed. (c) Nil. (ii) (a) Loam. (b) N.A. (iii) 18.2.1958.
 (iv) (a) 4 ploughings by *desi* plough. (b) Flat planting. (c) 50 setts (3 budded)/row. (d) and (e) N.A.
 (v) 60 lb./ac. of N as F.Y.M. (vi) CO.S. 245. (vii) Irrigated. (viii) 1 hoeing by *kassi* and 1 by spade.
 7 hoeings with cultivator and 1 earthing up. (ix) N.A. (x) 5 to 9.3.1959.

2. TREATMENTS :

Main-plot treatments :

6 sources of 60 lb./ac. of N: S₀=Control (no application), S₁=A/S, S₂=A/S/N, S₃=A/C, S₄=Urea and S₅=G.N.C.,

Sub-plot treatment :

2 levels of P₂O₅ as Super: P₀=0 and P₁=60 lb./ac.

Manuring from 4.1.1958, 12.1.1958 and 19.5.1958.

3. DESIGN :

(i) Split-plot. (ii) (a) 6 main-plots/replication; 2 sub-plots/main-plot, (b) N.A. (iii) 4. (iv) (a) 46'×21'.
 (b) 40'×15'. (v) 3'×3'. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of sugarcane. (iv) (a) 1958—contd. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 33.51 tons/ac. (ii) (a) 1.69 tons/ac. (b) 1.81 tons/ac. (iii) Main effect of S and interaction S×P are highly significant. (iv) Av. yield of sugarcane in tons/ac.

	S ₀	S ₁	S ₂	S ₃	S ₄	S ₅	Mean
P ₀	30.30	38.10	33.25	33.67	34.07	32.20	33.60
P ₁	29.77	33.74	32.64	34.49	32.15	37.74	33.42
Mean	30.04	35.92	32.94	34.08	33.11	34.97	33.51

S.E. of difference of two

1. S marginal means = 0.84 tons/ac.
 2. P marginal means = 0.52 tons/ac.
 3. P means at the same level of S = 1.28 tons/ac.
 4. S means at the same level of P = 1.24 tons/ac.

Crop :- Sugarcane.**Ref :- U.P. 59(193).****Site :- Govt. Agri. Farm, Etawah.****Type :- 'M'.**

Object :—To study the effect of P and different sources of N on the yield of Sugarcane.

1. BASAL CONDITIONS:

(i) (a) *Lahi*—Sugarcane. (b) *Lahi*. (c) N.A. (ii) (a) Loam. (b) N.A. (iii) 19.2.1959. (iv) (a) 3 ploughings by *desi* plough and 2 ploughings by other implements. (b) Flat planting. (c) 50 sets (3 budded)/row. (d) 3' between rows. (e) N.A. (v) 60 lb./ac. of N as F.Y.M. (vi) COS. 321. (vii) Irrigated. (viii) 6 cultivations by *kassi* and 1 by cultivator. (ix) N.A. (x) 22 to 27.2.1960.

2. TREATMENTS :**Main-plot treatments :**

6 sources of 60 lb./ac. of N : S_0 =Control (no application), S_1 =A/S, S_2 =A/S/N, S_3 =A/C, S_4 =Urea and S_5 =Oil cake.

Sub-plot treatments :

2 levels of P_2O_5 as Super : P_0 =0 and P_1 =60 lb./ac.

Super applied in furrows and oil cake broadcast in field. Manuring on 2, 4, 18.2.1959 and 26.6.1960.

3. DESIGN :

(i) Split-plot. (ii) 6 main-plots/replication ; 2 sub-plots/main-plot. (b) 47' × 252'. (iii) 4. (iv) (a) 47' × 21'. (b) 41' × 15'. (v) 3' × 3'. (vi) Yes.

4. GENERAL :

(i) and (ii) Nil. (iii) Germination %, juice analysis and yield of sugarcane. (iv) (a) 1958—contd. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 14.99 tons/ac. (ii) (a) 2.82 tons/ac. (b) 2.18 tons/ac. (iii) None of the effects is significant. (iv) Av. yield of sugarcane in tons/ac.

	S_0	S_1	S_2	S_3	S_4	S_5	Mean
P_0	14.93	15.69	15.43	17.16	12.25	14.16	14.94
P_1	14.60	16.99	14.59	16.91	15.12	12.67	15.05
Mean	14.76	16.34	15.01	17.04	13.68	13.12	14.99

S.E. of difference of two

1. S marginal means = 1.41 tons/ac.
2. P marginals means = 0.63 tons/ac.
3. P means at the same level of S = 1.54 tons/ac.
4. S means at the same level of P = 1.78 tons/ac.

Crop :- Sugarcane.**Ref :- U.P. 55(240).****Site :- Govt. Agri. Farm, Faizabad.****Type :- 'M'.**

Object :—To study the effect of P in combination with G.M. on the yield of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) and (c) As per treatments. (ii) (a) Loam. (b) Refer soil analysis, Faizabad. (iii) 22.1.1955. (iv) (a) 6 ploughings by *desi* plough. (b) Flat planting. (c) N.A. (d) 3' between rows. (e) N.A. (v) 60 lb./ac. of N as compost+28 lb./ac. of N as G.N.C. and A/S+22 lb./ac. of N as A/S top dressed. (vi) COS. 416. (vii) Irrigated. (viii) 4 hoeings by cultivator and 3 hoeings by *kudali*. (ix) N.A. (x) 13, 14.2.1956.

2. TREATMENTS :

Same as in expt. no. 54(241) on page 925.

3. DESIGN :

(i) R.B.D. (ii) (a) 5. (b) N.A. (iii) 4. (iv) (a) 65'×27'. (b) 59'×21'. (v) 3'×3'. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of sugarcane. (iv) (a) and (b) No. (c) Nil. (v) (a) Bahraich. (b) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 10.19 tons/ac. (ii) 0.91 tons/ac. (iii) Treatment differences are highly significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	M ₀	M ₁	M ₂	M ₃	M ₄
Av. yield	8.21	11.38	9.76	9.76	11.84

S.E./mean = 0.46 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 56(243).

Site :- Govt. Agri. Farm, Faizabad.

Type :- 'M'.

Object :—To study the effect of A/S and A/C on Sugarcane.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Fallow. (c) Nil. (ii) (a) Loam. (b) Refer soil analysis, Faizabad. (iii) 21.2.1956. (iv) (a) 6 ploughings by *desi* plough. (b) Flat planting. (c) N.A. (d) 3' between rows. (e) N.A. (v) 60 lb./ac. of N as compost. (vi) CO.S.510. (vii) Irrigated. (viii) 4 hoeings by *kudali*, 1 earthing up by Victory plough spade and 6 hoeings by cultivator. (ix) and (x) N.A.

2. TREATMENTS :

3 sources of 60 lb./ac. of N : S₀=Control, S₁=A/S and S₂=A/C.

3. DESIGN :

(i) R.B.D. (ii) (a) 3. (b) N.A. (iii) 4. (iv) (a) 53'×33'. (b) 47'×27'. (v) N.A. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of sugarcane. (iv) (a) and (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 16.88 tons/ac. (ii) 2.67 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	S ₀	S ₁	S ₂
Av. yield	16.50	16.43	17.71

S.E./mean = 1.34 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 58(166).

Site :- Govt. Agri. Farm, Kalai.

Type :- 'M'.

Object :—To find out the manurial requirement of plant cane and its ratoon.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Pea. (c) N.A. (ii) (a) Loam. (b) N.A. (iii) 12.3.1958. (iv) (a) N.A. (b) Flat planting. (c) 100 (3 budded) setts/row. (d) and (e) N.A. (v) Nil. (vi) CO.S. 245. (vii) Irrigated. (viii) 2 hoeings with cultivators and 6 earthings. (ix) N.A. (x) 22 to 25.2.1959.

2. TREATMENTS :

All combinations of (1) and (2)

(1) 3 levels of N applied to plant cane : $P_1=60$, $P_2=120$ and $P_3=180$ lb./ac.

(2) 3 levels of N applied to ratoon cane : $R_1=60$, $R_2=120$ and $R_3=180$ lb./ac.

Half dose of N applied as Castor cake in furrows at planting on 12.3.1958 and half as A/S on 26.4.1958.

This is the first year of the expt. and thus plant cane treatments only have been applied. Ratoon treatments are applied next year.

3. DESIGN :

(i) Fact. in R.B.D. (ii) (a) 9. (b) $87' \times 162'$. (iii) 4. (iv) (a) $87' \times 18'$. (b) $81' \times 12'$. (v) $3' \times 3'$. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Germination %, juice analysis and sugarcane yield. (iv) (a) 1958—contd. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 31.57 tons/ac. (ii) 2.20 tons/ac. (iii) Treatment differences are highly significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	P_1	P_2	P_3
Av. yield	28.91	30.63	32.53

S.E./mean = 0.64 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 59(188).

Site :- Govt. Agri. Farm, Kalai.

Type :- 'M'.

Object :—To find out the manurial requirement of plant cane and its ratoon.

1. BASAL CONDITIONS :

(i) (a) Pea—Sugarcane. (b) Pea. (c) N.A. (ii) (a) Loam. (b) N.A. (iii) 16.3.1959. (iv) (a) 5 ploughings by *desi* plough. (b) Flat planting. (c) 50 setts (3 budded)/row. (d) $3'$ between rows. (e) N.A. (v) N.A. (vi) CO.S. 245. (vii) Irrigated. (viii) 1 hoeing with *kudall*, 1 hoeing with cultivator and 1 earth.ng. (ix) N.A. (x) 1.3.1960.

2. TREATMENTS :

All combinations of (1) and (2)

(1) 3 levels of N applied to plant cane : $P_1=60$, $P_2=120$ and $P_3=180$ lb./ac.

(2) 3 levels of N applied to ratoon cane : $R_1=60$, $R_2=120$ and $R_3=180$ lb./ac.

Half dose of N applied as castor cake in furrows before planting on 13.3.1959 and half as A/S after first irrigation on 4.5.1959. This being the plant cane treatments are applied to the plant cane.

3. DESIGN :

(i) Fact. in R.B.D. (ii) (a) 9. (b) $42' \times 162'$. (iii) 4. (iv) (a) $42' \times 18'$. (b) $36' \times 12'$. (v) $3' \times 3'$. (vi) Yes.

4. GENERAL :

(i) N.A. (ii) Albino disease. (iii) Germination %, juice analysis and sugarcane yield. (iv) (a) 1958—contd. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 15.37 tons/ac. (ii) 2.20 tons/ac. (iii) Treatment differences are highly significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	P_1	P_2	P_3
Av. yield	13.27	15.67	17.17

S.E./mean = 0.64 tons/ac.

Crop :- Sugarcane (Ratoon).**Ref :- U.P. 59(189).****Site :- Govt. Agri. Farm, Kalai.****Type :- 'M'.**

Object :—To find out the manurial requirement of plant cane and its ratoon.

1. BASAL CONDITIONS :

(i) (a) Plant cane—Ratoon. (b) Plant cane. (c) As per treatments. (ii) (a) Loam. (b) N.A. (iii) 18.3.1959.
 (iv) (a) N.A. (b) Flat planting. (c) N.A. (d) 3' between rows. (e) N.A. (v) N.A. (vi) CO.S. 245.
 (vii) Irrigated. (viii) 4 hoeings with cultivator and 1 earthing. (ix) N.A. (x) 8.12.1959.

2. TREATMENTS :

All combinations of (1) and (2)

(1) 3 levels of N applied to plant cane : $P_1=60$, $P_2=120$ and $P_3=180$ lb./ac.(2) 3 levels of N applied to ratoon cane : $R_1=60$, $R_2=120$ and $R_3=180$ lb./ac.

Half dose of N as castor cake and half as A/S on 18.3.1959, 7.5.1959 and 19.5.1959 applied to ratoon cane.

3. DESIGN :(i) Fact. in R.B.D. (ii) (a) 9. (b) $87' \times 162'$. (iii) 4. (iv) (a) $87' \times 18'$. (b) $81' \times 12'$. (v) $3' \times 3'$. (vi) Yes.**4. GENERAL :**

(i) N.A. (ii) Albino disease. (iii) Germination %, juice analysis and sugarcane yield. (iv) (a) 1959—contd.
 (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 8.34 tons/ac. (ii) 1.15 tons/ac. (iii) None of the effects is significant. (iv) Av. yield of sugarcane in tons/ac.

	R_1	R_2	R_3	Mean
P_1	8.22	8.15	8.99	8.45
P_2	8.93	7.99	9.33	8.75
P_3	7.74	7.53	8.15	7.81
Mean	8.30	7.89	8.82	8.34

S.E. of any marginal mean = 0.33 tons/ac.

S.E. of body of table = 0.57 tons/ac.

Crop :- Sugarcane.**Ref :- U.P. 56(22).****Site :- Sugarcane Res. Sub-Stn., Kunraghat.****Type :- 'M'.**

Object :—To study the effect of A/S and A/C on Sugarcane.

1. BASAL CONDITIONS :

(i) (a) G.M.—Wheat—Fallow—Sugarcane. (b) Wheat. (c) G.M.+10 lb./ac. of N as A/S. (ii) (a) Sandy loam. (b) Refer soil analysis, Kunraghat. (iii) 8.2.1956. (iv) (a) 5 ploughings with *desi* plough. (b) Trench planting. (c) 40 to 60 mds./ac. (d) 3' between rows. (e) N.A. (v) 80 mds./ac of F.Y.M. (vi) CO.S. 443. (mid season cane). (vii) Irrigated. (viii) 1 hoeing and 2 earthings. (ix) 80.95%. (x) 20 to 24.3.1957.

2. TREATMENT :3 sources of 60 lb./ac. of N : S_0 =Control (no application), S_1 =A/S and S_2 =A/C.**3. DESIGN :**(i) R.B.D. (ii) (a) 3. (b) N.A. (iii) 4. (iv) (a) $84' \times 18'$. (b) $78' \times 12'$. (v) $3' \times 3'$. (vi) Yes.**4. GENERAL :**

(i) Good. (ii) Nil. (iii) Germination %, tiller, juice analysis and sugarcane yield. (iv) (a) 1956—contd. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 14.40 tons/ac. (ii) 1.14 tons/ac. (iii) Treatment differences are highly significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	S ₀	S ₁	S ₂
Av. yield	12.19	17.02	13.98

S.E./mean = 0.57 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 57(145).

Site :- Sugarcane Res. Sub-Stn., Kunraghat.

Type :- 'M'.

Object :—To study the effect of A/S and A/C on Sugarcane.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) *Chari*. (c) Nil. (ii) (a) Sandy loam. (b) Refer soil analysis, Kunraghat. (iii) 8 and 9.3.1957. (iv) (a) 2 ploughings by *desi* plough, 3 ploughings by Victory plough and 2 plankings. (b) Trench planting. (c) 85 setts (3 budded)/row. (d) 3' between rows. (e) N.A. (v) 80 mds./ac. of F.Y.M. (vi) CO.S. 443 (medium). (vii) Irrigated. (viii) 7 hoeings by *kassi* and 1 earthing. (ix) 43.99". (x) 30.12.1957 to 8.1.1958.

2. TREATMENTS to 4. GENERAL :

Same as in expt. no. 56(22) on page 931.

N applied on 11.4.1957.

5. RESULTS :

(i) 21.23 tons/ac. (ii) 2.10 tons/ac. (iii) Treatment differences are significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	S ₀	S ₁	S ₂
Av. yield	17.46	21.94	24.29

S.E./mean = 1.05 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 58(150).

Site :- Sugarcane Res. Sub-Stn., Kunraghat.

Type :- 'M'.

Object :—To study the effect of A/S and A/C on Sugarcane.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) *Moong*. (c) Nil. (ii) (a) Sandy loam. (b) Refer soil analysis, Kunraghat. (iii) 20.2.1958. (iv) (a) 1 ploughing by *desi* plough and 1 ploughing by Victory. (b) Trench planting. (c) 85 setts (3 budded)/row. (d) Rows 3' apart. (e) N.A. (v) 80 mds./ac. of F.Y.M. (vi) CO.S. 443 (medium). (vii) Irrigated. (viii) 6 hoeings by *kassi* and 1 earthing. (ix) 40.35". (x) 23.12.1958 to 6.2.1959.

2. TREATMENTS :

Same as in expt. no. 56(22) on page 931.

N applied on 3.5.1958.

3. DESIGN :

(i) R.B.D, (ii) (a) 3. (b) N.A. (iii) 6. (iv) (a) 84'×18'. (b) 71'×12'. (v) 3'×3'. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Germination %, no. of tillers, yield of sugarcane and juice analysis. (iv) (a) 1956—contd. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 20.10 tons/ac. (ii) 3.21 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	S ₀	S ₁	S ₂
Av. yield	20.96	17.84	21.51

S.E./mean = 1.31 tons/ac.

Crop :- Sugarcane

Ref :- U.P. 56(25).

Site :- Sugarcane Res. Sub-Stn., Kunraghat.

Type :- 'M'.

Object :—To study the effect of different sources of N on Sugarcane.

1. BASAL CONDITIONS :

(i) (a) G.M.—Wheat—Fallow—Sugarcane. (b) Wheat. (c) G.M.+10 lb./ac. of N as A/S. (ii) (a) Sandy loam. (b) Refer soil analysis, Kunraghat. (iii) 3.3.1956. (iv) (a) 4 ploughings with *desi* plough. (b) Trench planting. (c) 40 to 60 mds./ac. (d) 3' between rows. (e) N.A. (v) 60 lb./ac. of N as F.Y.M. (vi) CO.S. 443 (mid-season cane). (vii) Irrigated. (viii) 8 hoeings and 2 earthings. (ix) 80.64". (x) 20 to 22.3.1957.

2. TREATMENTS :

6 sources of 60 lb./ac. of N : S₀=Control, S₁=A/C, S₂=A/S, S₃=Urea, S₄=A/S/N and S₅=G.N.C.

3. DESIGN :

(i) R.B.D. (ii) (a) 6. (b) N.A. (iii) 4. (iv) (a) 84'×18'. (b) 78'×12'. (v) 3'×3'. (vi) Yes.

4. GENERAL :

(i) Satisfactory. (ii) Nil. (iii) Germination percentage, tiller, juice analysis and sugarcane yield. (iv) (a) 1956—contd. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 10.61 tons/ac. (ii) 1.64 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	S ₀	S ₁	S ₂	S ₃	S ₄	S ₅
Av. yield	7.91	11.07	10.86	11.21	11.32	11.28

S.E./mean = 0.82 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 57(146).

Site :- Sugarcane Res. Sub-Stn., Kunraghat.

Type :- 'M'.

Object :—To study the effect of different sources of N on Sugarcane.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) *Dhaincha*. (c) Nil. (ii) (a) Sandy loam. (b) Refer soil analysis, Kunraghat. (iii) 10, 11.2.1957. (iv) (a) 1 ploughing by *desi* plough and 1 planking. (b) Trench planting. (c) 85 setts/row (3 budded). (d) Rows 3' apart. (e) N.A. (v) 60 lb./ac. of N as G.M. (*dhanicha*). (vi) C.O.S. 443 (medium). (vii) Irrigated. (viii) 6 hoeings by *kassi* and 1 earthing. (ix) 43.99'. (x) 5.1.1958 to 20.2.1958.

2. TREATMENTS to 4. GENERAL :

Same as in expt. no. 56(25) above.

5. RESULTS :

(i) 26.12 tons/ac. (ii) 3.01 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	S ₀	S ₁	S ₂	S ₃	S ₄	S ₅
Av. yield	24.23	26.82	27.14	25.17	27.46	25.90

S.E./mean = 1.50 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 58(147).

Site :- Sugarcane Res. Sub-Stn., Kunraghat.

Type :- 'M'.

Object :—To study the effect of different sources of N on Sugarcane.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) *Dhaincha*. (c) Nil. (ii) (a) Sandy loam. (b) Refer soil analysis, Kunraghat. (iii) 15.2.1958. (iv) (a) Levelling of field and 2 ploughings by Victory plough. (b) Trench planting. (c) 85 (3 budded) setts/row. (d) 3' between rows. (e) N.A. (v) G.M. by *dhaincha*+F.Y.M. (vi) CO.S. 524 (medium). (vii) Irrigated. (viii) 9 hoeings by *kassi* and 1 earthing. (ix) 38.70%. (x) 30.11.1958 to 1.12.1958.

2. TREATMENTS :

Same as in expt. no. 56(25) on page 933.

3. DESIGN :

(i) R.B.D. (ii) (a) 6. (b) N.A. (iii) 4. (iv) (a) 83'×15'. (b) 77'×12'. (v) 3'×3'. (vi) Yes.

4. GENERAL :

(i) Poor. (ii) N.A. (iii) Germination %, tiller, juice analysis and yield of sugarcane. (iv) (a) 1956—contc. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 11.73 tons/ac. (ii) 5.24 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	S ₀	S ₁	S ₂	S ₃	S ₄	S ₅
Av. yield	9.50	10.64	11.21	17.17	10.34	11.51

S.E./mean = 2.62 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 56(24).

Site :- Sugarcane Res. Sub-Stn., Kunraghat.

Type :- 'M'.

Object :—To find out the suitable time of application of A/S and F.Y.M. alone and in combination on the yield of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) G.M.—Wheat—Fallow—Sugarcane. (b) Wheat. (c) G.M.+10 lb./ac. of N as A/S. (ii) (a) Sandy loam. (b) Refer soil analysis, Kunraghat. (iii) 13.2.1956. (iv) (a) 3 ploughings with *desi* plough. (b) Trench planting. (c) 40 to 60 mds./ac. (d) 3' between rows. (e) N.A. (v) Nil. (vi) CO.S. 443 (mid season cane). (vii) Irrigated. (viii) 6 hoeings and earthings. (ix) 80.95%. (x) 23 to 25.3.1957.

2. TREATMENTS :

5 manurial treatments : M₀=Control, M₁=120 lb./ac. of N as A/S applied at the time of planting, M₂=120 lb./ac. of N as F.Y.M. applied 15 to 30 days before planting, M₃=60 lb./ac. of N as A/S+60 lb./ac. of N as F.Y.M. applied mixed 15 to 30 days before planting and M₄=60 lb./ac. of N as A/S applied at planting+60 lb./ac. of N as F.Y.M. 15 to 30 days before planting.

3. DESIGN :

(i) R.B.D. (ii) (a) 5. (b) N.A. (iii) 4. (iv) (a) and (b) 85'×15'. (v) Nil (vi) Yes.

4. GENERAL:

(i) Satisfactory. (ii) Nil. (iii) Germination %, tiller count, juice analysis and yield of sugarcane. (iv) (a) 1956—contd. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 25.75 tons/ac. (ii) 2.36 tons/ac. (iii) Treatment differences are highly significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	M ₀	M ₁	M ₂	M ₃	M ₄
Av. yield	21.49	25.68	28.40	25.47	27.73

S.E./mean = 1.18 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 57(147).

Site :- Sugarcane Res. Sub-Stn., Kunraghat.

Type :- 'M'.

Object:—To find out the suitable time of application of A/S and F.Y.M. alone and in combination on the yield of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) *Chari*. (c) Nil. (ii) (a) Sandy loam. (b) Refer soil analysis, Kunraghat. (iii) 13.2.1957. (iv) (a) 2 ploughings by *desi* plough, 4 ploughings by other implements and 2 plankings. (b) Trench planting. (c) 70 (3 budded) setts/row. (d) 3' between rows. (e) N.A. (v) Nil. (vi) CO.S. 443 (medium). (vii) Irrigated. (viii) 10 hoeings by *kassi*, 1 earthing and 1 weeding. (ix) 43.99%. (ix) 4.1.1958 to 6.2.1958.

2. TREATMENTS:

Same as in expt. no. 56(24) on page 934.

3. DESIGN :

(i) R.B.D. (ii) (a) 5. (b) N.A. (iii) 4. (iv) (a) and (b) 70' × 15'. (v) Nil. (vi) Yes.

4. GENERAL :

Same as in expt. no. 56(24) on page 934.

5. RESULTS :

(i) 19.57 tons/ac. (ii) 1.29 tons/ac. (iii) Treatment differences are highly significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	M ₀	M ₁	M ₂	M ₃	M ₄
Av. yield	14.82	22.81	17.80	21.94	20.47

S.E./mean = 0.64 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 58(148).

Crop :- Sugarcane Res. Sub-Stn., Kunraghat.

Type :- 'M'.

Object:—To find out the suitable time of application of A/S and F.Y.M. alone and in combination on the yield of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Cowpea. (c) Nil. (ii) (a) Sandy loam. (b) Refer soil analysis, Kunraghat. (iii) 21.2.1958, replanting on 28, 29.4.1958. (iv) (a) 1 ploughing by Victory plough and 2 plankings. (b) Trench planting. (c) 85 (3 budded) setts/row. (d) 3' between rows. (e) N.A. (v) Nil. (vi) CO.S. 443 (medium). (vii) Irrigated. (viii) 7 hoeings by *kassi* and 1 earthing. (ix) 40.35%. (x) 4.12.1958 to 4.2.1959.

2. TREATMENTS :

Same as in expt. no. 56(24) on page 934.

3. DESIGN :

(i) R.B.D. (ii) (a) 5. (b) N.A. (iii) 4. (iv) (a) 84' × 18'. (b) 78' × 12'. (v) 3' × 3'. (vi) Yes.

4. GENERAL :

Same as in expt. no. 56(24) on page 934.

5. RESULTS :

(i) 19.93 tons/ac. (ii) 3.22 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	M ₀	M ₁	M ₂	M ₃	M ₄
Av. yield	16.54	23.49	19.03	18.95	21.64

S.E./mean = 1.61 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 59(166).

Site :- Sugarcane Res. Sub-Stn., Kunraghat.

Type :- 'M'.

Object :—To compare the effect of Nitrophoska with A/S and Super on Sugarcane.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Cowpea. (c) Nil. (ii) (a) Sandy loam. (b) Refer soil analysis, Kunraghat. (iii) 31.1.1959 and 1.2.1959. (iv) (a) 4 ploughings by *desi* plough, 1 ploughing by Victory plough and 2 plankings. (b) Flat planting. (c) 87 sett (3 buddeds)/row. (d) 3' between rows. (e) N.A. (v) Nil. (vi) CO.S. 617 (medium). (vii) Irrigated. (viii) 6 hoeings by *kassi*, 2 hoeings by cultivator and 1 earthing. (ix) 39.60°. (x) 24.11.1959 to 11.1.1960.

2. TREATMENTS :

6 manurial treatments : M₀=Control, M₁=Nitrophoska green giving 120 lb./ac. each of N and P₂O₅, M₂=Nitrophoska blue giving 120 lb./ac. each of N and P₂O₅, M₃=120 lb./ac. of P₂O₅ as Super, M₄=120 lb./ac. of N as A/S and M₅=M₃+M₄.

Treatments except M₃ applied by broadcast in furrows at planting. Super in M₃ placed 2" deep below the cane setts.

3. DESIGN :

(i) R.B.D. (ii) (a) 6. (b) N.A. (iii) 4. (iv) (a) 85' × 18'. (b) 79' × 12'. (v) 3' × 3'. (vi) Yes.

4. GENERAL :

(i) N.A. (ii) 25 lb./ac. of Gammexane applied. (iii) Germination, tillers, juice analysis and yield of sugarcane. (iv) (a) 1959—contd. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 20.35 tons/ac. (ii) 2.13 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	M ₀	M ₁	M ₂	M ₃	M ₄	M ₅
Av. yield	20.00	21.64	19.68	19.22	20.86	20.70

S.E./mean = 1.06 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 54(96).

Site :- Sugarcane Res. Sub-Stn., Kunraghat.

Type :- 'M'.

Object :—To study the effect of different sources of N with and without catalyser on Sugarcane.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Paddy. (c) N.A. (ii) (a) Loam. (b) Refer soil analysis, Kunraghat. (iii) 18.2.1954. (iv) (a) 5 ploughings by *desi* plough and 1 by Victory plough. (b) Planted in rows. (c) 62 setts (3 budded)/row. (d) 3' between rows. (e) N.A. (v) N.A. (vi) CO.S. 443 (mid late). (vii) Irrigated. (viii) 3 hoeings by *kassi* and 1 earthing. (ix) 33.56". (x) 10.2.1955.

2. TREATMENTS :

4 manurial treatments : M_0 =Control, M_1 =100 lb./ac. of N as A/S, M_2 =100 lb./ac. of N as F.Y.M. and M_3 =100 lb./ac. of N as F.Y.M.+catalyser at 40 lb./ac.

Name of catalyser—N.A. Manures applied on 17, 18.1.1954.

3. DESIGN :

(i) R.B.D. (ii) (a) 4. (b) N.A. (iii) 3. (iv) (a) 24'×60'. (b) 18'×54'. (v) 3'×3'. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of sugarcane, germination % and no. of tillers. (iv) (a) 1954—1955. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 26.38 tons/ac. (ii) 3.09 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	M_0	M_1	M_2	M_3
Av. yield	24.01	25.14	28.30	28.08

S.E./mean = 1.78 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 55(94).

Site :- Sugarcane Res. Sub-Stn., Kunraghat.

Type :- 'M'.

Object :— To study the effect of different sources of N with and without catalyser on Sugarcane.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) *Dhaincha*. (c) N.A. (ii) (a) Loam. (b) Refer soil analysis, Kunraghat. (iii) 2.2.1955. (iv) (a) and (b) N.A. (c) 85 setts (3 budded)/row. (d) and (e) N.A. (v) N.A. (vi) CO.S. 443 (mid. late). (vii) Irrigated. (viii) 2 hoeings by *kassi*, 1 earthing and binding of cane. (ix) 68.54". (x) 9.2.1956.

2. TREATMENTS :

Same as in expt. no. 54(96) on page 936.

3. DESIGN :

(i) R.B.D. (ii) (a) 4. (b) N.A. (iii) 4. (iv) (a) 18'×84'. (b) 12'×78'. (v) 3'×3'. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Germination %, no. of tillers and yield of sugarcane. (iv) (a) 1954—1955. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 23.39 tons/ac. (ii) 1.84 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	M_0	M_1	M_2	M_3
Av. yield	22.67	23.75	22.80	24.32

S.E./mean = 0.92 tons/ac.

Crop :- Sugarcane.**Ref :- U.P. 54(32).****Site :- Sugarcane Res. Sub-Stn., Kunraghat.****Type :- 'M'.**

Object :— To study the effect of G.M. with different times of application of P on Sugarcane.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) and (c) As per treatments. (ii) (a) Sandy loam. (b) Refer soil analysis, Kunraghat. (iii) 22 to 24.1.1954. (iv) (a) 6 ploughings with *desi* and Victory plough. (b) N.A. (c) 85 setts (3 budded)/row. (d) and (e) N.A. (v) 40 lb./ac. of N as A/S+60 lb./ac. of N as G.N.C. (vi) CO.S. 443 (mid. late). (vii) Irrigated. (viii) 9 hoeings and 2 earthings. (ix) N.A. (x) 14.2.1955 to 6.4.1955.

2. TREATMENTS :

Main-plot treatments :

4 G.M. crops grown in the situ : G_0 = Fallow, G_1 = *Sanai*, G_2 = *Dhaincha* and G_3 = Cowpea.

Sub-plot treatments :

4 times of application of 150 lb./ac. of P_2O_5 : P_0 = Control (no application), P_1 = At sowing of G.M. crop, P_2 = At the time of turning in of G.M. and P_3 = At planting of sugarcane.

G.M. turned in at the site to supply 40 lb./ac. of N.

3. DESIGN :

(i) Split-plot. (ii) (a) 4 main-plots/replication ; 4 sub-plots/main-plot. (b) N.A. (iii) 3. (iv) (a) 84' x 18'. (b) 78' x 12'. (v) 3' x 3'. (vi) Yes.

4. GENERAL :

(i) Normal. (ii) Nil. (iii) Germination %, no. of tillers and yield of sugarcane. (iv) (a) 1953—contd. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 23.27 tons/ac. (ii) (a) 6.91 tons/ac. (b) 3.23 tons/ac. (iii) None of the effects is significant. (iv) Av. yield of sugarcane in tons/ac.

	P_0	P_1	P_2	P_3	Mean
G_0	22.15	26.63	25.66	27.21	25.41
G_1	20.96	24.09	24.01	24.66	23.43
G_2	24.92	25.00	26.21	25.30	25.36
G_3	19.03	18.08	20.60	17.79	18.88
Mean	21.76	23.45	24.12	23.74	23.27

S.E. of difference of two

1. G marginal means	= 2.82 tons/ac.
2. P marginal means	= 1.32 tons/ac.
3. P means at the same level of G	= 2.64 tons/ac.
4. G means at the same level of P	= 3.62 tons/ac.

Crop :- Sugarcane.**Ref :- U.P. 55(34).****Site :- Sugarcane Res. Sub-Stn., Kunraghat.****Type :- 'M'.**

Object :— To study the effect of G.M. with different times of application of P on Sugarcane.

1. BASAL CONDITIONS :

(i) (a) G.M.—wheat—G.M.—sugarcane. (b) Wheat. (c) G.M. applied. (ii) (a) Sandy loam. (b) Refer soil analysis, Kunraghat. (iii) 4 to 6.2.1955. (iv) (a) 6 ploughings with *desi*, Victory and other implements. (b) Flat planting. (c) 85 setts (3 budded)/row. (d) and (e) N.A. (v) 50 lb./ac. of P_2O_5 as Super+40 lb./ac. of N as G.M.+60 lb./ac. of N as G.N.C.+20 lb./ac. of N as A/S. (vi) CO.S. 443. (vii) Irrigated. (viii) 4 hoeings and earthing. (ix) 68.38". (x) 12.2.1956 to 17.2.1956.

2. TREATMENTS :

Same as in expt. no. 54(82) on page 938.

3. DESIGN :

(i) Split-plot. (ii) (a) 4 main-plots/replication ; 4 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) 84'×18'. (b) 78'×12'. (v) 3'×3'. (vi) Yes.

4. GENERAL :

(i) Normal. (ii) No. (iii) Germination %, tiller count and yield of sugarcane. (iv) (a) 1953—contd. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 25.52 tons/ac. (ii) (a) 3.09 tons/ac. (b) 1.88 tons/ac. (iii) Only P effect is significant. (iv) Av. yield of sugarcane in tons/ac.

	P ₀	P ₁	P ₂	P ₃	Mean
G ₀	23.13	23.61	23.70	23.88	23.58
G ₁	24.44	27.45	26.77	26.89	26.39
G ₂	23.94	25.95	26.81	27.20	25.98
G ₃	25.64	24.92	26.81	27.09	26.12
Mean	24.29	25.48	26.02	26.26	25.52

S.E. of difference of two

1. G marginal means = 1.09 tons/ac.
2. P marginal means = 0.66 tons/ac.
3. P means at the same level of G = 1.33 tons/ac.
4. G means at the same level of P = 1.59 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 56(21).

Site :- Sugarcane Res. Sub-Stn., Kunraghat.

Type :- 'M'.

Object :- To study the effect of G.M. with different times of application of P on Sugarcane.

1. BASAL CONDITIONS :

(i) (a) G.M.—wheat—G.M.—sugarcane. (b) and (c) As per treatments. (ii) (a) Sandy loam. (b) Refer soil analysis, Kunraghat. (iii) 31.1.1956 to 1.2.1956. (iv) (a) 1 ploughing with Victory plough and 4 with *desi* plough. (b) Flat planting. (c) 40 to 60 mds./ac. (d) 3' between rows. (e) N.A. (v) Nil. (vi) CO.S. 443 (mid-seasoned). (vii) Irrigated. (viii) 5 hoeings and 1 earthing. (ix) 80.95". (x) 25.2.1957 to 5.3.1957.

2. TREATMENTS :

Same as in expt. no. 54(82) on page 938.

3. DESIGN :

(i) Split-plot. (ii) (a) 4 main-plots/replication and 4 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) 84'×18'. (b) 78'×12'. (v) 3'×3'. (vi) Yes.

4. GENERAL :

(i) Satisfactory. (ii) Nil. (iii) Germination %, no. of tillers, juice analysis and yield of sugarcane. (iv) (a) 1953—1956. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 15.68 tons/ac. (ii) (a) 1.93 tons/ac. (b) 1.46 tons/ac. (iii) Only main effect of P is significant. (iv) Av. yield of sugarcane in tons/ac.

	P ₀	P ₁	P ₂	P ₃	Mean
G ₀	13.89	15.48	14.47	16.34	15.04
G ₁	16.98	15.37	16.20	16.39	16.24
G ₂	16.22	15.93	14.22	17.90	16.07
G ₃	14.23	16.54	15.02	15.77	15.39
Mean	15.33	15.83	14.98	16.60	15.68

S.E. of difference of two

1. G marginal means = 0.68 tons/ac.
2. P marginal means = 0.52 tons/ac.
3. P means at the same level of G = 1.03 tons/ac.
4. G means at the same level of P = 1.12 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 57(154).

Site :- Sugarcane Res. Sub-Stn., Kunraghat.

Type :- 'M'.

Object :- To study the effect of G.M. and A/S with different times of application of P on Sugarcane.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) *Dhaincha*. (c) Nil. (ii) (a) Sandy loam. (b) Refer soil analysis, Kunraghat. (iii) 4, 5.3.1957. (iv) (a) 3 ploughings by *desi* plough, 1 ploughing by Victory plough and 3 pluckings. (b) Flat planting. (c) 85 setts (3 budded)/row. (d) 3' between rows. (e) N.A. (v) 30 lb./ac. of N as G.N.C+45 lb./ac. of N as Urea+20 lb./ac. of N as A/C. (vi) CO.S. 443 (medium). (vii) Irrigated. (viii) 1 weeding, 5 hoeings by *kassi*, 2 hoeings by cultivator and 1 earthing. (ix) 42.60". (x) 6 to 27.12.1957.

2. TREATMENTS :

12 manurial treatments : M₀=Control, M₁=*Berseem* as G.M., M₂=M₁+Dical. Phos. applied at sowing of *berseem*, M₃=M₁+Kotka Phos. applied at sowing of *berseem*, M₄=M₁+Super applied at sowing of *berseem*, M₅=A/S+Dical. Phos. applied in furrows at planting of sugarcane, M₆=A/S+Kotka Phos. applied in furrows at planting of sugarcane, M₇=A/S+Super applied in furrows at planting of sugarcane, M₈=A/S alone, M₉=M₁+Dical. Phos. applied as in M₅, M₁₀=M₁+Kotka Phos. applied as in M₆ and M₁₁=M₁+Super applied as in M₇.

Phosphatic fertilizers at 100 lb./ac. of P₂O₅ placed at the root zone through a funnel behind *desi* plough. *Berseem* as G.M. applied at 60 lb./ac. of N. A/S applied at 60 lb./ac. of N.

3. DESIGN :

(i) R.B.D. (ii) (a) 12. (b) N.A. (iii) 4. (iv) (a) 84'×15'. (b) 1/34.58'. (v) N.A. (vi) Yes.

4. GENERAL :

(i) Satisfactory. (ii) Attack of red rot in some plots. (iii) Germination %, no. of tillers, yield of sugarcane and juice analysis. (iv) (a) 1957—1958. (b) No. (c) Nil. (v) (a) and (b) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 17.41 tons/ac. (ii) 2.60 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	M ₀	M ₁	M ₂	M ₃	M ₄	M ₅	M ₆	M ₇	M ₈	M ₉	M ₁₀	M ₁₁
Av. yield	15.91	19.55	18.79	18.33	19.23	17.61	14.82	15.63	17.54	18.64	18.17	14.65

S.E./mean = 1.30 tons/ac.

Crop :- Sugarcane.**Ref :- U.P. 58(149).****Site :- Sugarcane Res. Sub-Stn., Kunraghat.****Type :- 'M'.**

Object :—To study the effect of G.M. and A/S with different times of application of P on Sugarcane.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Fallow. (c) Nil. (ii) (a) Sandy loam. (b) Refer soil analysis, Kunraghat. (iii) 1.3.1958. (iv) (a) 2 *desi* ploughings, 4 Victory ploughings, 1 ploughing by other implement and 4 plankings. (b) Flat planting. (c) 85 setts (3 budded)/row. (d) 3' between rows. (e) N.A. (v) N.A. (vi) CO.S. 443 (medium). (vii) Irrigated. (viii) 5 hoeings by *kassi*, 1 hoeing by cultivator and 1 earthing. (ix) 40.35%. (x) 6.1.1959 to 6.2.1959.

2. TREATMENTS :

Same as in expt. no. 57(154) on page 40.

3. DESIGN :

(i) R.B.D. (ii) (a) 12. (b) N.A. (iii) 4. (iv) (a) 83'×18'. (b) 77'×12'. (v) 3'×3'. (vi) Yes.

4. GENERAL :

(i) Good. (ii) N.A. (iii) Germination %, no. of tillers, yield of sugarcane and juice analysis. (iv) (a) 1957—1958. (b) No. (c) Nil. (v) (a) and (b) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 24.27 tons/ac. (ii) 1.90 tons/ac. (iii) Treatment differences are significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	M ₀	M ₁	M ₂	M ₃	M ₄	M ₅	M ₆	M ₇	M ₈	M ₉	M ₁₀	M ₁₁
Av. yield	19.86	24.57	24.57	25.83	24.22	25.94	25.24	24.75	25.11	23.71	23.59	23.81

S.E./mean = 0.95 tons/ac.

Crop :- Sugarcane (Ratoon).**Ref :- U.P. 57(80).****Site :- Reg. Res. Stn., Meerut.****Type :- 'M'.**

Object :—To find out the optimum level of N for Sugarcane (Ratoon)

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Plant cane. (c) N.A. (ii) (a) Sandy loam. (b) Refer soil analysis, Meerut. (iii) Ratoon : 11.4.1957. (iv) (a) to (c) N.A. (d) 3' between rows. (e) N.A. (v) Nil. (vi) CO.S. 245 (medium). (vii) Irrigated. (viii) 4 hoeings. (ix) 44.40%. (x) 16, 18.12.1957.

2. TREATMENTS :4 levels of N : N₀=Control, N₁=40, N₂=80 and N₃=120 lb./ac.

N top dressed on 27.4.1957 in the form of mixture of G.N.C. and A/S in 1 : 1 ratio.

3. DESIGN :

(i) R.B.D. (ii) (a) 4. (b) N.A. (iii) 4. (iv) (a) 87'×27'. (b) 81'×21'. (v) 3'×3'. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) No. of tillers, juice analysis and yield of sugarcane. (iv) (a) 1957 only. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 14.92 tons/ac. (ii) 2.41 tons/ac. (iii) Treatment differences are significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	N ₀	N ₁	N ₂	N ₃
Av. yield	12.12	14.14	15.41	17.99

S.E./mean = 2.41 tons/ac.

Crop :- Sugarcane.**Ref :- U.P. 57(81).****Site :- Reg. Res. Stn., Meerut.****Type :- 'M'.**

Object :—To compare the efficacy of A/S and A/C on Sugarcane.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) (a) Loam. (b) Refer soil analysis, Meerut. (iii) 21.22.3.1957. (iv) (a) 1 ploughing by Victory plough and 1 by *desi* plough. (b) Flat planting. (c) 60 setts (3 budded)/row. (d) 3' between rows. (e) N.A. (v) 80 lb./ac. of N as F.Y.M. (vi) CO.S. 245 (medium). (vii) Irrigated. (viii) 4 hoeings by cultivator. (ix) 45.20". (x) 25 to 27.3.1958.

2. TREATMENTS :

3 sources of 60 lb./ac. of N : S_0 =Control (no application), S_1 =A/C and S_2 =A/S.

3. DESIGN :

(i) R.B.D. (ii) (a) 3. (b) 30'×179'. (iii) 6. (iv) (a) 57'×30'. (b) 57'×24'. (v) N.A. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Germination %, no. of tillers, juice analysis and yield of sugarcane. (iv) (a) and (b) No. (c) Nil. (v) (a) and (b) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 15.53 tons/ac. (ii) 1.68 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	S_0	S_1	S_2
Av. yield	14.90	16.36	15.34
S.E./mean = 0.68 tons/ac.			

Crop :- Sugarcane.**Ref :- U.P. 58(462).****Site :- Reg. Res. Stn., Meerut.****Type :- 'M'.**

Object :—To study the effect of different sources of N on Sugarcane.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Cotton. (c) N.A. (ii) (a) Loam. (b) Refer soil analysis, Meerut. (iii) 8, 9.3.1958. (iv) (a) 2 ploughings by Victory plough and 19 ploughings by *desi* plough. (b) Flat planting. (c) 62 setts (3 budded)/row. (d) 3' between rows. (e) N.A. (v) 60 lb./ac. of N as F.Y.M. (vi) CO.S. 515 (medium). (vii) and (viii) N.A. (ix) 62.28". (x) 28 to 30.3.1959.

2. TREATMENTS :

5 sources of 80 lb./ac. of N : S_0 =Control (no application), S_1 =A/S, S_2 =A/C, S_3 =A/S/N and S_4 =Urea. Fertilizers applied in equal doses at planting and in June (top dressed).

3. DESIGN :

(i) R.B.D. (ii) (a) 5. (b) 60'×126'. (iii) 4. (iv) (a) 60'×24'. (b) 54'×18'. (v) 3'×3'. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Germination %, tiller count, juice analysis and yield of sugarcane. (iv) (a) and (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 26.54 tons/ac. (ii) 1.95 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	S_0	S_1	S_2	S_3	S_4
Av. yield	25.00	25.72	27.06	27.43	27.49
S.E./mean = 0.98 tons/ac.					

Crop :- Sugarcane.**Ref :- U.P. 59(79).****Site :- Reg. Res. Stn., Meerut.****Type :- 'M'.**

Object :- To study the effect of different sources of N on Sugarcane.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) (a) Sandy loam. (b) Refer soil analysis, Meerut. (iii) 5.3.1959. (iv) (a) and (b) N.A. (c) 42 setts (3 budded)/row. (d) 3' between rows. (e) N.A. (v) Nil. (vi) CO. S. 245 (medium). (vii) to (ix) N.A. (x) 8 to 16.3.1960.

2. TREATMENTS :

6 manurial treatments : M_0 = Control, M_1 = 60 lb./ac. of N as F.Y.M. basal dressed, M_2 = M_1 + 80 lb./ac. of N as A/S, M_3 = M_1 + 80 lb./ac. of N as A/C, M_4 = M_1 + 80 lb./ac. of N as A/S/N and M_5 = M_1 + 80 lb./ac. of N as Urea.

Fertilizers applied at planting and in June.

3. DESIGN :

(i) R.B.D. (ii) (a) 6. (b) N.A. (iii) 4. (iv) (a) 40' × 36'. (b) 34' × 30'. (v) 3' × 3'. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Germination %, no. of tillers, juice analysis and yield of sugarcane. (i) (a) 1959—N.A. (b) N.A. (c) Nil. (v) (a) and (b) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 30.63 tons/ac. (ii) 7.86 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	M_0	M_1	M_2	M_3	M_4	M_5
Av. yield	28.78	25.39	33.11	30.07	32.73	33.68

S.E./mean = 3.93 tons/ac.

Crop :- Sugarcane.**Ref :- U.P. 58(54).****Site :- Sugarcane Res. Sub-stn., Muzaffarnagar.****Type :- 'M'.**

Object :- To test the efficacy of fish-meal on Sugarcane.

1. BASAL CONDITIONS :

(i) (a) G.M.—wheat—cotton—Sugarcane. (b) Cotton. (c) N.A. (ii) (a) Loam. (b) Refer soil analysis, Muzaffarnagar. (iii) 3.3.1958. (iv) (a) 3 ploughings by turning plough, 8 ploughings by *desi* plough and 2 plankings. (b) Flat planting. (c) 62 setts (3 budded)/row. (d) 3' between rows. (e) N.A. (v) Nil. (vi) CO.S. 245 (medium). (vii) Irrigated. (viii) 2 blind hoeings by *kassi*, 4 hoeings by cultivator and 1 earthing. (ix) 49.42". (x) 1.12.1958 to 6.3.1959.

2. TREATMENTS :

7 sources of 120 lb./ac. of N : S_0 = Control (no application), S_1 = Fish-meal, S_2 = $\frac{1}{2}$ fish-meal + $\frac{1}{2}$ A/S, S_3 = $\frac{1}{2}$ fish-meal + $\frac{1}{2}$ Urea, S_4 = G.N.C., S_5 = $\frac{1}{2}$ G.N.C. + $\frac{1}{2}$ A/S and S_6 = $\frac{1}{2}$ G.N.C. + $\frac{1}{2}$ Urea.

Fish meal and G.N.C. applied at planting. Urea and A/S applied on 2.5.1958.

3. DESIGN :

(i) R.B.D. (ii) (a) 7. (b) N.A. (iii) 4. (iv) (a) 60' × 21'. (b) 54' × 15'. (v) 3' × 3'. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Juice analysis and yield of sugarcane. (iv) (a) 1958—1960. (b) No. (c) Nil. (v) (a) and (b) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 22.67 tons/ac. (ii) 2.32 tons/ac. (iii) Treatment differences are highly significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	S ₀	S ₁	S ₂	S ₃	S ₄	S ₅	S ₆
Av. yield	17.57	24.26	22.60	23.29	23.32	25.41	22.25

S.E./mean = 1.16 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 59(50).

Site :- Sugarcane Res. Sub-stn., Muzaffarnagar.

Type :- 'M'.

Object :- To test the efficacy of fish meal on Sugarcane.

1. BASAL CONDITIONS :

(i) (a) Wheat—cotton—sugarcane. (b) Cotton. (c) N.A. (ii) (a) Loam. (b) Refer soil analysis, Muzaffarnagar. (iii) 4.3 1959. (iv) (a) 9 ploughings, 4 plankings, and 1 harrowing. (b) Flat planting. (c) 62 setts (3 budded)/row. (d) 3' between rows. (e) N.A. (v) Nil. (vi) CO.S. 245 (medium). (vii) Irrigated. (viii) 4 hoeings and 2 earthings. (ix) 31.89". (x) 25.11.1959 to 16.3.1960.

2. TREATMENTS to 4. GENERAL :

Same as in expt. no 58(54) on page 943.

Urea and A/S applied on 25.4.1959.

5. RESULTS :

(i) 23.46 tons/ac. (ii) 1.41 tons/ac. (iii) Treatment differences are highly significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	S ₀	S ₁	S ₂	S ₃	S ₄	S ₅	S ₆
Av. yield	15.59	24.68	24.66	24.49	24.35	24.78	25.65

S.E./mean = 0.70 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 57(55).

Site :- Sugarcane Res. Sub-Stn., Muzaffarnagar.

Type :- 'M'.

Object :- To study the effect of G.M. and A/S with different times of applications of P on Sugarcane.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) *Berseem*. (c) As per treatments. (ii) (a) Loam. (b) Refer soil analysis, Muzaffarnagar. (iii) 7.4.1957. (iv) (a) 4 to 6 ploughings, 5 plankings and 5 roller applications. (b) Flat planting. (c) 59 setts (3 budded)/row. (d) Rows 3' apart. (e) N.A. (v) Nil. (vi) CO.S. 515 (medium). (vii) Irrigated. (viii) 1 hoeing with cultivator and 2 earthings. (ix) 41.61". (x) 29.12.1957 to 9.3 1958.

2. TREATMENTS :

All combinations of (1) and (2)

(1) 4 sources of 100 lb./ac. of P₂O₅ : S₀=No P₂O₅, S₁=Super, S₂=Dical. Phos. and S₃=Kotka Phos.

(2) 2 sources of N : N₁=*Berseem* green leaves and N₂=A/S at 60 lb./ac.

P₂O₅ was applied to *berseem* in treatment N₁ while it was applied to cane crop in the case of N₂.

3. DESIGN :

(i) R.B.D. (ii) (a) 8. (b) N.A. (iii) 4. (iv) (a) 57'×21'. (b) 51'×15'. (v) 3'×3'. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of sugarcane and juice analysis. (iv) (a) 1957—1959. (b) No. (c) Nil. (v) to (vii) N.A.

5. RESULTS :

(i) 15.10 tons/ac. (ii) 2.16 tons/ac. (iii) None of the effects is significant. (iv) Av. yield of sugarcane in tons/ac.

	S ₀	S ₁	S ₂	S ₃	Mean
N ₁	14.65	16.74	14.55	14.13	15.02
N ₂	15.14	14.37	15.44	15.78	15.18
Mean	14.90	15.56	15.00	14.96	15.10

S.E. of S marginal mean = 0.76 tons/ac.
 S.E. of N marginal mean = 0.54 tons/ac.
 S.E. of body of table = 1.08 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 58(48).

Site :- Sugarcane Res. Sub-Stn., Muzaffarnagar.

Type :- 'M'.

Object :—To study the effect of G.M. and A/S with different times of application of P on Sugarcane.

1. BASAL CONDITIONS:

(ii) (a) Nil. (b) Paddy. (c) N.A. (ii) (a) Loam. (b) Refer soil analysis, Muzaffarnagar. (iii) 21.2.1958 to 12.3.1958. (iv) (a) 5 ploughings, 2 to 3 applications of roller and 2 to 6 plankings. (b) Flat planting. (c) 59 setts (3 budded)/row. (d) Rows 3' apart. (e) N.A. (v) Nil. (vi) CO.S. 515 (medium). (vii) Irrigated. (viii) 2 hoeings and 1 earthing. (ix) 50.22". (x) 30.11.1958 to 20.3.1959.

2. TREATMENTS to 4. GENERAL:

Same as in expt. no. 57(55) on page 944.

Kotka Phos. could not be applied to treatment S₃N₂ due to its non-availability and hence treatments S₃N₂ and S₀N₂ become identical.

5. RESULTS :

(i) 23.65 tons/ac. (ii) 2.99 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	S ₀ N ₁	S ₁ N ₁	S ₂ N ₁	S ₃ N ₁	S ₀ N ₂ +S ₃ N ₂	S ₁ N ₂	S ₂ N ₂
Av. yield	20.91	23.42	23.45	24.35	23.63	25.97	23.80

S.E./mean except (S₀N₂+S₃N₂) = 1.49 tons/ac.

S.E. of (S₀N₂+S₃N₂) mean = 1.06 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 59(54).

Site :- Sugarcane Res. Sub-Stn., Muzaffarnagar.

Type :- 'M'.

Object :—To study the effect of G.M. and A/S with different times of application of P on Sugarcane.

1. BASAL CONDITIONS :

(i) (a) Wheat—*Guar*—Sugarcane. (b) *Guar*. (c) Nil. (ii) (a) Loam. (b) Refer soil analysis, Muzaffarnagar. (iii) 21.3.1959. (iv) (a) 1 ploughings by *desi* plough, 2 ploughings by Victory plough and 2 plankings. (b) Flat planting. (c) 59 setts (3 budded)/row. (d) 3' between rows. (e) N.A. (v) Nil. (vi) CO.S. 515 (medium). (vii) Irrigated. (viii) 8 diggings, 2 hoeings and 3 earthings. (ix) 31.89%. (x) 8.12.1959 to 10.3.1960.

2. TREATMENTS :

All combinations of (1) and (2)

(i) 3 sources of 100 lb./ac. of P₂O₅ : S₀=Control (no application), S₁=Super and S₂=Dicalcium Phos.

(ii) 2 sources of N : N₁=*Berseem* green leaf and N₂=A/S at 60 lb./ac.

P₂O₅ was applied to *berseem* crop in the treatments N₁ while it was applied to sugarcane crop in the case of N₂.

3. DESIGN :

(i) R.B.D. (ii) (a) 6. (b) N.A. (iii) 4. (iv) (a) 57'×21'. (b) 51'×15'. (v) 3'×3'. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Germination, juice analysis and sugarcane yield. (iv) (a) 1957-1959. (b) No (c) Nil. (v) (a) and (b) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 27.04 tons/ac. (ii) 2.47 tons/ac. (iii) N effect is highly significant and S effect is significant. (iv) Av. yield of sugarcane in tons/ac.

	S ₀	S ₁	S ₂	Mean
N ₁	20.84	25.33	25.19	23.79
N ₂	28.91	32.02	29.95	30.29
Mean	24.88	28.68	27.57	27.04

S.E. of S marginal mean = 0.88 tons/ac.
 S.E. of N marginal mean = 0.71 tons/ac.
 S.E. of body of table = 1.24 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 54(47).

Site :- Sugarcane Res. Sub-Stn., Muzaffarnagar.

Type :- 'M'.

Object :- To study the direct and cumulative effect of different sources of N on Sugarcane.

1. BASAL CONDITIONS :

(i) (a) Fallow—Sugarcane. (b) Fallow. (c) Nil. (ii) (a) Light loam. (b) Refer soil analysis, Muzaffarnagar. (iii) 14.3.1954. (iv) (a) 7 ploughings. (b) Flat planting. (c) 42,000 buds/ac. (d) 3' between rows. (e) N.A. (v) Nil. (vi) CO. 453 (late). (vii) Irrigated. (viii) 6 hoeings and 1 earthing up. (ix) 36.19". (x) 5 to 18.3.1955.

2. TREATMENTS :

7 sources of 120 lb./ac. of N : S₀=Control, S₁=F.Y.M., S₂=G.N.C., S₃=A/S, S₄=½ A/S+½ F.Y.M., S₅=½ A/S+½ G.N.C. and S₆=½ A/S+½ G.N.C.+½ F.Y.M.
 F.Y.M. applied before planting, G.N.C. and A/S after first irrigation.

3. DESIGN :

(i) R.B.D. (ii) (a) 7. (b) Nil. (iii) 4. (iv) (a) 83'×21'. (b) 75'×15'. (v) 4'×3'. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Nil. (iii) Germination, tiller, millable cane counting and yield of sugarcane. (iv) (a) 1949—contd. (b) No. (c) Yes. (v) (a) and (b) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 30.34 tons/ac. (ii) 2.79 tons/ac. (iii) Treatment differences are highly significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	S ₀	S ₁	S ₂	S ₃	S ₄	S ₅	S ₆
Av. yield	22.80	28.20	30.34	33.89	30.34	33.29	33.49

S.E./mean = 1.40 tons/ac.

Crop :- Sugarcane.**Ref :- U.P. 55(66).****Site :- Sugarcane Res. Sub-Stn., Muzaffarnagar. Type :- 'M'.****Object :-**To study the direct and cumulative effect of different sources of N on Sugarcane.**1. BASAL CONDITIONS :**

- (i) (a) Fallow—Sugarcane. (b) Fallow. (c) Nil. (ii) (a) Loam. (b) Refer soil analysis, Muzaffarnagar. (iii) 26.2.1955. (iv) (a) 7 ploughings. (b) Flat planting. (c) 42,000 buds/ac. (d) Rows 3' apart. (e) N.A. (v) Nil. (vi) CO. 453 (mid. late.) (vii) Irrigated. (viii) Hoeing, weeding and earthing. (ix) 52.11". (x) 27.1.1956 and 24.3.1956.

2. TREATMENTS and 3. DESIGN :

Same as in expt. no. 54(47) on page 945.

4. GENERAL :

- (i) Good. (ii) Nil. (iii) Germination, tillers, millable cane counting and yield of sugarcane. (iv) (a) 1949—contd. (b) No. (c) Yes. (v) (a) and (b) N.A. (vi) and (vii) Nil.

5. RESULTS :

- (i) 32.70 tons/ac. (ii) 2.40 tons/ac. (iii) Treatments differences are highly significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	S ₀	S ₁	S ₂	S ₃	S ₄	S ₅	S ₆
Av. yield	26.15	32.71	33.84	33.95	34.00	35.58	32.67

S.E./mean = 1.20 tons/ac.

Crop :- Sugarcane.**Ref :- U.P. 56(13).****Site :- Sugarcane Res. Sub-Stn., Muzaffarnagar. Type :- 'M'.****Object :-**To study the direct and cumulative effect of different sources of N on Sugarcane.**1. BASAL CONDITIONS :**

- (i) (a) Fallow—Sugarcane. (b) Fallow. (c) Nil. (ii) (a) Loam. (b) Refer soil analysis, Muzaffarnagar. (iii) 25.3.1956. (iv) (a) 7 preparatory ploughings. (b) Flat planting. (c) 42,000 buds/ac. (d) Rows 3' apart. (e) N.A. (v) Nil. (vi) CO. 453 (late). (vii) Irrigated. (viii) Hoeing, weeding and earthing. (ix) 70 54". (x) 27.1.1957 to 5.3.1957.

2. TREATMENTS and 3. DESIGN :

Same as in expt. no. 54(47) on page 946.

4. GENERAL :

- (i) Good. (ii) Nil. (iii) Germination, tillers, millable cane counting and yield of sugarcane. (iv) (a) 1949—contd. (b) Yes. (c) Nil. (v) (a) and (b) N.A. (vi) and (vii) Nil.

5. RESULTS :

- (i) 23.86 tons/ac. (ii) 2.13 tons/ac. (iii) Treatment differences are highly significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	S ₀	S ₁	S ₂	S ₃	S ₄	S ₅	S ₆
Av. yield	15.43	23.97	25.58	25.95	25.55	24.96	25.55

S.E./mean = 1.06 tons/ac.

Crop :- Sugarcane.**Ref :- U.P. 57(54).****Site :- Sugarcane Res. Sub-Stn., Muzaffarnagar.****Type :- 'M'.**

Object :—To study the direct and cumulative effect of different sources of N on Sugarcane.

1. BASAL CONDITIONS :

(i) (a) Fallow—Sugarcane. (b) Fallow. (c) Nil. (ii) (a) Loam. (b) Refer soil analysis, Muzaffarnagar. (iii) 13.2.1957. (iv) (a) 5 ploughings by *desi* plough and 1 planking. (b) Flat planting. (c) 85 setts (3 budded)/row. (d) Rows 3' apart. (e) N.A. (v) Nil. (vi) CO. 453 (late). (vii) Irrigated. (viii) 12 hoeings and 3 diggings. (ix) 43.35". (x) 7 to 10.3.1958.

2. TREATMENTS and 3. DESIGN :

Same as in expt. no. 54(47) on page 946.

F.Y.M. applied on 31.1.1957. A/S and G.N.C. on 4.5.1957.

4. GENERAL :

(i) and (ii) N.A. (iii) Sugarcane yield and juice analysis. (iv) (a) 1949—contd. (b) Yes. (c) Nil. (v) (a) and (b) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 16.59 tons/ac. (ii) 1.53 tons/ac. (iii) Treatment differences are highly significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	S ₀	S ₁	S ₂	S ₃	S ₄	S ₅	S ₆
Av. yield	11.40	13.75	18.88	17.27	17.15	17.13	18.58

S.E./mean = 0.76 tons/ac.

Crop :- Sugarcane.**Ref :- U.P. 58(50).****Site :- Sugarcane Res. Sub.-Stn., Muzaffarnagar.****Type :- 'M'.**

Object :—To study the direct and cumulative effect of different sources of N on Sugarcane.

1. BASAL CONDITIONS :

(i) (a) Fallow—Sugarcane. (b) Fallow. (c) Nil. (ii) (a) Loam. (b) Refer soil analysis, Muzaffarnagar. (iii) 1.3.1958. (iv) (a) 6 *desi* ploughings, 6 plankings and 2 roller applications. (b) Flat planting. (c) 85 setts (3 budded)/row. (d) 3' between rows. (e) N.A. (v) Nil. (vi) CO. 453 (late). (vii) Irrigated. (viii) 4 hoeings by *kassi*, 3 hoeings by cultivator, 2 earthings and 5 diggings. (ix) 49.28". (x) 5 to 16.2.1959.

2. TREATMENTS and 3. DESIGN :

Same as in expt. no. 54(47) on page 946.

F.Y.M. applied on 31.1.1958 and 1.2.1958. A/S and G.N.C. top-dressed on 25.4.1958.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of sugarcane and juice analysis. (iv) (a) 1949—contd. (b) Yes. (c) Nil. (v) (a) and (b) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 22.40 tons/ac. (ii) 1.32 tons/ac. (iii) Treatment differences are highly significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	S ₀	S ₁	S ₂	S ₃	S ₄	S ₅	S ₆
Av. yield	16.10	23.66	23.69	23.15	23.63	23.43	23.16

S.E./mean = 0.66 tons/ac.

Crop :- Sugarcane.**Ref :- U.P. 59(49).****Site :- Sugarcane Res. Sub-Stn., Muzaffarnagar.****Type :- 'M'.**

Object :—To study the direct and cumulative effect of different sources of N on Sugarcane.

1. BASAL CONDITIONS :

(i) (a) Fallow—Sugarcane. (b) Fallow. (c) Nil. (ii) (a) Loam. (b) Refer soil analysis, Muzaffarnagar. (iii) 21.2.1959. (v) (a) 1 roller application, 4 ploughings by *desi* plough and 3 plankings. (b) Flat planting. (c) 85 setts (3 budded)/row. (d) 3' between rows. (e) N.A. (v) Nil. (vi) CO. 453 (late). (vii) Irrigated. (viii) 5 diggings, 5 hoeings by cultivator and 2 earthings. (ix) 31.65". (x) 8.12.1959 to 10.3.1960.

2. TREATMENTS and 3. DESIGN :

Same as in expt. no. 54(47) on page 946.

F.Y.M. applied on 1 and 2.1.1959. A/S and G.N.C. on 26.4.1959.

4. GENERAL :

(i) and (ii) N.A. (iii) Germination %, juice analysis and sugarcane yield. (iv) (a) 1949—contd. (b) Yes. (c) Nil. (v) (a) and (b) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 24.45 tons/ac. (ii) 1.18 tons/ac. (iii) Treatment differences are highly significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	S ₀	S ₁	S ₂	S ₃	S ₄	S ₅	S ₆
Av. yield	15.13	23.62	26.73	27.33	25.66	26.06	26.63

S.E./mean = 0.59 tons/ac.

Crop :- Sugarcane.**Ref :- U.P. 54(48).****Site :- Sugarcane Res. Sub-Stn., Muzaffarnagar.****Type :- 'M'.**

Object :—To study the effect of different manures on Sugarcane.

1. BASAL CONDITIONS :

(i) (a) G.M.—Wheat—Cotton—Sugarcane. (b) Cotton. (c) Nil. (ii) (a) Light loam. (b) Refer soil analysis, Muzaffarnagar. (iii) 15.3.1954. (iv) (a) 7 preparatory ploughings. (b) Flat planting. (c) 42,000 buds/ac. (d) and (e) N.A. (v) Nil. (vi) CO. 453 (late). (vii) Irrigated. (viii) 7 hoeings and 1 earthing up. (ix) 36.19". (x) 20, 21.12.1954.

2. TREATMENTS :

4 manurial treatments : M₀=Control, M₁=100 lb./ac. of N as A/S, M₂=100 lb./ac. of N as F.Y.M., M₃=M₂+40 lb./ac. of chemical mixture (FeSO₄+lime in 2 : 1 ratio).

F.Y.M. and chemical mixture applied 15 days before planting. A/S applied after 1st irrigation.

3. DESIGN :

(i) R.B.D. (ii) (a) 4. (b) N.A. (iii) 4. (iv) (a) 58'×21'. (b) 52'×15'. (v) 3'×3'. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Nil. (iii) Germination %, no. of tillers and sugarcane yield. (iv) (a) 1954—contd. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 17.98 tons/ac. (ii) 2.66 tons/ac. (iii) Treatment differences are highly significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	M ₀	M ₁	M ₂	M ₃
Av. yield	15.48	23.94	15.66	16.83

S.E./mean = 1.33 tons/ac.

Crop :- Sugarcane.**Ref :- U.P. 55(65).****Site :- Sugarcane Res. Sub-Stn., Muzaffarnagar.****Type :- 'M'.**

Object :—To study the effect of different manures on Sugarcane.

1. BASAL CONDITIONS :

(i) (a) G.M.—Wheat—Cotton—Sugarcane. (b) Cotton. (c) Nil. (ii) (a) Loam. (b) Refer soil analysis, Muzaffarnagar. (iii) 24.2.1955. (iv) (a) 7 preparatory ploughings. (b) Flat planting. (c) 42000 buds/ac. (d) and (e) N.A. (v) Nil. (vi) CO. 453 (lete). (vii) Irrigated. (viii) Hoeings, weedings and earthings. (ix) 52.11". (x) 18 and 19.1.1956.

2. TREATMENTS and 3. DESIGN :

Same as in expt. no. 54(48) on page 949.

4. GENERAL :

(i) Good. (ii) Nil. (iii) Germination %, no. of tillers, millable cane counting and yield of sugarcane. (iv) (a) 1954—1956. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 29.31 tons/ac. (ii) 1.26 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	M ₀	M ₁	M ₂	M ₃
Av. yield	28.88	30.11	28.62	29.64

S.E./mean = 0.63 tons/ac.

Crop :- Sugarcane.**Ref :- U.P. 56(12).****Site :- Sugarcane Res. Sub-Stn., Muzaffarnagar.****Type :- 'M'.**

Object :—To study the effect of different manures on Sugarcane.

1. BASAL CONDITIONS :

(i) (a) G.M.—Wheat—Cotton—Sugarcane. (b) Cotton. (c) Nil. (ii) (a) Loam. (b) Refer soil analysis, Muzaffarnagar. (iii) 8.3.1956. (iv) (a) 7 preparatory ploughings. (b) Flat planting. (c) 42,000 buds/ac. (d) and (e) N.A. (v) Nil. (vi) CO. 453 (late). (vii) Irrigated. (viii) Hoeings, weedings and earthings. (ix) 70.54". (x) 30.1.1957 to 24.2.1957.

2. TREATMENTS and 3. DESIGN :

Same as in expt. no. 54(48) on page 949.

4. GENERAL :

(i) Good. (ii) Nil. (iii) Germination %, no. of tillers, millable cane counting and yield of sugarcane. (iv) (a) 1954—1956. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 24.90 tons/ac. (ii) 2.96 tons/ac. (iii) Treatment differences are significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	M ₀	M ₁	M ₂	M ₃
Av. yield	23.41	28.01	27.19	20.98

S.E./mean = 1.48 tons/ac.

Crop :- Sugarcane.**Ref :- U.P. 56(9).****Site :- Sugarcane Res. Sub-Stn., Muzaffarnagar.****Type :- 'M'.**

Object :— To study the effect of different sources of N on Sugarcane.

1. BASAL CONDITIONS :

(i) (a) G.M.—Wheat—Cotton—*Metha*—Sugarcane. (b) *Metha*. (c) Nil. (ii) (a) Loam. (b) Refer soil analysis, Muzaffarnagar. (iii) 28.2.1956. (iv) (a) 7 preparatory ploughings. (b) Flat planting. (c) 60 setts (3 budded)/row. (d) Rows 3' apart. (e) N.A. (v) 60 lb./ac. of N as F.Y.M. + *metha* ploughed in. (vi) CO.S. 245 (mid.-early). (vii) Irrigated (viii) Hoeings, weedings and earthings. (ix) 70.54". (x) 25.11.1956 to 6.3.1957.

2. TREATMENTS :

6 sources of 60 lb./ac. of N : S_0 =Control, S_1 =A/C, S_2 =A/S, S_3 =Urea, S_4 =A/S/N and S_5 =G.N.C.
Manures applied after 1st irrigation.

3. DESIGN :

(i) R.B.D. (ii) (a) 6. (b) N.A. (iii) 4. (iv) (a) 1/33.37 ac. (b) 1/59.75 ac. (v) N.A. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Albine disease appeared. (iii) Germination %, no. of tiller, millable cane counting and yield of sugarcane. (iv) (a) 1956—1958. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 21.12 tons/ac. (ii) 1.70 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	S_0	S_1	S_2	S_3	S_4	S_5
Av. yield	19.63	22.23	20.93	21.81	21.89	20.22

S.E./mean = 0.85 tons/ac.

Crop :- Sugarcane.**Ref :- U.P. 57(51).****Site :- Sugarcane Res. Sub-Stn., Muzaffarnagar.****Type :- 'M'.**

Object :— To study the effect of different sources of N on Sugarcane.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) *Guar*. (c) N.A. (ii) (a) Loam. (b) Refer soil analysis, Muzaffarnagar. (iii) 7.2.1957. (iv) (a) 5 ploughings by *desi* plough and 6 plankings. (b) Flat planting. (c) 60 setts (3 budded)/row. (d) Rows 3' apart. (e) N.A. (v) 60 lb./ac. of N as F.Y.M. on 30.1.1957. (vi) CO.S. 245 (medium). (vii) Irrigated. (viii) 11 hoeings, 2 diggings and 3 earthings. (ix) 43.35". (x) 27.12.1957 to 10.3.1958.

2. TREATMENTS :

Same as in expt. no. 56(9) above.
Manures applied on 30.4.1957.

3. DESIGN :

(i) R.B.D. (ii) (a) 6. (b) 57'×136'. (iii) 4. (iv) (a) 57'×21'. (b) 51'×15'. (v) 3'×3'. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of sugarcane and juice analysis. (iv) (a) 1956—1958. (b) No. (c) Nil. (v) (a) and (b) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 18.83 tons/ac. (ii) 2.70 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	S_0	S_1	S_2	S_3	S_4	S_5
Av. yield	18.63	17.98	18.99	19.77	18.16	19.44

S.E./mean = 1.35 tons/ac.

Crop :- Sugarcane.**Ref :- U.P. 58(51).****Site :- Sugarcane Res. Sub-Stn., Muzaffarnagar.****Type :- 'M'.**

Object :—To study the effect of different sources of N on Sugarcane.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) *Chari*. (c) Nil. (ii) (a) Loam. (b) Refer soil analysis, Muzaffarnagar. (iii) 19.2.1958. (iv) (a) 7 ploughings by *desi* plough, 2 roller applications, 2 plankings and 1 *palewa*. (b) Flat planting. (c) 61 setts (3 budded)/row. (d) Rows 3' apart. (e) N.A. (v) 60 lb./ac. of N as F.Y.M. applied on 25.1.1958. (vi) CO.S. 245 (medium). (vii) Irrigated. (viii) 7 diggings, 2 plankings, 4 hoeings and 1 earthing. (ix) 49.38". (x) 23.11.1958 to 16.2.1959.

2. TREATMENTS :

Same as in expt. no. 56(9) on page 951.
Manures top dressed on 16.5.1958.

3. DESIGN :

(i) R.B.D. (ii) (a) 6. (b) 59' × 136'. (iii) 4. (iv) (a) 59' × 21'. (b) 53' × 15'. (v) 3' × 3'. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Juice analysis and yield of sugarcane. (iv) (a) 1956—1958. (b) No. (c) Nil. (v) (a) and (b) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 23.51 tons/ac. (ii) 1.70 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	S ₀	S ₁	S ₂	S ₃	S ₄	S ₅
Av. yield	22.51	22.56	25.54	23.65	23.33	23.45

S.E./mean = 0.85 tons/ac.

Crop :- Sugarcane.**Ref :- U.P. 56(11).****Site :- Sugarcane Res. Sub-Stn., Muzaffarnagar.****Type :- 'M'.**

Object :—To study the effect of time of application of F.Y.M. and A/S alone and in combination on Sugarcane.

1. BASAL CONDITIONS :

(i) (a) G.M.—Wheat—Cotton—Sugarcane. (b) Cotton. (c) Nil. (ii) (a) Loam. (b) Refer soil analysis, Muzaffarnagar. (iii) 8.3.1956. (iv) (a) 7 preparatory ploughings. (b) Planted flat. (c) N.A. (d) Rows 3' apart. (e) N.A. (v) Nil. (vi) CO.S. 245 (mid. early.) (vii) Irrigated. (viii) Hoeing, weeding and earthing. (ix) 70.54". (x) 25.12.1956 to 5.3.1957.

2. TREATMENTS :

6 manurial treatments : M₀=Control, M₁=120 lb./ac. of N as A/S at planting, M₂=120 lb./ac. of N as F.Y.M. applied 15 to 30 days before planting, M₃=60 lb./ac. of N as A/S+60 lb./ac. of N as F.Y.M. applied mixed 15 to 30 days before planting, M₄=60 lb./ac. of N as A/S at planting+60 lb./ac. of N as F.Y.M. applied 15 to 30 days before planting and M₅=120 lb./ac. of N in two equal doses, at 1st irrigation and at 2nd irrigation.

3. DESIGN :

(i) R.B.D. (ii) (a) 6. (b) N.A. (iii) 5. (iv) (a) 1/36.66 ac. (b) 2/54.59 ac. (v) N.A. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Albino disease appeared. (iii) Germination %, no. of tillers, millable cane countings and yield of sugarcane. (iv) (a) 1956—1958. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 18.38 tons/ac. (ii) 3.56 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	M ₀	M ₁	M ₂	M ₃	M ₄	M ₅
Av. yield	15.06	19.57	15.87	19.75	19.23	20.78

S.E./mean = 1.59 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 57(52).

Site :- Sugarcane Res. Sub-Stn., Muzaffarnagar.

Type :- 'M'.

Object :—To study the effect of application of F.Y.M. and A/S alone and in combination on Sugarcane.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Cotton. (c) N.A. (ii) (a) Loam. (b) Refer soil analysis, Muzaffarnagar. (iii) 18.2.1957. (iv) (a) 6 ploughings, 1 roller application and 5 plankings. (b) Flat planting. (c) 46 setts (3 budded)/row. (d) Rows 3' apart. (e) N.A. (v) Nil. (vi) CO.S. 245 (medium). (vii) Irrigated. (viii) 9 hoeings, 4 plankings, 1 digging, 1 weeding and 1 earthing. (ix) 43.35". (x) 30.12.1957 to 10.3.1958.

2. TREATMENTS :

Same as in expt. no. 56(11) on page 952.

3. DESIGN :

(i) R.B.D. (ii) (a) 6. (b) 44'×172'. (iii) 5. (iv) (a) 44'×27'. (b) 38'×21'. (v) 3'×3'. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Sugarcane yield and juice analysis. (iv) (a) 1956—1958. (b) No. (c) Nil. (v) (a) and (b) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 14.93 tons/ac. (ii) 1.82 tons/ac. (iii) Treatment differences are highly significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	M ₀	M ₁	M ₂	M ₃	M ₄	M ₅
Av. yield	10.70	16.54	13.49	15.94	16.97	15.96

S.E./mean = 0.81 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 58(52).

Site :- Sugarcane Res. Sub-Stn., Muzaffarnagar.

Type :- 'M'.

Object :—To study the effect of application of F.Y.M. and A/S alone and in combination on Sugarcane.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) *Lobia*. (c) Nil. (ii) (a) Loam. (b) Refer soil analysis, Muzaffarnagar. (iii) 20.3.1958. (iv) (a) 10 ploughings, 2 roller applications, 5 plankings and 1 *palewa*. (b) Flat planting. (c) 46 setts (3 budded)/row. (d) Rows 3' apart. (e) N.A. (v) Nil. (vi) CO.S. 245 (medium). (vii) Irrigated. (viii) 6 hoeings, 3 plankings, 3 diggings and 2 earthings. (ix) 49.06". (x) 21.11.1958 to 16.2.1959.

2. TREATMENTS :

Same as in expt. no. 56(11) on page 952.

3. DESIGN :

(i) R.B.D. (ii) (a) 6. (b) 44'×172'. (iii) 5. (iv) (a) 44'×27'. (b) 38'×21'. (v) 3'×3'. (vi) Yes.

4. GENERAL :

(i) N.A. (ii) Red rot disease affected the crop severely. (iii) Juice analysis and yield of sugarcane. (iv) (a) 1956—1958. (b) No. (c) Nil. (v) (a) and (b) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 21.68 tons/ac. (ii) 2.23 tons/ac. (iii) Treatment differences are highly significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	M ₀	M ₁	M ₂	M ₃	M ₄	M ₅
Av. yield	17.85	23.64	20.98	23.36	22.55	21.69

S.E./mean = 1.00 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 54(49).

Site :- Sugarcane Res. Sub-Stn., Muzaffarnagar.

Type :- 'M'.

Object :-To find out the suitable time of application of N through different sources on Sugarcane.

1. BASAL CONDITIONS :

(i) (a) G.M.—Wheat—Cotton—Sugarcane. (b) Cotton. (c) Nil. (ii) (a) Light loam. (b) Refer soil analysis, Muzaffarnagar. (iii) 17.3.1954. (iv) (a) 7 preparatory ploughings. (b) Planted flat. (c) 42000 buds/ac. (d) Rows 3' apart. (e) N.A. (v) Nil. (vi) CO.S. 321 (early). (vii) Irrigated. (viii) 7 hoeings and 1 earthing up. (ix) 36.19". (x) 23.12.1954 to 25.3.1955.

2. TREATMENTS :

All combinations of (1) and (2) + a control

(1) 3 sources of 120 lb./ac. of N : S₁=A/S, S₂=A/S/N and S₃= Departmental fertilizer mixture.

(2) 2 times of application : T₁=½ at planting+½ at 1st irrigation and T₂=½ at first irrigation+½ at 2nd irrigation.

3. DESIGN :

(i) R B D. (ii) (a) 7. (b) N.A. (iii) 4. (iv) (a) 21'×83'. (b) 15'×77'. (v) 3'×3'. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Nil. (iii) Germination %, tiller count, millable cane countings and yield of sugarcane. (iv) (a) 1954—contd. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 28.69 tons/ac. (ii) 2.50 tons/ac. (iii) Only 'control vs. others' is highly significant. (iv) Av. yield of sugarcane in tons/ac.

Control = 20.93 tons/ac.

	S ₁	S ₂	S ₃	Mean
T ₁	30.76	30.05	30.05	30.29
T ₂	29.44	29.00	30.60	29.68
Mean	30.10	29.52	30.32	29.98

S.E. of S marginal mean = 0.88 tons/ac.

S.E. of T marginal mean = 0.72 tons/ac.

S.E. of body of table or control mean = 1.25 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 55(67).

Site :- Sugarcane Res. Sub-Stn., Muzaffarnagar.

Type :- 'M'.

Object :-To find out the suitable time of application of N through different sources on Sugarcane.

1. BASAL CONDITIONS :

(i) (a) G.M.—Wheat—Cotton—Sugarcane. (b) Cotton. (c) Nil. (ii) (a) Loam. (b) Refer soil analysis, Muzaffarnagar. (iii) 14.3.1955. (iv) (a) 7 preparatory ploughings. (b) Flat planting. (c) 42000 buds/ac. (d) Rows 3' apart. (e) N.A. (v) Nil. (vi) CO.S. 321 (early). (vii) Irrigated. (viii) Hoeing, weeding and earthing. (ix) 52.11". (x) 23.2.1956 to 6.3.1956.

2. TREATMENTS :

All combinations of (1) and (2) + a control.

(1) 3 sources of 120 lb./ac. of N : $S_1=A/S$, $S_2=Urea$ and $S_3=G.N.C.+A/S$ in the ratio of 1 : 1.

(2) 2 times of application : $T_1=\frac{1}{2}$ at planting + $\frac{1}{2}$ at 1st irrigation and $T_2=\frac{1}{2}$ at 1st irrigation + $\frac{1}{2}$ at 2nd irrigation.

3. DESIGN :

(i) R.B.D. (ii) (a) 7. (b) N.A. (iii) 4. (iv) (a) 1/23.31 ac. (b) 1/34.99 ac. (v) N.A. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Nil. (iii) Germination %, no. of tillers, millable cane counting and yield of sugarcane. (iv) (a) 1954—1956. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 24.62 tons/ac. (ii) 1.48 tons/ac. (iii) Only 'control vs. others' is highly significant. (iv) Av. yield of sugarcane in tons/ac.

Control = 17.15 tons/ac.

	S_1	S_2	S_3	Mean
T_1	25.81	25.33	26.82	25.99
T_2	26.75	24.61	25.85	25.74
Mean	26.28	24.97	26.34	25.86

S.E. of S marginal mean = 0.52 tons/ac.

S.E. of T marginal mean = 0.43 tons/ac.

S.E. of body of table or control mean = 0.74 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 56(10).

Site :- Sugarcane Res. Sub-Stn., Muzaffarnagar.

Type :- 'M'.

Object —To find out the suitable time of application of N through different sources on Sugarcane.

1. BASAL CONDITIONS :

(i) (a) G.M.—Wheat—Cotton—Sugarcane. (b) Cotton. (c) Nil. (ii) (a) Loam. (b) Refer soil analysis, Muzaffarnagar. (iii) 7.3.1956. (iv) (a) 7 preparatory ploughings. (b) Flat planting. (c) 42000 buds/ac. (d) Rows 3' apart. (e) N.A. (v) Nil. (vi) CO.S. 321 (early). (vii) Irrigated. (viii) Hoeing, weeding and earthing. (ix) 70.54". (x) 1.2.1957 to 13.3.1957.

2. TREATMENTS to 4. GENERAL :

Same as in expt. no. 55(67) on page 954.

5. RESULTS :

(i) 26.95 tons/ac. (ii) 1.90 tons/ac. (iii) Only 'control vs. others' is highly significant. (iv) Av. yield of sugarcane in tons/ac.

Control = 22.06 tons/ac.

	S ₁	S ₂	S ₃	Mean
T ₁	27.73	28.16	27.18	27.69
T ₂	27.82	28.24	27.45	27.84
Mean	27.78	28.20	27.32	27.77

S.E. of S marginal mean = 0.67 tons/ac.
 S.E. of T marginal mean = 0.55 tons/ac.
 S.E. of body of table or control mean = 0.95 tons/ac.

Crop :- Sugarcane.**Ref :- U.P. 56(315).****Site :- Reg. Res. Stn., Nawabganj.****Type :- 'M'.**

Object :—To study the effect of G.M. and different times of application of P on Sugarcane.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) and (c) As per treatments. (ii) (a) Sandy loam. (b) Refer soil analysis, Nawabganj. (iii) to (vi) N.A. (vii) Irrigated. (viii) and (ix) N.A. (x) 29 and 30.4.1957.

2. TREATMENTS :

3 manurial treatments : M₀=*Dhaincha* grown and turned in as G.M., M₁=60 lb./ac. of P₂O₅ as Super broadcast at sowing of *dhaincha* and *dhaincha* turned in as G.M. and M₂=60 lb./ac. of P₂O₅ as Super applied at the time of turning in of *dhaincha* as G.M.

3. DESIGN :

(i) R.B.D. (ii) (a) 3. (b) N.A. (iii) 6. (iv) (a) N.A. (b) 82' × 18'. (v) N.A. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Germination, millable cane and yield of sugarcane. (iv) (a) and (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 17.92 tons/ac. (ii) 0.55 tons/ac. (iii) Treatment differences are highly significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	M ₀	M ₁	M ₂
Av. yield	17.78	18.70	17.29

S.E./mean = 0.22 tons/ac.

Crop :- Sugarcane.**Ref :- U.P. 58(501).****Site :- Reg. Res. Stn., Nawabganj.****Type :- 'M'.**

Object :—To study the effect of different sources of N and different of sources and times of application of P on Sugarcane.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) (a) Clay loam. (b) Refer soil analysis, Nawabganj. (iii) 2.3.1958. (iv) (a) N.A. (b) Flat planting. (c) to (e) N.A. (v) N.A. (vi) CO.S. 510. (vii) to (ix) N.A. (x) 21 to 25.12.1958.

2. TREATMENTS :

10 manurial treatments : M_1 =G.M.+100 lb./ac. of P_2O_5 as Super at sowing of G.M., M_2 =G.M.+100 lb./ac. of P_2O_5 as Di-calcium Phos. at sowing of G.M., M_3 =G.M.+100 lb./ac. of P_2O_5 as Super at planting of sugarcane, M_4 =G.M.+100 lb./ac. of P_2O_5 as Di-calcium Phcs. at planting of sugarcane, M_5 =60 lb./ac. of N as F.Y.M. 6 weeks before planting+100 lb./ac. of P_2O_5 as Super at planting, M_6 =60 lb./ac. of N as F.Y.M.+100 lb./ac. of P_2O_5 as Super mixed together and applied 6 weeks before planting, M_7 =60 lb./ac. of N as A/S+100 lb./ac. of P_2O_5 as Super at planting, M_8 =60 lb./ac. of N as G.M. M_9 =60 lb./ac. of N as F.Y.M. and M_{10} =60 lb./ac. of N as A/S.

G.M. applied at 60 lb./ac. of N. Source of G.M.—N.A.

3. DESIGN :

(i) R.B.D. (ii) (a) 10. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 78'×9'. (v) N.A. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of sugarcane. (iv) (a) and (b) N.A. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 7.38 tons/ac. (ii) 2.00 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	M_1	M_2	M_3	M_4	M_5	M_6	M_7	M_8	M_9	M_{10}
Av. yield	7.42	6.23	7.38	7.37	6.95	8.29	8.22	7.67	7.51	6.80

S.E/mean = 1.00 ton/ac.

Crop :- Sugarcane.

Ref :- U.P. 54(261).

Site :- Govt. Sugarcane Res. Sub-Stn., Neoli.

Type :- 'M'.

Object :—To study the effect of P on the yield of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) (a) Sandy loam. (b) Refer soil analysis, Neoli. (iii) 12.2.1954. (iv) (a) 6 ploughings and 1 harrowing. (b) Flat planting. (c) 66 setts (3 budded)/row. (d) and (e) N.A. (v) Top dressing with A/S and G.N.C. (vi) CO.S. 245. (vii) Irrigated. (viii) 9 hoeings. (ix) N.A. (x) 27 and 28.1.1955.

2. TREATMENTS :

All combinations of (1) and (2)+a control

(1) 2 levels of P_2O_5 as Super : P_1 =60 and P_2 =120 lb./ac.

(2) 2 methods of application of Super : M_1 =Broadcast before planting and M_2 =Planted 3" to 4" deep before planting.

3. DESIGN :

(i) R.B.D. (ii) (a) 5. (b) 105'×64'. (iii) 6. (iv) (a) 64'×21'. (b) 58'×15'. (v) 3'×3'. (vi) Yes.

4. GENERAL :

(i) Good. (ii) N.A. (iii) Germination %, no. of tillers, juice analysis and sugarcane yield. (iv) (a) 1953--1955. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 16.98 tons/ac. (ii) 3.93 tons/ac. (iii) None of the effects is significant. (iv) Av. yield of sugarcane in tons/ac.

Control = 13.34 tons/ac.

	P_1	P_2	Mean
M_1	15.33	18.93	17.13
M_2	17.09	20.23	18.66
Mean	16.21	19.58	17.90

S.E. of any marginal mean	= 1.13 tons/ac.
S.E. of body of table or control mean	= 1.60 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 55(280).

Site :- Govt. Sugarcane Res. Sub-Stn., Neoli.

Type :- 'M'.

Object :- To study the effect of P on the yield of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) *Dhaincha*--Sugarcane. (b) *Dhaincha*. (c) N.A. (ii) (a) Sandy loam. (b) Refer soil analysis, Necli. (iii) 1.2.1955. (iv) (a) 7 ploughings and 1 planking. (b) Flat planting. (c) 66 setts (3 budded)/row. (d) and (e) N.A. (v) 120 lb./ac. of N+*dhaincha* G.M.+press mud. (vi) CO.S. 245. (vii) Irrigated. (viii) 1 harrowing, 5 hoeings and 1 earthing. (ix) N.A. (x) 17 to 23.2.1956.

2. TREATMENTS and 3. DESIGN :

Same as in expt. no. 54(261) on page 957.

4. GENERAL :

(i) Good. Lodging on 10.10.1955. (ii) Attack of root borer, top borer and wilting. (iii) Germination %, no. of tillers, juice analysis and yield of sugarcane. (iv) (a) 1953--1955. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 14.61 tons/ac. (ii) 5.45 tons/ac. (iii) None of the effects is significant. (iv) Av. yield of sugarcane in tons/ac.

Control = 12.28 tons/ac.

	P ₁	P ₂	Mean
M ₁	14.52	15.65	15.08
M ₂	12.50	18.10	15.30
Mean	13.51	16.88	15.19

S.E. of any marginal mean	= 1.57 tons/ac.
S.E. of body of table or control mean	= 2.22 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 54(257).

Site :- Govt. Sugarcane Res. Sub-Stn., Neoli.

Type :- 'M'.

Object :- To study the effect of different G.M. crops sown with and without P on Sugarcane.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) (a) Sandy loam. (b) Refer soil analysis, Neoli. (iii) 13.2.1954. (iv) (a) 10 ploughings and 1 planking. (b) Flat planting. (c) to (e) N.A. (v) Nil. (vi) CO.S. 245. (vii) Irrigated. (viii) 3 hoeings. (ix) and (x) N.A.

2. TREATMENTS :

All combinations of (1) and (2)+a control

(1) 4 G.M. crops : G₁=*Sana*, G₂=*Guar*, G₃=*Lobia* and G₄=*Dhaincha*.

(2) 2 levels of P₂O₅ as Super : P₀=0 and P₁=50 lb./ac.

Super applied at the time of sowing of G.M. crops on 27.6.1953. G.M. crops turned in the soil.

3. DESIGN :

(i) R.B.D. (ii) (a) 9. (b) 60'×216'. (iii) 6. (iv) (a) 60'×24'. (b) 84'×18'. (v) 3'×3'. (vi) Yes.

4 GENERAL:

(i) Good. (ii) Attack of borer. (iii) Germination %, no. of tillers, millable cane, juice analysis and yield of sugarcane. (iv) (a) 1953—1956. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS:

(i) 14.46 tons/ac. (ii) 3.50 tons/ac. (iii) Only G effect is significant. (iv) Av. yield of sugarcane in tons/ac.

Control = 12.92 tons/ac.

	G ₁	G ₂	G ₃	G ₄	Mean
P ₀	12.39	17.08	14.57	14.60	14.66
P ₁	11.80	14.59	14.40	17.76	14.64
Mean	12.10	15.84	14.48	16.18	14.65

S.E. of G marginal mean = 1.01 tons/ac.

S.E. of P marginal mean = 0.71 tons/ac.

S.E. of body of table or control mean = 1.43 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 55(282).

Site :- Sugarcane Res. Sub-Stn., Neoli.

Type :- 'M'.

Object :- To study the effect of different G.M. crops on Sugarcane.

1. BASAL CONDITIONS :

(i) (a) Sugarcane—Wheat—Sugarcane. (b) Wheat. (c) N.A. (ii) (a) Sandy loam. (b) Refer soil analysis, Neoli. (iii) 30.1.1955. (iv) (a) 9 ploughings. (b) Flat planting. (c) 990 buds/net plot. (d) and (e) N.A. (v) Nil. (vi) C.O.S. 245. (vii) Irrigated. (viii) 5 hoeings. (ix) N.A. (x) 6.1.1956 and 7.2.1956.

2. TREATMENTS:

9 manurial treatments : M₀=Control, M₁=*Sanai* turned in as G.M, M₂=M₁+50 lb./ac. of P₂O₅, M₃=*Guar* turned in as G.M., M₄=M₂+50 lb./ac. of P₂O₅, M₅=*Lobia* turned in as G.M., M₆=M₅+50 lb./ac. of P₂O₅, M₇=*Dhaincha* turned in as G.M. and M₈=M₇+50 lb./ac. of P₂O₅.

P₂O₅ applied as Super at sowing of G.M. crops on 14.7.1954.

3. DESIGN :

(i) R.B.D. (ii) (a) 9. (b) 64'×189'. (iii) 5. (iv) (a) 64'×21'. (b) 58'×15'. (v) 3'×3'. (vi) Yes.

4. GENERAL :

(i) Good. Lodging in October. (ii) Attack of root borer and wilting. Affected plants rogued out. (iii) Germination %, no. of tillers, millable cane, juice analysis and yield of sugarcane. (iv) (a) 1953—1955. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 8.93 tons/ac. (ii) 4.63 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	M ₀	M ₁	M ₂	M ₃	M ₄	M ₅	M ₆	M ₇	M ₈
Av. yield	7.64	9.55	11.85	6.07	8.53	11.00	10.30	9.02	6.38

S.E /mean = 2.07 tons/ac.

Crop :- Sugarcane.**Ref :- U.P. 54(260).****Site :- Govt Sugarcane Res. Sub-Stn., Neoli.****Type :- 'M'.**

Object :— To study the effect of different G.M. crops on Sugarcane.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) (a) Sandy loam. (b) Refer soil analysis, Neoli. (iii) 14.2.1954. (iv) (a) N.A. (b) Flat planting. (c) 52 setts (3 budded)/row. (d) and (e) N.A. (v) Nil. (vi) CO.S. 245. (vii) to (ix) N.A. (x) 25 to 27.2.1955.

2. TREATMENTS :

12 manurial treatments : M_0 =Control, M_1 =Root of *metha*, M_2 =*Metha* turned in as G.M., M_3 = M_2 +50 lb./ac. of P_2O_5 , M_4 =Root of late *metha*, M_5 =Late *metha* turned in as G.M., M_6 = M_5 +50 lb./ac. of P_2O_5 , M_7 =Root of *berseem* left in the field after 3 cuttings for fodder, M_8 =*Berseem* turned in as G.M.+50 lb./ac. of P_2O_5 , M_9 =Root of pea, M_{10} =Pea turned in as G.M. and M_{11} = M_{10} +50 lb./ac. of P_2O_5 .

P_2O_5 as Super applied to G.M. crops at sowing. In M_1 , M_4 , M_7 and M_9 treatments green material is used for fodder and only roots are left out in the plot.

3. DESIGN :

(i) R.B.D. (ii) (a) 12. (b) 50'×288'. (iii) 4. (iv) (a) 50'×24'. (b) 44'×18'. (v) 3'×3'. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Attack of root borer and stem borer. (iii) Germination %, no. of tillers, millable cane and sugarcane yield. (iv) (a) 1953--1955. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 13.38 tons/ac. (ii) 6.41 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugar-in tons/ac.

Treatment	M_0	M_1	M_2	M_3	M_4	M_5	M_6	M_7	M_8	M_9	M_{10}	M_{11}
Av. yield	7.73	8.17	15.03	17.25	13.41	17.50	16.18	17.36	16.61	10.68	10.19	10.48

S.E./mean = 3.20 tons/ac.

Crop :- Sugarcane.**Ref :- U.P. 55(281).****Site :- Govt. Sugarcane Res. Sub-Stn., Neoli.****Type :- 'M'.**

Object :—To study the effect of different G.M. crops on Sugarcane.

1. BASAL CONDITIONS :

(i) (a) Wheat—Sugarcane. (b) Wheat. (c) N.A. (ii) (a) Sandy loam. (b) Refer soil analysis, Neoli. (iii) 28.1.1955. (iv) (a) 10 ploughings and 3 plankings. (b) Flat planting. (c) 66 setts (3 budded)/row. (d) and (e) N.A. (v) G.M. (*dhaincha*). (vi) CO.S. 245. (vii) Irrigated. (viii) 1 harrowing and 4 hoeings. (ix) N.A. (x) 28.1.1956 to 1.2.1956.

2. TREATMENTS :

12 manurial treatments : M_0 =Control, M_1 =Root of *metha*, M_2 =*Metha* turned in as G.M., M_3 = M_2 +100 lb./ac. of P_2O_5 , M_4 =Root of *senji*, M_5 =*Senji* turned in as G.M., M_6 = M_5 +100 lb./ac. of P_2O_5 , M_7 =Root of *berseem*, M_8 =*Berseem* turned in as G.M.+100 lb./ac. of P_2O_5 , M_9 =Root of pea, M_{10} =Pea turned in as G.M., M_{11} = M_{10} +100 lb./ac. of P_2O_5 .

P_2O_5 applied as Super to G.M. crops at sowing. In M_1 , M_4 , M_7 and M_9 treatments green material is used for fodder and roots left out in the plot.

3. DESIGN :

(i) R.B.D. (ii) (a) 12. (b) 64'×252'. (iii) 5. (iv) (a) 64'×21'. (b) 51'×15'. (v) 3'×3'. (vi) Yes.

4. GENERAL :

(i) Good. Lodging in October. (ii) Attack of root borer. Roguing done. (iii) Germination %, no. of tillers, juice analysis and sugarcane yield. (iv) (a) 1953--1955. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 13.24 tons/ac. (ii) 6.39 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	M ₀	M ₁	M ₂	M ₃	M ₄	M ₅	M ₆	M ₇	M ₈	M ₉	M ₁₀	M ₁₁
Av. yield	9.44	7.68	16.20	12.84	12.29	13.49	13.44	17.04	10.84	11.67	18.55	15.35

S.E./mean = 2.86 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 57(368).

Site :- Tarai Sugarcane Res. Centre, Phoolbagh.

Type :- 'M'.

Object :—To study the effect of N alone and in combination with P and K on Sugarcane.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) (a) Sandy loam to clay loam. (b) Refer soil analysis, Phoolbagh. (iii) 26.2 1957. (iv) (a) 2 ploughings and 4 harrowings with *disc* harrow. (b) In furrows between ridges. (c) 66 setts (3 budded)/row. (d) 3'×3'. (e) N.A. (v) 60 lb./ac. of N as G.M. (*dhaincha*). (vi) CO.S. 514. (vii) Un-irrigated. (viii) 2 hoeings and 1 weeding. (ix) 55.79". (x) 16 and 17.2.1958.

2. TREATMENTS :

5 manurial treatments : M₀=Control, M₁=60 lb./ac. of N as A/S, M₂=M₁+60 lb./ac. of P₂O₅ as Super, M₃=M₁+120 lb./ac. of K₂O as Mur. Pot. and M₄=M₂+120 lb./ac. of K₂O as Mur. Pot.

Mur. Pot. applied on 8.2.1957. Super applied in furrows on 26.2.1957 and A/S top dressed after complete germination on 2.8.1957.

3. DESIGN :

(i) R.B.D. (ii) (a) 5. (b) N.A. (iii) 6. (iv) (a) 64'×21'. (b) 58'×15'. (v) 3'×3'. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Slight attack of top borers and grass hoppers. (iii) Germination %, tiller count, juice analysis and yield of sugarcane. (iv) (a) 1957—contd. (modified in 1959). (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 25.37 tons/ac. (ii) 2.16 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	M ₀	M ₁	M ₂	M ₃	M ₄
Av. yield	23.54	24.62	25.09	26.53	27.09

S.E./mean = 0.88 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 57(371).

Site :- Tarai Sugarcane Res. Centre, Phoolbagh.

Type :- 'M'.

Object :—To study the effect of N alone and in combination with P and K on Sugarcane.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) (a) Clay loam. (b) Refer soil analysis, Phoolbagh. (iii) 21.2.1957. (iv) (a) 1 ploughing by one-way *disc* harrow and 2 harrowings. (b) In furrows between ridges. (c) 66 setts (3 budded)/row. (d) 3'×3'. (e) N.A. (v) 60 lb./ac. of N as G.M. (*dhaincha*). (vi) CO.S. 510. (vii) Irrigated. (viii) 3 hoeings, 1 weeding and 3 earthings. (ix) 55.79". (x) 18 and 20.3.1958.

2. TREATMENTS :

Same as in expt. no. 57(368) above.

N applied on 22.5.1957, P₂O₅ on 21.2.1957 and K₂O on 6.2.1957.

DESIGN :

(i) R.B.D. (ii) (a) 5. (b) N.A. (iii) 5. (iv) (a) 64'×21'. (b) 58'×15'. (v) 3'×3'. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Attack of top borer, stem borer and grass hoppers. (iii) Germination %, tiller count, and yield of sugarcane. (iv) (a) 1957—contd. (modified in 1959). (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 22.58 tons/ac. (ii) 1.16 tons/ac. (iii) Treatment differences are highly significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	M ₀	M ₁	M ₂	M ₃	M ₄
Av. yield	20.67	22.16	23.32	22.38	24.37

S.E./mean = 0.52 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 57(370).

Site :- Tarai Sugarcane Res. Centre, Phoolbagh.

Type :- 'M'.

Object :—To study the effect of N alone and in combination with P and K on Sugarcane.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) (a) Clay loam. (b) Refer soil analysis, Phoolbagh. (iii) 24.2.1957. (iv) (a) 1 ploughing and 4 harrowings. (b) Planted in furrows between ridges. (c) 66 setts (3 budded)/row. (d) 3'×3'. (e) N.A. (v) 60 lb./ac. of N as G.M. (*dha incha*). (vi) CO.S. 245. (vii) Unirrigated. (viii) 3 hoeings and 2 earthings. (ix) 55.79". (x) 18 and 19 2.1958.

2. TREATMENTS to 4. GENERAL :

Same as in expt. no. 57(368) on page 961.

N applied on 28.7.1957, P₂O₅ on 24.2.1957 and K₂O on 7.2.1957.

5. RESULTS :

(i) 28.50 tons/ac. (ii) 3.83 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	M ₀	M ₁	M ₂	M ₃	M ₄
Av. yield	25.85	26.68	29.80	29.26	30.92

S.E./mean = 1.56 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 58(336).

Site :- Tarai Sugarcane Res. Centre, Phoolbagh.

Type :- 'M'.

Object :—To study the effect of N alone and in combination with P and K on Sugarcane.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) *Lahi* (c) N.A. (ii) (a) Clay loam. (b) Refer soil analysis, Phoolbagh. (iii) 17.2.1958. (iv) (a) 3 harrowings. (b) In furrows between ridges. (c) 66 setts (3 budded)/row. (d) 3'×3'. (e) N.A. (v) 60 lb./ac. of N as G.M. (*dha incha*). (vi) CO.S. 245. (vii) Irrigated. (viii) 3 hoeings. (ix) 65.20". (x) 2, 3.3.1959.

2. TREATMENTS and 3. DESIGN :

Same as in expt. no. 57(368) on page 961.

N applied on 5.7.1958, P₂O₅ on 17.2.1958 and K₂O on 31.1.1958.

4. GENERAL :

(i) Good. (ii) Light attack of shoot borers. (iii) Germination %, tiller count and yield of sugarcane. (iv) (a) 1957—contd. (modified in 1959). (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 31.93 tons/ac. (ii) 3.31 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	M ₀	M ₁	M ₂	M ₃	M ₄
Av. yield	30.64	31.77	30.09	33.96	33.18

S.E./mean = 1.35 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 59(373).

Site :- Tarai Sugarcane Res. Centre, Phoolbagh.

Type :- 'M'.

Object :—To study the effect of N alone and in combination with P and K on Sugarcane.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Jute. (c) N.A. (ii) (a) Clay loam. (b) Refer soil analysis, Phoolbagh. (iii) 28.2.1959. (iv) (a) 1 ploughing and 2 harrowings. (b) In furrows between ridges. (c) 66 setts (3 budded)/row. (d) 3'×3'. (e) N.A. (v) 60 lb./ac. of N as G.M. (*dhaincha*). (vi) CO.S. 245. (vii) Unirrigated. (viii) 4 hoeings. (ix) 42.40". (x) 19.3.1960.

2. TREATMENTS :

6 manurial treatments : M₀=Control, M₁=60 lb./ac. of N as A/S, M₂=M₁+60 lb./ac. of P₂O₅ as Super, M₃=M₁+120 lb./ac. of K₂O as Mur. pot., M₄=M₂+120 lb./ac. of K₂O as Mur. Pot. and M₅=M₂+130 lb./ac. of K₂O as Mur. Pot.

Mur. Pot. applied in furrows on 26.2.1959, Super applied in furrows on 28.2.1959 and A/S top dressed after complete germination on 24.4.1959.

3. DESIGN :

(i) R.B.D. (ii) (a) 6. (b) N.A. (iii) 4. (iv) (a) 21'×64'. (b) 15'×58'. (v) 3'×3'. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Attack of shoot borer. (iii) Germination %, tiller count and sugarcane yield. (iv) (a) 1957—contd. (modified in 1959). (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 26.75 tons/ac. (ii) 6.02 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	M ₀	M ₁	M ₂	M ₃	M ₄	M ₅
Av. yield	23.28	28.31	27.56	28.60	23.06	29.69

S.E./mean = 3.01 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 58(335).

Site :- Tarai Sugarcane Res. Centre, Phoolbagh.

Type :- 'M'.

Object :—To study the effect of Nitrophoska-green on Sugarcane.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) (a) Clay loam. (b) Refer soil analysis, Phoolbagh. (iii) 17.2.1958 to 3.3.1958. (iv) (a) 1 harrowing. (b) In furrows between ridges. (c) 45,000 buds/ac. (d) 3'×3'. (e) N.A. (v) Nil. (vi) CO.S. 245. (vii) Unirrigated. (viii) 2 hoeings. (ix) 65.20". (x) N.A.

2. TREATMENTS :

4 manurial treatments : M₀=Control, M₁=60 lb./ac. of N as A/S, M₂=M₁+60 lb./ac. of P₂O₅ as Super and M₃=Nitrophoska-green (60 lb./ac. of N+60 lb./ac. of P₂O₅+76 lb./ac. of K₂O).

All manures applied in furrows at planting.

3. DESIGN :

(i) R.B.D. (ii) (a) 4. (b) N.A. (iii) 3. (iv) (a) 100' × 54'. (b) 94' × 48'. (v) 3' × 3'. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Nil. (iii) Tiller count, germination % and yield of sugarcane. (iv) (a) 1958--N.A. (b) No. (c) Nil. (v) (a) and (b) N.A. (vi) Nil. (vii) Expt. was planned with 4 replications. But as the variety in one of the replications was different, the yield data of that replication was not recorded.

5. RESULTS :

(i) 28.86 tons/ac. (ii) 2.55 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	M ₀	M ₁	M ₂	M ₃
Av. yield	30.07	28.15	29.78	27.44

S.E./mean = 1.47 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 58(334).

Site :- Tarai Sugarcane Res. Centre, Phoolbagh.

Type :- 'M'.

Object :-To study the effect of Nitrophoska-green on Sugarcane.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) (a) Clay loam. (b) Refer soil analysis, Phoolbagh. (iii) 17.2.1958 to 3.3.1958. (iv) (a) 1 harrowing. (b) In furrows between ridges. (c) 12,000 to 15,000 setts (3 budded)/ac. (d) 3' × 3'. (e) N.A. (v) Nil. (vi) CO.S. 245. (vii) Irrigated. (viii) 1 to 2 hoeings. (ix) 65.20". (x) N.A.

2. TREATMENTS :

5 manurial treatments : M₀=Control, M₁=60 lb./ac. of N as A/S, M₂=60 lb./ac. of P₂O₅ as Super, M₃=M₁+M₂ and M₄=60 lb./ac. of N+60 lb./ac. of P₂O₅+76 lb./ac. of K₂O as Nitrophoska-green.

All fertilisers applied in furrows at planting.

3. DESIGN :

(i) R.B.D. (ii) (a) 5. (b) N.A. (iii) 3. (iv) (a) 42' × 100'. (b) 36' × 94'. (v) 3' × 3'. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Nil. (iii) Tiller count, germination % and yield of sugarcane. (iv) (a) 1958--N.A. (b) No. (c) Nil. (v) (a) and (b) N.A. (vi) Nil. (vii) Experiment was planned with 4 replications. But, as the variety in one of the replications was different from the other three, the yield data of that replication was not recorded.

5. RESULTS :

(i) 27.89 tons/ac. (ii) 2.53 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	M ₀	M ₁	M ₂	M ₃	M ₄
Av. yield	28.50	28.52	27.40	27.68	27.36

S.E./mean = 1.46 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 59(192).

Site :- Govt. Cotton Res. Sub-Stn., Raya.

Type :- 'M'.

Object :-To study the effect of different sources of N with and without P on Sugarcane.

1. BASAL CONDITIONS :

(i) (a) *Lobia*—Sugarcane. (b) *Lobia*. (c) N.A. (ii) (a) Loam to sandy loam. (b) Refer soil analysis, Raya. (iii) 9.3.1959 (iv) (a) 3 ploughings by *desi* plough. (b) Flat planting. (c) 45 setts (3 budded)/row. (d) Rows 3' apart. (e) N.A. (v) 60 lb./ac. of N as F.Y.M. (vi) CO.S. 245. (vii) Irrigated. (viii) 6 hoeings and 1 earthing. (ix) N.A. (x) 4.2.1960.

2. TREATMENTS :

Main-plot treatments :

6 sources of 60 lb./ac. of N : S_0 =Control, S_1 =A/S, S_2 =A/S/N, S_3 =A/C, S_4 =Urea and S_5 =Oil cake.

Sub-plot treatments :

2 levels of P_2O_5 as super : P_0 =0 and P_1 =60 lb./ac.

3. DESIGN :

(i) Split-plot. (ii) (a) 6 main-plots/replication ; 2 sub-plots/main-plot. (b) 89'×144'. (iii) 4. (iv) (a) 42'×24'. (b) 36'×18'. (v) 3'×3'. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Germination %, juice analysis and sugarcane yield. (iv) (a) 1959—contd. (b) No. (c) Nil. (v) to (vii) Nil.

RESULTS :

(i) 24.16 tons/ac. (ii) (a) 0.31 tons/ac. (b) 1.73 tons/ac. (iii) Only S effect is significant. (iv) Av. yield of sugarcane in tons/ac.

	S_0	S_1	S_2	S_3	S_4	S_5	Mean
P_0	21.16	23.81	23.64	24.48	26.64	25.70	24.24
P_1	21.05	24.26	23.43	23.38	25.05	27.30	24.08
Mean	21.10	24.04	23.54	23.93	25.84	26.50	24.16

S.E. of difference of two

1. S marginal means = 0.16 tons/ac.
2. P marginal means = 0.50 tons/ac.
3. P means at the same level of S = 1.22 tons/ac.
4. S means at the same level of P = 0.88 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 59(85).

Site :- Sahupuri Agri. Exptl. Farm, Sahupuri.

Type :- 'M'.

Object :- To compare the efficiency of A/C and A/S for Sugarcane.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) *Bajra* and *arhar*. (c) Nil. (ii) (a) Sandy loam. (b) N.A. (iii) 23.3.1959. (iv) (a) 5 ploughings. (b) Flat planting in furrows. (c) 40 mds./ac. (d) 3' between rows. (e) N.A. (v) 60 mds./ac. of compost+75 lb./ac. of P_2O_5 as Super applied before sowing. (vi) Local (early). (vii) Irrigated. (viii) Hoeing, weeding and earthing. (ix) N.A. (x) 10.3.1960.

2. TREATMENTS :

T_0 =Control (No N), T_1 =150 lb./ac. of N as A/S and T_2 =150 lb./ac. of N as A/C.

Half of N applied at the time of planting and the other half as top dressing in the month of July.

3. DESIGN :

(i) R.B.D. (ii) (a) 3. (b) 95'×42'. (iii) 4. (iv) (a) 42'×30'. (b) 40'×30'. (v) 1' on either side. (vi) Yes.

4. GENERAL :

(i) Normal growth. (ii) Light attack of white ants. Spraying of Gammexane on 2.5.1959 at 60 gallons/ac. and 5% B.H.C. solution. (iii) Yield of millable (stripped and topped) sugarcane. (iv) (a) 1959—1960. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 8.52 tons/ac. (ii) 1.47 tons/ac. (iii) Treatment differences are significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	T ₀	T ₁	T ₂
Av. yield	6.81	9.59	9.15

S.E./mean = 0.74 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 59(194).

Site :- Govt. Agri. Farm, Saini.

Type :- 'M'.

Object :— To study the effect of different sources of N with and without P on Sugarcane.

1. BASAL CONDITIONS :

(i) (a) *Guar*—Sugarcane. (b) *Guar*. (c) N.A. (ii) (a) and (b) N.A. (iii) 23.3.1959. (iv) (a) N.A. (b) Flat planting. (c) 45 setts (3 budded)/row. (d) 3' between rows. (e) N.A. (v) 60 lb./ac. of N as F.Y.M. (vi) CO.S. 510. (vii) to (ix) N.A. (x) 23 to 27.2.1960.

2. TREATMENTS :

Same as in expt. no. 59(192) on page 964.

3. DESIGN :

(i) Split-plot. (ii) (a) 6 main-plots/replication ; 2 sub-plots/main-plot. (b) 37' × 180'. (iii) 3. (iv) (a) 37' × 15'. (b) 31' × 9'. (v) 3' × 3'. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Germination %, juice analysis and sugarcane yield. (iv) (a) 1959—contd. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 22.66 tons/ac. (ii) (a) 10.87 tons/ac. (b) 3.88 tons/ac. (iii) None of the effects is significant. (iv) Av. yield of sugarcane in tons/ac.

	S ₀	S ₁	S ₂	S ₃	S ₄	S ₅	Mean
P ₀	23.56	22.08	21.79	20.89	19.12	26.62	22.34
P ₁	23.08	20.93	25.43	24.04	19.02	25.33	22.97
Mean	23.32	21.50	23.61	22.46	19.07	25.98	22.66

S.E. of difference of two

- | | |
|-----------------------------------|-----------------|
| 1. S marginal means | = 6.28 tons/ac. |
| 2. P marginal means | = 1.29 tons/ac. |
| 3. P means at the same level of S | = 3.17 tons/ac. |
| 4. S means at the same level of P | = 6.66 tons/ac. |

Crop :- Sugarcane.

Ref :- U.P. 54(171).

Site :- Sugarcane Res. Stn., Shahjahanpur.

Type :- 'M'.

Object :—To study the effect of applying N partly to the soil and partly as a spray on Sugarcane.

1. BASAL CONDITIONS :

(i) (a) Wheat—Fallow—G.M.—Sugarcane. (b) *Dhaincha*. (c) Nil. (ii) (a) Light loam. (b) Refer soil analysis, Shahjahanpur. (iii) 12.2.1954. (iv) (a) N.A. (b) Flat planting. (c) 1(3 budded) sett/foot. (d) Rows 3' apart. (e) N.A. (v) *Dhaincha* (G.M.). (vi) CO. 453 (mid. late). (vii) Irrigated. (viii) 3 hoeings and 1 earthing. (ix) 40.76". (x) 7.11955.

2. TREATMENTS :

6 manurial treatments : M_1 =Only water spray, M_2 =A/S solution spray, M_3 =60 lb./ac. of N as A/S to soil at tillering+water spray, M_4 =50 lb./ac. of N as A/S to soil at tillering+10 lb./ac. of N as A/S sprayed on leaves, M_5 =110 lb./ac. of N as A/S to soil at tillering +water spray and M_6 =100 lb./ac. of N as A/S to soil at tillering+10 lb./ac. of N as A/S sprayed.

Soil application done on 14.5.1954 and spraying on 23, 25.4.1954, 3.7.1954 and 25.8.1954.

3. DESIGN :

(i) R.B.D. (ii) (a) 6. (b) N.A. (iii) 3. (iv) (a) and (b) 40'×27'. (v) Nil. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Sugarcane yield. (iv) (a) 1953—1955. (b) No. (c) Nil. (v) (a) and (b) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 27.79 tons/ac. (ii) 1.52 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	M_1	M_2	M_3	M_4	M_5	M_6
Av. yield	26.22	27.06	27.20	28.38	29.57	28.32

S.E./mean = 0.88 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 55(75).

Site :- Sugarcane Res. Stn., Shahjahanpur.

Type :- 'M'.

Object :- To study the effect of applying N partly to the soil and partly as spray on Sugarcane.

1. BASAL CONDITIONS :

(i) (a) Sugarcane—G.M. (*sanai*)—Sugarcane. (b) G.M. (*sanai*). (c) Nil. (ii) (a) Loam. (b) Refer soil analysis, Shahjahanpur. (iii) 15.2.1955. (iv) (a) N.A. (b) Flat planting. (c) 3 budded sett/foot. (d) Rows 3½' apart. (e) N.A. (v) *Sanai* as G.M. (vi) CO. 453 (late). (vii) Irrigated. (viii) 5 hoeings. (ix) 53.53". (x) 26.12.1955.

2. TREATMENTS :

Same as in expt. no. 54(171) on page 966.

3. DESIGN :

(i) R.B.D. (ii) (a) 6. (b) N.A. (iii) 3. (iv) (a) 46'×33'. (b) 40'×27'. (v) 3'×3'. (vi) Yes.

4. GENERAL :

(i) Normal. (ii) N.A. (iii) Germination %, tiller count, juice quality and yield of cane. (iv) (a) 1953—contd. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 31.62 tons/ac. (ii) 1.58 tons/ac. (iii) Treatment differences are significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	M_1	M_2	M_3	M_4	M_5	M_6
Av. yield	29.29	29.94	31.52	32.30	32.93	33.73

S E./mean = 0.91 tons/ac.

Crop :- Sugarcane.**Ref :- U.P. 59(179).****Site :- Sugarcane Res. Stn., Shahjahanpur.****Type :- 'M'.**

Object :—To compare Stera Meal with G.N.C. as fertilizers for Sugarcane.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) *Lobia*. (c) Nil. (ii) (a) Light loam. (b) Refer soil analysis, Shahjahanpur. (iii) 12.3.1959. (iv) (a) 10 ploughings by *desi* plough, 1 ploughing by Victory plough and 1 *palewa*. (b) Flat planting. (c) 85 (3 budded) setts/row. (d) Rows 3' apart. (e) N.A. (v) *Lobia* for G.M. (vi) CO.S. 526 (medium). (vii) Irrigated. (viii) 7 hoeings. (ix) 24.62". (x) 5 and 6.2.1960.

2. TREATMENTS :

3 sources of 60 lb./ac. of N : $S_0=0$, S_1 =Stera meal and S_2 =G.N.C.
Manuring on 12.3.1959.

3. DESIGN :

(i) R.B.D. (ii) (a) 3. (b) 69' × 83'. (iii) 4. (iv) (a) 83' × 21'. (b) 77' × 15'. (v) 3' × 3'. (vi) Yes.

4. GENERAL :

(i) Lodging due to heavy rains in Sept. Good growth. (ii) Attack by rats. (iii) Germination %, tiller count, yield of cane and juice analysis. (iv) (a) and (b) No. (c) Nil. (v) (a) and (b) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 25.23 tons/ac. (ii) 2.22 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	S_0	S_1	S_2
Av. yield	25.13	25.41	25.15

S.E /mean = 1.11 tons/ac.

Crop :- Sugarcane.**Ref :- U.P. 54(173).****Site :- Sugarcane Res. Stn., Shahjahanpur.****Type :- 'M'.**

Object :—To study the effect of mixing chemical mixture with F.Y.M. on Sugarcane.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) (a) Light loam. (b) Refer soil analysis, Shahjahanpur. (iii) 2.3.1954. (iv) (a) N.A. (b) Flat planting. (c) 1 (3 budded) sett/running foot. (d) Rows 3' apart. (e) N.A. (v) Nil. (vi) CO. 453 (mid. late). (vii) Irrigated. (viii) 4 hoeings and 1 earthing. (ix) 37.02". (x) 29.12.1954.

2. TREATMENTS :

6 manurial treatments : M_1 =Unmanured (control), M_2 =Chemical mixture at 40 lb./ac., M_3 =F.Y.M. at 100 lb./ac. of N, M_4 =F.Y.M. at 100 lb./ac. of N+chemical mixture at 40 lb./ac., M_5 =F.Y.M. at 100 lb./ac. of N+chemical mixture at 60 lb./ac. and M_6 =F.Y.M. at 100 lb./ac. of N+chemical mixture at 80 lb./ac.

Manures applied on 30.12.1953. Chemical mixture includes lime at 40 lb./ac. and Ferrous sulphate at 60 lb./ac.

3. DESIGN :

(i) R.B.D. (ii) (a) 6. (b) N.A. (iii) 3. (iv) (a) and (b) 40' × 18'. (v) Nil. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Sugarcane yield. (iv) (a) and (b) No. (c) Nil. (v) (a) and (b) N.A. (v) to (vii) Nil.

5. RESULTS :

(i) 20.94 tons/ac. (ii) 2.92 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	M ₁	M ₂	M ₃	M ₄	M ₅	M ₆
Av. yield	18.31	19.65	19.42	23.33	22.14	22.77

S.E./mean = 1.68 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 57(172).

Site :- Sugarcane Res. Stn., Shahjahanpur.

Type :- 'M'.

Object :—To find out the effect of sanai and Super on the yield of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) (a) Loam. (b) Refer soil analysis, Shahjahanpur. (iii) 20.3.1957. (iv) (a) N.A. (b) Flat planting. (c) 64 (3 budded) setts/row. (d) 6 rows/plot. (e) Nil. (v) N.A. (vi) CO.S. 514. (vii) to (x) N.A.

2. TREATMENTS :

8 manurial treatments : M₀=Control, M₁=G.M. with *sanai* at 60 lb./ac. of N, M₂=G.M.+75 lb./ac. of P₂O₅ at the time of sowing *sanai*, M₃=G.M.+75 lb./ac. of P₂O₅ at the time of sowing sugarcane, M₄=60 lb./ac. of N as F.Y.M. 6 weeks before planting sugarcane, M₅=M₄+75 lb./ac. of P₂O₅ applied 6 weeks before planting sugarcane, M₆=M₄+75 lb./ac. of P₂O₅ applied at planting of sugarcane and M₇=75 lb./ac. of P₂O₅ as Super at planting of sugarcane.

3. DESIGN :

(i) R.B.D. (ii) (a) 8. (b) 144'×64'. (iii) 4. (iv) (a) 64'×18'. (b) 58'×12'. (v) 3'×3'. (vi) Yes.

4. GENERAL :

(i) Good. (ii) N.A. (iii) Germination %, tiller count, juice analysis and sugarcane yield. (iv) (a) and (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 24.42 tons/ac. (ii) 2.42 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	M ₀	M ₁	M ₂	M ₃	M ₄	M ₅	M ₆	M ₇
Av. yield	25.49	22.11	24.20	26.12	23.29	25.38	24.13	24.66

S.E./mean = 1.21 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 58(168).

Site :- Sugarcane Res. Stn., Shahjahanpur.

Type :- 'M'.

Object :—To study the effect of time of application of A/S on Sugarcane.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) and (c) Nil. (ii) (a) Light loam. (b) Refer soil analysis, Shahjahanpur. (iii) 4, 5.11.1957. (iv) (a) 5 ploughings and 5 plankings. (b) Flat planting. (c) 40 (3 budded) setts/plot. (d) 4 rows 3' apart. (e) Nil. (v) *Sanai* as G.M. at 60 lb./ac. of N. (vi) B.O. 17 (mid. late). (vii) Irrigated. (viii) 7 hoeings and 1 earthing. (ix) 58.72%. (x) 4, 28.2.1959 and 1, 18 and 21.3.1959.

2. TREATMENTS :

4 times of application of 60 lb./ac. of N as A/S : T₀=Control, T₁=At planting, T₂=At tillering and T₃=Half at planting and half at tillering.

3. DESIGN :

(i) L. Sq. (ii) (a) 16. (b) N.A. (iii) 4. (iv) (a) and (b) 38'×12'. (v) Nil. (vi) Yes.

4. GENERAL :

(i) Very good. (ii) Nil. (iii) Germination %, tiller counts, millable cane, yield of cane and juice analysis. (iv) (a) 1958—1960. (b) No. (c) Nil. (v) (a) and (b) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 14.74 tons/ac. (ii) 1.85 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	T ₀	T ₁	T ₂	T ₃
Av. yield	13.60	14.94	15.53	14.91

S.E./mean = 0.92 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 59(177).

Site :- Sugarcane Res. Stn., Shahjahanpur.

Type :- 'M'.

Object :—To study the effect of time of application of A/S on Sugarcane.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) *Dhaincha*. (c) Nil. (ii) (a) Light loam. (b) Refer soil analysis, Shahjahanpur. (iii) 2.3.1959. (iv) (a) 13 ploughings, 11 plankings and 1 *palewa*. (b) Flat planting. (c) 85 (3 budded) setts/row. (d) Rows 3' apart. (e) N.A. (v) *Dhaincha* as G.M. at 50 lb./ac. of N. (vi) B.O. 17 (mid. late). (vii) Irrigated. (viii) 6 hoeings. (ix) 29.06". (x) 10, 16 and 17.3.196).

2. TREATMENTS :

Same as in expt. no. 58(168) on page 969.

3. DESIGN :

(i) R.B.D. (ii) (a) 4. (b) N.A. (iii) 4. (iv) (a) 85' × 15'. (b) 79' × 9'. (v) 3' × 3'. (vi) Yes.

4. GENERAL :

Same as in expt. no. 58(168) on page 969.

5. RESULTS :

(i) 14.68 tons/ac. (ii) 1.56 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	T ₀	T ₁	T ₂	T ₃
Av. yield	13.14	14.09	16.08	15.39

S.E./mean = 0.78 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 56(145).

Site :- Sugarcane Res. Stn., Shahjahanpur.

Type :- 'M'.

Object :—To study the effect of different sources of N on Sugarcane.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) *Sanni*. (c) Nil. (ii) (a) Light loam. (b) Refer soil analysis, Shahjahanpur. (iii) 8 and 9.3.1956. (iv) (a) and (b) N.A. (c) 66 (3 budded) setts/row. (d) Rows 3' apart. (e) N.A. (v) G.M. by *sannai* at 60 lb./ac. of N. (vi) CO. 453 (mid. late). (vii) and (viii) N.A. (ix) 47.85". (x) 24.3.1957 to 22.4.1957.

2. TREATMENTS :

6 sources of 60 lb./ac. of N : S₀=Control, S₁=A/C, S₂=A/S, S₃=Urea, S₄=A/S/N and S₅=G.N.C.

3. DESIGN :

(i) R.B.D. (ii) (a) 6. (b) N.A. (iii) 4. (iv) (a) 66' × 33'. (b) 60' × 27'. (v) 3' × 3'. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Germination %, tiller count, moisture %, yield of cane and juice analysis. (iv) (a) 1956—contd. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 24.51 tons/ac. (ii) 0.96 tons/ac. (iii) Treatment differences are highly significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	S ₀	S ₁	S ₂	S ₃	S ₄	S ₅
Av. yield	23.50	25.19	24.15	23.82	23.99	26.42

S.E./mean = 0.48 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 57(202).

Site :- Sugarcane Res. Stn., Shahjahanpur.

Type :- 'M'.

Object :— To study the effect of different sources of N on Sugarcane.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) *Sanai*. (c) Nil. (ii) (a) Loam loam. (b) Refer soil analysis, Shahjahanpur. (iii) 18 and 19.2.1957. (iv) (a) and (b) N.A. (c) 75 (3 budded) setts/row. (d) Rows 3' apart. (e) N.A. (v) G.M. with *sanai* at 60 lb./ac. of N. (vi) to (viii) N.A. (ix) 35.16". (x) 27 and 28.2.1958 and 1.3.1958.

2. TREATMENTS :

Same as in expt. no. 56(145) on page 970.
Manure applied on 18 and 19.2.1957.

3. DESIGN :

(i) R.B.D. (ii) (a) 6. (b) N.A. (iii) 4. (iv) (a) 75' × 30'. (b) 1/26.3 ac. (v) N.A. (vi) Yes.

4. GENERAL :

Same as in expt. no. 56(145) on page 970.

5. RESULTS :

(i) 28.35 tons/ac. (ii) 2.72 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	S ₀	S ₁	S ₂	S ₃	S ₄	S ₅
Av. yield	24.89	29.08	28.05	27.31	30.27	30.51

S.E./mean = 1.36 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 58(184).

Site :- Sugarcane Res. Stn., Shahjahanpur.

Type :- 'M'.

Object :— To study the effect of different sources of N on Sugarcane.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) *Sanai*. (c) Nil. (ii) (a) Light loam. (b) Refer soil analysis, Shahjahanpur. (iii) 18.2.1958. (iv) (a) and (b) N.A. (c) 81 (3 budded) setts/row. (d) 7 rows 3' apart. (e) N.A. (v) G.M. by *sanai* at 60 lb./ac. of N+chlordan at 1 lb./plot. (vi) to (viii) N.A. (ix) 57.28". (x) 14.3.1959.

2. TREATMENTS :

Same as in expt. no. 56(145) on page 970.
Manure applied on 18.2.1958.

3. DESIGN :

(i) R.B.D. (ii) (a) 6. (b) N.A. (iii) 4. (iv) (a) 81' × 21'. (b) 1/38.72 ac. (v) N.A. (vi) Yes.

4. GENERAL :

Same as in expt. no. 56(145) on page 970.

5. RESULTS :

(i) 29.26 tons/ac. (ii) 2.53 tons/ac. (iii) Treatment differences are highly significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	S ₀	S ₁	S ₂	S ₃	S ₄	S ₅
Av. yield	23.77	31.07	31.06	28.28	28.92	32.49

S.E./mean = 1.27 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 59(213).

Site :- Sugarcane Res. Stn., Shahjahanpur.

Type :- 'M'.

Object :- To study the effect of different sources of N on Sugarcane.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) *Sanai*. (c) Nil. (ii) (a) Light loam. (b) Refer soil analysis, Shahjahanpur. (i.i) 17 and 18.3.1959. (iv) (a) and (b) N.A. (c) 65 (3 budded) setts/row. (d) 3' between rows. (e) N.A. (v) G.M. with *sanai* at 60 lb./ac. of N+chlordan at 12 oz./plot. (vi) CO.S. 443. (vii) and (viii) N.A. (ix) 24.62". (x) 24.2.1960.

2. TREATMENTS :

8 sources of 60 lb./ac. of N : S₀=Control, S₁=A/S, S₂=A,S/N, S₃=A/C, S₄=Urea, S₅=G.N.C., S₆=C/A/N and S₇=Nitro. phos.

Manure applied at sowing time.

3. DESIGN :

(i) R.B.D. (ii) (a) 8. (b) N.A. (iii) 4. (iv) (a) 65' × 24'. (b) 59' × 18'. (v) 3' × 3'. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Germination %, no. of tillers, moisture % and sugarcane yield. (iv) (a) 1959-1960. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 15.71 tons/ac. (ii) 1.85 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	S ₀	S ₁	S ₂	S ₃	S ₄	S ₅	S ₆	S ₇
Av. yield	13.74	16.28	15.82	15.06	15.80	16.66	16.21	16.14

S.E./mean = 0.93 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 54(186).

Site :- Sugarcane Res. Stn., Shahjahanpur.

Type :- 'M'.

Object :- To study the effect of source and method of application of N on Sugarcane.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) *Sanai*. (c) Nil. (ii) (a) Light loam. (b) Refer soil analysis, Shahjahanpur. (iii) 10 to 12.3.1954. (iv) (a) N.A. (b) Flat planting. (c) 84 (3 budded) setts/row. (d) Rows 3' apart. (e) N.A. (v) G.M. by *sanai* at 60 lb./ac. of N. (vi) CO. 453 (mid. late). (vii) and (viii) N.A. (ix) 33.57". (x) 21, 22.2.1955 and 6 to 13.3.1955.

2. TREATMENTS :

All combinations of (1) and (2)+a control

(1) 3 sources of 60 lb./ac. of N : $S_1=A/S$, $S_2=G.N.C.$ and $S_3=\frac{1}{2} S_1+\frac{1}{2} S_2$.

(2) 4 methods of applications of N : $M_1=Broadcast$ at planting, $M_2=As$ pellets at planting, $M_3=As$ surface band in May and $M_4=As$ pellets in May.

3. DESIGN :

(i) R.B.D. (ii) (a) 13. (b) N.A. (iii) 4. (iv) (a) and (b) $84' \times 12'$. (v) Nil. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Germination %, no. of tillers, moisture %, yield of sugarcane and juice analysis. (v)
(a) 1953-1955. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS:

(i) 32.46 tons/ac. (ii) 1.67 tons/ac. (iii) Only "control vs. others" is significant. (iv) Av. yield of sugarcane in tons/ac.

Control = 30.32 tons/ac.

	M_1	M_2	M_3	M_4	Mean
S_1	33.64	32.89	31.51	32.70	32.68
S_2	33.64	31.61	32.70	31.37	32.33
S_3	33.96	32.66	32.76	32.17	32.89
Mean	33.75	32.39	32.32	32.08	32.63

S.E. of S marginal mean = 0.42 tons/ac.

S.E. of M marginal mean = 0.48 tons/ac.

S.E. of body of table or control mean = 0.83 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 55(79).

Site :- Sugarcane Res. Stn., Shahjahanpur.

Type :- 'M'.

Object :—To study the effect of sources and method of application of N on Sugarcane.

1. BASAL CONDITIONS :

(i) (a) Sugarcane—*Sanai*—Sugarcane. (b) *Sanai*. (c) No. (ii) (a) Loam. (b) Refer soil analysis, Shahjahanpur. (iii) 4 and 5.3.1955. (iv) (a) N.A. (b) Flat planting. (c) One (3 budde) sett/foot. (d) Rows $3\frac{1}{2}'$ apart. (e) N.A. (v) G.M. with *sanai* sown with the break of monsoon and turned in after about 60 days growth giving approximately 60 lb./ac of N. (vi) CO. 453 (mid. late). (vii) Irrigated. (viii) 3 hoeings. (ix) 53.55". (x) 24 and 25.3.1956.

2. TREATMENTS :

Same as in expt. no. 54(186) on page 972.

3. DESIGN :

(i) R.B.D. (ii) (a) 13. (b) N.A. (iii) 4. (iv) (a) $68' \times 15'$. (b) $62' \times 9'$. (v) N.A. (vi) Yes.

4. GENERAL :

(i) Normal. (ii) N.A. (iii) Germination %, tiller count, periodical juice quality and yield of sugarcane. (iv) (a) 1953—contd. (b) No. (c) Nil. (v) (a) and (b) Nil. (vi) and (vii) Nil.

5. RESULTS :

(i) 31.47 tons/ac. (ii) 1.91 tons/ac. (iii) S effect is highly significant. "Control vs. others" is significant. (iv) Av. yield of sugarcane in tons/ac.

Control = 28.96 tons/ac.

	M ₁	M ₂	M ₃	M ₄	
S ₁	34.21	30.54	34.20	32.71	32.92
S ₂	32.60	30.27	29.68	29.68	30.56
S ₃	31.29	31.47	31.58	31.88	31.56
Mean	32.70	30.75	31.82	31.42	31.68

S.E. of M marginal mean = 0.55 tons/ac.

S.E. of S marginal mean = 0.48 tons/ac.

S.E. of body of table or control mean = 0.96 tons/ac.

Crop :- Sugarcane.**Ref :- U.P. 57(149).****Site :- Sugarcane Res. Stn., Shahjahanpur.****Type :- 'M'.**

Object :—To study the effect of applying F.Y.M. alone and mixed with various nitrogenous fertilizers on Sugarcane.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) (a) Light loam. (b) Refer soil analysis, Shahjahanpur. (iii) 28.3.1957. (iv) (a) One *palewa*. (b) Flat planting. (c) One (3 budded) sett/foot. (d) Rows 3' apart. (e) N.A. (v) Nil. (vi) CO S. 510 (early). (vii) and (viii) N.A. (ix) 35.07". (x) N.A.

2. TREATMENTS :

T₁=Control (Unmanured). T₂=100 lb./ac. of N as A/S. T₃=100 lb./ac. of N as F.Y.M. T₄=92 lb./ac. of N as F.Y.M.+8 lb./ac. of N as A/S. T₅=92 lb./ac. of N as F.Y.M.+8 lb./ac. of N as Sodium Nitrate. T₆=92 lb./ac. of N as F.Y.M.+8 lb./ac. of N as Nitro. Phos. T₇=92 lb./ac. of N as F.Y.M.+8 lb./ac. of N as Ammo. Phos. and T₈=92 lb./ac. of N as F.Y.M.+8 lb./ac. of N as Urea.
Manures were thoroughly mixed before application to the field.

3. DESIGN :

(i) R.B.D. (ii) (a) 8. (b) N.A. (iii) 3. (iv) (a) and (b) 40'×24'. (v) Nil. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Sugarcane yield. (iv) (a) 1957—1961. (b) No. (c) Nil. (v) (a) and (b) No. (vi) and (vii) Nil.

5. RESULTS :

(i) 12.62 tons/ac. (ii) 4.29 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	T ₁	T ₂	T ₃	T ₄	T ₅	T ₆	T ₇	T ₈
Av. yield	8.52	16.41	12.48	9.97	12.27	13.26	14.03	14.00

S.E./mean = 2.48 tons/ac.

Crop :- Sugarcane.**Ref :- U.P. 58(163).****Site :- Sugarcane Res. Stn., Shahjahanpur.****Type :- 'M'.**

Object :—To study the effect of applying F.Y.M. alone and mixed with various nitrogenous fertilizers on Sugarcane.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Fallow. (c) Nil. (ii) (a) Light loam. (b) Refer soil analysis, Shahjahanpur. (iii) 1.3.1958. (iv) (a) 1 *palewa*. (b) Flat planting. (c) 1 (3 budded) sett/foot. (d) Rows 3' apart. (e) N.A. (v) Nil. (vi) CO.S. 510 (early). (vii) Irrigated. (viii) 3 hoeings and 1 earthing. (ix) 56.36". (x) 12.2.1959.

2. TREATMENTS to 4. GENERAL :

Same as in expt. no. 57(149) on page 974.

A/S applied on 26.4.1958 and other manures on 3.2.1958.

5. RESULTS :

(i) 24.02 tons/ac. (ii) 1.87 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	T ₁	T ₂	T ₃	T ₄	T ₅	T ₆	T ₇	T ₈
Av. yield	23.15	26.59	22.16	24.51	22.60	24.28	23.07	25.80

S.E./mean = 1.08 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 59(209).

Site :- Sugarcane Res. Stn., Shahjahanpur.

Type :- 'M'.

Object : - To study the effect of applying F.Y.M. alone and mixed with various nitrogenous fertilizers on Sugarcane.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) (a) Loam. (b) Refer soil analysis, Shahjahanpur. (iii) 2.3.1959. (iv) (a) to (e) N.A. (v) Nil. (vi) CO.S. 510 (early). (vii) Irrigated. (viii) 7 hoeings and 1 earthing. (ix) 24 6". (x) 17.2.1960.

2. TREATMENTS :

Same as in expt. no. 57(149) on page 974.

Manuring at 100 lb./ac. of N as A/S on 2.5.1959.

3. DESIGN :

(i) R.B.D. (ii) (a) 8. (b) N.A. (iii) 3. (iv) (a) N.A. (b) 40' x 27'. (v) N.A. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Sugarcane yield, millable cane and juice analysis. (iv) (a) 1957—1961. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 20.34 tons/ac. (ii) 1.34 tons/ac. (iii) Treatment differences are highly significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	T ₁	T ₂	T ₃	T ₄	T ₅	T ₆	T ₇	T ₈
Av. yield	17.75	23.77	20.26	20.56	21.59	18.82	19.83	20.11

S.E./mean = 0.77 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 55(80).

Site :- Sugarcane Res. Stn., Shahjahanpur.

Type :- 'M'.

Object :—To study the effect of N through Urea and A/S on Sugarcane.

1. BASAL CONDITIONS :

(i) (a) Sugarcane—G.M.—Sugarcane. (b) *Lobia*. (c) No. (ii) (a) Loam. (b) Refer soil analysis, Shahjahanpur. (iii) 5.3.1955. (iv) (a) N.A. (b) Flat planting. (c) 1 (3 budded) setts/foot. (d) Rows 3½' apart. (e) N.A. (v) Nil. (vi) CO. S. 510 (medium). (vii) Irrigated. (viii) 2 earthings. (ix) 53.55%. (x) 5.3.1956.

2. TREATMENTS :

3 sources of N : N_0 =Control, N_1 =27.4 lb./ac. of N as A/S and N_2 =27.4 lb./ac. of N as Urea.

3. DESIGN :

(i) R.B.D. (ii) (a) 3. (b) N.A. (iii) 4. (iv) (a) 68'×15'. (b) 62'×9'. (v) 3'×3'. (vi) Yes.

4. GENERAL :

(i) Normal. (ii) N.A. (iii) Germination %, tiller count, juice quality and yield of sugarcane. (iv) (a) 1955–1956. (b) No. (c) Nil. (vi) and (vii) Nil.

5. RESULTS :

(i) 25.17 tons/ac. (ii) 2.02 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	N_0	N_1	N_2
Av. yield	24.45	24.39	26.67

S.E./mean = 1.01 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 56(133).

Site :- Sugarcane Res. Stn., Shahjahanpur.

Type :- 'M'.

Object :—To study the effect of N through Urea and A/S on Sugarcane.

1. BASAL CONDITIONS :

(i) (a) Sugarcane—*Lobia*—Sugarcane. (b) *Lobia*. (c) No. (ii) (a) Loam. (b) Refer soil analysis, Shahjahanpur. (iii) N.A. (iv) (a) N.A. (b) Flat planting. (c) 3 budded setts/foot. (d) and (e) N.A. (v) G.M. at 20 lb./ac. of N. (vi) CO. S. 514 (medium). (vii) Irrigated. (viii) 1 earthing and 2 hoeings. (ix) 52.31%. (x) 29.3.1957.

2. TREATMENTS :

3 sources of N : M_0 =Control, M_1 =40 lb./ac. of N as A/S and M_2 =40 lb./ac. of N as Urea. Manures applied on 8.5.1956.

3. DESIGN :

(i) R.B.D. (ii) (a) 3. (b) 50'×45'. (iii) 3. (iv) (a) 50'×15'. (b) 44'×9'. (v) 3'×3'. (vi) Yes.

4. GENERAL :

(i) Fair. Lodging on 8.10.1956 due to rains. (ii) N.A. (iii) Juice analysis and sugarcane yield. (iv) (a) 1955–1956. (b) No. (c) Nil. (v) (a) and (b) No. (vi) and (vii) Nil.

5. RESULTS :

(i) 22.27 tons/ac. (ii) 3.60 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	M_0	M_1	M_2
Av. yield	22.43	21.52	22.86

S.E./mean = 2.08 tons/ac.

Crop :- Sugarcane.**Ref :- U.P. 55(157).****Site :- Sugarcane Res. Stn., Shahjahanpur.****Type :- 'M'.**

Object :— To study the effect of applying chlordane in furrows immediately before planting on Sugarcane.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) (a) Light loam. (b) Refer soil analysis, Shahjahanpur. (iii) 28.2.1955. (iv) (a) N.A. (b) Flat planting. (c) 1 (3 budded) sett/foot. (d) Rows 3' apart. (e) N.A. (v) 100 lb./ac. of N as A/S. (vi) CO. 453 (mid-late). (vii) Irrigated. (viii) 1 hoeing. (ix) 53.56". (x) 20.2.1956.

2. TREATMENTS :T₁=Control (normal sowing) and T₂=Sowing with 5% chlordane dust applied at 20 lb./ac.**3. DESIGN :**

(i) R.B.D. (ii) (a) 2. (b) N.A. (iii) 3. (iv) (a) and (b) 40'×15'. (v) Nil. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Sugarcane yield. (iv) (a) 1955—1957. (b) No. (c) Nil. (v) (a) and (b) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 30.25 tons/ac. (ii) 2.81 tons/ac. (iii) Treatment difference is not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	T ₁	T ₂
Av. yield	28.36	32.14

S.E./mean = 1.62 tons/ac.

Crop :- Sugarcane.**Ref :- U.P. 56(128).****Site :- Sugarcane Res. Stn., Shahjahanpur.****Type :- 'M'.**

Object :— To study the effect of applying chlordane in the furrows before planting on Sugarcane.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Fallow. (c) N.A. (ii) (a) Light loam. (b) Refer soil analysis, Shahjahanpur. (iii) 24.3.1955. (iv) (a) N.A. (b) Flat planting. (c) 1 (3 budded) sett/foot. (d) Rows 3' apart. (e) N.A. (v) A/S at 100 lb./ac. of N applied on 30.5.1956. (vi) CO. 453 (medium). (vii) Irrigated. (viii) 2 hoeings and 1 carting. (ix) 50.78". (x) 2.2.1957.

2. TREATMENTS :

Same as in expt. no. 55(157) above.

3. DESIGN :

(i) R.B.D. (ii) (a) 2. (b) N.A. (iii) 3. (iv) (a) and (b) 40'×24'. (v) Nil. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Sugarcane yield. (iv) (a) 1955—1957. (b) No. (c) Nil. (v) (a) and (b) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 29.36 tons/ac. (ii) 1.49 tons/ac. (iii) Treatment difference is not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	T ₁	T ₂
Av. yield	28.76	29.97

S.E./mean = 0.86 tons/ac.

Crop :- Sugarcane.**Ref :- U.P. 57(160).****Site :- Sugarcane Res. Stn., Shahjahanpur.****Type :- 'M'.**

Object :— To study the effect of applying chlordane in furrows before planting on Sugarcane.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) (a) Light loam. (b) Refer soil analysis, Shahjahanpur. (iii) 4.3.1957. (iv) (a) 1 *palewa*. (b) Flat planting. (c) 1 (3 budded) sett/foot. (d) Rows 3' apart. (e) N.A. (v) G.M.+50 lb./ac. of N as A/S. (vi) CO. 453 (mid. late). (vii) and (viii) N.A. (ix) 34.24". (x) N.A.

2. TREATMENTS :

Same as in expt. no. 55(157) on page 977.

3. DESIGN :

(i) R.B.D. (ii) (a) 2. (b) N.A. (iii) 8. (iv) (a) and (b) 30'×18'. (v) Nil. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Sugarcane yield. (iv) (a) 1955—1957. (b) No. (c) Nil. (v) (a) and (b) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 23.89 tons/ac. (ii) 1.71 tons/ac. (iii) Treatment difference is significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	T ₁	T ₂
Av. yield	22.64	25.15

S.E./mean = 0.60 tons/ac.

Crop :- Sugarcane.**Ref :- U.P. 57(151).****Site :- Sugarcane Res. Stn., Shahjahanpur.****Type :- 'M'.**

Object :— To study the effect of applying minor elements to soil at planting on Sugarcane.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) (a) Light loam. (b) Refer soil analysis, Shahjahanpur. (iii) 13.2.1957. (iv) (a) 1 *palewa*. (b) Flat planting. (c) 1 (3 budded) sett/foot. (d) Rows 3' apart. (e) N.A. (v) 100 lb./ac. of N as A/S. (vi) CO. 453 (mid. late). (vii) and (viii) N.A. (ix) 35.07". (x) N.A.

2. TREATMENTS :

6 minor elements : T₁=Control, T₂=Boron as borax at 3.5 lb./ac., T₃=Manganese as manganese sulphate at 14 lb./ac., T₄=Molybdenum as sodium molybdate at 2 lb./ac., T₅=Zinc as zinc sulphate at 7 lb./ac. and T₆=Magnesium as magnesium sulphate at 56 lb./ac.

3. DESIGN :

(i) R.B.D. (ii) (a) 6. (b) N.A. (iii) 3. (iv) (a) and (b) 40'×24'. (v) Nil. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Sugarcane yield. (iv) (a) 1957—1961. (b) No. (c) Nil. (v) (a) and (b) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 24.96 tons/ac. (ii) 3.13 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	T ₁	T ₂	T ₃	T ₄	T ₅	T ₆
Av. yield	24.33	26.22	23.48	24.99	22.57	28.18

S.E./mean = 1.81 tons/ac.

Crop :- Sugarcane.**Ref :- U.P. 58(160).****Site :- Sugarcane Res. Stn., Shahjahanpur.****Type :- 'M'.**

Object :—To study the effect of applying minor elements to the soil at planting on Sugarcane.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) *Dhaincha*. (c) N.A. (ii) (a) Loam. (b) Refer soil analysis, Shahjahanpur. (iii) 12.2.1958. (iv) (a) N.A. (b) Flat planting. (c) 1 (3 budded) sett/foot. (d) Rows 3' apart. (e) N.A. (v) 40 lb./ac. of N as castor cake + 60 lb./ac. of N as A/S. (vi) CO. 453 (mid. late). (vii) Irrigated. (viii) 5 hoeings and 1 earthing. (ix) 55.14". (x) 27.12.1958.

2. TREATMENTS to 4. GENERAL :

Same as in expt. no. 57(151) on page 978.

5. RESULTS :

(i) 27.98 tons/ac. (ii) 2.87 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	T ₁	T ₂	T ₃	T ₄	T ₅	T ₆
Av. yield	28.36	25.36	28.50	28.18	29.61	27.89

S.E./mean = 1.66 tons/ac.

Crop :- Sugarcane.**Ref :- U.P. 59(206).****Site :- Sugarcane Res. Stn., Shahjahanpur.****Type :- 'M'.**

Object :—To study the effect of applying minor elements to the soil at planting on Sugarcane.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) (a) Loam. (b) Refer soil analysis, Shahjahanpur. (iii) 17.2.1959. (iv) (a) to (e) N.A. (v) 60 lb./ac. of N as A/S top-dressing on 8.5.1959. (vi) CO. 453 (mid. late). (vii) Irrigated. (viii) 5 hoeings, 1 earthing and 1 binding. (ix) 24.68". (x) 30.12.1959.

2. TREATMENTS to 4. GENERAL :

Same as in expt. no. 57(151) on page 978.

5. RESULTS :

(i) 22.75 tons/ac. (ii) 1.07 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	T ₁	T ₂	T ₃	T ₄	T ₅	T ₆
Av. yield	23.14	23.11	22.38	23.34	21.72	22.78

S.E./mean = 0.62 tons/ac.

Crop :- Sugarcane.**Ref :- U.P. 54(80).****Site :- Sugarcane Res. Stn., Shahjahanpur.****Type :- 'M'.**

Object :—To study the effect of N, P and K on Sugarcane.

1. BASAL CONDITIONS :

(i) (a) Sugarcane—Fallow—Sugarcane from 1935 to 1951 and Sugarcane—G.M. (*sanai*)—Sugarcane since 1952. (b) *Sanai*. (c) Nil. (ii) (a) Loam. (b) Refer soil analysis, Shahjahanpur. (iii) 4.3.1954. (iv) (a) N.A. (b) Flat planting. (c) 1 (3 budded) sett/foot. (d) Rows 3½' apart. (e) N.A. (v) G.M. of *sanai* sown with the break of rains and turned in after about 60 days of growth. (vi) CO. 453 (mid. late). (vii) Irrigated. (viii) 1 to 2 hoeings after each irrigation in addition to one blind hoeing before germination. (ix) Nil. (x) 21.1.1955 onwards.

2. TREATMENTS :

Main-plot treatments :

3 levels of N as A/S : $N_0=0$, $N_1=100$ and $N_2=200$ lb./ac.

Sub-plot treatments :

All combinations of (1) and (2)

(1) 3 levels of P_2O_5 as Super : $P_0=0$, $P_1=75$ and $P_2=150$ lb./ac.

(2) 3 levels of K_2O as Pot. Sul. : $K_0=0$, $K_1=75$ and $K_2=150$ lb./ac.

3. DESIGN :

(i) Split-plot. (ii) (a) 3 main-plots/replication ; 9 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) $53\frac{1}{2}' \times 31\frac{1}{2}'$.
(b) $47\frac{1}{2}' \times 24\frac{1}{2}'$. (v) $3.5' \times 3'$. (vi) Yes.

4. GENERAL :

(i) Normal. (ii) No. (iii) Sugarcane yield. (iv) (a) 1935—contd. (b) Yes. (c) Nil. (v) (a) and (b) No.
(vi) and (vii) Expt. conducted by D.S.R. (S).

5. RESULTS :

(i) 25.36 tons/ac. (ii) (a) 6.36 tons/ac. (b) 1.80 tons/ac. (iii) Main effect of N is highly significant and interaction $N \times K$ is significant. (iv) Av. yield of sugarcane in tons/ac.

	P_0	P_1	P_2	Mean	K_0	K_1	K_2
N_0	14.74	16.10	16.80	15.88	16.81	15.20	15.63
N_1	28.93	28.47	29.59	29.00	28.21	28.95	29.83
N_2	31.51	31.06	31.06	31.21	30.54	31.68	31.41
Mean	25.06	25.21	25.82	25.36	25.19	25.28	25.62
K_0	25.38	24.53	25.65				
K_1	24.47	25.60	25.76				
K_2	25.32	25.50	26.05				

S.E. of difference of two

- | | |
|--|-----------------|
| 1. N marginal means | = 1.50 tons/ac. |
| 2. P or K marginal means | = 0.42 tons/ac. |
| 3. P or K means at the same level of N | = 0.73 tons/ac. |
| 4. N means at the same level of P or K | = 2.01 tons/ac. |
| S.E. of body of $P \times K$ table | = 0.52 tons/ac. |

Crop :- Sugarcane.

Ref :- U.P. 55(77).

Site :- Sugarcane Res. Stn., Shahjahanpur.

Type :- 'M'.

Object :- To study the effect of N, P and K on Sugarcane.

1. BASAL CONDITIONS :

(i) (a) Sugarcane—Fallow—Sugarcane from 1935 to 1951 and Sugarcane—G.M. (*sanai*)—Sugarcane since 1952. (b) *Sanai*. (c) Nil. (ii) (a) Loam. (b) Refer soil analysis, Shahjahanpur. (iii) 23 and 24.2.1955.
(iv) (a) N.A. (b) Flat planting. (c) 1 (3 budded) sett/foot (d) Rows $3\frac{1}{2}'$ apart. (e) N.A. (v) G.M. of *sanai* sown with the break of rains and turned in after about 60 days growth. (vi) CO. 453 (mid. late).
(vii) Irrigated. (viii) 1 to 2 hoeings after each irrigation in addition to 1 blind hoeing before germination.
(ix) $53.55''$. (x) 21.1.1956 to 4.2.1956.

2. TREATMENTS to 4. GENERAL :

Same as in expt. no. 54(80) on page 979.

5. RESULTS :

(i) 26.16 tons/ac. (ii) (a) 8.08 tons/ac. (b) 2.54 tons/ac. (iii) Only N effect is highly significant. (iv) Av. yield of sugarcane in tons/ac.

	P ₀	P ₁	P ₂	Mean	K ₀	K ₁	K ₂
N ₀	19.68	19.20	18.76	19.21	19.43	19.49	18.71
N ₁	28.55	30.00	29.34	29.29	28.93	29.44	29.50
N ₂	29.94	29.45	30.58	29.99	29.90	29.89	30.18
Mean	26.06	26.21	26.22	26.16	26.09	26.27	26.13
K ₀	25.75	26.49	26.03				
K ₁	26.54	26.12	26.16				
K ₂	25.87	26.03	26.48				

S.E. of difference of two

- | | |
|--|-----------------|
| 1. N marginal means | = 1.91 tons/ac. |
| 2. P or K marginal means | = 0.60 tons/ac. |
| 3. P or K means at the same level of N | = 1.03 tons/ac. |
| 4. N means at the same level of P or K | = 2.08 tons/ac. |
| S.E. of body of P×K table | = 0.73 tons/ac. |

Crop :- Sugarcane.

Ref :- U.P. 56(19).

Site :- Sugarcane Res. Stn., Shahjahanpur.

Type :- 'M'.

Object :—To study the effect of N, P and K on Sugarcane.

1. BASAL CONDITIONS :

(i) (a) Sugarcane—Fallow—Sugarcane from 1935 to 1951 and G.M. (*sanai*)—Sugarcane since 1952. (b) *Sanai*. (c) Nil. (ii) (a) Loam. (b) Refer soil analysis, Shahjahanpur. (iii) 3 and 4.2.1956. (iv) (a) N.A. (c) Flat planting. (c) 1 (3 budded) sett/foot. (d) Rows 3½' apart. (e) N.A. (v) G.M. of *sanai* sown with the break of rains and turned in after about 60 days growth. (vi) CO. 453 (mid. late). (vii) Irrigated. (viii) 1 to 2 hoeings after each irrigation in addition to 1 blind hoeing before germination. Earthing and bunding. (ix) 49.37". (x) 11 to 23.1.1957.

2. TREATMENTS to 4. GENERAL :

Same as in expt. no. 54(80) on page 979.

5. RESULTS:

(i) 28.71 tons/ac. (ii) (a) 4.63 tons/ac. (b) 2.19 tons/ac. (iii) N and K effects are highly significant. P effect is significant. Others are not significant. (iv) Av. yield of sugarcane in tons/ac.

	P ₀	P ₁	P ₂	Mean	K ₀	K ₁	K ₂
N ₀	23.24	25.70	26.71	25.22	24.72	24.97	25.96
N ₁	29.66	29.26	30.67	29.86	28.44	29.78	31.36
N ₂	30.91	31.13	31.09	31.04	30.37	31.52	31.24
Mean	27.94	28.70	29.49	28.71	27.84	28.76	29.52
K ₀	26.82	27.89	28.83				
K ₁	27.35	28.46	30.46				
K ₂	29.64	29.74	29.17				

S.E. of difference of two

1. N marginal means	= 1.09 tons/ac.
2. P or K marginal means	= 0.52 tons/ac.
3. P or K means at the same level of N	= 0.89 tons/ac.
4. N means at the same level of P or K	= 1.31 tons/ac.
S.E. of body of P × K table	= 0.63 tons/ac.

Crop :- Sugarcane.**Ref :- U.P. 57(201).****Site :- Sugarcane Res. Stn., Shahjahanpur.****Type :- 'M'.**

Object :—To study the effect of N, P and K on Sugarcane.

1. BASAL CONDITIONS :

(i) (a) *Sanai*—Sugarcane. (b) *Sanai*. (c) Nil. (ii) (a) Loam. (b) Refer soil analysis, Shahjahanpur. (iii) 26 to 28.2.1957. (iv) (a) 15 ploughings and 15 plankings. (b) Flat planting. (c) 53 (3 budded) sett/row. (d) and (e) N.A. (v) *Sanai* as G.M. (vi) CO. 458 (mid. late). (vii) Irrigated. (viii) 10 hoeings and 1 earthing. (ix) N.A. (x) 9.1.1958 to 3.3.1958.

2. TREATMENTS to 4. GENERAL :

Same as in expt. no. 54(80) on page 979.

5. RESULTS :

(i) 24.71 tons/ac. (ii) (a) 6.66 tons/ac. (b) 2.59 tons/ac. (iii) Main effect of N and K are significant. (iv) Av. yield of sugarcane in tons/ac.

	P ₀	P ₁	P ₂	Mean	K ₀	K ₁	K ₂
N ₀	21.09	21.76	21.81	21.55	20.27	21.56	22.83
N ₁	25.32	26.95	25.99	26.09	25.35	26.29	26.62
N ₂	25.27	26.54	27.63	26.48	25.61	26.84	27.00
Mean	23.89	25.08	25.14	24.71	23.75	24.89	25.48
K ₀	22.74	25.25	23.25				
K ₁	24.23	24.72	25.73				
K ₂	24.72	25.27	26.45				

S.E. of difference of two

1. N marginal means	= 1.57 tons/ac.
2. P or K marginal means	= 0.61 tons/ac.
3. P or K means at the same level of N	= 1.06 tons/ac.
4. N means at the same level of P or K	= 1.79 tons/ac.
S.E. of body of P × K table	= 0.75 tons/ac.

Crop :- Sugarcane.**Ref :- U.P. 58(179).****Site :- Sugarcane Res. Stn., Shahjahanpur.****Type :- 'M'.**

Object :—To study the effect of N, P and K on Sugarcane.

1. BASAL CONDITIONS :

(i) (a) G.M.—Sugarcane. (b) *Sanai* as G.M. (c) Nil. (ii) (a) Light loam. (b) Refer soil analysis, Shahjahanpur. (iii) 21, 22, 23.2 1958. (iv) (a) 11 ploughings by *desi* plough, levelling of field, 2 *palewa* and 13 plankings. (b) Flat planting. (c) 53, (3 budded) setts/row. (d) Rows 3' apart. (e) N.A. (v) *Sanai* as G.M. (vi) CO. 453 (mid. late). (viii) 2 hoeings by *kassi*, 7 hoeings by cultivator and 1 earthing. (ix) N.A. (x) 10.1.1959 to 16.3.1959.

2. TREATMENTS to 4. GENERAL :

Same as in expt. no. 54(80) on page 979.

5. RESULTS :

(i) 28.55 tons/ac. (ii) (a) 4.35 tons/ac. (b) 2.37 tons/ac. (iii) Main effect of N and P are highly significant. Main effect of K is significant. (iv) Av. yield of sugarcane in tons/ac.

	P ₀	P ₁	P ₂	Mean	K ₀	K ₁	K ₂
N ₀	21.71	24.68	24.53	23.64	23.03	24.97	22.92
N ₁	29.16	29.56	30.31	29.68	28.66	29.48	30.89
N ₂	31.09	32.97	32.92	32.33	30.98	32.51	33.49
Mean	27.32	29.07	29.25	28.55	27.56	28.99	29.10
K ₀	26.31	27.91	28.45				
K ₁	27.02	29.41	30.53				
K ₂	28.63	29.90	28.78				

S.E. of difference of two

1. N marginal means	= 1.03 tons/ac.
2. P or K marginal means	= 0.56 tons/ac.
3. P or K means at the same level of N	= 0.97 tons/ac.
4. N means at the same level of P or K	= 1.29 tons/ac.
S.E. of body of P×K table	= 0.68 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 59(185).

Site :- Sugarcane Res. Stn., Shahjahanpur.

Type :- 'M'.

Object :—To study the effect of N, P and K on Sugarcane.

1. BASAL CONDITIONS :

(i) (a) *Sanai*—Sugarcane. (b) *Sanai*. (c) Nil. (ii) (a) Light loam. (b) Refer soil analysis, Shahjahanpur. (iii) 27 and 28.2.1959. (iv) (a) 14 ploughings, 1 planking and 1 *palewa*. (b) Flat planting. (c) 53 (3 budded) setts/row. (d) Rows 3' apart. (e) N.A. (v) *Sanai* is G.M. (vi) CO. 453 (mid-late). (vii) Irrigated. (viii) 9 hoeings and 1 earthing. (ix) N.A. (v) 28 and 30.1.1960, 3 and 25.2.1960.

2. TREATMENTS to 4. GENERAL :

Same as in expt. no. 54(80) on page 979.

5. RESULTS :

(i) 23.84 tons/ac. (ii) (a) 2.71 tons/ac. (b) 1.84 tons/ac. (iii) None of the effects is significant. (iv) Av. yield of sugarcane in tons/ac.

	P ₀	P ₁	P ₂	Mean	K ₀	K ₁	K ₂
N ₀	22.49	22.22	22.83	22.51	22.79	21.85	22.90
N ₁	24.52	25.70	24.69	24.97	23.88	25.77	25.26
N ₂	23.38	24.11	24.60	24.03	24.06	23.82	24.21
Mean	23.46	24.01	24.04	23.84	23.58	23.81	24.12
K ₀	22.92	23.99	23.82				
K ₁	23.18	24.13	24.13				
K ₂	24.28	23.91	24.17				

S.E. of difference of two

- | | | |
|--|---|---------------|
| 1. N marginal means | = | 1.11 tons/ac. |
| 2. P or K marginal means | = | 0.43 tons/ac. |
| 3. P or K means at the same level of N | = | 0.75 tons/ac. |
| 4. N means at the same level of P or K | = | 1.26 tons/ac. |
| S.E. of body of P × K table | = | 0.53 tons/ac. |

Crop :- Sugarcane.

Ref :- U.P. 54(170).

Site :- Sugarcane Res. Stn., Shahjahanpur.

Type :- 'M'.

Object :-To study the effect of applying P partly to the soil and partly as spray on Sugarcane.

1. BASAL CONDITIONS :

(i) (a) Wheat—Fallow—G.M.—Sugarcane. (b) *Dhaincha*. (c) Nil. (ii) (a) Light loam. (b) Refer soil analysis, Shahjahanpur. (iii) 12.2.1954. (iv) (a) N.A. (b) Flat planting. (c) 1 (3 budded) sett/foot. (d) Rows 3' apart. (e) N.A. (v) *Dhaincha* as G.M. and 60 lb./ac. of N as A/S on 13.5.1954. (vi) CO. 453 (mid. late). (vii) Irrigated. (viii) 3 hoeings and 1 earthing. (ix) 40.76". (x) 7.1.1955.

2. TREATMENTS :

6 spraying treatments : T₁=Water sprayed, T₂=KH₂PO₄ solution sprayed, T₃=75 lb./ac. of P₂O₅ as Super to soil at tillering times and water sprayed, T₄=70 lb./ac. of P₂O₅ as Super to soil at tillering time and 5 lb./ac. of P₂O₅ as KH₂PO₄ solution sprayed on leaves. T₅=150 lb./ac. of P₂O₅ as Super to soil at tillering time and water sprayed and T₆=145 lb./ac. of P₂O₅ as super to soil at tillering time and 5 lb./ac. of P₂O₅ as KH₂PO₄ sprayed on leaves.

4 sprayings of KH₂PO₄ and Super applied on 13.5.1954.

3. DESIGN :

(i) R.B.D. (ii) (a) 6. (b) N.A. (iii) 3. (iv) (a) and (b) 40' × 27'. (v) Nil. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Sugarcane yield. (iv) (a) 1953—1955. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 29.12 tons/ac. (ii) 1.10 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	T ₁	T ₂	T ₃	T ₄	T ₅	T ₆
Av. yield	28.44	29.41	29.51	28.83	28.57	29.98

S.E./mean = 0.64 tons/ac.

Crop :- Sugarcane.**Ref :- U.P. 54(167).****Site :- Sugarcane Res. Stn., Shahjahanpur.****Type :- 'M'.**

Object :—To study the effect of adding a mixture of ferrous sulphate and lime to N on Sugarcane yield.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) (a) Light loam. (b) Refer soil analysis, Shahjahanpur. (iii) 1.3.1954. (iv) (a) N.A. (b) Flat planting. (c) 1 (3 budded) sett/foot. (d) Rows 3' apart. (e) N.A. (v) Nil. (vi) CO. 453 (mid-late). (vii) Irrigated. (viii) 3 hoeings and 1 earthing. (ix) 38.46". (x) 14.2.1955.

2. TREATMENTS :

All combinations of (1) and (2)+2 selective treatments

(1) 4 sources of 100 lb./ac. of N : S_1 =Castor cake, S_2 =G.N.C., S_3 =Mahwa cake and S_4 =F.Y.M.(2) 2 levels of chemical mixture : C_0 =0 and C_1 =40 lb./ac..2 selective treatments are : T_0 =Control and T_1 =100 lb./ac. of N as A/S.Chemical mixture (26.7 lb./ac. of $FeSO_4$ +13.3 lb./ac. of lime) applied 6 weeks before planting. A/S applied on 2.1.1954.**3. DESIGN :**

(i) R.B.D. (ii) (a) 10. (b) N.A. (iii) 3. (iv) (a) and (b) 40'×27'. (v) Nil. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Sugarcane yield. (iv) (a) 1952—1954. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 26.42 tons/ac. (ii) 1.37 tons/ac. (iii) S effect is highly significant. " T_0 vs. T_1 " is highly significant. (iv) Av. yield of sugarcane in tons/ac.

$$T_0 = 21.48 \text{ tons/ac. } T_1 = 29.26 \text{ tons/ac.}$$

	S_1	S_2	S_3	S_4	Mean
C_0	27.50	28.36	23.86	27.04	26.69
C_1	28.16	27.67	25.70	25.20	26.68
Mean	27.83	28.01	24.78	26.12	26.69

S.E. of C marginal mean = 0.39 ton/ac.

S.E. of S marginal mean = 0.56 ton/ac.

S.E. of body of table or any selective treatment mean = 0.79 ton/ac.

Crop :- Sugarcane.**Ref :- U.P. 54(169).****Site :- Sugarcane Res. Stn., Shahjahanpur.****Type :- 'M'.**

Object :—To study the effect of spraying sugarcane leaves with weak solution of chemicals on the yield of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) Wheat—Fallow—G.M.—Sugarcane. (b) Sanai. (c) Nil. (ii) (a) Light loam. (b) Refer soil analysis; Shahjahanpur. (iii) 13.2.1954. (iv) (a) N.A. (b) Flat planting. (c) 1 (3 budded) sett/foot. (d) Rows 3' apart. (e) N.A. (v) Sanai as G.M. and A/S at 60 lb./ac. of N on 13.5.1954. (vi) CO. 453 (mid. late). (vii) Irrigated. (viii) 3 hoeings and 1 earthing. (ix) 40.76". (x) 8.1.1955.

2. TREATMENTS :

6 spraying treatments : S_1 =Control (water sprayed on leaves), S_2 =Mixture of $FeSO_4$ (20 p.p.m.) and $MnSO_4$ (50 p.p.m) sprayed on leaves, S_3 =Molybdic acid (1 p.p.m.) sprayed on leaves, S_4 =Mixture of $CaCl_2$ (100 p.p.m.) and Boric acid (1 p.p.m.) sprayed on leaves, S_5 =Mixture of $MgSO_4$ (50 p.p.m.) and $CaCl_2$ (150 p.p.m.) sprayed on leaves and S_6 =Iodine (1 p.p.m.) sprayed on leaves.

3. DESIGN :

(i) R.B.D. (ii) (a) 6. (b) N.A. (iii) 3. (iv) (a) and (b) 30' × 18'. (v) Nil. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Sugarcane yield. (iv) (a) 1955—1956. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 27.03 tons/ac. (ii) 4.74 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	S ₁	S ₂	S ₃	S ₄	S ₅	S ₆
Av. yield	26.22	29.33	25.38	29.00	24.69	27.53

S.E./mean = 2.74 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 55(156).

Site :- Sugarcane Res. Stn., Shahjahanpur.

Type :- 'M'.

Object :— To study the effect of spraying sugarcane leaves with weak solution of chemicals on the growth, and yield of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) (a) Light loam. (d) Refer soil analysis, Shahjahanpur. (iii) 15.2.1955. (iv) (a) N.A. (b) Flat planting. (c) 1 (3 budded) sett/foot. (d) Rows 3' apart. (e) N.A. (v) 100 lb./ac of N as A/S on 5.5.1955. (vi) CO. 453 (mid-late). (vii) Irrigated. (viii) 3 hoeings. (ix) 54.52". (x) 13.3.1955.

2. TREATMENTS to 4. GENERAL :

Same as in expt. no. 54(169) on page 985.

5. RESULTS :

(i) 32.57 tons/ac. (ii) 2.23 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	T ₁	T ₂	T ₃	T ₄	T ₅	T ₆
Av. yield	32.91	33.80	32.66	31.19	31.80	33.04

S.E./mean = 1.29 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 56(20).

Site :- Sugarcane Res. Stn., Shahjahanpur.

Type :- 'M'.

Object :— To study the effect of adding a mixture of ferrous sulphate and lime to F.Y.M. before application to the field on the growth and yield of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) Sugarcane—Fallow—Sugarcane. (b) Fallow. (c) No. (ii) (a) Loam. (b) Refer soil analysis, Shahjahanpur. (iii) 16.2.1956. (iv) (a) 7 ploughings. (b) Flat planting. (c) 1 (3 budded) sett/foot. (d) Rows 3½' apart. (e) N.A. (v) Nil. (vi) CO.S. 510 (medium). (vii) Irrigated. (viii) 3 hoeings. (ix) 49.37". (x) 4.1.1957.

2. TREATMENTS :

8 manurial treatments : T₀=Control, T₁=A/S, T₂=Chemical mixture alone, T₃=F.Y.M. applied 6 weeks before planting, T₄=F.Y.M.+chemical mixture applied 6 weeks before planting, T₅=F.Y.M.+chemical mixture applied at planting, T₆=F.Y.M.+A/S applied 6 weeks before planting and T₇=F.Y.M.+A/S applied at planting.

Chemical mixture includes Ferrous sulphat and lime.

3. DESIGN :

(i) R.B.D. (ii) (a) 8. (b) N.A. (iii) 3. (iv) (a) 46'×30'. (b) 40'×24'. (v) 3'×3'. (vi) Yes.

4. GENERAL :

(i) Normal. (ii) N.A. (iii) Germination %, tiller count, juice quality and yield of sugarcane. (iv) (a) 1955—contd. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 25.25 tons/ac. (ii) 1.89 tons/ac. (iii) Treatment differences are significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄	T ₅	T ₆	T ₇
Av. yield	24.64	28.27	20.63	25.32	25.24	26.25	26.61	25.05

S.E./mean = 1.09 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 55(76).

Site :- Sugarcane Res. Stn., Shahjahanpur.

Type :- 'M'.

Object :- To study the effect of applying phosphatic fertilizers partly to the soil and partly as spray on the leaves, on the growth, yield and juice quality of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) Sugarcane—*sanai*—Sugarcane. (b) *Sanai*. (c) No. (ii) (a) Loam. (b) Refer soil analysis Shahjahanpur. (iii) 15.2.1955. (iv) (a) N.A. (b) Flat planting. (c) 1 (3 budded) sett/running foot. (d) Rows, 3½' apart. (e) N.A. (v) *Sanai* as G.M. (vi) CO. 453 (mid-late). (vii) Irrigated. (viii) 5 hoeings. (ix) 53.55%. (x) 3.1.1956.

2. TREATMENTS :

6 spraying treatments : T₁=Only water sprayed, T₂=Na H₂ PO₄ solution sprayed, T₃=75 lb./ac. of P₂O₅ as Super applied to soil and water sprayed, T₄=70 lb./ac. of P₂O₅ as Super applied to soil and 5 lb./ac. of N as NaH₂PO₄ sprayed on leaves, T₅=150 lb./ac. of P₂O₅ as Super applied to soil and water sprayed and T₆=145 lb./ac. of P₂O₅ as Super applied to soil and 5 lb./ac. of P₂O₅ as NaH₂PO₄ sprayed on leaves.

3. DESIGN :

(i) R.B.D. (ii) (a) 6. (b) N.A. (iii) 3. (iv) (a) 46'×30'. (b) 40'×24'. (v) 3'×3'. (vi) Yes.

4. GENERAL :

(i) Normal. (ii) N.A. (iii) Germination %, tiller count, juice quality and yield of sugarcane. (iv) (a) 1953—contd. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 32.52 tons/ac. (ii) 1.24 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	T ₁	T ₂	T ₃	T ₄	T ₅	T ₆
Av. yield	32.54	31.25	31.71	33.15	33.23	33.24

S.E./mean = 0.72 ton/ac.

Crop :- Sugarcane.

Ref :- U.P. 55(78).

Site :- Sugarcane Res. Stn., Shahjahanpur.

Type :- 'M'.

Object :- To study the effect of adding a mixture of ferrous sulphate and lime to F.Y.M. before application to the field on the growth and yield of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) Sugarcane—Fallow—Sugarcane. (b) Fallow. (c) Nil. (ii) (a) Loam. (b) Refer soil analysis Shahjahanpur. (iii) 2.3.1955. (iv) (a) N.A. (b) Flat planting. (c) 1 (3 budded) sett/foot. (b) Rows 3½', apart. (e) N.A. (v) Nil. (vi) CO.S. 510 (medium). (vii) Irrigated. (viii) 3 hoeings. (ix) 53.55%. (x) 7.3.1956.

2. TREATMENTS :

6 manurial treatments : T₁=Control (unmanured) T₂=A/S (standard), T₃=F.Y.M. applied 4 weeks before planting, T₄=F.Y.M. mixed with the chemical mixture and applied 4 weeks before planting, T₅=F.Y.M. mixed with chemical mixture and applied at planting time and T₆=Chemical mixture alone.

3. DESIGN :

(i) R.B.D. (ii) (a) 6. (b) N.A. (iii) 3. (iv) (a) 46'×30'. (b) 40'×24'. (v) 3'×3'. (vi) Yes.

4. GENERAL :

(i) Normal. (ii) N.A. (iii) Germination %, tiller count, juice quality and yield of sugarcane. (iv) (a) 1955—contd. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 21.94 tons/ac. (ii) 2.16 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	T ₁	T ₂	T ₃	T ₄	T ₅	T ₆
Av. yield	19.55	25.38	22.68	22.69	20.91	20.43

S.E./mean = 1.25 tons/ac.

Crop :- Sugarcane.

Site :- Reg. Res. Stn., Varanasi.

Ref :- U. P. 57(163).

Type :- 'M'.

Object :- To study the effect of P and different sources of N on Sugarcane.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) (a) Loam. (b) Refer soil analysis, Varanasi. (iii) 11 and 12.4.1957. (iv) (a) N.A. (b) Flat planting. (c) 84 (3 budded) setts/row. (d) N.A. (e) N.A. (v) 60 lb./ac. of N as F.Y.M. (vi) CO.S. 443. (vii) Irrigated. (viii) 6 hoeings. (ix) N.A. (x) 27 to 29.3.1958.

2. TREATMENTS :

All combinations of (1) and (2)

(1) 3 levels of P₂O₅ as Super : P₀=0, P₁=50 and P₂=100 lb./ac.

(2) 4 sources of 60 lb./ac. of N : S₀=Control (No N), S₁=A/S, S₂=Urea and S₃=G.N.C.

Manures applied at the time of planting in furrows.

3. DESIGN :

(i) Fact. in R.B.D. (ii) (a) 12. (b) 84'×216'. (iii) 4. (iv) (a) 84'×18'. (b) 84'×12'. (v) One row on either side. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Germination %, shoots, millable cane, gur production and yield of sugarcane. (iv) (a) and (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 11.42 tons/ac. (ii) 2.02 tons/ac. (iii) Only interaction P×S is significant. (iv) Av. yield of sugarcane in tons/ac.

	S ₀	S ₁	S ₂	S ₃	Mean
P ₀	14.04	10.99	11.38	9.79	11.55
P ₁	8.79	11.77	11.42	10.85	10.71
P ₂	11.65	14.73	11.03	10.61	12.00
Mean	11.49	12.50	11.28	10.42	11.42

S.E. of S marginal mean = 0.58 tons/ac.
 S.E. of P marginal mean = 0.50 tons/ac.
 S.E. of body of table = 1.01 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 58(164).

Site :- Reg. Res. Stn., Varanasi.

Type :- 'M'.

Object :—To study the effect of different sources of N with and without super on the yield of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) Pea—Sugarcane. (b) Pea. (c) N.A. (ii) (a) Loam. (b) Refer soil analysis, Varanasi. (iii) 30.3.1958. (iv) (a) 4 ploughings by *desi* plough. (b) Flat planting. (c) 75, (3 budded) sett/row. (d) 3' between rows. (e) N.A. (v) 60 lb./ac. of N as F.Y.M. before *palewa* all over the field. (vi) CO.S. 443. (vii) Irrigated. (viii) 5 hoeings, 1 earthing and 1 bunding. (ix) N.A. (x) 27.2.1959 to 3.3.1959.

2. TREATMENTS :

Main-plot treatments :

6 sources of 60 lb./ac. of N : S₀=Control, S₁=A/S, S₂=A/S/N, S₃=A/C, S₄=Urea and S₅=G.N.C.

Sub-plot treatments :

2 levels of P₂O₅ as Super : P₀=0 and P₁=60 lb./ac.

G.N.C. applied before last ploughing. Other manures applied on 22.5.1959, Super applied in furrows.

3. DESIGN :

(i) Split-plot. (ii) (a) 6 main-plots/replication, 2 sub-plots/main-plot. (b) 57'×216'. (iii) 4. (iv) (a) 57'×18'. (b) 51'×12'. (v) 3'×3'. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Germination %, shoots, millable cane, *gur* production, juice analysis and yield of sugarcane. (iv) (a) 1958—1960. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 18.52 tons/ac. (ii) (a) 4.03 tons/ac. (b) 2.97 tons/ac. (iii) None of the effects is significant. (iv) Av. yield of sugarcane in tons/ac.

	S ₀	S ₁	S ₂	S ₃	S ₄	S ₅	Mean
P ₀	19.58	19.79	19.72	17.24	16.42	19.48	18.70
P ₁	15.85	16.80	20.98	19.68	17.09	19.64	18.34
Mean	17.72	18.30	20.35	18.46	16.76	19.56	18.52

S.E. of difference of two

1. S marginal means = 2.01 tons/ac.
2. P marginal means = 0.86 tons/ac.
3. P means at the same level of S = 2.10 tons/ac.
4. S means at the same level of P = 2.50 tons/ac.

Crop :- Sugarcane.**Ref :- U.P. 59(191).****Site :- Reg. Res. Stn., Varanasi.****Type :- 'M'.**

Object :—To study the effect of different sources of N with and without P on the yield of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) *Sanai*—Sugarcane. (b) *Sanai* for seed. (c) N.A. (d) (a) Loam. (b) Refer soil analysis, Varanasi. (iii) 1.3.1959. (iv) (a) 4 ploughings by *desi* plough and 1 planking. (b) Flat planting. (c) 50 (3 budded) setts/row. (d) Rows 3' apart. (e) N.A. (v) 60 lb./ac. of N as F.Y.M. (vi) CO.S. 443. (vii) Irrigated. (viii) 2 hoeings with *kassi*. (ix) N.A. (x) 22.3.1960 onwards.

2. TREATMENTS :**Main-plot treatments :**

6 sources of 60 lb./ac. of N : S_0 =Control S_1 =A/S, S_2 =A/S/N, S_3 =A/C, S_4 =Urea and S_5 =Oil cake.

Sub-plot treatments :

2 levels of P_2O_5 as Super : P_0 =0 and P_1 =60 lb./ac.

Manuring on 28.1.1959, 11, 13.2.1959, 28.2.1959 and 18.4.1959.

3. DESIGN :

(i) Split-plot. (ii) (a) 6 main-plots/replication ; 2 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) 41'×18'. (b) 35'×12'. (v) 3'×3'. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Germination %, shoots, millable cane, *gur* production, juice analysis and yield of sugarcane. (iv) (a) 1958—1960. (b) No. (c) Nil. (v) and (vi) Nil. (vii) Expt. conducted by D.S R.

5. RESULTS :

(i) 22.81 tons/ac. (ii) (a) 3.43 tons/ac. (b) 2.65 tons/ac. (iii) None of the effects is significant. (iv) Av. yield of sugarcane in tons/ac.

	S_0	S_1	S_2	S_3	S_4	S_5	Mean
P_0	21.19	22.88	22.19	24.48	20.81	23.84	22.56
P_1	22.05	20.38	24.50	24.62	22.10	24.69	23.06
Mean	21.62	21.63	23.34	24.55	21.46	24.26	22.81

S.E. of difference of two

- | | |
|------------------------------------|-----------------|
| 1. S marginal means | = 1.71 tons/ac. |
| 2. P marginal means | = 0.76 tons/ac. |
| 3. P means at the same level of S | = 1.87 tons/ac. |
| 4. S means at the same levels of P | = 2.16 tons/ac. |

Crop :- Sugarcane.**Ref :- U.P. 59(SFT).****Centre :- Aligarh (c.f.).****Type :- 'M'.**

Object :—Type A—To study the response of sugarcane to levels of N, P and K applied individually and in combinations.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Alluvial. (iii) to (v) N.A. (vi) N.A. (vii) Irrigated. (viii) to (x) N.A.

2. TREATMENTS :

- 0 = Control (no manure).
 n = 60 lb./ac. of N as A/S.
 p = 40 lb./ac. of P_2O_5 as Super.
 np = 60 lb./ac. of N as A/S + 40 lb./ac. of P_2O_5 as Super.
 k = 40 lb./ac. of K_2O as Mur. Pot.
 nk = 60 lb./ac. of N as A/S + 40 lb./ac. of K_2O as Mur. Pot.
 pk = 40 lb./ac. of P_2O_5 as Super + 40 lb./ac. of K_2O as Mur. Pot.
 npk = 60 lb./ac. of N as A/S + 40 lb./ac. of P_2O_5 as Super + 40 lb./ac. of K_2O as Mur. Pot.

3. DESIGN :

(i) and (ii) The district has been divided into four agriculturally homogeneous zones and one field assistant has been posted in each zone. The field assistant conducts the trials in one revenue circle or *thana* in the zone and the circle/*thana* is changed once in two years within the same zone. Each field assistant is required to conduct 31 trials in a year, 8 on a *kharif* cereal, 8 on a *rabi* cereal, 8 on cash crops, 4 on an oilseed crop and 3 on a leguminous crop. Half the number of trials conducted are of type A and the other half of type B on crops other than the legumes. The three trials on legumes are of type C. Residual effects of phosphate application are studied on type C trials in two out of the four zones in each district every year. The above experiments are laid out in randomly located fields in randomly selected villages in each of the 4 zones at the rate of one experiment per village. (iii) (a) N.A. (b) 1/80 ac. (iv) Yes.

4. GENERAL :

(i) Normal. (ii) N.A. (iii) Cane yield. (iv) (a) 1959—contd. (b) No. (c) N.A. (v) As per design. (vi) and (vii) N.A.

5. RESULTS :

Effect	n	p	k	S.E.	np	nk	pk	npk	S.E.
Av. response of cane in tons/ac.	3.269	1.690	0.167	0.310	1.084	-0.103	-0.114	-0.062	0.287

Control yield = 18.268 tons/ac. and no. of trials = 12.

Crop :- Sugarcane.

Ref :- U.P. 59(SFT).

Centre :- Bulandshahr (c.f.).

Type :- 'M'.

Object :—Type A—To study the response of Sugarcane to levels of N, P and K applied individually and in combinations.

1. BASAL CONDITIONS to 4. GENERAL :

Same as in expt. no. 59(SFT) type A on page 990 conducted at Aligarh.

5. RESULTS :

Effect	n	p	k	S.E.	np	nk	pk	npk	S.E.
Av. response of cane in tons/ac.	3.850	2.513	-0.797	0.372	0.863	-0.518	-0.169	0.691	0.181

Control yield = 17.467 tons/ac. and no. of trials = 12.

Crop :- Sugarcane.

Ref :- U.P. 59(SFT).

Centre :- Deonia(c.f.).

Type :- 'M'.

Object :—Type A—To study the response of Sugarcane to levels of N, P and K applied individually and in combinations.

1. BASAL CONDITIONS to 4. GENERAL :

Same as in expt. no. 59(SFT) type A on page 990 conducted at Aligarh.

5. RESULTS :

Effect	n	p	k	S.E.	np	nk	pk	npk	S.E.
Av. response of cane in tons/ac.	5.933	3.747	1.642	0.287	0.632	0.198	0.096	0.312	0.207

Control yield = 17.717 tons/ac. and no. of trials = 15.

Crop :- Sugarcane.

Ref :- U.P. 59(SFT).

Centre :- Gorakhpur, (c.f.).

Type :- 'M'.

Object :—Type A—To study the response of Sugarcane to levels of N, P and K applied individually and in combinations.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) *Tarai* and sub-montane. (iii) to (v) N.A. (vi) N.A. (vii) Irrigated. (viii) to (x) N.A.

2. TREATMENTS to 4. GENERAL :

Same as in expt. no. 59(SFT) type A on page 990 conducted at Aligarh

5. RESULTS :

Effect	n	p	k	S.E.	np	nk	pk	npk	S.E.
Av. response of cane in tons/ac.	6.476	5.484	1.958	0.644	-0.775	-1.047	-0.400	1.212	0.55

Control yield = 22 103 tons/ac. and no. of trials = 9.

Crop :- Sugarcane.

Ref :- U.P. 59 (SFT).

Centre :- Jaunpur, (c.f.).

Type :- 'M'.

Object :—Type A—To study the response of Sugarcane to levels of N, P and K applied individually and in combinations.

1. BASAL CONDITIONS to 4. GENERAL :

Same as in expt. no. 59(SFT) type A on page 990 conducted at Aligarh.

5. RESULTS :

Effect	n	p	k	S.E.	np	nk	pk	npk	S.E.
Av. response of cane in tons/ac.	3.648	2.208	0.518	0.534	0.562	0.084	0.665	0.143	0.543

Control yield = 21.049 tons/ac. and no. of trials = 12.

Crop :- Sugarcane.

Ref :- U.P. 59(SFT).

Centre :- Lakhimpur-Kheri (c.f.).

Type :- 'M'.

Object :—Type A—To study the response of Sugarcane to levels of N, P and K applied individually and in combinations.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) *Tarai* and sub-montane. (iii) to (v) N.A. (vi) Nil. (vii) Irrigated. (viii) to (x) N.A.

2. TREATMENTS to 4. GENERAL :

Same as in expt. no. 59(SFT) type A on page 990 conducted at Aligarh.

5. RESULTS :

Effect	n	p	k	S.E.	np	nk	pk	npk	S.E.
Av. response of cane in tons/ac.	4.533	1.704	1.168	0.577	-0.033	0.478	-0.110	0.202	0.336

Control yield = 16.060 tons/ac. and no. of trials = 16.

Crop :- Sugarcane.

Ref :- U.P. 59(SFT).

Centre :- Meerut (c.f.).

Type :- 'M'.

Object :—Type A—To study the response of Sugarcane to levels of N, P and K applied individually and in combinations.

4. BASAL CONDITIONS to 4. GENERAL :

Same as in expt. no. 59(SFT) type A on page 990 conducted at Aligarh.

5. RESULTS :

Effect	n	p	k	S.E.	np	nk	pk	npk	S.E.
Av. response of cane in tons/ac.	3.978	3.266	1.686	0.356	-0.988	0.713	0.804	1.036	0.340

Control yield = 16.262 tons/ac. and no. of trials = 12.

Crop :- Sugarcane.

Ref :- U.P. 59(SFT).

Centre :- Moradabad (c.f.).

Type :- 'M'.

Object :—Type A—To study the response of Sugarcane to levels of N, P and K applied individually and in combinations.

1. BASAL CONDITIONS to 4. GENERAL :

Same as in expt. no. 59(SFT) type A on page 990 conducted at Aligarh.

5. RESULTS :

Effect	n	p	k	S.E.	np	nk	pk	npk	S.E.
Av. response of cane in tons/ac.	5.580	2.053	-0.084	0.495	1.539	-0.217	0.628	0.261	0.306

Control yield = 18.588 tons/ac. and no. of trials = 15.

Crop :- Sugarcane.

Ref :- U.P. 59(SFT).

Centre :- Muzaffarnagar (c.f.).

Type :- 'M'.

Object :—Type A—To study the response of Sugarcane to levels of N, P and K applied individually and in combinations.

1. BASAL CONDITIONS to 4. GENERAL :

Same as in expt. no. 59(SFT) type A on page 990 conducted at Aligarh.

5. RESULTS :

Effect	n	p	k	S.E.	np	nk	pk	npk	S.E.
Av. response of cane in tons/ac.	3.420	2.289	1.701	0.323	0.125	0.441	0.018	0.522	0.247

Control yield = 16.079 tons/ac. and no. of trials = 17.

Crop :- Sugarcane.**Ref :- U.P. 59(SFT).****Centre :- Pilibhit (c.f.).****Type :- 'M'.**

Object :—Type A—To study the response of Sugarcane to levels of N, P and K applied individually and in combinations.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) *Taria* and sub-montane. (iii) to (v) N.A. (vi) N.A. (vii) Irrigated. (viii) to (x) N.A.

2. TREATMENTS to 4. GENERAL :

Same as in expt. no. 59(SFT) type A on page 990 conducted at Aligarh.

5. RESULTS :

Effect	n	p	k	S.E.	np	nk	pk	npk	S.E.
Av. response of cane in tons/ac.	4.063	1.205	1.389	0.459	—0.096	0.547	0.944	0.904	0.534

Control yield = 18.852 tons/ac. and no. of trials = 8.

Crop :- Sugarcane.**Ref :- U.P. 59(SFT).****Centre :- Rampur (c.f.).****Type :- 'M'.**

Object :—Type A—To study the response of Sugarcane to levels of N, P and K applied individually and in combinations.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) *Tarai* and sub-montane. (iii) to (v) N.A. (vi) N.A. (vii) Irrigated. (viii) to (x) N.A.

2. TREATMENTS to 4. GENERAL :

Same as in expt. no. 59(SFT) type A on page 990 conducted at Aligarh.

5. RESULTS :

Effect	n	p	k	S.E.	np	nk	pk	npk	S.E.
Av. response of cane in tons/ac.	4.445	1.697	—0.239	0.330	0.948	0.022	0.209	0.209	0.250

Control yield = 12.817 tons/ac. and no. of trials = 14.

Crop :- Sugarcane.**Ref :- U.P. 59(SFT).****Centre :- Varanasi (c.f.).****Type :- 'M'.**

Object :—Type A—To study the response of Sugarcane to levels of N, P and K applied individually and in combinations.

1. BASAL CONDITIONS to 4. GENERAL :

Same as in expt. no. 59(SFT) type A on page 990 conducted at Aligarh.

5. RESULTS :

Effect	n	p	k	S.E.	np	nk	pk	npk	S.E.
Av. response of cane in tons/ac.	7.813	1.998	1.234	0.975	—0.018	—0.327	—0.231	0.364	0.863

Control yield = 17.758 tons/ac. and no. of trials = 12.

Crop :- Sugarcane.**Ref :- U.P. 59(SFT).****Centre :- Aligarh (c.f.).****Type :- 'M'.**

Object :—Type B—To investigate the relative efficiency of different nitrogenous fertilizers at different doses.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Alluvial. (iii) to (v) N.A. (vi) N.A. (vii) Irrigated. (viii) to (x) N.A.

2. TREATMENTS :

0 =Control (no manure).

 n_1 =60 lb./ac. of N as A/S. n_2 =120 lb./ac. of N as A/S. n_1' =60 lb./ac. of N as Urea. n_2' =120 lb./ac. of N as Urea. n_1'' =60 lb./ac. of N as A/S/N. n_2'' =120 lb./ac. of N as A/S/N.**3. DESIGN :**

(i) and (ii) The district has been divided into four agriculturally homogeneous zones and one field assistant has been posted in each zone. The field assistant conducts the trials in one revenue circle or *thana* in the zone and the circle/*thana* is changed once in two years within the same zone. Each field assistant is required to conduct 31 trials in a year, 8 on a *kharif* cereal, 8 on a *rabi* cereal, 8 on cash crops, 4 on an oilseed crop and 3 on a leguminous crop. Half the number of trials conducted are of type A and the other half of type B on crops other than the legumes. The three trials on legumes are of type C. Residual effects of phosphate application are studied on type C trials in two out of the four zones in each district every year. The above experiments are laid out in randomly located fields in randomly selected villages in each of the 4 zones at the rate of one experiment per village. (iii) (a) N.A. (b) 1/80 ac. (iv) Yes.

4. GENERAL :

(i) Normal. (ii) N.A. (iii) Cane yield. (iv) (a) 1959—contd. (b) No. (c) N.A. (v) As per design. (vi) and (vii) N.A.

5. RESULTS :

Treatment	0	n_1	n_2	n_1'	n_2'	n_1''	n_2''
Av. yield of cane in tons/ac.	21.409	24.796	27.779	28.194	26.897	24.954	27.812

G.M. = 25.977 tons/ac.; S.E./mean = 0.516 tons/ac. and no. of trials = 12.

Crop :- Sugarcane.**Ref :- U.P. 59(SFT).****Centre :- Bulandshahr (c.f.).****Type :- 'M'.**

Object :—Type B—To investigate the relative efficiency of different nitrogenous fertilizers at different doses.

1. BASAL CONDITIONS to 4. GENERAL :

Same as in expt. no. 59(SFT) type B above conducted at Aligarh.

5. RESULTS :

Treatment	0	n_1	n_2	n_1'	n_2'	n_1''	n_2''
Av. yield of cane in tons/ac.	17.750	22.335	25.299	23.172	26.879	22.452	26.346

G.M. = 23.462 tons/ac.; S.E./mean = 0.334 tons/ac. and no. of trials = 12.

Crop :- Sugarcane.**Ref :- U.P. 59(SFT).****Centre :- Deoria (c.f.).****Type :- 'M'.**

Object :—Type B—To investigate the relative efficiency of different nitrogenous fertilizers at different levels.

1. BASAL CONDITIONS to 4. GENERAL :

Same as in expt. no. 59(SFT) type B on page 995 conducted at Aligarh.

5. RESULTS :

Treatment	0	n_1	n_2	n_1'	n_2'	n_1''	n_2''
Av. yield of cane in tons/ac.	17.842	21.989	27.988	22.640	27.885	23.609	28.084

G.M. = 24.291 tons/ac. ; S.E./mean = 0.332 tons/ac. and no. of trials = 16.

Crop :- Sugarcane.**Ref :- U.P. 59(SFT).****Centre :- Gorakhpur (c.f.).****Type :- 'M'.**

Object :—Type B—To investigate the relative efficiency of different nitrogenous fertilizers at different doses.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) *Tarai* and sub-montane. (iii) to (vi) N.A. (vii) Irrigated. (viii) to (x) N.A.

2. TREATMENTS to 4. GENERAL :

Same as in expt. no. 59(SFT) type B on page 995 conducted at Aligarh.

5. RESULTS :

Treatment	0	n_1	n_2	n_1'	n_2'	n_1''	n_2''
Av. yield of cane in tons/ac.	23.951	27.331	37.047	28.524	39.031	28.591	38.105

G.M. = 31.797 tons/ac. ; S.E./mean = 0.467 tons/ac. and no. of trials = 9.

Crop :- Sugarcane.**Ref :- U.P. 59(SFT).****Centre :- Jaunpur (c.f.).****Type :- 'M'.**

Object :—Type B—To investigate the relative efficiency of different nitrogenous fertilizers at different levels.

1. BASAL CONDITIONS to 4. GENERAL :

Same as in expt. no. 59(SFT) type B on page 995 conducted at Aligarh.

5. RESULTS :

Treatment	0	n_1	n_2	n_1'	n_2'	n_1''	n_2''
Av. yield of cane in tons/ac.	20.645	22.618	25.211	27.823	27.613	24.146	27.382

G.M. = 25.063 tons/ac. ; S.E./mean = 0.490 tons/ac. and no. of trials = 12.

Crop :- Sugarcane.**Ref :- U.P. 59(SFT).****Centre :- Lakhimpur-kheri (c.f.).****Type :- 'M'.**

Object :—Type B—To investigate the relative efficiency of different nitrogenous fertilizers at different doses.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) *Tarai* and Sub-montane. (iii) to (vi) N.A. (vii) Irrigated. (viii) to (x) N.A.

2. TREATMENTS to 4. GENERAL :

Same as in expt. no. 59(SFT) type B on page 995 conducted at Aligarh.

5. RESULTS :

Treatment	0	n_1	n_2	n_1'	n_2'	n_1''	n_2''
Av. yield of cane in tons/ac.	17.827	20.964	27.276	20.994	24.373	21.582	27.312

G.M. = 22.904 tons/ac.; S.E./mean = 0.829 tons/ac. and no. of trials. = 8.

Crop :- Sugarcane.

Ref :- U.P. 59(SFT).

Centre :- Meerut (c.f.).

Type :- 'M'.

Object :- Type B—To investigate the relative efficiency of different nitrogenous fertilizers at different levels.

1. BASAL CONDITIONS to 4. GENERAL :

Same as in expt. no. 59(SFT) type B on page 995 conducted at Aligarh.

5. RESULTS :

Treatment	0	n_1	n_2	n_1'	n_2'	n_1''	n_2''
Av. yield of cane in tons/ac.	17.651	21.427	23.907	21.266	25.553	21.677	25.700

G.M. = 22.454 tons/ac. ; S.E./mean = 1.053 tons/ac. and no. of trials = 11.

Crop :- Sugarcane.

Ref :- U.P. 59(SFT).

Centre :- Muzaffarnagar (c.f.).

Type :- 'M'.

Object :- Type B—To investigate the relative efficiency of different nitrogenous fertilizers at different levels.

1. BASAL CONDITIONS to 4. GENERAL :

Same as in expt. no. 59(SFT) type B on page 995 conducted at Aligarh.

5. RESULTS :

Treatment	0	n_1	n_2	n_1'	n_2'	n_1''	n_2''
Av. yield of cane in tons/ac.	18.735	24.245	28.745	22.629	27.452	22.838	27.551

G.M. = 24.599 tons/ac. ; S.E./mean = 0.523 tons/ac. and no. of trials = 16.

Crop :- Sugarcane.

Ref :- U.P. 59(SFT).

Centre :- Moradabad (c.f.).

Type :- 'M'.

Object :- Type B—To investigate the relative efficiency of different nitrogenous fertilizers at different doses.

1. BASAL CONDITIONS to 4. GENERAL :

Same as in expt. no. 59(SFT) type B on page 995 conducted at Aligarh.

5. RESULTS :

Treatment	0	n ₁	n ₂	n ₁ '	n ₂ '	n ₁ "	n ₂ "
Av. yield of cane in tons/ac.	20.634	34.644	31.052	26.581	30.233	26.890	30.420

G.M. = 28.636 tons/ac. ; S.E./mean = 0.216 tons/ac. and no. of trials = 16.

Crop :- Sugarcane.

Ref :- U.P. 59(SFT).

Centre :- Pilibhit (c.f.)

Type :- 'M'.

Object :—Type B—To investigate the relative efficiency of different nitrogenous fertilizers at different doses.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) *Tarai* and sub-montane. (iii) to (vi) N.A. (vii) Irrigated. (viii) to (x) N.A.

2. TREATMENTS to 4. GENERAL :

Same as in expt. no. 59(SFT) type B on page 995 conducted at Aligarh.

5. RESULTS :

Treatment	0	n ₁	n ₂	n ₁ '	n ₂ '	n ₁ "	n ₂ "
Av. yield of cane in tons/ac.	18.661	22.169	25.369	22.970	26.291	24.851	26.916

G.M. = 23.890 tons/ac., S.E./mean = 0.772 tons/ac. and no. of trials = 12.

Crop :- Sugarcane.

Ref :- U.P. 59(SFT).

Centre :- Rampur (c.f.).

Type :- 'M'.

Object :—Type B—To investigate the relative efficiency of different nitrogenous fertilizers at different levels.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) *Tarai* and sub-montane. (iii) to (vi) N.A. (vii) Irrigated. (viii) to (x) N.A.

2. TREATMENTS to 4. GENERAL :

Same as in expt. no. 59(SFT) type B on page 995 conducted at Aligarh.

5. RESULTS :

Treatment	0	n ₁	n ₂	n ₁ '	n ₂ '	n ₁ "	n ₂ "
Av. yield of cane in tons/ac.	17.115	25.002	29.377	24.539	29.215	22.647	27.323

G.M. = 25.031 tons/ac.; S.E./mean = 0.491 tons/ac. and no. of trials = 16.

Crop :- Sugarcane.

Ref :- U.P. 59(SFT).

Centre :- Varanasi (c.f.).

Type :- 'M'.

Object :—Type B—To investigate the relative efficiency of different nitrogenous fertilizers at different doses.

1. BASAL CONDITIONS to 4. GENERAL :

Same as in expt. no. 59(SFT) type B on page conducted at Aligarh.

5. RESULTS:

Treatment	0	n ₁	n ₂	n ₁ '	n ₂ '	n ₁ ''	n ₂ ''
Av. yield of cane in tons/ac.	19.620	25.248	31.199	23.683	29.516	22.449	30.097

G.M. = 25.973 tons/ac., S.E./mean = 1.338 tons/ac. and no. of trials = 11.

Crop :- Sugarcane.

Ref :- U.P. 58(417).

Zone :- Shahganj (Azamgarh, c.f.).

Type :- 'M'.

Object :— To study the effect of F.Y.M. and A/S on the yield of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Pea. (c) N.A. (ii) Loam. (iii) N.A. (iv) CO.S. 443 (improved). (v) (a) 1 *palewa* and 4 *desi* ploughings. (b) Flat planting. (c) 82 setts (3 budded)/row. (d) Rows 3' apart. (e) N.A. (vi) 24.3.1958. (vii) Irrigated. (viii) 7 hoeings and earthing by spade. (ix) and (x) N.A.

2. TREATMENTS :

5 manurial treatments : M₀=Control, M₁=120 lb./ac. of N as A/S applied in furrows at planting time of cane, M₂=120 lb./ac. of N as F.Y.M. applied 15 to 30 days before planting care, M₃=60 lb./ac. of N as A/S and 60 lb./ac. of N as F.Y.M. mixed together and applied 15 to 30 days before planting and M₄=60 lb./ac. of N as F.Y.M. applied 15 to 30 days before planting and 60 lb./ac. of N as A/S in furrows at planting.

3. DESIGN :

(i) and (ii) R.B.D. with 6 replications. (iii) (a) 80'×21'. (b) 74'×15'. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Germination %, tiller count, millable canes, juice analysis and yield of sugarcane. (iv) (a) 1958—contd. (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 26.89 tons/ac. (ii) 2.85 tons/ac. (iii) Treatment differences are highly significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	M ₀	M ₁	M ₂	M ₃	M ₄
Av. yield	22.47	24.41	28.36	29.67	29.53

S.E./mean = 1.16 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 58(274).

Zone :- Burluval (Barabanki, c.f.).

Type :- 'M'.

Object :— To study the effect of F.Y.M. and A/S on the yield of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Clay loam. (iii) N.A. (iv) CO. 846. (v) (a) 10 ploughings and 3 harrowings. (b) to (e) N.A. (vi) 23.2.1958. (vii) Irrigated. (viii) 5 hoeings. (ix) and (x) N.A.

2. TREATMENTS :

Same as in expt. no. 58(417) above.

DESIGN :

(i) and (ii) R.B.D. with 6 replications. (iii) (a) N.A. (b) 53.5'×30.0'. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of sugarcane. (iv) and (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 17.86 tons/ac. (ii) 5.50 tons/ac. (iii) Treatment differences are significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	M ₀	M ₁	M ₂	M ₃	M ₄
Av. yield	17.04	11.83	18.08	21.82	20.52

S.E./mean = 2.25 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 57(520).

Zone :- Jarwal Road (Bahraich, c.f.).

Type :- 'M'.

Object :- To study the effect of different levels of N and P on the yield of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Maize in field and Paddy in the other. (c) N.A. (ii) Silty loam. (iii) 160 mds/ac as F.Y.M. in field and 125 mds. of press mud in the other. (iv) CO. 617 and CO. S. 443 (improved). (v) (a) to (e) N.A. (vi) 25.3.1957 to 26.3.1957. (vii) Irrigated. (viii) 3 hoeings in field and 5 hoeings in the other. (ix) N.A. (x) 22.1.1958 to 25.1.1958.

2. TREATMENTS :

All combinations of (1) and (2)

(1) 4 levels of N as A/S : N₀=0, N₁=60, N₂=120 and N₃=180 lb./ac.

(2) 3 levels of P₂O₅ as Super : P₀=0, P₁=40 and P₂=80 lb./ac.

3. DESIGN :

(i) and (ii) 2 expts. in R.B.D. with 3 replications each were conducted in the zone. (iii) (a) 52' × 21' in 1 expt. and 54' × 18' in the second expt. (b) 46' × 15' in 1 expt. and 48' × 12' in the second expt. (iv) Yes.

4. GENERAL :

(i) N.A. (ii) Attack of simple wilt in 1 expt. and red rot and wilt in 1 expt. (iii) Yield of sugarcane. (iv) (a) 1957—1959. (b) No (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 19.47 tons/ac. (ii) 4.34 tons/ac. (iii) Only N effect is highly significant. (iv) Av. yield of sugarcane in tons/ac.

	N ₀	N ₁	N ₂	N ₃	Mean
P ₀	15.06	17.75	21.68	19.46	18.49
P ₁	15.88	20.18	19.77	20.92	19.19
P ₂	18.19	20.33	22.10	22.35	20.74
Mean	16.38	19.42	21.18	20.91	19.47

S.E. of N marginal mean = 1.02 tons/ac.

S.E. of P marginal mean = 0.89 tons/ac.

S.E. of body of table = 1.77 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 58(504).

Zone :- Jarwal Road (Bahraich, c.f.).

Type :- 'M'.

Object :- To study the effect of different levels of N and P on the yield of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) *Jowar* in 1 expt., *Paddy* in 1 expt. and *Fallow* in 1 expt. (c) N.A. (ii) *Loam* in 2 expts. and *silty loam* in 1 expt. (iii) 60 lb./ac. of N as F.Y.M. (iv) CO. 617 (improved). (v) (a) to (e) N.A. (vi) 23.2.1958 to 27.2.1958. (vii) Unirrigated. (viii) 3 to 5 hoeings. (ix) N.A. (x) 24.12.1958 to 27.12.1958.

TREATMENTS :

Same as in expt. no. 57(520) on page 1000.

Manures applied from 6.8.1958 to 10.8.1958.

3. DESIGN :

(i) and (ii) 3 expts. in R.B.D. with 3 replications each were conducted in the zone. (iii) (a) 51.9' × 21' in 1 expt. and 60.5' × 18' in 2 expts. (b) 45.9' × 15' in 1 expt. and 54.5' × 12' in 2 expts. (iv) Yes.

4. GENERAL :

(i) Satisfactory in 2 expts. and in 1 expt. water logged during rains. (ii) Nil. (iii) Yield of sugarcane. (iv) (a) 1957—1959. (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 17.62 tons/ac. (ii) 4.43 tons/ac. (iii) N effect is highly significant. (iv) Av. yield of sugarcane in tons/ac.

	N ₀	N ₁	N ₂	N ₃	Mean
P ₀	14.81	17.49	16.24	17.55	16.52
P ₁	13.58	14.77	17.93	22.37	17.16
P ₂	16.97	20.25	19.76	19.76	19.18
Mean	15.12	17.50	17.98	19.89	17.62

S.E. of N marginal mean = 0.85 tons/ac.

S.E. of P marginal mean = 0.74 tons/ac.

S.E. of body of table = 1.48 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 59(550).

Zone :- Jarwal Road (Bahraich, c.f.).

Type :- 'M'.

Object :—To study the effect of different levels of N and P on the yield of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) *Urd* in 1 expt. and *paddy* in 2 expts. (c) N.A. (ii) *Silty loam* in 1 expt., *silty loam to silty clay loam* in 1 expt. and *matyar* in 1 expt. (iii) F.Y.M. applied. (iv) CO. 617 in 1 expt. and CO.S. 510 (improved) in 2 expts. (v) (a) to (e) N.A. (vi) 7.3.1959 to 10.3.1959. (vii) Unirrigated. (viii) 2 to 3 hoeings. (ix) and (x) N.A.

2. TREATMENTS :

Same as in expt. no. 57(520) on page 1000.

3. DESIGN :

(i) and (ii) 3 expts. were conducted in the zone. In each expt. 3 replications were taken in R.B.D. (iii) (a) 60.5' × 18'. (b) N.A. (iv) Yes.

4. GENERAL :

(i) N.A. (ii) Nil. (iii) Yield of sugarcane. (iv) (a) 1957—1958. (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 33.49 tons/ac. (ii) 3.51 tons/ac. (iii) Main effects of N and P are highly significant. (iv) Av. yield of sugarcane in tons/ac.

	N ₀	N ₁	N ₂	N ₃	Mean
P ₀	30.34	30.96	33.85	31.83	31.74
P ₁	31.01	33.02	34.44	36.27	33.68
P ₂	32.67	35.53	36.35	35.63	35.04
Mean	31.34	33.17	34.88	34.58	33.49

S.E. of N marginal mean = 0.67 tons/ac.

S.E. of P marginal mean = 0.58 tons/ac.

S.E. of body of table = 1.17 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 56(306).

Zone :- Baheri (Bareilly, c.f.).

Type :- 'M'.

Object :—To study the effect of F.Y.M. and A/S on the yield of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) *Domat*. (iii) N.A. (iv) Improved. (v) (a) to (c) N.A. (d) Rows 3' apart. (e) N.A. (vi) N.A. (vii) Irrigated. (viii) and (ix) N.A. (x) 3rd week of Feb., 1957.

2. TREATMENTS :

Same as in expt no. 58(417) on page 999.

3. DESIGN :

(i) and (ii) R.B.D. with 6 replications. (iii) (a) and (b) 64' × 27'. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of sugarcane and juice analysis. (iv) (a) 1956 only. (b) and (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 20.53 tons/ac. (ii) 2.68 tons/ac. (iii) Treatment differences are significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	M ₀	M ₁	M ₂	M ₃	M ₄
Av. yield	21.15	17.50	22.54	22.15	19.31

S.E./mean = 1.09 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 57(189).

Zone :- Baheri (Bareilly, c.f.).

Type :- 'M'.

Object :—To study the effect of F.Y.M. and A/S on the yield of Sugarcane.

1. BASAL CONDITIONS :

(i) to (x) N.A.

2. TREATMENTS :

Same as in expt. no. 58(417) on page 999.

3. DESIGN :

(i) and (ii) R.B.D. with 6 replications. (iii) (a) N.A. (b) 73' × 21'. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of sugarcane. (iv) (a) and (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 10.97 tons/ac. (ii) 3.14 tons/ac. (iii) Treatment differences are highly significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	M ₀	M ₁	M ₂	M ₃	M ₄
Av. yield	7.17	9.14	10.79	10.77	16.97

S.E./mean = 1.28 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 59(315).

Zone :- Baheri (Bareilly, c.f.).

Type :- 'M'.

Object :—To study the efficacy of Stera meal manure mixture on Sugarcane.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) *Lahi*. (c) Nil. (ii) Loam. (iii) N.A. (iv) CO.S. 510. (v) (a) 3 harrow ploughings and 3 plankings. (b) Flat planting in furrows. (c) to (e) N.A. (vi) 4.3.1959. (vii) Unirrigated. (viii) 3 hoeings. (ix) N.A. (x) 17 to 19.1.1960.

2. TREATMENTS :

3 manurial treatments : M₀=Control (60 lb./ac. of N as A/S applied at top dressing), M₁=Stera meal mixture (60 lb./ac. of N+86 lb./ac. of P₂O₅+43 lb./ac. of K₂O+60 lb./ac. of N as A/S applied at the time of top dressing) and M₂=G.N.C. (60 lb./ac. of N+18 lb./ac. of P₂O₅+26 lb./ac. of K₂O)+A/S at 60 lb./ac. of N+Super at 68 lb./ac. of P₂O₅+Mur. Pot. at 17 lb./ac. of K₂O.

Manures applied on 16, 17 and 19.5.1959.

3. DESIGN :

(i) and (ii) R.B.D. with 6 replications. (iii) (a) 73'×21'. (b) 73'×15'. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Sugarcane yield. (iv) (a) 19:9—N.A. (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 33.37 tons/ac. (ii) 1.89 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	M ₀	M ₁	M ₂
Av. yield	32.22	33.72	34.16

S.E./mean = 0.77 ton/ac.

Crop :- Sugarcane.

Ref :- U.P. 59(377).

Zone :- Bhojpura (Bareilly, c.f.).

Type :- 'M'.

Object :—To study the effect of N and P on Sugarcane.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Clay loam. (iii) N.A. (iv) CO.S. 510. (v) (a) and (b) Flat planting by *desi* plough. (c) to (e) N.A. (vi) 25.2.1959. (vii) Irrigated. (viii) and (ix) N.A. (x) 28 and 29.2.1960.

2. TREATMENTS :

10 manurial treatments : M_1 =G.M. alone, M_2 =F.Y.M. at 60 lb./ac. of N applied 6 weeks before planting, M_3 =A/S at 60 lb./ac. of N applied at planting, M_4 = M_1 +Super applied at 100 lb./ac. of P_2O_5 at sowing of G.M. crop, M_5 = M_1 +Dical. Phos. at 100 lb./ac. of P_2O_5 at sowing of G.M. crop, M_6 = M_1 +Super applied at 100 lb./ac. of P_2O_5 at planting, M_7 = M_1 +Dical. Phos. at 100 lb./ac. of P_2O_5 at planting, M_8 =F.Y.M. at 60 lb./ac. of N applied 6 weeks before and Super at 100 lb./ac. of P_2O_5 applied at planting, M_9 =F.Y.M. at 60 lb./ac. of N and Super at 100 lb./ac. of P_2O_5 mixed together and applied 6 weeks before planting and M_{10} =A/S at 60 lb./ac. of N and Super at 100 lb./ac. of P_2O_5 applied at planting.

3. DESIGN :

(i) and (ii) R.B.D. with 4 replications. (iii) (a) 70'×15'. (b) 64'×9'. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Sugarcane yield. (iv) (a) 1957—1959. (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 16.22 tons/ac. (ii) 1.94 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	M_1	M_2	M_3	M_4	M_5	M_6	M_7	M_8	M_9	M_{10}
Av. yield	15.92	17.66	16.44	17.08	15.89	17.28	17.31	13.61	15.57	15.44

S.E./mean = 0.97 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 58(315).

Zone :- Bhojpura (Bareilly, c f.).

Type :- 'M'.

Object :—To study the effect of organic and inorganic manures on the yield of Sugarcane.

BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Clay loam. (iii) N at 60 lb./ac. as G.M. (iv) CO. S. 510. (v) (a) to (e) N.A. (vi) 10.5.1958. (vii) to (x) N.A.

2. TREATMENTS :

8 sources of 60 lb./ac. of N : S_0 =Control (No N), S_1 =A/C, S_2 =A/S, S_3 =Urca, S_4 =Blood meal, S_5 =F.M., S_6 =G.N.C. and S_7 =Castor cake.

3. DESIGN :

(i) and (ii) R.B.D. (iii) (a) and (b) 71'×21'. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of sugarcane. (iv) and (v) N.A. (vi) Nil. (vii) The plot-wise yield data—N.A.

5. RESULTS :

(i) to (iii) N.A. (iv) Av. yield of sugarcane in tons/ac.

Treatment	S_0	S_1	S_2	S_3	S_4	S_5	S_6	S_7
Av. yield	14.14	17.01	15.06	14.11	16.27	14.47	N.A.	17.60

S.E./mean = N.A.

Crop :- Sugarcane.

Ref :- U.P. 57(206).

Zone :- Nawabganj (Bareilly, c.f.).

Type :- 'M'.

Object :—To study the effect of N, P and K on Sugarcane.

1. BASAL CONDITIONS :

(i) to (v) N.A. (vi) 20.2.1957. (vii) to (x) N.A.

2. TREATMENTS :

5 manurial treatments: M_0 =Control (no manure), M_1 =60 lb./ac. of N, M_2 = M_1 +60 lb./ac. of P_2O_5 ,
 M_3 = M_1 +120 lb./ac. of K_2O and M_4 = M_2 +120 lb./ac. of K_2O .

N, P_2O_5 and K_2O applied as A/S, Super and Mur. Pot. respectively.

3. DESIGN :

(i) and (ii) R.B.D. with 6 replications. (iii) (a) 64'×21'. (b) 58'×15'. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of sugarcane. (iv) and (v) N.A. (vi) and (vii) Nil..

5. RESULTS :

(i) 16.17 tons/ac. (ii) 2.89 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	M_0	M_1	M_2	M_3	M_4
Av. yield	14.79	14.91	17.17	16.36	17.63

S.E./mean = 1.18 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 57(205).

Zone :- Nawabganj, (Bareilly, c.f.).

Type :- 'M'.

Object :—To study the effect of Super in combination with G.M. on Sugarcane crop.

1. BASAL CONDITIONS :

(i) to (ix) N.A. (x) 3.9.1958.

2. TREATMENTS :

3 manurial treatments: M_1 =*Sanai* or *dhaincha* as G.M. (control), M_2 =Super at 60 lb./ac. broadcast at the time of sowing *sanai* or *dhaincha* and M_3 =Super at 60 lb./ac. applied at the time of ploughing in *sanai* or *dhaincha*.

3. DESIGN :

(i) and (ii) R.B.D. with 6 replications. (iii) (a) N.A. (b) 1/29.51 ac. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of sugarcane. (iv) and (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 9.62 tons/ac. (ii) 1.84 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	M_1	M_2	M_3
Av. yield	9.40	9.80	9.67

S.E./meam = 0.75 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 59(257).

Zone :- Basti (Basti, c.f.).

Type :- 'M'.

Object :—To study the effect of F.Y.M. and A/S on the yield of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) *Sanai*. (c) N.A. (ii) Sandy loam. (iii) N.A. (iv) CO. S. 510. (v) (a) 3 ploughings. (b) Flat planting. (c) to (e) N.A. (vi) 5.2.1959. (vii) Irrigated. (viii) 1 earthing by *phawra*. (ix) 45". (x) N.A.

2. TREATMENTS :

5 levels of N : M_0 =Control, M_1 =N at 120 lb./ac. as A/S at the time of planting, M_2 =N at 120 lb./ac. as F.Y.M. 15 days before planting, M_3 =N at 120 lb./ac. $\frac{1}{2}$ as F.Y.M and $\frac{1}{2}$ as A/S 15 days before planting and M_4 =N at 60 lb./ac. as F.Y.M. 15 days before planting + N at 60 lb./ac. as A/S at planting.

3. DESIGN :

(i) and (ii) R.B.D. with 4 replications. (iii) (a) 56' x 24'. (b) 50' x 18'. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of sugarcane. (iv) (a) and (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 25.61 tons/ac. (ii) 1.40 tons/ac. (iii) Treatment differences are highly significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	M_0	M_1	M_2	M_3	M_4
Av. yield	22.09	26.16	26.97	26.35	26.48

S.E./mean = 0.70 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 59(266).

Zone :- Basti (Basti, c.f.).

Type :- 'M'.

Object :—To study the effect of N on ratoon Sugarcane crop.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Plant cane. (c) N.A. (ii) Sandy loam. (iii) N.A. (iv) CO. S. 510. (v) (a) to (e) N.A. (vi) Ratoon crop. (vii) Irrigated. (viii) 3 hoeings. (ix) 45". (x) 18 and 19.12.1959.

2. TREATMENTS :

6 levels of N : $N_0=0$, $N_1=30$, $N_2=60$, $N_3=90$, $N_4=120$ and $N_5=150$ lb./ac.
N applied $\frac{1}{2}$ as A/S and $\frac{1}{2}$ as cake.

3. DESIGN :

(i) and (ii) R.B.D. with 4 replications. (iii) (a) 60' x 17 $\frac{1}{2}$ '. (b) 60' x 12 $\frac{1}{2}$ '. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of sugarcane. (iv) (a) and (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 10.64 tons/ac. (ii) 0.66 tons/ac. (iii) Treatment differences are highly significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	N_0	N_1	N_2	N_3	N_4	N_5
Av. yield	8.35	9.29	10.33	10.61	11.79	13.44

S.E./mean = 0.33 tons/ac.

Crop :- Sugarcane .

Ref :- U.P. 59(267).

Zone :- Walterganj (Basti, c.f.).

Type :- 'M'.

Object :—To study the effect of N on ratoon Sugarcane crop.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Plant cane. (c) N.A. (ii) Loam. (iii) N.A. (iv) CO. S. 443. (v) (a) to (e) N.A. (vi) Ratoon crop. (vii) Irrigated. (viii) 3 hoeings by *kassi*. (ix) 45". (x) 23 to 25.12.1959.

2. TREATMENTS :

Same as in expt. no. 59(266) on page 1006.

3. DESIGN :

(i) and (ii) R.B.D. with 4 replications. (iii) (a) 74'×18'. (b) 74'×12'. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of sugarcane. (iv) (a) and (b) N.A. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 20.14 tons/ac. (ii) 1.95 tons/ac. (iii) Treatment differences are highly significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	N ₀	N ₁	N ₂	N ₃	N ₄	N ₅
Av. yield	14.23	17.95	19.45	22.34	24.45	22.44

S.E./mean = 0.98 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 56(309).

Zone :- Dhampur (Bijnor, c.f.).

Type :- 'M'.

Object :- To study the effect of A/S and F.Y.M. on the yield of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Fallow. (c) N.A. (ii) Loam. (iii) 60 lb./ac. of N. (iv) CO. S. 245 (improved). (v) (a) N.A. (b) Flat planting by *desi* plough. (c) 1728 buds/plot. (d) Rows 3' apart. (e) N.A. (vi) 2.3 1956. (vii) Irrigated. (viii) N.A. (ix) 32". (x) 21.3.1957.

2. TREATMENTS :

Same as in expt. no. 58(417) on page 999.

3. DESIGN :

(i) and (ii) R.B.D. with 6 replications. (iii) (a) 64'×27'. (b) 58'×21'. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of sugarcane. (iv) (a) 1956—contd. (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 23.95 tons/ac. (ii) 4.59 tons/ac. (iii) Treatment differences are highly significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	M ₀	M ₁	M ₂	M ₃	M ₄
Av. yield	17.98	24.73	24.57	29.01	23.47

S.E./mean = 1.87 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 58(285).

Zone :- Dhampur (Bijnor, c.f.).

Type :- 'M'.

Object :- To study the effect of A/S and F.Y.M. on the yield of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) *Dhaincha*. (c) N.A. (ii) Loam. (iii) N.A. (iv) CO. S. 510. (v) (a) 6 ploughings by tractor and 2 ploughings by *desi* plough. (b) to (e) N.A. (vi) 28.2.1958. (vii) Irrigated. (viii) 4 hoeings by cultivator. (ix) 32". (x) 21 to 23.1 1959.

2. TREATMENTS :

Same as in expt. no. 58(417) on page 999.

3. DESIGN :

(i) and (ii) R.B.D. with 6 replications. (iii) (a) N.A. (b) 58' × 21'. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of sugarcane. (iv) and (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 15.27 tons/ac. (ii) 1.16 tons/ac. (iii) Treatment differences are highly significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	M ₀	M ₁	M ₂	M ₃	M ₄
Av. yield	11.31	15.51	15.83	17.29	16.41

S.E./mean = 0.47 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 57(209).

Zone :- Dhampur (Bijnor, c.f.).

Type :- 'M'.

Object :— To study the effect of A/S and F.Y.M. on the yield of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) *Sanai*. (c) N.A. (ii) and (iii) N.A. (iv) CO.S. 245. (v) (a) N.A. (b) Sown flat in furrows opened by spades. (c) to (e) N.A. (vi) 23.2.1957. (vii) to (ix) N.A. (x) 2 and 13.2.1958.

2. TREATMENTS :

Same as in expt. no. 58(417) on page 999.

3. DESIGN :

(i) and (ii) R.B.D. (iii) (a) 64' × 30'. (b) 58' × 24'. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of sugarcane. (iv) and (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 19.00 tons/ac. (ii) 1.49 tons/ac. (iii) Treatment differences are highly significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	M ₀	M ₁	M ₂	M ₃	M ₄
Av. yield	16.22	19.48	17.59	20.32	21.38

S.E./mean = 0.61 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 58(279).

Zone :- Bijnor (Bijnor c.f.).

Type :- 'M'.

Object :— To study the effect of A/S and F.Y.M. on the yield of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) *Sanai*. (c) N.A. (ii) and (iii) N.A. (iv) CO.S. 245. (v) (a) 8 ploughings. (b) to (e) N.A. (vi) 15.2.1958. (vii) Irrigated. (viii) 4 hoeings and 1 earthing. (ix) N.A. (x) 13 and 14.3.1959.

2. TREATMENT :

Same as in expt. no. 58(417) on page 999.

3. DESIGN :

(i) and (ii) R.B.D. with 6 replications. (iii) (a) and (b) 80'×18'. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of sugarcane. (iv) and (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 16.93 tons/ac. (ii) 1.64 tons/ac. (iii) Treatment differences are highly significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	M ₀	M ₁	M ₂	M ₃	M ₄
Av. yield	15.88	15.70	16.07	19.05	17.96

S.E./mean = 0.67 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 58(277).

Zone :- Seohara (Bijnor, c.f.).

Type :- 'M'.

Object :— To study the effect of A/S and F.Y.M. on the yield of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) *Sanai*. (c) N.A. (ii) Loam. (iii) N.A. (iv) CO.S. 510. (v) (a) 11 ploughings by *desi* plough and 4 ploughings by tractor. (b) to (e) N.A. (vi) 25.2.1958. (vii) Irrigated. (viii) 1 earthing and 4 hoeings. (ix) N.A. (x) 17 to 19.2.1959.

2. TREATMENTS :

Same as in expt. no. 58(417) on page 999.

3. DESIGN :

(i) and (ii) R.B.D. with 6 replications. (iii) (a) N.A. (b) 54'×18'. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of sugarcane. (iv) and (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 22.01 tons/ac. (ii) 1.94 tons/ac. (iii) Treatment differences are highly significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	M ₀	M ₁	M ₂	M ₃	M ₄
Av. yield	21.31	22.35	20.09	24.61	21.70

S.E./mean = 0.79 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 59(317).

Zone :- Seohara (Bijnor, c.f.).

Type :- 'M'.

Object :- To study the effect of Stera meal planting mixture.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) *Sanai*. (c) N.A. (ii) Light loam. (iii) N.A. (iv) CO.S. 510. (v) (a) 2 ploughings by tractor, 2 harrowings by tractor and 6 *desi* ploughings. (b) Flat furrow planting with *kassi*. (c) to (e) N.A. (vi) 5.3.1959. (vii) Irrigated. (viii) 4 hoeings. (ix) N.A. (x) 10.2.1960.

2. TREATMENTS :

3 manurial treatments : M_0 =Control (60 lb./ac. of N as A/S), M_1 =Stera meal planting mixture at 60 lb./ac. of N+86 lb./ac. of P_2O_5 -43 lb./ac. of K_2O +A/S at 60 lb./ac. of N and M_2 =G.N.C. (60 lb./ac. of N+18 lb./ac. of P_2O_5 +26 lb./ac. of K_2O +A/S at 60 lb./ac. of N+Super at 68 lb./ac. of P_2O_5 +Mur. Pot at 17 lb./ac. of K_2O .

3. DESIGN :

(i) and (ii) R.B.D. with 6 replications. (iii) (a) 65'×18'. (b) 59'×12'. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Sugarcane yield. (iv) (a) and (b) No. (c) N.A. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 28.44 tons/ac. (ii) 2.96 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	M_0	M_1	M_2
Av. yield	27.99	28.66	28.67

S.E./mean = 1.21 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 59(322).

Zone :- Seohara (Bijnor, c.f.).

Type :- 'M'.

Object :—To study the effect of different organic and inorganic manures on the yield of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) *Sanai*. (c) Nil. (ii) Light loam. (iii) 60 lb./ac. of N as *sanai* G.M. (iv) CO. S. 510. (v) (a) 1 ploughing by tractor and 3 harrowings. (b) Planting with *kassi*. (c) to (e) N.A. (vi) 6 and 7.3.1959. (vii) Irrigated. (viii) 4 hoeings. (ix) and (x) N.A.

2. TREATMENTS :

7 sources of 60 lb./ac. of N : S_0 =Control (No N), S_1 =A/C, S_2 =A/S, S_3 =Urea, S_4 =Blood meal, S_5 =G.N.C. and S_6 =F.Y.M.

3. DESIGN :

(i) and (ii) R.B.D. with 4 replications. (iii) (a) 48'×36'. (b) N.A. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Sugarcane yield. (iv) (a) 1956—1959. (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 24.57 tons/ac. (ii) 2.58 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	S_0	S_1	S_2	S_3	S_4	S_5	S_6
Av. yield	23.18	26.78	25.02	25.24	24.17	24.02	23.62

S.E./mean = 1.29 tons/ac.

Crop :- Sugarcane.**Ref :- U.P. 56(280).****Zone :- Seohara (Bijnor, c.f.).****Type :- 'M'.**

Object :—To study the effect of A/C and A/S on the yield of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) *Santai*. (c) Nil. (ii) Sandy loam. (iii) N.A. (iv) CO. S. 510 (improved). (v) (a) N.A. (b) Flat planting in furrows opened by plough. (c) 1800 buds/plot. (d) Rows 3' apart. (e) N.A. (vi) 25.2.1956. (vii) Irrigated. (viii) and (ix) N.A. (x) 28.3.1957.

2. TREATMENTS :

3 sources of 60 lb./ac. of N : S_0 =Control (No N), S_1 =A/C and S_2 =A/S.
Manure applied at the time of 1st irrigation.

3. DESIGN :

(i) and (ii) R.B.D. with 6 replications. (iii) (a) 72' × 24'. (b) 66' × 18'. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Germination %, yield of sugarcane and juice analysis. (iv) (a) 1956--contd. (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 20.24 tons/ac. (ii) 1.88 tons/ac. (iii) Treatment differences are significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	S_0	S_1	S_2
Av. yield	18.28	21.49	20.96

S.E./mean = 0.76 tons/ac.

Crop :- Sugarcane.**Ref :- U.P. 57(208).****Zone :- Seohara (Bijnor, c.f.).****Type :- 'M'.**

Object :—To study the effect of A/C and A/S on the yield of Sugarcane.

1. BASAL CONDITIONS :

(i) to (x) N.A.

2. TREATMENTS :

Same as in expt. no. 56(280) above.

3. DESIGN :

(i) and (ii) R.B.D. with 6 replications. (iii) (a) N.A. (b) 67' × 18'. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of sugarcane. (iv) and (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 27.08 tons/ac. (ii) 1.93 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	S_0	S_1	S_2
Av. yield	25.75	28.28	27.21

S.E./mean = 0.79 tons/ac.

Crop :- Sugarcane.**Ref :- U.P. 57(213).****Zone :- Naurangabad (Bijnor, c.f.).****Type :- 'M'.**

Object :—To find out the effect of A/S and F.Y.M. on the yield of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Light loam. (iii) N.A. (iv) CO. S. 245. (v) (a) N.A. (b) Planted in furrows opened by plough. (c) to (e) N.A. (vi) 27.2.1957. (vii) to (x) N.A.

2. TREATMENTS :

Same as in expt. no. 58(417) on page 999.

3. DESIGN :

(i) and (ii) R.B.D. with 6 replications. (iii) (a) 64' × 27'. (b) 58' × 21'. (iv) Yes.

4. GENERAL :(i) and (ii) N.A. (iii) Yield of sugarcane. (iv) and (v) N.A. (vi) Nil. (vii) Yield of treatment M₀ in 5th replication was missing.**5. RESULTS :**

(i) 6.03 tons/ac. (ii) 2.43 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	M ₀	M ₁	M ₂	M ₃	M ₄
Av. yield	5.12	6.28	6.89	5.93	5.94
	S.E./mean except for M ₀			= 0.99 tons/ac.	
	S.E. of M ₀			= 1.09 tons/ac.	

Crop :- Sugarcane.**Ref :- U.P. 59(75).****Zone :- Doiwala, (Dehradun, c.f.).****Type :- 'M'.**

Object :—To study the effect of different sources of N on Sugarcane.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Paddy. (c) N.A. (ii) Sandy loam. (iii) N.A. (iv) CO. 527 (improved). (v) (a) 6 ploughings by tractor. (b) Flat planted in furrows opened by tractor. (c) 75 (3 budded) setts/row. (d) Rows 3' apart. (e) N.A. (vi) 24 and 25.2.1959. (vii) Irrigated. (viii) 3 hoeings. (ix) N.A. (x) 18 and 19.3.1960.

2. TREATMENTS :5 manurial treatments : M₀=Control, M₁=60 lb./ac. of N as F.Y.M. as basal dressing, M₂=M₁+80 lb./ac. of N as A/S, M₃=M₁+80 lb./ac. of N as A/C and M₄=M₁+80 lb./ac. of N as Urea.

A/S, A/C and Urea applied half at planting and half top-dressed in June.

3. DESIGN :

(i) and (ii) R.B.D. with 4 replications in one field. Block size=126' × 73'. (iii) (a) 73' × 24'. (b) 67' × 18' and 73' × 18'. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Germination %, no. of tillers, juice analysis and yield of sugarcane. (iv) (a) 1959. (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 26.14 tons/ac. (ii) 2.08 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	M ₀	M ₁	M ₂	M ₃	M ₄
Av. yield	25.25	24.83	25.76	27.54	27.32
	S.E./mean = 1.04 tons/ac.				

Crop :- Sugarcane.**Ref :- U.P. 59(74).****Zone :- Doiwala (Dehradun, c.f.).****Type :- 'M'.**

Object :—To study the effect of N, P and K on Sugarcane.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Paddy. (c) N.A. (ii) Sandy loam. (iii) N.A. (iv) CO. S. 245 (improved). (v) (a) 7 ploughings by *desi* plough and 1 *palewa*. (b) Flat planted in furrows opened by tractor. (c) 75 (3 budded) setts/row. (d) Rows 3' apart. (e) N.A. (vi) 25 and 26.2.1959. (vii) Irrigated. (viii) 1 blind hoeing and 1 hoeing. (ix) N.A. (x) 23 to 25.2.1960.

2. TREATMENTS ;

o manurial treatments : M_0 =Control (no manure), M_1 =120 lb./ac. of N as A/S, M_2 =120 lb./ac. of N as A/S+100 lb./ac. of P_2O_5 as Super, M_3 = M_2 +80 lb./ac. of K_2O as Pot. sul., M_4 =120 lb./ac. of N as Nitrophoska green and M_5 =120 lb./ac. of N as Nitrophoska blue.

3. DESIGN :

(i) and (ii) R.B.D. with 4 replications in one field. (iii) (a) 73'×24'. (b) 67'×18'. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Germination %, no. of tillers, juice analysis and yield of sugarcane. (iv) (a) and (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 30.47 tons/ac. (ii) 2.14 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	M_0	M_1	M_2	M_3	M_4	M_5
Av. yield	30.39	29.11	28.11	31.54	31.63	32.03

S.E./mean = 1.07 tons/ac.

Crop :- Sugarcane.**Ref :- U.P. 59(73).****Zone :- Doiwala (Dehradun, c.f.).****Type :- 'M'.**

Object :—To study the effect of N, P and K on Sugarcane.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Sugarcane. (c) N.A. (ii) Loam. (iii) N.A. (iv) CO. 527 (improved). (v) (a) N.A. (b) Trench planted. (c) 75 (3 budded) setts/ac. (d) Rows 3' apart. (e) N.A. (vi) 10 and 11.3.1959. (vii) to (ix) N.A. (x) 26.2.1960 to 6.3.1960.

2. TREATMENTS to 4. GENERAL :

Same as in expt. no. 59(74) above.

5. RESULTS :

(i) 38.64 tons/ac. (ii) 1.36 tons/ac. (iii) Treatment differences are highly significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	M_0	M_1	M_2	M_3	M_4	M_5
Av. yield	29.00	42.00	39.35	43.32	42.21	35.99

S.E./mean = 0.68 tons/ac.

Crop :- Sugarcane.**Ref :- U.P. 57(63).****Zone :- Doiwala (Dehradun, c.f.).****Type :- 'M'.**

Object :—To find out the optimum dose of N for the first ratoon crop of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Plant cane. (c) N.A. (ii) N.A. (iii) Nil. (iv) CO.S. 245 (improved). (v) (a) to (c) N.A. (d) Rows 3' apart. (e) N.A. (vi) to (ix) N.A. (x) 28 and 29.12.1957.

2. TREATMENTS :

4 levels of N : $N_0=0$, $N_1=40$, $N_2=80$ and $N_3=120$ lb./ac.
N top dressed as G.N.C. and A/S in 1 : 1 ratio.

3. DESIGN :

(i) and (ii) 4 replications in R.B.D. in one field. Block size : $88 \times 106'$. (iii) (a) $88' \times 24'$. (b) $88' \times 18'$. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Tiller count, juice analysis and yield of sugarcane. (iv) (a) and (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 16.25 tons/ac. (ii) 1.11 tons/ac. (iii) Treatment differences are highly significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	N_0	N_1	N_2	N_3
Av. yield	12.69	16.68	17.57	18.05

S.E./mean = 0.56 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 59(300).

Zone :- Baitalpur (Deoria, c.f.).

Type :- 'M'.

Object :- To study the effect of N on the yield of Sugarcane ratoon crop.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Plant cane. (c) N.A. (ii) Loam. (iii) N.A. (iv) CO.S. 510. (v) (a) to (c) N.A. (vi) N.A. (vii) Irrigated. (viii) 5 hoeings by *kassi*. (ix) N.A. (x) 11.1.1960.

2. TREATMENTS :

6 levels of N : $N_0=0$, $N_1=30$, $N_2=60$, $N_3=90$, $N_4=120$ and $N_5=150$ lb./ac.
N applied $\frac{1}{2}$ as A/S + $\frac{1}{2}$ as G.N.C.

3. DESIGN :

(i) and (ii) R.B.D. with 4 replications. (iii) (a) $41' \times 21'$. (b) $35' \times 15'$. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Sugarcane yield. (iv) (a) and (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS:

(i) 40.33 tons/ac. (ii) 4.15 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	N_0	N_1	N_2	N_3	N_4	N_5
Av. yield	36.90	37.71	41.57	41.69	42.50	41.63

S.E./mean = 2.08 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 56(481).

Zone :- Baitalpur (Deoria, c.f.).

Type :- 'M'.

Object :- To study the effect of different levels of N and P on the yield of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Fallow. (c) Nil. (ii) Sandy loam ; Baitalpur Type I—calcareous subject to inundation during rains, alkaline soils, water table high. (iii) 60 lb./ac. of N as F.Y.M., B.H.C. at 20 lb./ac. (iv) CO. 356. (v) (a) About 2 to 3 ploughings by *desi* plough. (b) Flat planting followed by earthing. (c) 1 (3 budded) sett/foot. (d) Rows 3' apart. (e) N.A. (vi) 7.3.1956. (vii) Unirrigated. (viii) About 6 to 8 hoeings and 1 earthing. (ix) and (x) N.A.

2. TREATMENTS :

All combinations of (1) and (2)

(1) 4 levels of N : $N_0=0$, $N_1=40$, $N_2=80$ and $N_3=120$ tons/ac.

(2) 3 levels of P_2O_5 ; $P_0=0$, $P_1=40$ and $P_2=80$ lb./ac.

N as A/S, $\frac{1}{2}$ dose applied on 7.3.1956 and $\frac{1}{2}$ dose applied on 10.6.1956. P_2O_5 as Super., applied on 7.3.1956. 1" to 2" below the setts.

DESIGN :

(i) and (ii) Fact. in R.B.D. with 3 replications. (iii) (a) 57.6'×21'. (b) 51.6'×15'. (iv) Yes.

GENERAL :

(i) Germination and growth good. (ii) Nil. (iii) Yield of sugarcane. (iv) (a) 1956--contd. (b) Nc. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 24.17 tons/ac. (ii) 3.31 tons/ac. (iii) Main effect of N alone is highly significant. (iv) Av. yield of sugarcane in tons/ac.

	N_0	N_1	N_2	N_3	Mean
P_0	21.54	20.69	23.78	24.88	22.72
P_1	19.49	25.14	24.48	26.84	23.99
P_2	20.88	26.00	28.05	28.24	25.79
Mean	20.64	23.94	25.44	26.65	24.17

S.E. of N marginal mean = 1.10 tons/ac.

S.E. of P marginal mean = 0.96 tons/ac.

S.E. of body of table = 1.91 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 57(513).

Zone :- Baitalpur (Deoria, c.f.).

Type :- 'M'.

Object :—To study the effect of different levels of N and P on the yield of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Fallow. (c) Nil. (ii) Baitalpur Type I—Sandy loam, calcareous subject to inundation during rains, alkaline soils, water table high. (iii) 60 lb./ac. of N as F.Y.M., B.H.C. at 20 lb./ac. (iv) CO. 356. (v) (a) About 2 to 3 ploughings by *desi* plough. (b) Flat planting followed by earthing. (c) 1 (3-budded) sett/foot. (d) Rows 3' apart. (e) N.A. (vi) 14.3.1957. (vii) Unirrigated. (viii) About 6 to 8 hoeings and 1 earthing. (ix) and (x) N.A.

2. TREATMENTS :

Same as in expt. no. 56(481) on page 1014.

N as A/S, $\frac{1}{2}$ dose applied on 14.3.1957 and $\frac{1}{2}$ dose applied on 16.8.1957.

P_2O_5 as Super, full dose applied on 14.3.1957 and 1" to 2" below the setts.

3. DESIGN :

(i) and (ii) Fact. in R B.D. with 3 replications. (iii) (a) 60.5'×18'. (b) 54.5'×12'. (iv) Yes.

4. GENERAL :

(i) Satisfactory. (ii) Nil. (iii) Yield of sugarcane. (iv)(a) 1956—contd. (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 24.06 tons/ac. (ii) 3.45 tons/ac. (iii) Main effect of N is highly significant and main effect of P is significant. (iv) Av. yield of sugarcane in tons/ac.

	N ₀	N ₁	N ₂	N ₃	Mean
P ₀	16.71	22.13	24.54	25.50	22.22
P ₁	18.24	24.06	25.96	27.05	23.83
P ₂	19.41	24.47	29.79	30.84	26.13
Mean	18.12	23.55	26.76	27.80	24.06

S.E. of N marginal mean = 1.15 tons/ac.

S.E. of P marginal mean = 1.00 tons/ac.

S.E. of body of table = 1.99 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 56(482).

Zone :- Baitalpur (Deoria, c.f.).

Type :- 'M'.

Object :—To study the effect of different levels of N and P on the yield of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Fallow in 2 expts., *moth* in 1 expt., fallow and pea in 1 expt. and pea and barley in 1 expt. (c) N.A. (ii) Sandy loam. (iii) 60 lb./ac. of N as F.Y.M. + B.H.C. at 20 lb./ac. (iv) CO. S. 443 in 4 expts. and CO. S. 416 in 1 expt. (both improved). (v) (a) About 2 to 3 ploughings by *desi* plough. (b) Flat planting followed by earthing. (c) 1 (3 budded) sett/foot. (d) Rows 3' apart. (e) N.A. (vi) 22.2.1956 to 21.3.1956. (vii) Irrigated. (viii) About 6 to 8 hoeings and 1 earthing. (ix) and (x) N.A.

2. TREATMENTS :

All combinations of (1) and (2)

(1) 4 levels of N as A/S : N₀=0, N₁=60, N₂=120 and N₃=180 lb./ac.

(2) 3 levels of P₂O₅ as super : P₀=0, P₁=40 and P₂=80 lb./ac.

Super applied 1" to 2" below the setts at the time of planting, $\frac{1}{2}$ dose of N applied at planting time and other $\frac{1}{2}$ dose of N applied in the 2nd week of June, 1956.

3. DESIGN :

(i) and (ii) 5 expts. were conducted at different places in the zone. Each expt. was conducted in R.B.D. with 3 replications. (iii) (a) N.A. (b) Varying from 1/66.61 ac. to 1/56.28 ac. (iv) Yes.

4. GENERAL :

(i) Germination % and growth was average to good in 4 expts. In one expt. germination in some plots was very poor, tillering was average and growth a bit stunted. (ii) Attack of red rot resulting in poor yield in one expt. No attack in 2 expts. (iii) Yield of sugarcane. (iv) (a) 1956—contd. (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 20.51 tons/ac. (ii) 2.70 tons/ac. (iii) Only main effect of N is highly significant. (iv) Av. yield of sugarcane in tons/ac.

	N ₀	N ₁	N ₂	N ₃	Mean
P ₀	14.24	19.87	20.85	23.59	19.64
P ₁	15.23	20.87	22.01	23.23	20.34
P ₂	17.57	22.47	23.03	23.19	21.56
Mean	15.68	21.07	21.96	23.34	20.51

S.E. of N marginal mean = 0.40 tons/ac.
 S.E. of P marginal mean = 0.35 tons/ac.
 S.E. of body of table = 0.70 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 57 (514).

Zone :- Baitalpur (Deoria, c.f.).

Type :- 'M'.

Object :—To study the effect of different levels of N and P on the yield of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Fallow in 5 expts., pea in 1 expt. and barley and pea in 1 expt. (c) N.A. (ii) Sandy loam to loamy sand. (iii) 60 lb./ac. of N as F.Y.M.+B.H.C. at 20 lb/ac. (iv) CO. S. 443 in 5 expts. CO. S. 416 in 2 expts. (improved). (v) (a) About 2 to 3 ploughings by *desi* plough. (b) Flat planting followed by earthing. (c) 1 (3 budded) sett/foot. (d) Rows 3' apart. (e) N.A. (vi) 12.3.1957 to 6.4.1957. (vii) Irrigated. (viii) About 6 to 8 hoeings and 1 earthing. (ix) and (x) N.A.

2. TREATMENTS :

Same as in expt. no. 56(482) on page 1016.

Super applied 1" to 2" below the setts at the time of planting. $\frac{1}{2}$ dose of N applied at planting time and the other $\frac{1}{2}$ dose of N applied in the 2nd week of August, 1957.

3. DESIGN :

(i) and (ii) 7 expts. were conducted at different places in the zone. In each expt. 3 replications were taken in R.B.D. (iii) (a) N.A. (b) Varying from 1/69.81 ac. to 1/59.31 ac. (iv) Yes.

4. GENERAL :

(i) Good in 4 expts., satisfactory in 1 expt., poor in 1 expt. as a portion of the field had poor growth and germination and growth patchy in some plots of 1 expt. due to the lack of moisture. (ii) Nil. (iii) Yield of sugarcane. (iv) (a) 1956—1957. (b) N.A. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 17.74 tons/ac. (ii) 3.60 tons/ac. (iii) Main effect of N is highly significant and main effect of P is significant. (iv) Av. yield of sugarcane in tons/ac.

	N ₀	N ₁	N ₂	N ₃	Mean
P ₀	14.86	17.24	16.52	19.32	16.98
P ₁	16.56	18.67	19.09	19.96	18.57
P ₂	15.46	18.33	18.38	18.52	17.67
Mean	15.63	18.08	18.00	19.27	17.74

S.E. of N marginal mean = 0.45 tons/ac.
 S.E. of P marginal mean = 0.39 tons/ac.
 S.E. of body of table = 0.79 tons/ac.

Crop :- Sugarcane.**Ref :- U.P. 58(423).****Zone :- Baitalpur (Deoria, c.f.).****Type :- 'M'.**

Object :—To study the effect of A/S and F.Y.M. on the yield of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) *Sanai*. (c) Nil. (ii) Loam. (iii) *Sanai* as G.M. (iv) CO.S. 524 (improved). (v) (a) 4 ploughings by Victory plough and 1 *palewa*. (b) Trench planting. (c) 66 (3 budded) setts/row. (d) Rows 3' apart. (e) N.A. (vi) 14 and 15.3.1958. (vii) Irrigated. (viii) 3 hoeings by *kassi*. (ix) N.A. (x) 30 and 31.3.1959.

2. TREATMENTS :

5 manurial treatments : M_0 = Control, M_1 = 120 lb./ac. of N as A/S applied in furrows at planting time of cane, M_2 = 120 lb./ac. of N as F.Y.M. applied 15 to 30 days before planting cane, M_3 = 60 lb./ac. of N as A/S and 60 lb./ac. of N as F.Y.M. mixed together and applied 15 to 30 days before planting and M_4 = 60 lb./ac. of N as F.Y.M. applied 15 to 30 days before planting and 60 lb./ac. of N as A/S in furrows at planting.

3. DESIGN :

(i) and (ii) 6 replications in R.B.D. (i) (a) 66' × 33'. (b) 60' × 27'. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Germination %, no. of tillers, millable cane, juice analysis and yield of sugarcane. (iv) (a) and (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 14.48 tons/ac. (ii) 3.36 tons/ac. (iii) Treatment differences are highly significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	M_0	M_1	M_2	M_3	M_4
Av. yield	11.03	16.85	13.78	11.43	19.29

S.E./mean = 1.37 tons/ac.

Crop :- Sugarcane.**Ref :- U.P. 59(290).****Zone :- Baitalpur (Deoria, c.f.).****Type :- 'M'.**

Object :—To study the effect of A/S and F.Y.M. on the yield of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Fallow. (c) N.A. (ii) Sandy loam. (iii) and (iv) N.A. (v) (a) 2 ploughings 1 by tractor other by *desi* plough. (b) Trench planting. (c) to (e) N.A. (vi) 13 and 19.2.1959. (vii) Irrigated. (viii) 7 hoeings by *kassi*. (ix) N.A. (x) 10 and 11.2.1960.

2. TREATMENTS :

Same as in expt. no. 58(423) above.

3. DESIGN :

(i) and (ii) R.B.D. with 4 replications. (iii) (a) 60' × 30'. (b) 54' × 24'. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of sugarcane. (iv) (a) and (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 28.18 tons/ac. (ii) 1.61 tons/ac. (iii) Treatment differences are significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	M_0	M_1	M_2	M_3	M_4
Av. yield	25.06	29.19	28.45	28.80	29.39

S.E./mean = 0.81 tons/ac.

Crop :- Sugarcane.**Ref :- U.P. 59(293).****Zone :- Baitatpur (Deoria, c.f.).****Type :- 'M'.**

Object :—To find out the efficiency of Nitrophoska green on the yield of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Fallow. (c) N.A. (ii) Clayey soil. (iii) N.A. (iv) B.O. 3. (v) (a) 4 ploughings. (b) Flat planting. (c) to (e) N.A. (vi) 19 and 20.2.1958. (viii) Irrigated. (viii) 6 hoeings. (ix) N.A. (x) 18.2.1960.

2. TREATMENTS :5 manurial treatments : M_0 =Control, M_1 =120 lb./ac. of N as A/S at planting, M_2 =120 lb./ac. of P_2O_5 as Super at planting time, $M_3=M_1+M_2$ and M_4 =120 lb./ac. of N+120 lb./ac. of P_2O_5 through Nitrophoska green.**3. DESIGN :**

(i) and (ii) R.B.D. with 4 replications. (iii) (a) 60'×18'. (b) 54'×12'. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of sugarcane. (iv) (a) and (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 18.21 tons/ac. (ii) 1.05 tons/ac. (iii) Treatment differences are highly significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	M_0	M_1	M_2	M_3	M_4
Av. yield	16.44	18.61	16.84	18.55	20.59

S.E./mean = 0.53 tons./ac.

Crop :- Sugarcane.**Ref :- U.P. 59(296).****Zone :- Bhatui (Deoria, c.f.).****Type :- 'M'.**

Object :—To study the effect of N on the yield of ratoon Sugarcane crop.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Plant cane. (c) N.A. (ii) Loam. (iii) N.A. (iv) B.O. 17. (v) (a) to (e) N.A. (vi) N.A. (vii) Irrigated. (viii) 2 hoeings by cultivator. (ix) N.A. (x) 26 and 27.12.1959.

2. TREATMENTS :6 levels of N : $N_0=0$, $N_1=30$, $N_2=60$, $N_3=90$, $N_4=120$ and $N_5=150$ lb./ac.
N applied half as A/S+ $\frac{1}{2}$ as G.N.C.**3. DESIGN :**

(i) and (ii) R.B.D. with 4 replications. (iii) (a) 40'×36'. (b) 40'×30'. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of sugarcane. (iv) (a) and (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 18.30 tons/ac. (ii) 2.66 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	N_0	N_1	N_2	N_3	N_4	N_5
Av. yield	15.97	17.93	20.78	16.75	19.27	19.13

S.E./mean = 1.33 tons/ac.

Crop :- Sugarcane.**Ref :- U.P. 54(243).****Zone :- Captainganj (Deoria, c.f.).****Type :- 'M'.**

Object :— To study the effect of Super in combination with G.M. on the yield of Sugarcane.

1. BASAL CONDITIONS :(i) (a) N.A. (b) and (c) As per treatments. (ii) *Bangar*. (iii) N.A. (iv) CO. 617. (v) (a) 6 ploughings. (b) Flat planting. (c) to (e) N.A. (vi) 23.1.1954. (vii) Irrigated. (viii) N.A. (ix) 45°. (x) 13.1.1955.**2. TREATMENTS :** T_1 =Fallow—Sugarcane, T_2 =Fallow—150 lb./ac. of P_2O_5 as Super applied 3" deep at sowing of sugarcane, T_3 =*Sanai* (G.M.), T_4 =150 lb./ac. of P_2O_5 applied to *sanai* for G.M. and T_5 =150 lb./ac. of P_2O_5 applied to sugarcane at turning of *sanai*.**3. DESIGN :**

(i) and (ii) R.B.D. with 4 replications. (iii) (a) 80'×27'. (b) 74'×21'. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of sugarcane. (iv) (a) and (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 19.19 tons/ac. (ii) 1.48 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	T_1	T_2	T_3	T_4	T_5
Av. yield	19.37	18.86	18.57	19.02	20.14

S.E./mean = 0.74 tons/ac.

Crop :- Sugarcane.**Ref :- U.P. 59(289).****Zone :- Captainganj (Deoria, c.f.).****Type :- 'M'.**

Object :— To study the effect of F.Y.M. and A/S on the yield of Sugarcane.

1. BASAL CONDITIONS :(i) (a) N.A. (b) Paddy, (c) N.A. (ii) *Bangar*. (iii) N.A. (iv) CO.S. 524. (v) (a) N.A. (b) Trench planting. (c) to (e) N.A. (vi) 10.2.1959. (vii) to (ix) N.A. (x) 5 and 6.2.1960.**2. TREATMENTS :**

Same as in expt. no. 58(423) on page 1018.

3. DESIGN :

(i) and (ii) R.B.D. with 4 replications. (iii) (a) 60'×27'. (b) 60'×21'. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of sugarcane. (iv) (a) and (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 17.05 tons/ac. (ii) 2.21 tons/ac. (iii) Treatment differences are highly significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	M_0	M_1	M_2	M_3	M_4
Av. yield	12.14	16.11	18.81	17.74	20.44

S.E./mean = 1.10 tons/ac.

Crop :- Sugarcane.**Ref :- U.P. 59(273).****Zone :- Chitauni (Deoria, c.f.).****Type :- 'M'.**

Object :—To improve the conditions of ratoon Sugarcane crop.

1. BASAL CONDITIONS :(i) (a) N.A. (b) Plant cane. (c) N.A. (ii) *Bhat* soil. (iii) N.A. (iv) CO. S. 524. (v) (a) N.A. (b) Flat planting. (c) to (e) N.A. (vi) to (ix) N.A. (x) 31.12.1959 to 1.1.1960.**2. TREATMENTS :**

Same as in expt. no. 59(296) on page 1019.

3. DESIGN :

(i) and (ii) R.B.D. with 4 replications. (iii) (a) N.A. (b) 80'×21'. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of sugarcane. (iv) (a) and (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 4.10 tons/ac. (ii) 1.14 tons/ac. (iii) Treatment differences are significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	N ₀	N ₁	N ₂	N ₃	N ₄	N ₅
Av. yield	2.64	3.34	3.67	4.26	5.04	5.62

S.E./mean = 0.54 tons/ac.

Crop :- Sugarcane.**Ref :- U.P. 59(287).****Zone :- Chitauni (Deoria, c.f.).****Type :- 'M'.**

Object :—To study the effect of F.Y.M. and A/S on the yield of Sugarcane.

1. BASAL CONDITIONS :(i) (a) N.A. (b) Fallow. (c) N.A. (ii) *Bhat* soil. (iii) and (iv) N.A. (v) (a) N.A. (b) Flat planting with spade. (c) to (e) N.A. (vi) 20.2.1959. (vii) to (ix) N.A. (x) 2 to 4.2.1960.**2. TREATMENTS :**

Same as in expt. no. 58(423) on page 1018.

3. DESIGN :

(i) and (ii) R.B.D. with 4 replications. (iii) (a) 80'×24'. (b) 80'×16'. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of sugarcane. (iv) (a) and (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 27.60 tons/ac. (ii) 2.04 tons/ac. (iii) Treatment differences are highly significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	M ₀	M ₁	M ₂	M ₃	M ₄
Av. yield	19.67	23.12	31.03	30.63	33.53

S.E./mean = 1.02 tons/ac.

Crop :- Sugarcane.**Ref :- U.P. 58(422).****Zone :- Deoria (Deoria, c.f.).****Type :- 'M'.**

Object :—To study the effect of F.Y.M. and A/S on the yield of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) *Sanai*. (c) Nil. (ii) Sandy loam. (iii) *Sanai* as G.M. (iv) B.O. 10 (improved). (v) (a) 2 ploughings and 1 harrowing. (b) Trench planting. (c) 66 (3 budded) setts/row. (d) Rows 3' apart. (e) N.A. (vi) 25 and 26.2.1958. (vii) Irrigated. (viii) 3 hoeings. (ix) and (x) N.A.

2. TREATMENTS :

Same as in expt. no. 58(423) on page 1018.

3. DESIGN :

(i) and (ii) R.B.D. 6 replications. (iii) (a) 66' × 36'. (b) 60' × 30'. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Germination %, tiller count, millable cane, juice analysis and yield of cane. (iv) (a) and (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

2. RESULTS :

(i) 20.48 tons/ac. (ii) 2.29 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	M ₀	M ₁	M ₂	M ₃	M ₄
Av. yield	18.91	18.98	21.51	21.24	21.74

S.E./mean = 0.93 tons/ac.

Crop :- Sugarcane.

Zone :- Deoria (Deoria, c.f.).

Ref :- U.P. 59(297).

Type :- 'M'.

Object :—To study the effect of N on the yield of ratoon Sugarcane crop.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Plant cane. (c) N.A. (ii) Sandy loam. (iii) N.A. (iv) B.O. 17. (v) and (vi) N.A. (vii) Irrigated. (viii) 5 hoeings. (ix) N.A. (x) 7 and 8.1.1960.

2. TREATMENTS :

Same as in expt. no. 59(296) on page 1019.

3. DESIGN :

(i) and (ii) R.B.D. with 4 replications. (iii) (a) 60' × 18'. (b) 54' × 12'. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of sugarcane. (iv) (a) and (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 20.14 tons/ac. (ii) 3.04 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	N ₀	N ₁	N ₂	N ₃	N ₄	N ₅
Av. yield	19.28	20.26	20.42	19.55	21.81	19.51

S.E./mean = 1.52 tons/ac.

Crop :- Sugarcane.

Zone :- Gauri Bazar (Deoria, c.f.).

Ref :- U.P. 57(322).

Type :- 'M'.

Object :—To study the effect of A/S in contrast to A/C on Sugarcane.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Loam. (iii) N.A. (iv) CO.S. 416. (v) (a) to (e) N.A. (vi) 10.3.1957. (vii) to (x) N.A.

2. TREATMENTS :

3 manurial treatments : M_0 =Control, M_1 =60 lb./ac. of N as A/S and M_2 =60 lb./ac. of N as A/C.

3. DESIGN :

(i) and (ii) R.B.D. with 6 replications. (iii) (a) 66'×33'. (b) 60'×27'. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Sugarcane yield. (iv) (a) and (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 12.12 tons/ac. (ii) 1.15 tons/ac. (iii) Treatment differences are highly significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	M_0	M_1	M_2
Av. yield	10.43	12.41	13.52

S.E./mean = 0.47 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 59(302).

Zone :- Gauri Bazar (Deoria, c.f.).

Type :- 'M'.

Object :- To study the effect of N on the yield of ratoon Sugarcane crop.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Plant cane. (c) N.A. (ii) Loam. (iii) N.A. (iv) B.O. 17. (v) and (vi) N.A. (vii) Irrigated. (viii) 5 hoeings by *kassi*. (ix) N.A. (x) 27.12.1959.

2. TREATMENTS :

6 levels of N : $N_0=0$, $N_1=30$, $N_2=60$, $N_3=90$, $N_4=120$ and $N_5=150$ lb./ac.
N applied $\frac{1}{2}$ as A/S + $\frac{1}{2}$ as castor cake.

3. DESIGN :

(i) and (ii) R.B.D. with 4 replications. (iii) (a) 61'×24'. (b) 55'×18'. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of sugarcane. (iv) (a) and (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 16.77 tons/ac. (ii) 0.73 tons/ac. (iii) Treatment differences are highly significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	N_0	N_1	N_2	N_3	N_4	N_5
Av. yield	10.89	13.32	15.81	18.91	19.48	22.21

S.E./mean = 0.36 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 58(418).

Zone :- Gauri Bazar (Deoria, c.f.).

Type :- 'M'.

Object :- To study the effect of A/S and F.Y.M. on the yield of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Fallow. (c) Nil. (ii) Loam. (iii) N.A. (iv) CO.S. 524 (improved). (v) (a) 1ploughing by tractor and 3 tractor disc harrowings. (b) Trench planting. (c) 66 (3 budded) setts/row. (d) Rows 3' apart. (e) N.A. (vi) 2.3.1958. (vii) Irrigated. (viii) 10 hoeings and 1 earthing. (ix) N.A. (x) 19 and 20.2.1959.

2. TREATMENTS to 4. GENERAL :

Same as in expt. no. 58(423) on page 1018.

5. RESULTS :

(i) 15.17 tons/ac. (ii) 1.00 tons/ac. (iii) Treatment differences are highly significant. (iv) Av yield of sugarcane in tons/ac.

Treatment	M ₀	M ₁	M ₂	M ₃	M ₄
Av. yield	12.53	15.22	14.75	16.92	16.45

S.E./mean = 0.41 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 55(225).

Zone :- Gauri Bazar (Deoria, c.f.).

Type :- 'M'.

Object :—To study the effect of Super in combination with G.M. on the yield of Sugarcane crop.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) and (c) As per treatments. (ii) Sandy loam. (iii) 80 lb./ac. of N as press mud+40 lb./ac. of N as A/S. (iv) CO. S 416. (v) (a) 1 ploughing and 2 harrowings by tractor. (b) Trench planting. (c) to (e) N.A. (vi) 26.1.1955. (vii) Irrigated. (viii) 5 hoeings by *kudali* and 1 earthing. (ix) N.A. (x) 23.3.1956.

2. TREATMENTS :

Same as in expt. no. 54(243) on page 1020.

3. DESIGN :

(i) and (ii) R.B.D. with 3 replications. (iii) (a) 80'×21'. (b) 74'×15'. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of sugarcane. (iv) (a) and (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 18.42 tons/ac. (ii) 1.62 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	T ₁	T ₂	T ₃	T ₄	T ₅
Av. yield	17.29	18.53	18.74	17.26	20.30

S.E./mean = 0.93 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 56(245).

Zone :- Khadda (Deoria, c.f.).

Type :- 'M'.

Object :—To compare the effects of A/S and A/C on the yield of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Paddy. (c) N.A. (ii) *Bhat* soil. (iii) Compost at 60 md./ac.+*Neem* cake at 5 mds./ac. Mixture of A/S+*Neem* cake in ratio of 3 : 50 top dressed at 4 mds./ac. (iv) CO. S. 443. (v) (a) 3 ploughings by tractor and 3 ploughings by *desi* plough. (b) to (e) N.A. (vi) 24.2.1956. (vii) N.A. (viii) 3 hoeings by *kudali*. (ix) and (x) N.A.

2. TREATMENTS :

3 manurial treatments : M₀=No manure, M₁=N at 60 lb./ac. as A/S top dressed and M₂=N at 60 lb./ac. as A/C top dressed.

3. DESIGN :

(i) and (ii) R.B.D. with 6 replications. (iii) (a) 78'×27'. (b) 72'×21'. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of sugarcane. (iv) (a) and (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 16.78 tons/ac. (ii) 1.71 tons/ac. (iii) Treatment differences are significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	M ₀	M ₁	M ₂
Av. yield	14.97	18.26	17.10

S.E./mean = 0.70 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 58(415).

Zone :- Khadda (Deoria, c.f.).

Type :- 'M'.

Object :—To study the effect of different organic and inorganic manures on the yield of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Fallow. (c) Nil. (ii) *Bhat* soil. (iii) 100 mds./ac. of F.Y.M. (iv) CO.S. 416 (improved). (v) (a) 2 ploughings by tractor and 5 ploughings by Gujar plough. (b) Flat planting. (c) 76 (3 budded) setts/row. (d) Rows 3' apart. (e) N.A. (vi) 18.2.1958. (vii) N.A. (viii) 3 hoeings by *kudali*. (ix) N.A. (x) 10.1.1959.

2. TREATMENTS :

7 sources of 60 lb./ac. of N : S₀=Control (no N), S₁=A/C, S₂=A/S, S₃=A/S/N, S₄=Urea, S₅=Fish meal and S₆=Neem cake.

3. DESIGN :

(i) and (ii) R.B.D. with 4 replications. (iii) (a) 75'×27'. (b) 69'×21'. (iv) Yes.

4. GENERAL :

(i) Germination was very poor. (ii) N.A. (iii) Germination %, tiller count, millable canes and yield of sugarcane. (iv) (a) and (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 9.44 tons/ac. (ii) 3.91 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	S ₀	S ₁	S ₂	S ₃	S ₄	S ₅	S ₆
Av. yield	8.03	8.82	9.34	9.62	11.03	10.39	8.85

S.E./mean = 1.96 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 59(285).

Zone :- Khadda (Deoria, c.f.).

Type :- 'M'.

Object :—To study the effect of F.Y.M. and A/S on the yield of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Paddy. (c) N.A. (ii) *Bhat* soil. (iii) N.A. (iv) CO. S. 524. (v) (a) N.A. (b) Flat planting. (c) to (e) N.A. (vi) 20.2.1959. (vii) to (ix) N.A. (x) 10.3.1960.

2. TREATMENTS :

5 manurial treatments : M₀=Control, M₁=120 lb./ac. of N as A/S at planting time, M₂=120 lb./ac. of N as F.Y.M. 15 to 30 days before planting, M₃=120 lb./ac. of N half as F.Y.M. and half as A/S 15 to 30 days before planting and M₄=60 lb./ac. of N as F.Y.M. 15 to 30 days before planting+60 lb./ac. of N as A/S at planting time.

3. DESIGN :

(i) and (ii) R.B.D. with 6 replications. (iii) (a) 80'×27'. (b) 80'×21'. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of sugarcane. (iv) (a) and (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 11.94 tons/ac. (ii) 1.40 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	M ₀	M ₁	M ₂	M ₃	M ₄
Av. yield	10.93	13.19	11.70	11.72	12.16

S.E./mean = 0.57 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 59(271).

Zone :- Khadda (Deoria, c.f.).

Type :- 'M'.

Object :—To study the effect of N on the yield of ratoon Sugarcane crop.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Plant cane. (c) N.A. (ii) *Bhat* soil. (iii) N.A. (iv) CO.S. 109. (v) (a) N.A. (b) Flat planting. (c) to (e) N.A. (vi) to (ix) N.A. (x) 21 and 22.12.1959.

2. TREATMENTS :

6 levels of N : N₀=0, N₁=30, N₂=60, N₃=90, N₄=120 and N₅=150 lb./ac.

N applied $\frac{1}{2}$ as A/S + $\frac{1}{2}$ as cake.

3. DESIGN :

(i) and (ii) R.B.D. with 4 replications. (iii) (a) 44'×30'. (b) 44'×24'. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of sugarcane. (iv) (a) and (b) No. (c) Nil. (v) (a) and (b) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 16.43 tons/ac. (ii) 3.19 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	N ₀	N ₁	N ₂	N ₃	N ₄	N ₅
Av. yield	13.40	15.12	17.03	16.44	17.24	19.37

S.E./mean = 1.60 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 59(265).

Zone :- Lakshmiganj (Deoria, c.f.).

Type :- 'M'.

Object :—To study the effect of N on the yield of ratoon Sugarcane crop.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Plant cane. (c) N.A. (ii) *Bangar*. (iii) N.A. (iv) CO. S. 356. (v) and (vi) N.A. (vii) Irrigated. (viii) 3 hoeings. (ix) N.A. (x) 25.12.1959.

2. TREATMENTS :

Same as in expt. no. 59(271) above.

3. DESIGN :

(i) and (ii) R.B.D. with 4 replications. (iii) (a) 70'×21'. (b) 70'×15'. (iv) Yes,

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of sugarcane. (iv) (a) and (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 15.92 tons/ac. (ii) 1.36 tons/ac. (iii) Treatment differences are highly significant. (iv) Av. yield of sugarcane in tons/ac.

Treatmen	N ₀	N ₁	N ₂	N ₃	N ₄	N ₅
Av. yield	10.94	13.39	15.04	17.37	17.93	20.88

S.E./mean = 0.68 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 58(411).

Zone :- Purtabpur (Deoria, c.f.).

Type :- 'M'.

Object :—To study the efficiency of Aldrinised A/S over A/S for Sugarcane.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) *Sanai*. (c) Nil. (ii) *Bhat* soil. (iii) *Sanai* as G.M. (iv) BO. 17 (improved). (v) (a) 5 ploughings by tractor. (b) Flat planting. (c) 50 (3 budded) setts/row. (d) Rows 3' apart. (e) N.A. (vi) 3.4.1958. (vii) Irrigated. (viii) 4 hoeings by cultivator. (ix) N.A. (x) 25 and 26.2.1959,

2. TREATMENTS :

5 manurial treatments: T₀=Control, T₁=40 lb./ac. of N as Aldrinised A/S+1 lb./ac. of active Aldrin in furrows at planting, T₂=40 lb./ac. of N as A/S+1 lb./ac. of Aldrin to be applied one after other in furrows at planting, T₃=40 lb./ac. of N as A/S at planting and T₄=1 lb./ac. of Aldrin at planting.

3. DESIGN :

(i) and (ii) 4 replications in R.B.D. (iii) (a) 50'×27'. (b) 44'×21'. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Germination %, no. of tillers, millable cane, juice analysis and yield of sugarcane. (iv) (a) and (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 22.72 tons/ac. (ii) 2.09 tons/ac. (iii) Treatment differences are highly significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄
Av. yield	17.01	23.71	25.07	23.81	24.01

S.E./mean = 1.04 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 56(247).

Zone :- Ramkola (Deoria, c.f.).

Type :- 'M'.

Object :—To study the effect of A/S in contrast of A/C on Sugarcane.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Fallow. (c) Nil. (ii) *Bhat* soil. (iii) 100 mds./ac. of F.Y.M. 9 mds./ac. of castor cake and 23 lb./ac. of Gammexane. (iv) CO.S. 443. (v) (a) 3 ploughings by Gujar plough. 8 ploughings by *desi* plough and 1 harrowing by tractor. (b) Flat planting behind country plough in straight lines. (c) to (e) N.A. (vi) 17.3.1956. (vii) Unirrigated. (viii) Hoeings by *kudali*. (ix) 45". (x) 13.3.1957.

2. TREATMENTS :

3 manurial treatments : M_0 =Control, M_1 =60 lb./ac. of N as A/S and M_2 =60 lb./ac. of N as A/C.

3. DESIGN :

(i) and (ii) R.B.D. with 6 replications. (iii) (a) 73'×27'. (b) 67'×21'. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of sugarcane. (iv) (a) and (b) No. (c) Nil. (v) N.A. (vi) and (vi) Nil.

5. RESULTS :

(i) 17.74 tons/ac. (ii) 2.16 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	M_0	M_1	M_2
Av. yield	16.56	18.03	18.62

S.E./mean = 0.88 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 59(269).

Zone :- Ramkola Punjab (Deoria, c.f.).

Type :- 'M'.

Object :—To study the efficiency of Aldrinised A/S over A/S for Sugarcane crop.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Paddy. (c) N.A. (ii) *Bhat* soil. (iii) 150 mds./ac. of F.Y.M. (iv) CO. 395. (v) (a) 12 ploughings. (b) Flat planting. (c) to (e) N.A. (vi) 4.3.1959. (vii) N.A. (viii) 5 hoeings by *kudali* and 1 earthing by spade. (ix) N.A. (x) 26.3.1960.

2. TREATMENTS to 4. GENERAL :

Same as in expt. no. 58(411) on page 1027.

5. RESULTS :

(i) 20.71 tons/ac. (ii) 2.57 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	T_0	T_1	T_2	T_3	T_4
Av. yield	18.55	22.43	21.33	19.78	21.45

S.E./mean = 1.28 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 59(270).

Zone :- Ramkola Khetan (Deoria, c.f.).

Type :- 'M'.

Object :—To find out the efficiency of Aldrinised A/S over A/S for Sugarcane crop.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Paddy. (c) N.A. (ii) *Bangar*. (iii) 150 mds./ac. of F.Y.M. (iv) B.O.—10. (v) (a) 10 ploughings. (b) Flat planting with plough. (c) to (e) N.A. (vi) 3.3.1959. (vii) Irrigated. (viii) to (x) N.A.

2. TREATMENTS to 4. GENERAL :

Same as in expt. no. 58(411) on page 1027.

5. RESULTS :

(i) 11.88 tons/ac. (ii) 3.16 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄
Av. yield	11.77	11.85	12.07	11.56	12.15

S.E./mean = 1.58 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 59(259).

Zone :- Ramkola Punjab (Deoria, c.f.).

Type :- 'M'.

Object :—To find out the efficiency of Nitrophoska (green) over Super along with N.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Paddy. (c) N.A. (ii) *Bhat* soil. (iii) N.A. (iv) CO.S. 510. (v) (a) 10 ploughings. (b) Flat planting. (c) to (e) N.A. (vi) 5.3.1959. (vii) N.A. (viii) 4 hoeings. (ix) N.A. (x) 23.2.1960.

2. TREATMENTS :

5 manurial treatments : M₀=Control, M₁=120 lb./ac. of N as A/S at planting, M₂=120 lb./ac. of P₂O₅ as Super at planting, M₃=120 lb./ac. of N as A/S+120 lb./ac. of P₂O₅ as Super at planting and M₄=120 lb./ac. of N+120 lb./ac. of P₂O₅ through Nitrophoska (green).

3. DESIGN :

(i) and (ii) R.B.D. with 4 replications. (iii) (a) 60'×30'. (b) 54'×27'. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of sugarcane. (iv) (a) and (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 16.13 tons/ac. (ii) 2.04 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	M ₀	M ₁	M ₂	M ₃	M ₄
Av. yield	16.19	15.46	16.10	17.10	15.79

S.E./mean = 1.02 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 54(244).

Zone :- Seorahi (Deoria, c.f.).

Type :- 'M'.

Object :—To study the effect of Super in combination with G.M. on the yield of Sugarcane crop.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) and (c) As per treatments. (ii) *Bhat* soil. (iii) 20 mds./ac. of A/S. (iv) CO. 356. (v) (a) 3 ploughings. (b) Flat planting. (c) to (e) N.A. (vi) 1.2.1954. (vii) N.A. (viii) 6 hoeings by *kudali* and 1 earthing by spade. (ix) 45°. (x) 30 and 31.12.1954.

2. TREATMENTS :

5 manurial treatments : T₁=Fallow—Sugarcane, T₂=Fallow—150 lb./ac. of P₂O₅ as Super applied 3" deep at sowing of sugarcane, T₃=*Sanai* (G.M.), T₄=150 lb./ac. of P₂O₅ applied to *sanai* for green manuring and T₅=150 lb./ac. of P₂O₅ applied to sugarcane at turning in of *sanai*.

3. DESIGN :

(i) and (ii) R.B.D. with 4 replications. (iii) (a) 80'×27'. (b) 74'×21'. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of sugarcane. (iv) (a) and (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 9.58 tons/ac. (ii) 1.21 tons/ac. (iii) Treatment differences are highly significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	T ₁	T ₂	T ₃	T ₄	T ₅
Av. yield	7.42	9.38	8.46	11.39	11.23

S.E./mean = 0.60 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 55(227).

Zone :- Seorahi (Deoria, c.f.).

Type :- 'M'.

Object :— To study the effect of Super in combination with G.M.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) and (c) As per treatments. (ii) *Bhat* soil. (iii) Nil. (iv) B.O. 10. (v) (a) N.A. (b) Flat planting. (c) to (e) N.A. (vi) 5.3.1955. (vii) Irrigated. (viii) 2 hoeings. (ix) N.A. (x) 15.2.1956.

2. TREATMENTS to 4. GENERAL :

Same as in expt. no. 54(244) on page 1029.

5. RESULTS :

(i) 14.83 tons/ac. (ii) 1.18 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	T ₁	T ₂	T ₃	T ₄	T ₅
Av. yield	15.25	15.38	14.99	14.96	13.55

S.E./mean = 0.59 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 56(246).

Zone :- Seorahi (Deoria, c.f.).

Type :- 'M'.

Object :— To study the effect of Super in combination with G.M. on the yield of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) As per treatments. (c) N.A. (ii) *Bhat* soil. (iii) N.A. (iv) CO.S. 416. (v) (a) 3 ploughings and 3 harrowings by tractor. (b) Flat planting. (c) N.A. (d) Rows 3' apart. (e) N.A. (vi) 10.2.1956. (vii) N.A. (viii) 3 hoeings. (ix) and (x) N.A.

2. TREATMENTS to 4. GENERAL :

Same as in expt. no. 55(227) above.

5. RESULTS :

(i) 13.75 tons/ac. (ii) 1.66 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	T ₁	T ₂	T ₃	T ₄	T ₅
Av. yield	14.13	13.96	13.74	14.00	12.94

S.E./mean = 0.83 tons/ac.

Crop :- Sugarcane.**Ref :- U.P. 58(419).****Zone :- Seorahi (Deoria, c.f.).****Type :- 'M'.**

Object :— To study the effect of F.Y.M. and A/S on the yield of Sugarcane.

1. BASAL CONDITIONS :(i) (a) N.A. (b) *Sanai*. (c) N.A. (ii) *Bhat* soil. (iii) *Sanai* as G.M. (iv) Co.S. 416 (improved). (v) (a) 4 ploughings by tractor. (b) Flat planing. (c) 73 (3 budded) setts/row. (d) Rows 3' apart. (e) N.A. (vi) 19.2.1958. (vii) Irrigated. (viii) 3 hoeings. (ix) N.A. (x) 30.12.1958.**2. TREATMENTS :**

Same as in expt. no. 59(285) on page 1027.

3. DESIGN :

(i) and (ii) 4 replications in R.B.D. (iii) (a) 73'×24'. (b) 67'×18'. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Germination %, tillers count, millable cane and yield of sugarcane. (iv) (a) and (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 12.75 tons/ac. (ii) 3.08 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	M ₀	M ₁	M ₂	M ₃	M ₄
Av. yield	12.84	10.10	12.58	15.22	12.99

S.E./mean = 1.54 tons/ac.

Crop :- Sugarcane.**Ref :- U.P. 59(272).****Zone :- Seorahi (Deoria, c.f.).****Type :- 'M'.**

Object :—To find out efficiency of Aldrinised A/S over A/S for Sugarcane.

1. BASAL CONDITIONS :(i) (a) N.A. (b) *Sanai*. (c) N.A. (ii) *Bhat* soil. (iii) 20 lb./ac. of N as press mud. (iv) Bo. 10. (v) (a) 6 ploughings by tractor. (b) to (e) N.A. (vi) 22.3.1959. (vii) Irrigated. (viii) 3 hoeings. (ix) N.A. (x) 30.3.1960.**2. TREATMENTS :**

Same as in expt. no. 58(411) on page 1027.

3. DESIGN :

(i) and (ii) R.B.D. with 4 replications. (iii) (a) N.A. (b) 74'×15'. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of sugarcane. (iv) (a) and (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 19.63 tons/ac. (ii) 1.83 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄
Av. yield	18.37	21.18	19.00	20.18	19.41

S.E./mean = 0.92 tons/ac.

Crop :- Sugarcane.**Ref :- U.P. 54(246).****Zone :- Gorakhpur (Deoria, c.f.).****Type :- 'M'.**

Object :—To study the response of Super in combination with G.M.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) and (c) As per treatments. (ii) Clayey loam. (iii) N.A. (iv) Co.S. 416. (v) (a) 1 ploughing by tractor and 2 harrowings by tractor. (b) Trench planting. (c) to (e) N.A. (vi) 25.1.1954. (vii) Irrigated. (viii) 4 hoeings. (ix) N.A. (x) 20.3.1955.

2. TREATMENTS :

Same as in expt. no. 55(227) on page 1030.

3. DESIGN :

(i) and (ii) R.B.D. with 4 replications. (iii) (a) 80' × 21'. (b) 74' × 15'. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of sugarcane. (iv) (a) and (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 28.31 tons/ac. (ii) 1.21 tons/ac. (iii) Treatment differences are highly significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	T ₁	T ₂	T ₃	T ₄	T ₅
Av. yield	28.49	27.18	27.07	30.70	28.11

S.E./mean = 0.61 tons/ac.

Crop :- Sugarcane.**Ref :- U.P. 55(224).****Zone :- Padrauna (Deoria, c.f.).****Type :- 'M'.**

Object :—To study the effect of super in combination with G.M. on the yield of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) and (c) As per treatments. (ii) *Bangar* soil. (iii) *Neem* cake at 10 mds/ac. and A/S at 2 mds./ac. (iv) Co. 443. (v) (a) 5 ploughings. (b) Flat planting. (c) to (e) N.A. (vi) 16.1.1955. (vii) Irrigated. (viii) 8 hoeings. (ix) N.A. (x) 16 to 25.3.1956.

2. TREATMENTS :

Same as in expt. no. 55(227) on page 1030.

3. DESIGN :

(i) and (ii) R.B.D. with 4 replications. (iii) (a) 75' × 21'. (b) 69' × 15'. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of sugarcane. (iv) (a) and (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 27.36 tons/ac. (ii) 1.29 tons/ac. (iii) Treatment differences are significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	T ₁	T ₂	T ₃	T ₄	T ₅
Av. yield	25.51	28.34	28.56	27.49	26.91

S.E./mean = 0.65 tons/ac.

Crop :- Sugarcane.**Ref :- U.P. 59(286).****Zone :- Padrauna (Deoria, c.f.).****Type :- 'M'.**

Object :—To study the effect of F.Y.M. and A/S on the yield of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Paddy. (c) N.A. (ii) *Bangar* soil. (iii) N.A. (iv) Co.S. 109. (v) (a) 6 ploughings by *desi* plough and 6 harrowings. (b) Trench planting. (c) to (e) N.A. (vi) 23.2.1959. (vii) Irrigated. (viii) and (ix) N.A. (x) 25.12.1959.

2. TREATMENTS :

Same as in expt. no. 59(285) on page 1025.

3. DESIGN :

(i) and (ii) R.B.D. with 4 replications. (iii) (a) 75'×24'. (b) 75'×18'. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of sugarcane. (iv) (a) and (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 25.58 tons/ac. (ii) 2.08 tons/ac. (iii) Treatment differences are highly significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	M ₀	M ₁	M ₂	M ₃	M ₄
Av. yield	21.56	24.65	27.60	27.27	26.83

S.E./mean = 1.04 tons/ac.

Crop :- Sugarcane.**Ref :- U.P. 56(302).****Zone :- Neoli (Etah, c.f.).****Type :- 'M'.**

Object :—To study the effect of different doses and methods of application of Super on the yield of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Sandy loam. (iii) to (vi) N.A. (vii) Irrigated. (viii) and (ix) N.A. (x) 9 to and 24.1.1957.

2. TREATMENTS :

All combinations of (1) and (2)+a control

(1) 2 levels of P₂O₅ as Super : P₁=60 and P₂=120 lb./ac.(2) 2 methods of application : M₁=Broadcast before planting and M₂=Applied in furrows 4" deep at planting.**3. DESIGN :**

(i) and (ii) 6 replications in R.B.D. (iii) (a) and (b) N.A. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Germination %, yield of sugarcane and juice analysis. (iv) (a) and (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 21.18 tons/ac. (ii) 4.54 tons/ac. (iii) None of the effects is significant. (iv) Av. yield of sugarcane in tons/ac.

Control = 18.96 tons/ac.

	M ₁	M ₂	Mean
P ₁	21.89	21.93	21.91
P ₂	22.15	20.98	21.56
Mean	22.02	21.46	21.74

S.E. of any marginal mean = 1.31 tons/ac.

S.E. of body of table = 1.85 tons/ac.

Crop :- Sugarcane.**Ref :- U.P. 59(319).****Zone :- Neoli (Etah, c.f.).****Type :- 'M'.**

Object :- To study the effect of different organic and inorganic manures on the yield of Sugarcane.

1. BASAL CONDITIONS :(i) (a) N.A. (b) *Dhaincha*. (c) Nil. (ii) Sandy. (iii) 60 lb./ac. of N as G.M. (iv) Co.S. 5:0. (v) (a) 10 ploughings, 1 harrowing and 2 earthings. (b) to (e) N.A. (vi) 8, 10, 2.1959. (vii) Irrigated. (viii) to (x) N.A.**2. TREATMENTS :**6 sources of 60 lb./ac. of N : S₀=Control (no manure), S₁=A/C, S₂=A/S, S₃=Urea, S₄=Blood meal and S₅=N.C.**3. DESIGN :**

(i) and (ii) R.B.D. with 5 replications. (iii) (a) 72' × 21'. (b) 66' × 15'. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Sugarcane yield. (iv) (a) 1956—1959. (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 18.61 tons/ac. (ii) 4.02 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	S ₀	S ₁	S ₂	S ₃	S ₄	S ₅
Av. yield	15.53	21.09	19.06	18.26	15.72	21.01

S.E./mean = 1.80 tons/ac.

Crop :- Sugarcane.**Ref :- U.P. 56(279).****Zone :- Neoli (Etah, c.f.).****Type :- 'M'.**

Object :- To study the effect of A/C and A/S on the yield of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Sandy loam. (iii) N.A. (iv) Improved. (v) and (vi) N.A. (vii) Irrigated. (viii) and (ix) N.A. (x) 19 to 22.3.1957.

2. TREATMENTS :3 sources of 60 lb./ac. of N : S₀=Control (No N), S₁=A/C and S₂=A/S.**3. DESIGN :**

(i) and (ii) 6 replications in R.B.D. (iii) (a) N.A. (b) 58' × 15'. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of sugarcane and juice analysis. (iv) (a) and (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

4. RESULTS :

(i) 22.77 tons/ac. (ii) 3.50 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	S ₀	S ₁	S ₂
Av. yield	22.14	20.51	25.65

S.E./mean = 1.43 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 57(183).

Zone :- Neoli (Etah, c.f.).

Type :- 'M'.

Object:—To study the effect of A/S and F.Y.M. on the yield of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) *Sanai*. (c) N.A. (ii) *Domat* soil. (iii) N.A. (iv) Co. S. 510. (v) (a) 7 plougings with tractor. (b) Flat planting. (c) to (e) N.A. (vi) 1 and 2.3.1957. (vii) Irrigated. (viii) 1 harrowing and 5 hoeings. (ix) and (x) N.A.

2. TREATMENTS :

Same as in expt. no. 59(285) on page 1025.

3 DESIGN :

(i) and (ii) R.B.D. with 4 replications. (iii) (a) 73'×24'. (b) 67'×18'. (iv) Yes.

4 GENERAL :

(i) and (ii) N.A. (iii) Yield of sugarcane. (iv) (a) and (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5 RESULTS :

(i) 22.11 tons/ac. (ii) 2.54 tons/ac. (iii) Treatment differences are significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	M ₀	M ₁	M ₂	M ₃	M ₄
Av. yield	18.78	21.11	25.69	21.81	23.15

S.E./mean = 1.27 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 58(278).

Zone :- Neoli (Etah, c.f.).

Type :- 'M'.

Object:—To study the effect of A/S and F.Y.M. on the yield of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Cotton. (c) N.A. (ii) Sandy *domat*. (iii) Nil. (iv) Co.S. 510. (v) (a) 4 plougings by tractor. Ploughing by *deshi* plough. (b) to (e) N.A. (vi) 25.2.1958. (vii) Irrigated. (viii) 4 hoeings. (ix) N.A. (x) 14.3.1959.

2. TREATMENTS :

Same as in expt. no. 59(285) on page 1025.

3. DESIGN :

(i) and (ii) R.B.D. with 6 replications. (iii) (a) 72'×24'. (b) 68'×18'. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of sugarcane. (iv) and (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 23.91 tons/ac. (ii) 20.3 tons/ac. (iii) Treatment differences are highly significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	M ₀	M ₁	M ₂	M ₃	M ₄
Av. yield	21.40	26.41	21.61	24.31	25.81

S.E./mean = 0.83 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 57(258).

Zone :- Neoli (Etah, c.f.).

Type :- 'M'.

Object :—To study the effect of N applied in two different forms on the yield of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) N.A. (iii) 60 lb./ac. of N as G.M. (iv) to (x) N.A.

2. TREATMENTS :

4 sources of 60 lb./ac. of N : S₀=0, S₁=A/S, S₂=A/C and S₃=Urea.

3. DESIGN :

(i) and (ii) R.B.D. with 6 replications. (iii) (a) N.A. (b) 58' × 15'. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of sugarcane. (iv) and (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 20.49 tons/ac. (ii) 3.19 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	S ₀	S ₁	S ₂	S ₃
Av. yield	19.69	20.89	20.52	20.73

S.E./mean = 1.30 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 59(196).

Zone :- Bhuiyanpur (Etawah, c.f.).

Type :- 'M'.

Object :—To study the effect of different sources of N with and without Super on the yield of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Paddy. (c) N.A. (ii) Loam. (iii) 60 lb./ac. of N as F.Y.M. (iv) N.A. (v) (a) N.A. (b) Flat planting. (c) 75 (3 budded) setts/row. (d) Rows 3' apart. (e) N.A. (vi) 7.3.1959. (vii) to (ix) N.A. (x) 11.1.1960.

2. TREATMENTS :

Main-plot treatments :

5 sources of 60 lb./ac. of N+one control : S₀=Control, S₁=A/S, S₂=A/S/N, S₃=A/C, S₄=Urea and S₅=Oil cake.

Sub-plot treatments :

2 levels of P₂O₅ as Super : P₀=0 and P₁=60 lb./ac.

3. DESIGN :

(i) and (ii) Split-plot ; 6 main-plots/replication, 2 sub-plots/main-plot with 2 replications. (iii) (a) 66' × 15'. (b) 60' × 9'. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Germination %, no. of shoots, millable cane, juice analysis, gur production and sugarcane yield. (iv) (a) and (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 5.12 tons/ac. (ii) (a) 1.27 tons/ac. (b) 1.22 tons/ac. (iii) None of the effects is significant. (iv) Av. yield of sugarcane in tons/ac.

	S ₀	S ₁	S ₂	S ₃	S ₄	S ₅	Mean
P ₀	4.54	6.06	5.91	4.36	5.65	5.75	5.38
P ₁	3.70	4.91	5.41	4.83	5.09	5.24	4.86
Mean	4.12	5.48	5.66	4.60	5.37	5.50	5.12

S.E. of difference of two

- | | |
|-----------------------------------|-----------------|
| 1. S marginal means | = 0.90 tons/ac. |
| 2. P marginal means | = 0.50 tons/ac. |
| 3. P means at the same level of S | = 1.22 tons/ac. |
| 4. S means at the same level of P | = 1.24 tons/ac. |

Crop :- Sugarcane.

Ref :- U.P. 54(247).

Zone :- Faizabad (Faizabad, c.f.).

Type :- 'M'.

Object :- To study the effect of Super in combination with G.M. on the yield of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) and (c) As per treatments. (ii) Loam with saline patches. (iii) A/N+G.N.C. at 40 lb./ac. of N. A/S at 40 lb./ac. of N. (iv) Co.S. 416. (v) (a) 3 disc harrowings by tractor. (b) Flat planting. (c) N.A. (d) 3' in lines. (e) N.A. (vi) 16.2.1954. (vii) Irrigated. (viii) to (x) N.A.

2. TREATMENTS :

T₁=Fallow—Sugarcane, T₂=Fallow—150 lb./ac. of P₂O₅ as Super applied 3" deep at sowing of sugarcane, T₃=*Sanai* (G.M.), T₄=150 lb./ac. of P₂O₅ applied to *sanai* for G.M. and T₅=150 lb./ac. of P₂O₅ applied to sugarcane at turning of *sanai*.

3. DESIGN :

(i) and (ii) R.B.D. with 4 replications. (iii) (a) 70'×24'. (b) 64'×18'. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of sugarcane. (iv) (a) 1954 contd. (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 22.37 tons/ac. (ii) 1.40 tons/ac. (iii) Treatment differences are significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	T ₁	T ₂	T ₃	T ₄	T ₅
Av. yield	20.59	20.54	22.14	25.02	23.58

S.E./mean = 1.00 tons/ac.

Crop :- Sugarcane.**Ref :- U.P. 55(230)****Zone :- Faizabad (Faizabad, c.f.).****Type :- 'M'.**

Object :—To study the effect of Super in combination with G.M. on the yield of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) and (c) As per treatments. (ii) N.A. (iii) 40 lb./ac. of N as press mud, 15 lb./ac. of N as G.N.C., 15 lb./ac. of N as A/S and 32 lb./ac. of N as A/S top dressed. (iv) Co. S. 416. (v) (a) 2 disc harrowings and 4 ploughings by *desi* plough. (b) to (e) N.A. (vi) 4.2.1955. (vii) Irrigated. (viii) and (ix) N.A. (x) 6, 7 and 3.2.1956.

2. TREATMENTS :

Same as expt. no. 54(247) on page 1037.

3. DESIGN :

(i) and (ii) R.B.D. with 4 replications. (iii) (a) 70' × 27'. (b) 64' × 21'. (iv) Yes.

4. GENERAL :

Same as in expt. no. 54(247) on page 1037.

5. RESULTS :

(i) 6.69 tons/ac. (ii) 0.85 tons/ac. (iii) Treatment differences are significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	T ₁	T ₂	T ₃	T ₄	T ₅
Av. yield	5.90	5.93	6.37	7.81	7.42

S.E./mean = 0.43 tons/ac.

Crop :- Sugarcane.**Ref :- U.P. 55(229).****Zone :- Faizabad (Faizabad, c.f.).****Type :- 'M'.**

Object :—To study the effect of Super in combination with G.M. on the yield of Sugarcane

1. BASAL CONDITIONS :

(i) (a) N.A. (b) and (c) As per treatments. (ii) Loam with alkaline patches. (iii) N at 40 lb./ac., $\frac{1}{2}$ as A/S and $\frac{1}{2}$ as G.N.C. (iv) Co. S. 416. (v) (a) 3 disc harrowings by tractor. (b) Flat planting. (c) N.A. (d) 3' between rows. (e) N.A. (vi) N.A. (vii) Irrigated. (viii) 1 earthing by ridger. (ix) N.A. (x) March—April, 1956.

2. TREATMENTS :

Same as in expt. no. 54(247) on page 1037.

3. DESIGN :

(i) and (ii) R.B.D. with 4 replications. (iii) (a) 71' × 24'. (b) 65' × 18'. (iv) Yes.

4. GENERAL :

Same as in expt. no. 54(247) on page 1037.

5. RESULTS :

(i) 13.60 tons/ac. (ii) 3.67 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	T ₁	T ₂	T ₃	T ₄	T ₅
Av. yield	12.14	12.73	13.12	13.82	16.20

S.E./mean = 1.83 tons/ac.

Crop :- Sugarcane.**Ref :- U.P. 52(416).****Zone :- Masodha (Faizabad, c.f.).****Type :- 'M'.**

Object :- To study the effect of different organic and inorganic manures on the yield of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Fallow. (c) Nil. (ii) Loam. (iii) N.A. (iv) Co. S. 443 (improved). (v) (a) 2 ploughings by victory plough, 4 ploughings by *desi* plough and 2 harrowings by disc harrow. (b) Flat planting. (c) 52 (3 budded) setts/row. (d) Rows 3' apart. (e) 1 (3 budded) sett/foot. (vi) 18.2.1958. (vii) Irrigated. (viii) 3 hoeings by spade, 4 hoeings by cultivator and 1 earthing. (ix) and (x) N.A.

2. TREATMENTS :

4 sources of 60 lb./ac. of N : S_0 =Control, S_1 =A/C, S_2 =A/S and S_3 =G.N.C.

3. DESIGN :

(i) and (ii) 4 replications in R.B.D. (iii) (a) 50'×27'. (b) 44'×21'. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Germination %, tillers count, millable canes, juice analysis and yield of sugarcane. (iv) (a) and (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 30.07 tons/ac. (ii) 3.01 tons/ac. (iii) Treatment differences are highly significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	S_0	S_1	S_2	S_3
Av. yield	20.78	35.42	32.31	31.78

S.E./mean = 1.50 tons/ac.

Crop :- Sugarcane.**Ref :- U.P. 56(248).****Zone :- Masodha (Faizabad, c.f.).****Type :- 'M'.**

Object :- To study the effect of A/S in contrast to A/C on Sugarcane crop.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Fallow. (c) Nil. (ii) Loam. (iii) Press mud compost at 60 lb./ac. of N. (iv) CO.S. 510. (v) (a) 3 disc harrowings by tractor and 2 ploughings by *desi* plough. (b) Flat planting. (c) N.A. (d) 3' between rows. (e) N.A. (vi) 20.2.1956. (vii) Irrigated. (viii) 5 hoeings and 1 earthing. (ix) 36". (x) March, 1957.

2. TREATMENTS :

3 sources of 60 lb./ac. of N : S_0 =Control, S_1 =A/C and S_2 =A/S.

3. DESIGN :

(i) and (ii) R.B.D. with 4 replications. (iii) (a) 70'×21'. (b) 64'×15'. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of sugarcane. (iv) (a) and (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 28.11 tons/ac. (ii) 2.00 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	S_0	S_1	S_2
Av. yield	27.61	28.02	28.70

S.E./mean = 1.00 tons/ac.

Crop :- Sugarcane.**Ref :- U.P. 57(320).****Zone :- Masodha (Faizabad, c.f.).****Type :- 'M'.**

Object :— To study the effect of A/S in contrast to A/C on Sugarcane crop.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) *Berseem*. (c) N.A. (ii) Loam. (iii) Press mud compost at 60 lb./ac. of N. (iv) Co.S. 510. (v) (a) 2 disc harrowings. (b) Flat planting. (c) N.A. (d) 3' between rows. (e) N.A. (vi) 15.2.1957. (vii) Irrigated. (viii) 5 hoeings and 1 earthing. (ix) N.A. (x) 23.4.1958.

2. TREATMENTS :

Same as in expt. no. 56(248) on page 1039.

3. DESIGN :

(i) and (ii) R.B.D. with 4 replications. (iii) (a) 58' × 24'. (b) N.A. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of sugarcane. (iv) (a) and (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 20.38 tons/ac. (ii) 0.82 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	S ₀	S ₁	S ₂
Av. yield	16.77	21.52	22.85

S.E./mean = 0.41 tons/ac.

Crop :- Sugarcane.**Ref :- U.P. 59(268).****Zone :- Masodha (Faizabad, c.f.).****Type :- 'M'.**

Object :—To study the effect of N on the yield of ratoon Sugarcane crop.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Plant cane. (c) N.A. (ii) Loam. (iii) N.A. (iv) Co.S. 510. (v) (a) N.A. (b) Flat planting. (c) N.A. (d) 3' between rows. (e) N.A. (vi) N.A. (vii) Irrigated. (viii) 2 earthings by *kudali*. (ix) N.A. (x) 22.12.1959.

2. TREATMENTS :

6 levels of N : N₀=0, N₁=30, N₂=60, N₃=90, N₄=120 and N₅=150 lb./ac.
N applied as A/S and G.N.C. in 50 : 50 N basis.

3. DESIGN :

(i) and (ii) R.B.D. with 4 replications. (iii) (a) 62' × 27'. (b) 56' × 21'. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of sugarcane. (iv) (a) and (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 15.31 tons/ac. (ii) 2.17 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	N ₀	N ₁	N ₂	N ₃	N ₄	N ₅
Av. yield	12.89	14.35	15.12	15.82	16.48	17.22

S.E./mean = 1.08 tons/ac.

Crop :- Sugarcane.**Ref :- U.P. 59(276).****Zone :- Masodha (Faizabad, c.f.).****Type :- 'M'.**

Object :—To find out the efficiency of Nitrophoska green.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Fallow. (c) N.A. (ii) Loam. (iii) N.A. (iv) CO.S. 510. (v) (a) N.A. (b) Flat planting. (c) N.A. (d) 3' between rows. (e) N.A. (vi) 24.2.1959. (vii) Irrigated. (viii) 7 hoeings. (ix) N.A. (x) 9 to 20.3.1960.

2. TREATMENTS :5 manurial treatments : M_0 =Control, M_1 =N at 120 lb./ac. as A/S at planting, M_2 = P_2O_5 at 120 lb./ac. as Super at planting, M_3 = M_1+M_2 and M_4 =N at 120 lb./ac. + P_2O_5 at 120 lb./ac., through Nitrophoska green.**3. DESIGN :**

(i) and (ii) R.B.D. with 4 replications. (iii) (a) 64' × 24'. (b) 58' × 18'. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of sugarcane. (iv) (a) and (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 26.11 tons/ac. (ii) 1.19 tons/ac. (iii) Treatment differences are significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	M_0	M_1	M_2	M_3	M_4
Av. yield	24.24	26.80	25.77	26.68	27.05

S.E./mean = 0.59 tons/ac.

Crop :- Sugarcane.**Ref :- U.P. 59(295).****Zone :- Masodha (Faizabad, c.f.).****Type :- 'M'.**

Object :—To study the effect of F.Y.M. and A/S on Sugarcane yield.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Fallow. (c) N.A. (ii) Loam. (iii) N.A. (iv) CO. 617. (v) (a) 6 ploughings and 9 harrowings. (b) Flat planting. (c) N.A. (d) 3' between rows. (e) N.A. (vi) 25.2.1959. (vii) Irrigated. (viii) to (x) N.A.

2. TREATMENTS :5 manurial treatments : M_0 =Control, M_1 =120 lb./ac. of N as A/S at planting, M_2 =120 lb./ac. of N as F.Y.M. 15 to 30 days before planting, M_3 =120 lb./ac. of N half as F.Y.M. and half as A/S 15 to 30 days before planting and M_4 =60 lb./ac. of N as F.Y.M. 15 to 30 days before planting+60 lb./ac. of N as A/S at planting.**3. DESIGN :**

(i) and (ii) R.B.D. with 4 replications. (iii) (a) 73' × 24'. (b) 67' × 18'. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of sugarcane. (iv) (a) and (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 18.83 tons/ac. (ii) 1.14 tons/ac. (iii) Treatment differences are highly significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	M_0	M_1	M_2	M_3	M_4
Av. yield	16.84	21.48	17.66	19.24	18.93

S.E./mean = 0.57 tons/ac.

Crop :- Sugarcane.**Ref :- U.P. 59(294).****Zone :- Shahganj (Faizabad, c.f.).****Type :- 'M'.**

Object :—To study the effect of F.Y.M. and A/S on Sugarcane yield.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Pea or gram. (c) N.A. (ii) Loam. (iii) N.A. (iv) CO. 617. (v) (a) 6 ploughings. (b) Flat planting. (c) N.A. (d) 3' between rows. (e) N.A. (vi) 12.3.1959. (vii) Irrigated. (viii) and (ix) N.A. (x) 17 and 18.2.1960.

2. TREATMENTS :

Same as in expt. no. 59(295) on page 1041.

3. DESIGN :

(i) and (ii) R.B.D. with 4 replications. (iii) (a) 52' × 39'. (b) 46' × 33'. (iv) Yes.

4. GENERAL :

Same as in expt. no. 59(295) on page 1041.

5. RESULTS :

(i) 15.68 tons/ac. (ii) 1.24 tons/ac. (iii) Treatment differences are significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	M ₀	M ₁	M ₂	M ₃	M ₄
Av. yield	13.39	15.64	15.75	17.22	16.39

S.E./mean = 0.62 tons/ac.

Crop :- Sugarcane (Ratoon).**Ref :- U.P. 59(260).****Zone :- Shahganj (Faizabad, c.f.).****Type :- 'M'.**

Object :—To study the effect of N on the yield of ratoon Sugarcane crop.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Plant cane. (c) N.A. (ii) Loam. (iii) N.A. (iv) CO.S. 510. (v) (a) N.A. (b) Flat planting. (c) N.A. (d) 3' between rows. (e) N.A. (vi) N.A. (vii) Irrigated. (viii) to (x) N.A.

2. TREATMENTS :

6 levels of N : N₀=0, N₁=30, N₂=60, N₃=90, N₄=120 and N₅=150 lb./ac.
N applied half as A, S and half as G.N.C.

3. DESIGN :

(i) and (ii) R.B.D. with 4 replications. (iii) (a) 52' × 36'. (b) 46' × 30'. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of sugarcane. (iv) (a) and (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 15.02 tons/ac. (ii) 2.15 tons/ac. (iii) Treatment differences are significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	N ₀	N ₁	N ₂	N ₃	N ₄	N ₅
Av. yield	13.20	13.14	13.73	14.20	14.34	16.51

S.E./mean = 1.07 tons/ac.

Crop :- Sugarcane.**Ref :- U.P. 59(262).****Zone :- Balrampur (Gonda, c.f.).****Type :- 'M'.**

Object :—To study the effect of N on the yield of ratoon Sugarcane crop.

1. BASAL CONDITIONS :(i) (a) N.A. (b) Plant cane. (c) N.A. (ii) Sandy loam. (iii) N.A. (iv) B.O. 17. (v) and (vi) N.A. (vii) Irrigated. (viii) 10 hoeings by *kudali*. (ix) N.A. (x) 9 and 10.1.1960.**2. TREATMENTS :**

Same as in expt. no. 59(260) on page 1042.

3. DESIGN :

(i) and (ii) R.B.D. with 4 replications. (iii) (a) 62' × 18'. (b) 62' × 12'. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of sugarcane. (iv) (a) and (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 21.95 tons/ac. (ii) 2.78 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	N ₀	N ₁	N ₂	N ₃	N ₄	N ₅ [†]
Av. yield	24.40	22.11	19.24	21.23	21.48	23.26

S.E./mean = 1.39 tons/ac.

Crop :- Sugarcane.**Ref :- U.P. 57(319).****Zone :- Balrampur (Gonda, c.f.).****Type :- 'M'.**

Object :—To study the effect of A/S in contrast to A/C on Sugarcane crop.

1. BASAL CONDITIONS :(i) (a) N.A. (b) *Sanai-Dhaincha*. (c) N.A. (ii) Sandy loam. (iii) G.M., press mud compost at 200 mds./ac., castor cake at 5 mds./ac. and neem cake at 5 to 6 lb./ac. of N. (iv) CO. S. 416. (v) (a) N.A. (b) Planting in trenches. (c) to (e) N.A. (vi) 3 and 4.2.1957. (vii) Irrigated. (viii) 10 hoeings. (ix) 45". (x) 16 to 18.3.1958.**2. TREATMENTS :**3 sources of 60 lb./ac. of N : S₀=Control (No N), S₁=A/S and S₂=A/C.**3. DESIGN :**

(i) and (ii) R.B.D. with 4 replications. (iii) (a) and (b) 66' × 30'. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of sugarcane. (iv) (a) and (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 26.26 tons/ac. (ii) 3.05 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	S ₀	S ₁	S ₂
Av. yield	27.47	24.24	27.07

S.E./mean = 1.52 tons/ac.

Crop :- Sugarcane.**Ref :- U.P. 58(421).****Zone :- Balrampur (Gonda, c.f.).****Type :- 'M'.**

Object :—To study the effect of F.Y.M. and A/S on Sugarcane yield.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) *Lahi*. (c) N.A. (ii) Sandy loam. (iii) N.A. (iv) CO.S. 109 (improved). (v) (a) 2 *desi* ploughings, 2 *desi* harrows and 2 cultivators. (b) Trench planting. (c) 66 (3 budded) sets/row. (d) Rows 3' apart. (e) N.A. (vi) 6 and 7.2.1958. (vii) Irrigated. (viii) 9 hoeings by *kudali*. (ix) 45°. (x) 13 to 17.1.1959.

2. TREATMENTS :

Same as in expt. no. 59(295) on page 1041.

3. DESIGN :

(i) and (ii) 4 replications in R.B.D. (iii) (a) 66' × 33'. (b) 66' × 30'. (iv) Yes.

4. GENERAL :

(i) Satisfactory. (ii) Nil. (iii) Germination %, tiller count, millable canes and yield of sugarcane. (v) (a) 1958—contd. (b) N.A. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 24.53 tons/ac. (ii) 3.94 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac

Treatment	M ₀	M ₁	M ₂	M ₃	M ₄
Av. yield	20.31	26.27	27.11	24.77	24.21

S.E./mean = 1.97 tons/ac.

Crop :- Sugarcane.**Ref :- U.P. 59(301).****Zone :- Balrampur (Gonda, c.f.).****Type :- 'M'.**

Object :—To study the effect of F.Y.M. and A/S on Sugarcane yield.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) *Dhaincha*. (c) N.A. (ii) Sandy loam. (iii) N.A. (iv) CO. 617. (v) (a) 4 ploughings and 4 harrowings. (b) to (e) N.A. (vi) 13 and 15.1.1959. (vii) Irrigated. (viii) 9 hoeings. (ix) 45°. (x) 23 and 25.1.1960.

2. TREATMENTS :

Same as in expt. no. 59(295) on page 1041.

3. DESIGN :

(i) and (ii) R.B.D. with 4 replications. (iii) (a) 57' × 57'. (b) 57' × 51'. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of sugarcane. (iv) (a) 1958—contd. (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 19.27 tons/ac. (ii) 4.39 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	M ₀	M ₁	M ₂	M ₃	M ₄
Av. yield	16.71	25.08	16.32	18.71	19.51

S.E./mean = 2.19 tons/ac.

Crop :- Sugarcane.**Ref :- U.P. 58(420).****Zone :- Nawabganj (Gonda, c.f.).****Type :- 'M'.**

Object :—To study the effect of F.Y.M. and A/S on Sugarcane yield.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) *Lahi*. (c) N.A. (ii) Sandy loam. (iii) N.A. (iv) CO.S. 510 (improved). (v) (a) 4 ploughings and 5 harrowings by tractor. (b) Flat planting. (c) 80 (3 budded) setts/row. (d) Rows 3' apart. (e) N.A. (vi) 22 and 23.2.1958. (vii) Irrigated. (viii) 3 hoeings by *kassi*. (ix) 45". (x) 27, 28 2.1959 and 1.3.1959.

2. TREATMENTS :

Same as in expt. no. 59(295) on page 1041.

3. DESIGN :

(i) and (ii) 5 replications in R.B.D. (effective replications 3). (iii) (a) 75'×30'. (b) 75'×24'. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Germination %, tiller count, millable canes and yield of sugarcane. (iv) (a) 1958—contd. (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 18.23 tons/ac. (ii) 3.48 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	M ₀	M ₁	M ₂	M ₃	M ₄
Av. yield	15.11	18.36	20.54	17.76	19.39

S.E./mean = 2.01 tons/ac.

Crop :- Sugarcane.**Ref :- U.P. 59(299).****Zone :- Nawabganj (Gonda, c.f.).****Type :- 'M'.**

Object :— To study the effect of F.Y.M. and A/S on Sugarcane yield.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) *Lahi*. (c) N.A. (ii) Sandy loam. (iii) N.A. (iv) CO.S. 24. (v) (a) 2 ploughings, 3 harrowings by tractor and 2 plankings. (b) Flat planting. (c) N.A. (d) Rows 3' apart. (e) N.A. (vi) 23 and 24.2.1956. (vii) Irrigated. (viii) 8 hoeings. (ix) 45". (x) 4 and 6.3.1960.

2. TREATMENTS :

Same as in expt. no. 59(295) on page 1041.

3. DESIGN :

(i) and (ii) R.B.D. with 4 replications. (iii) (a) 75'×27'. (b) 1/21.51 ac. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of sugarcane. (iv) (a) 1958—contd. (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 14.66 tons/ac. (ii) 2.95 tons/ac. (iii) Treatment differences are significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	M ₀	M ₁	M ₂	M ₃	M ₄
Av. yield	14.12	11.20	14.20	14.14	19.62

S.E./mean = 1.48 tons/ac.

Crop :- Sugarcane.**Ref :- U.P. 59(263).****Zone :- Nawabganj (Gonda, c.f.).****Type :- 'M'.**

Object :— To study the efficiency of Aldrinised A/S over A/S on Sugarcane yield.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) *Lahi*. (c) N.A. (ii) Sandy loam. (iii) N.A. (iv) CO.S. 443. (v) (a) 4 ploughings, 4 harrowings and 4 plankings. (b) planted in furrows made by tractor. (c) N.A. (d) Rows 3' apart. (e) N.A. (vi) 20 and 21.2.1959. (vii) Irrigated. (viii) 6 hoeings. (ix) N.A. (x) 4 to 6.3.1960.

2. TREATMENTS :

5 manurial treatments : M_0 =Control, M_1 =40 lb./ac. of N as Aldrinised A/S+1 lb./ac. of active Aldrin at planting, M_2 =40 lb./ac. of N as A/S+1 lb./ac. Aldrin to be applied in furrows at planting, M_3 =40 lb./ac. of N as A/S at planting and M_4 =1 lb./ac. of Aldrin at planting.

3. DESIGN :

(i) and (ii) R.B.D. with 4 replications. (iii) (a) and (b) 60' × 30'. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of sugarcane. (iv) (a) and (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil

5. RESULTS :

(i) 17.31 tons/ac. (ii) 4.52 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	M_0	M_1	M_2	M_3	M_4
Av. yield	13.92	20.62	18.90	15.44	17.65

S.E./mean = 2.26 tons/ac.

Crop :- Sugarcane.**Ref :- U.P. 59(275).****Zone :- Tulsipur (Gonda, c.f.).****Type :- 'M'.**

Object : To study the effect of N on the yield of ratoon Sugarcane crop.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Plant cane. (c) N.A. (ii) Loam. (iii) N.A. (iv) CO.S. 510. (v) and (vi) N.A. (vii) Irrigated. (viii) 3 hoeings. (ix) 45". (x) 24 and 26.1.1960.

2. TREATMENTS :

6 levels of N : $N_0=0$, $N_1=30$, $N_2=60$, $N_3=90$, $N_4=120$ and $N_5=150$ lb./ac.
N applied $\frac{1}{2}$ as A/S and $\frac{1}{2}$ as G.N.C.

3. DESIGN :

(i) and (ii) R.B.D. with 4 replications. (iii) (a) 60' × 30'. (b) 1/30.25 ac. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of sugarcane. (iv) (a) and (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 15.95 tons/ac. (ii) 2.90 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	N_0	N_1	N_2	N_3	N_4	N_5
Av. yield	15.01	13.35	15.45	17.09	15.99	18.79

S.E./mean = 1.45 tons/ac.

Crop :- Sugarcane.**Ref :- U.P. 59(258).****Zone :- Tulsipur Gonda, (c.f.).****Type :- 'M'.**

Object :— To find the efficiency of Nitrophoska green on Sugarcane.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) *Lahi*. (c) N.A. (ii) Loam. (iii) Sitting of the animals in the plot for whole season of 3 months. (iv) CO.S. 416. (v) (a) 9 ploughings by *desi* plough, 6 harrowings by *desi* plough. (b) Line planting. (c) N.A. (d) 3' Between rows. (e) N.A. (vi) 13 and 14.3.1959. (vii) N.A. (viii) 1 hoeing. (ix) 45". (x) N.A.

2. TREATMENTS :

5 manurial treatments : M_0 =Control, M_1 =120 lb./ac. of N as A/S at planting, M_2 =120 lb./ac. of P_2O_5 as Super phosphate at planting, M_3 =120 lb./ac. of N as A/S+120 lb./ac. of P_2O_5 as Super at planting and M_4 =120 lb./ac. of N+120 lb./ac. of P_2O_5 through Nitro-phoska green at planting.

3. DESIGN :

(i) and (ii) R.B.D. with 4 replications. (iii) (a) and (b) 50'×33'. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of sugarcane. (iv) (a) and (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 18.73 tons/ac. (ii) 5.61 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	M_0	M_1	M_2	M_3	M_4
Av. yield	18.58	16.57	17.57	17.53	23.40

S.E./mean = 2.80 tons/ac.

Crop :- Sugarcane.**Ref :- U.P. 59(291).****Zone :- Tulsipur (Gonda, c.f.).****Type :- 'M'.**

Object :—To study the effect of F.Y.M. and A/S on the the yield of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Fallow. (c) N.A. (ii) Loam. (iii) N.A. (iv) CO. S. 510. (v) (a) 2 ploughings and 6 harrowings by tractor. (b) to (e) N.A. (vi) 4 and 5.2.1959. (vii) Irrigated. (viii) N.A. (ix) 45". (x) 28 and 30.1.1960.

2. TREATMENTS :

Same as in expt. no. 59(295) on page 1041.

3. DESIGN :

(i) and (ii) R.B.D. with 4 replications. (iii) (a) and (b) 60'×36'. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of sugarcane. (iv) (a) and (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 20.75 tons/ac. (ii) 2.27 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	M_0	M_1	M_2	M_3	M_4
Av. yield	19.14	20.70	21.36	21.06	21.50

S.E./mean = 1.13 tons/ac.

Crop :- Sugarcane.**Ref :- U.P. 58(507).****Zone :- Anand Nagar (Gorakhpur, c.f.).****Type :- 'M'.**

Object : - To study the effect of N and P on the yield of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Paddy in 3 expts., fallow in 2 expts. and pea in 1 expt. (c) N.A. (ii) N.A. (iii) 60 lb./ac. of N as F.Y.M. and 20 lb./ac. of Gammexane. (iv) CO. 356 in 2 expt. CO. 617 in 2 expts and CO. S. 443 in 2 expts. (all improved). (v) (a) About 2 to 3 ploughings by *desi* plough. (b) Flat planting followed by earthing. (c) 1 (3 budded) sett/foot. (d) Rows 3' apart. (e) N.A. (vi) 11.3.1958 to 2.4.1958. (vii) Irrigated. (viii) About 6 to 8 hoeings and 1 earthing. (ix) and (x) N.A.

2. TREATMENTS :

All combinations of (1) and (2)

(1) 4 levels of N as A/S : $N_0=0$, $N_1=60$, $N_2=120$ and $N_3=180$ lb./ac.(2) 3 levels P_2O_5 as Super : $P_0=0$, $P_1=40$ and $P_2=80$ lb./ac.Super applied 1" to 2" below the setts at the time of planting. $\frac{1}{2}$ dose of N applied at planting and the other $\frac{1}{2}$ dose applied during the period from 15.7.1958 to 25.7.1958.**3. DESIGN :**

(i) and (ii) 6 expts. were conducted at different places in the zone. In each expt. 3 replications were taken in R.B.D. (iii) (a) Different sizes. (b) Varies from 1/66.61 ac. to 1/63.13 ac. (iv) Yes.

4. GENERAL :

(i) Very good in 2 expts. and medium in 3 expts. In one expt. treatments $N_0 P_0$, $N_0 P_1$, $N_0 P_2$, $N_1 P_2$, $N_3 P_0$ and $N_3 P_2$ had very poor growth. In one expt. half the portion badly grazed by cattle. Poor in 1 expt. (ii) Top-borer attack in 3 expts. only. (iii) Yield of sugarcane. (iv) (a) and (b) No. (c) Nil. (v) N.A. (vi) Nil. (vi) Results pooled over 6 expts. conducted in the zone.

5. RESULTS :

(i) 21.30 tons/ac. (ii) 2.78 tons/ac. (iii) N effect is highly significant. P effect is significant. (iv) Av. yield of sugarcane in tons/ac.

	P_0	P_1	P_2	Mean
N_0	16.99	18.85	19.76	18.53
N_1	20.26	20.97	24.80	22.01
N_2	21.89	23.58	23.29	22.92
N_3	20.85	22.02	22.28	21.72
Mean	20.00	21.36	22.53	21.30

S.E. of N marginal mean = 0.66 tons/ac.

S.E. of P marginal mean = 0.57 tons/ac.

S.E. of body of table = 1.14 tons/ac.

Corp :- Sugarcane.**Ref :- U.P. 59(552).****Zone :- Anand Nagar (Gorakhpur, c.f.).****Type :- 'M'.**

Object :- To study the effect of N and P on the yield of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Fallow in 3 expts., paddy in 3 expts., pea in 1 expt., and *lahi* in 1 expt. (c) Nil in expts. having fallow and pea as previous crop and information not available for expts. having paddy and *lahi* as previous crop. (ii) N.A. (iii) 60 lb./ac. of N as F.Y.M. and 20 lb./ac. of Gammexane. (iv) CO. 356 in 3 expts., CO.S. 443, B.O. 17, CO. 617, CO. 109 and CO. S. 510 in 1 expt. each. (v) About 2 to 3 ploughings by *desi* plough. (b) Flat planting followed by earthing. (c) 1 (3-budded) sett/foot. (d) Rows 3' apart. (e) N.A. (vi) 15.2.1959 to 18.3.1959. (vii) Irrigated. (viii) 4 to 14 hoeings and 1 earthing done in 5 expts only. (ix) N.A. (x) 16.1.1960 to 31.1.1960.

2. TREATMENTS :

Same as in expt. no. 58(507) on page 1048.

3. DESIGN :

(i) and (ii) 8 expts. were conducted at different places in the zone. In each expt. 3 replications were taken in R.B.D. (iii) (a) 60.5' × 18'. (b) 54.5' × 12'. (iv) Yes.

4. GENERAL :

(i) Satisfactory in 5 expts. (lodging in 4 expts). Ordinary in 2 expts (crop lodged due to water logging during rains in 1 expt) and extremely poor in 1 expt. (Due to delay in irrigation. Growth stunted and gappy germination). (ii) Slight attack of stem borer in only 1 expt. (iii) Yield of sugarcane. (iv) (a) and (b) No. (c) Nil. (v) N.A. (vi) 1 replication of 1 expt. was rejected from the analysis as its plots were harvested by the cultivator and the yields were not available. (vii) Results pooled over 8 expts. conducted in the zone.

5. RESULTS :

(i) 16.86 tons/ac. (ii) 2.30 tons/ac. (iii) N effect is highly significant and P effect is significant. (iv) Av. yield of sugarcane in tons/ac.

	P ₀	P ₁	P ₂	Mean
N ₀	12.40	13.04	13.96	13.13
N ₁	16.82	17.36	17.77	17.32
N ₂	17.20	17.64	19.46	18.10
N ₃	17.58	19.37	19.75	18.90
Mean	16.00	16.85	17.74	16.86

S.E. of N marginal mean = 0.47 tons/ac.

S.E. of P marginal mean = 0.41 tons/ac.

S.E. of body of table = 0.81 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 58(414).

Zone :- Anand Nagar (Gorakhpur, c.f.).

Type :- 'M'.

Object :- To study the effect of different organic and inorganic manures on Sugarcane yield.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) *Lobia*. (c) Nil. (ii) Sandy loam. (iii) G.M. by *lobia*+F.Y.M. (dose—N.A.). (iv) CO 443 (improved). (v) (a) 3 harrowings. (b) Trench planting. (c) 66 (3 budded) setts/row. (d) Row 3' apart. (e) N.A. (vi) 14.3.1958. (vii) Irrigated. (viii) 4 hoeings by *kudali* and 1 earthing. (ix) ard. (x) N.A.

2. TREATMENTS :

7 sources of 60 lb./ac. of N : S₀=Control, S₁=A/C, S₂=A/S, S₃=A/S/N, S₄=Urea, S₅=Fish meal and S₆=G.N.C.

3. DESIGN :

(i) and (ii) 4 replications in R.B.D. (iii) (a) 66' × 33'. (b) 60' × 27'. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Germination %, tiller count, millable canes, juice analysis and yield of sugarcane. (iv) (a) and (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 24.42 tons/ac. (ii) 3.01 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	S ₀	S ₁	S ₂	S ₃	S ₄	S ₅	S ₆
Av. yield	23.23	23.54	24.11	24.81	23.39	28.53	23.36

S.E./mean = 1.50 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 57(321).

Zone :- Anand Nagar (Gorakhpur, c.f.).

Type :- 'M'.

Object :—To study the effect of A/S and A/C on Sugarcane crop.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) *Sanai*. (c) N.A. (ii) Sandy loam. (iii) G.M. by *sanai*. (iv) CO.S. 443. (v) (a) One ploughing by tractor and 4 harrowings. (b) Trench planting. (c) to (e) N.A. (vi) 17.3.1957. (vii) Irrigated. (viii) 6 hoeings. (ix) N.A. (x) 10.2.1958.

2. TREATMENTS :

3 sources of 60 lb./ac. of N : S₀=Control (No N), S₁=A/C and S₂=A/S.

3. DESIGN :

(i) and (ii) R.B.D. with 4 replications. (iii) (a) 66' × 33'. (b) 60' × 27'. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of sugarcane. (iv) (a) and (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 20.75 tons/ac. (ii) 4.08 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	S ₀	S ₁	S ₂
Av. yield	23.21	20.47	18.58

S.E./mean = 2.04 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 58(413).

Zone :- Anand Nagar (Gorakhpur, c.f.).

Type :- 'M'.

Object :—To find out the efficiency of Aldrinised A/S over A/S for Sugarcane.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) *Sanai*. (c) Nil. (ii) Sandy loam. (iii) *Sanai* as G.M. + 58 mds./ac. of F.Y.M. (iv) CO.S. 443 (improved). (v) (a) 1 ploughing by Victory plough and 3 harrowings. (b) Trench planting. (c) 52 (3-budded), setts/row. (d) Rows 3' apart. (e) 1 sett/foot. (vi) 22.3.1958. (vii) Irrigated. (viii) 4 hoeings by *kudali* and 1 earthing by *spade*. (ix) N.A. (x) 16 and 17.1.1959.

2. TREATMENTS :

5 manurial treatments : M₀=Control, M₁=40 lb./ac. of N as Aldrinised A/S + 1 lb./ac. of active Aldrin in furrows at planting, M₂=40 lb./ac. of N as A/S + 1 lb./ac. of Aldrin to be applied one after other in furrows at planting, M₃=40 lb./ac. of N as A/S at planting, and M₄=1 lb./ac. of Aldrin at planting.

3. DESIGN :

(i) and (ii) 4 replications in R.B.D. (iii) (a) 50' × 27'. (b) 44' × 21'. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Germination%, tiller count, millable canes, juice analysis and yield of sugarcane. (iv) (a) 1958—contd. (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 29.16 tons/ac. (ii) 2.96 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	M ₀	M ₁	M ₂	M ₃	M ₄
Av. yield	27.92	28.61	30.86	29.24	29.17

S.E./mean = 1.48 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 59(264).

Zone :- Anand Nagar (Gorakhpur, c.f.).

Type :- 'M'.

Object :—To find out the efficiency of Aldrinised A/S over A/S for Sugarcane.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Sandy loam. (iii) N.A. (iv) B.O. 17. (v) (a) to (e) N.A. (vi) 13 and 14.2.1959. (vii) to (ix) N.A. (x) 13.2.1960.

2. TREATMENTS and 3. DESIGN :

Same as in expt. no. 58(413) on page 1050.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of sugarcane. (iv) (a) 1958—contd. (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 32.10 tons/ac. (ii) 4.84 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	M ₀	M ₁	M ₂	M ₃	M ₄
Av. yield	33.44	28.16	28.97	35.29	34.64

S.E./mean = 2.42 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 59(261).

Zone :- Anand Nagar (Gorakhpur, c.f.).

Type :- 'M'.

Object :—To study the effect of Nitrophoska green on the yield of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Fallow. (c) N.A. (ii) Sandy loam. (iii) N.A. (iv) CO. 524. (v) (a) N.A. (b) Trench planting. (c) to (e) N.A. (vi) 15.2.1959. (vii) to (ix) N.A. (x) 15.2.1960.

2. TREATMENTS :

5 manurial treatments : M₀=Control (no manures), M₁=120 lb./ac. of N as A/S at planting, M₂=120 lb./ac. of P₂O₅ as Super at planting, M₃=120 lb./ac. N as A/S+120 lb./ac. of P₂O₅ as Super at planting and M₄=Nitrophoska green at 120 lb./ac.

3. DESIGN :

(i) and (ii) R.B.D. with 4 replications. (iii) (a) 80'×18'. (b) 79'×12'. Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of sugarcane. (iv) (a) and (b) N.A. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 15.53 tons/ac. (ii) 2.79 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	M ₀	M ₁	M ₂	M ₃	M ₄
Av. yield	15.53	15.15	13.73	17.17	16.07

S.E./mean = 1.39 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 54(245).

Zone :- Gorakhpur (Gorakhpur, c.f.).

Type :- 'M'.

Object :- To study the effect of Super in combination with G.M. on Sugarcane.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) and (c) As per treatments. (ii) Sandy loam. (iii) N.A. (iv) CO. 453. (v) (a) 2 ploughings by tractor. 5 ploughings by *desi* plough and one harrowing by tractor. (b) Trench planting. (c) to (e) N.A. (vi) 16.2.1954. (vii) Irrigated. (viii) 8 hoeings by hand hoe. (ix) N.A. (x) 16.3.1955.

2. TREATMENTS :

T₁=Fallow—Sugarcane, T₂=Fallow—150 lb./ac. of P₂O₅ as Super applied 3" deep at sowing of sugarcane, T₃=*Sanai* G.M. T₄=150 lb./ac. of P₂O₅ applied to *sanai* for G.M. and T₅=150 lb./ac. of P₂O₅ applied to sugarcane at turning of *sanai*.

3. DESIGN :

(i) and (ii) R.B.D. with 4 replications. (iii) (a) 73' × 24'. (b) 67' × 18'. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of sugarcane. (iv) (a) 1959—contd. (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 31.28 tons/ac. (ii) 2.66 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	T ₁	T ₂	T ₃	T ₄	T ₅
Av. yield	31.06	28.79	30.72	32.22	33.63

S.E./mean = 1.33 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 55(228).

Zone :- Gorakhpur (Gorakhpur c.f.).

Type :- 'M'.

Object :- To study the effect of Super in combination with G.M. on Sugarcane.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) and (c) As per treatments. (ii) Sandy loam. (iii) 60 lb./ac. of N as press mud + 30 lb./ac. of N as A/S top dressed. (iv) CO. 453. (v) (a) 1 ploughing. and one harrowing. (b) Trench planting. (c) to (e) N.A. (vi) N.A. (vii) Irrigated. (viii) 4 hoeings and 1 earthing. (ix) N.A. (x) 15.3.1956.

2. TREATMENTS to 4. GENERAL :

Same as in expt. no. 54(245) above.

5. RESULTS :

(i) 31.01 tons/ac. (ii) 4.85 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	T ₁	T ₂	T ₃	T ₄	T ₅
Av. yield	33.30	31.42	29.15	29.81	31.39

S.E./mean = 2.42 tons/ac.

Crop :- Sugarcane.**Ref :- U.P. 54(242).****Zone :- Gorakhpur (Gorakhpur, c.f.).****Type :- 'M'.**

Object :—To study the effect of Super in combination with G.M. on the yield of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) and (c) As per treatments. (ii) Sandy loam. (iii) 1.5 mds/ac. of A/S. (iv) CO. 453. (v) (a) 2 ploughings by *desi* plough 1 harrowing by tractor. (b) Planting in trenches. (c) to (e) N.A. (vi) 9.2.1954. (vii) Irrigated. (viii) 6 hand hoeings and 8 earthings by spade. (ix) N.A. (x) 28.4.1955.

2. TREATMENTS :

Same as in expt. no. 54(245) on page 1052.

3. DESIGN :

(i) and (ii) R.B.D. with 4 replications. (iii) (a) 80'×21'. (b) 74'×15'. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of sugarcane. (iv) (a) 1959—contd. (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 24.67 tons/ac. (ii) 2.39 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	T ₁	T ₂	T ₃	T ₄	T ₅
Av. yield	25.69	23.56	23.83	25.32	24.96

S.E./mean = 1.19 tons/ac.

Crop :- Sugarcane.**Ref :- U.P. 55(226).****Zone :- Gorakhpur (Gorakhpur, c.f.).****Type :- 'M'.**

Object :—To study the response of Super in combination with G.M.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) and (c) As per treatments. (ii) Sandy loam. (iii) N.A. (iv) CO. 453. (v) (a) 1 ploughing and 1 harrowing. (b) Flat planting (c) to (e) N.A. (vi) 10.2.1955. (vii) Irrigated. (viii) and (ix) N.A. (x) 13.3.1956.

2. TREATMENTS :

Same as in expt. no. 54(245) on page 1052.

3. DESIGN :

(i) and (ii) R.B.D. with 4 replications. (iii) (a) 80'×21'. (b) 74'×15'. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of sugarcane. (iv) (a) 1959—contd. (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 27.93 tons/ac. (ii) 3.21 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	T ₁	T ₂	T ₃	T ₄	T ₅
Av. yield	29.21	27.12	26.34	26.92	30.08

S.E./mean = 1.60 tons/ac.

Crop :- Sugarcane.**Ref :- U.P. 58(412).****Zone :- Siswa Bazar (Gorakhpur, c.f.).****Type :- 'M'.**

Object :—To study the efficiency of Aldrinised A/S over A/S for Sugarcane.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) *Sanai*. (c) Nil. (ii) *Bangar* soil. (iii) *Sanai* as G.M.+200 mds./ac. of F.Y.M. (iv) CO S. 416 (improved). (v) (a) 19 ploughings by tractor. (b) Flat planting. (c) 80 (3 budded) setts/row. (d) Rows 3' apart. (e) 1 sett/foot. (vi) 10.3.1958. (vii) Irrigated. (viii) 6 hoeings. (ix) N.A. (x) 11 and 12.12.1958.

2. TREATMENTS :

Same as in expt. no. 58(413) on page 1050.

3. DESIGN :

(i) and (ii) 4 replications in R.B.D. (iii) (a) 80' × 27'. (b) 80' × 21'. (iv) Yes.

4. GENERAL :

(i) Cane lodged. (ii) N.A. (iii) Germination%, tiller count, and yield of sugarcane. (iv) (a) and (b) N.A. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 29.25 tons/ac. (ii) 3.51 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	M ₀	M ₁	M ₂	M ₃	M ₄
Av. yield	29.98	28.07	33.03	26.98	28.19

S.E./mean = 1.75 tons/ac.

Crop :- Sugarcane.**Ref :- U.P. 59(288).****Zone :- Siswa Bazar (Gorakhpur, c.f.).****Type :- 'M'.**

Object :— To study the effect of F.Y.M. and A/S on Sugarcane yield.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Paddy. (c) N.A. (ii) *Bangar* soil. (iii) N.A. (iv) CO.S. 524. (v) (a) N.A. (b) Flat planting with spade. (c) to (e) N.A. (vi) 19.2.1959. (vii) to (ix) N.A. (x) 4 and 5.3.1960.

2. TREATMENTS :

Same as in expt. no. 59(295) on page 1041.

3. DESIGN :

(i) and (ii) R.B.D. with 4 replications. (iii) (a) 80' × 27'. (b) 80' × 21'. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of sugarcane. (iv) (a) and (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 13.40 tons/ac. (ii) 1.44 tons/ac. (iii) Treatment differences are significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	M ₀	M ₁	M ₂	M ₃	M ₄
Av. yield	12.85	10.75	14.52	14.90	14.00

S.E./mean = 0.72 tons/ac.

Crop :- Sugarcane.**Ref :- U.P. 59(274).****Zone :- Siswa Bazar (Gorakhpur, c.f.).****Type :- 'M'.**

Object :—To study the effect of N on the yield of ratoon Sugarcane crop.

1. BASAL CONDITIONS :(i) (a) N.A. (b) Plant cane. (c) N.A. (ii) *Bangar* soil. (iii) N.A. (iv) CO.S. 510. (v) (a) N.A. (b) Flat planting. (c) to (e) N.A. (vi) to (ix) N.A. (x) 28.11.1959.**2. TREATMENTS :**

Same as in expt. no. 59(275) on page 1046.

3. DESIGN :

(i) and (ii) R.B.D. with 4 replications. (iii) (a) 50' × 27'. (b) 50' × 21'. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of Sugarcane. (iv) (a) and (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 13.69 tons/ac. (ii) 0.79 tons/ac. (iii) Treatment differences are highly significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	N ₀	N ₁	N ₂	N ₃	N ₄	N ₅
Av. yield	8.06	10.62	13.06	14.45	16.42	19.53

S.E./mean = 0.40 tons/ac.

Crop :- Sugarcane.**Ref :- U.P. 57(318).****Zone :- Siswa Bazar (Gorakhpur, c.f.).****Type :- 'M'.**

Object :—To study the effect of A/S in contrast to A/C on Sugarcane crop.

1. BASAL CONDITIONS :(i) (a) N.A. (b) *Sanai*. (c) N.A. (ii) *Bangar* soil. (iii) 200 mds./ac. F.Y.M. (iv) CO.S. 443. (v) (a) 19 ploughings by tractor. (b) Flat planting with spade. (c) to (e) N.A. (vi) 6.2.1957. (vii) Irrigated. (viii) 5 hoeings and 1 earthing by spade. (ix) N.A. (x) 19.2.1958.**2. TREATMENTS :**

Same as in expt. no. 57(319) on page 1043.

3. DESIGN :

(i) and (ii) R.B.D. with 6 replications. (iii) (a) 60' × 30'. (b) 54' × 24'. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of sugarcane. (iv) (a) and (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 22.36 tons/ac. (ii) 3.54 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	S ₀	S ₁	S ₂
Av. yield	20.36	22.76	23.97

S.E./mean = 1.45 tons/ac.

Crop :- Sugarcane.**Ref :- U.P. 57(175).****Zone :- Hardoi (Hardoi, c.f.).****Type :- 'M'.**

Object :—To study the effect of different methods of applying P on the yield of Sugarcane.

1. BASAL CONDITIONS :(i) (a) N.A. (b) *Char.* (c) N.A. (ii) Sandy loam. (iii) 20 C.L. of F.Y.M. (iv) CO.S. 510. (v) (a) N.A. (b) Flat planting. (c) to (e) N.A. (vi) to (ix) N.A. (x) 15 to 25.2.1958.**2. TREATMENTS :**6 methods of applying P_2O_5 : T_0 =Control (no manure), T_1 =Pea as G.M. +100 lb./ac. of P_2O_5 as Super at sowing of G.M., T_2 =Pea as G.M. +100 lb./ac. of P_2O_5 as Kotka phos. at sowing of G.M., T_3 =100 lb./ac. of P_2O_5 as Super in furrows at planting, T_4 =100 lb./ac. of P_2O_5 as Kotka phos. in furrows at planting and T_5 =Pea as G.M.**3. DESIGN :**

(i) and (ii) R.B.D. with 6 replications. (iii) (a) 44'×24'. (b) 38'×18'. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of sugarcane. (iv) (a) and (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 26.14 tons/ac. (ii) 3.52 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5
Av. yield	23.64	28.96	26.59	25.72	24.62	27.34

S.E./mean = 1.44 tons/ac.

Crop :- Sugarcane.**Ref :- U.P. 57(190).****Zone :- Aira (Kheri, c.f.).****Type :- 'M'.**

Object :—To study the effect of A/S and F.Y.M. on the yield of Sugarcane.

1. BASAL CONDITIONS :

(i) to (x) N.A.

2. TREATMENTS :

Same as in expt. no. 59(295) on page 1041.

3. DESIGN :

(i) and (ii) R.B.D. with 6 replications. (iii) (a) N.A. (b) 67'×18'. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of sugarcane. (iv) (a) 1957—contd. (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 7.26 tons/ac. (ii) 0.87 tons/ac. (iii) Treatment differences are highly significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	M_0	M_1	M_2	M_3	M_4
Av. yield	6.47	9.12	6.49	7.50	6.74

S.E./mean = 0.36 tons/ac.

Crop :- Sugarcane.**Ref :- U.P. 58(276).****Zone :- Aira (Kheri, c.f.).****Type :- 'M'.**

Object :—To study the effect of A/S and F.Y.M. on the yield of Sugarcane.

1. BASAL CONDITIONS :(i) (a) N.A. (b) *Sanai*. (c) N.A. (ii) N.A. (iii) *Sanai* as G.M. (iv) CO.S. 510. (v) (a) 5 ploughings and 3 harrowings. (b) Flat planting. (c) to (e) N.A. (vi) 4.3.1958. (vii) to (x) N.A.**2. TREATMENTS :**

Same as in expt. no. 58(421) on page 1044.

3. DESIGN :

(i) and (ii) R.B.D. with 6 replications. (iii) (a) 73'×24'. (b) 67'×18'. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of sugarcane. (iv) (a) 1957--contd. (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 31.14 tons/ac. (ii) 1.75 tons/ac. (iii) Treatment differences are highly significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	M ₀	M ₁	M ₂	M ₃	M ₄
Av. yield	25.11	32.15	34.62	33.99	29.81

S.E./mean = 0.71 tons/ac.

Crop :- Sugarcane.**Ref :- U.P. 57(186).****Zone :- Golagokrannath (Kheri, c.f.).****Type :- 'M'.**

Object :—To study the efficiency of Aldrinised A/S over A/S for Sugarcane crop.

1. BASAL CONDITIONS :

(i) to (x) N.A.

2. TREATMENTS :

Same as in expt. no. 58(413) on page 1050.

3. DESIGN :

(i) and (ii) R.B.D. with 6 replications. (iii) (a) N.A. (b) 58'×21'. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of sugarcane. (iv) (a) 1957—contd. (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 16.45 tons/ac. (ii) 3.40 tons/ac. (iii) Treatment differences are significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	M ₀	M ₁	M ₂	M ₃	M ₄
Av. yield	12.72	17.86	19.85	14.63	17.19

S.E./mean = 1.38 tons/ac.

Crop :- Sugarcane.**Ref :- U.P. 58(289).****Zone :- Golagokranath (Kheri, c.f.).****Type :- 'M'.**

Object :—To study the efficiency of Aldrinised A/S over A/S for Sugarcane.

1. BASAL CONDITIONS :(i) (a) N.A. (b) Pea. (c) N.A. (ii) Sandy loam. (iii) N.A. (iv) CO.S. 510. (v) (a) 5 harrowings. (b) to (e) N.A. (vi) 4.2.1958. (vii) Irrigated. (viii) 2 hoeings by *kassi*. (ix) N.A. (x) 24 and 25.2.1959.**2. TREATMENTS :**

Same as in expt. no. 58(413) on page 1050.

3. DESIGN :

(i) and (ii) R.B.D. with 6 replications. (iii) (a) 64' × 27'. (b) 58' × 21'. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of sugarcane. (iv) (a) 1957—contd. (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 19.50 tons/ac. (ii) 1.32 tons/ac. (iii) Treatment differences are highly significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	M ₀	M ₁	M ₂	M ₃	M ₄
Av. yield	15.33	20.72	21.65	20.16	19.62

S.E./mean = 0.74 tons/ac.

Crop :- Sugarcane.**Ref :- U.P. 56(283).****Zone :- Golagokarannath (Kheri, c.f.).****Type :- 'M'.**

Object :— To study the effect of A/C and A/S on the yield of Sugarcane.

1. BASAL CONDITIONS :(i) (a) N.A. (b) *Sanai*. (c) N.A. (ii) Loam soil. (iii) *Sanai* as G.M. (iv) CO.S. 510 (improved). (v) (a) 3 ploughings by harrow plough, 1 harrowing by disc harrow and 4 harrowings by offset harrow. (b) Flat planting by tractor. (c) 1320 buds/plot. (d) Rows 3' apart. (e) N.A. (vi) 1 and 2.2.1956. (vii) Irrigated. (viii) 3 hoeings by hand hoe and tractor. (ix) 45". (x) 5 and 6.2.1957.**2. TREATMENTS :**3 sources of 60 lb./ac. of N : S₀=Control (No N), S₁=A/C and S₂=A/S.**3. DESIGN :**

(i) and (ii) 5 replications in R.B.D. (iii) (a) 50' × 24'. (b) 44' × 18'. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Germination %, tiller count, millable cane, juice analysis and yield of sugarcane. (iv) (a) and (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 37.75 tons/ac. (ii) 3.40 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	S ₀	S ₁	S ₂
Av. yield	36.22	39.37	37.66

S.E./mean = 1.52 tons/ac.

Crop :- Sugarcane.**Ref :- U.P. 57(257).****Zone :- Golagokrannath (Kheri, c.f.).****Type :- 'M'.**

Object :- To compare the efficiency of N applied in different forms.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) N.A. (iii) 60 lb./ac. of N as G.M. (iv) to (x) N.A.

2. TREATMENTS :4 sources of 60 lb./ac. of N : S_0 =Control, S_1 =A/C, S_2 =A/S and S_3 =Urea.**3. DESIGN :**

(i) and (ii) R.B.D. with 6 replications. (iii) (a) N A. (b) 44'×18'. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of sugarcane. (iv) and (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 36.27 tons/ac. (ii) 2.76 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	S_0	S_1	S_2	S_3
Av. yield	31.78	40.73	36.63	35.95

S.E./mean = 1.13 tons/ae.

Crop :- Sugarcane.**Ref :- U.P. 58(287).****Zone :- Golagokrannath (Kheri, c.f.).****Type :- 'M'.**

Object :- To study effect of different forms of P in the presence of N on Sugarcane.

1. BASAL CONDITIONS :(i) (a) N.A. (b) *Sanai*. (c) N.A. (ii) Sandy loam. (iii) N.A. (iv) CO. S. 510. (v) (a) 1 ploughing by *desi* plough and 1 *Raman* harrow. (b) Flat planting in furrows. (c) N.A. (d) 3' between rows. (e) N.A. (vi) 16.10.1957. (vii) Irrigated. (viii) 3 hoeings by cultivator and 1 hoeing by *kassi*. (ix) 44.10". (x) N.A.**2. TREATMENTS :** T_1 =G.M.+ P_2O_5 at 100 lb./ac. as Super at sowing of G.M. crop, T_2 =G.M.+ P_2O_5 at 100 lb./ac. as Dical. phos. at sowing of G.M. crop, T_3 =G.M. + P_2O_5 at 100 lb./ac. as Super at planting, T_4 =G.M. + P_2O_5 at 100 lb./ac. as Dical. phos. at planting, T_5 =N at 60 lb./ac. as F.Y.M. 6 weeks before planting + P_2O_5 at 100 lb./ac. as Super at planting, T_6 =N at 60 lb./ac. as F.Y.M. + P_2O_5 at 100 lb./ac. as Super applied mixed 6 weeks before planting, T_7 =N at 60 lb./ac. as A/S + P_2O_5 at 100 lb./ac. as Super at planting, T_8 =G.M. (N at 60 lb./ac.), T_9 =N at 60 lb./ac. as F.Y.M. and T_{10} =A/S (N at 60 lb./ac.).**3. DESIGN :**

(i) and (ii) R.B.D. with 4 replications. (iii) (a) N.A. (b) 31.5'×18'. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of sugarcane. (iv) (a) and (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 43.59 tons/ac. (ii) 6.40 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	T_1	T_2	T_3	T_4	T_5	T_6	T_7	T_8	T_9	T_{10}
Av. yield	44.58	41.85	47.98	37.47	41.88	45.75	44.25	44.61	42.53	44.98

S.E./mean = 3.20 tons/ac.

Crop :- Sugarcane.**Ref :- U.P. 56(307).****Zone :- Golagorannath (Kheri, c.f.).****Type :- 'M'.**

Object :—To study the effect of A/S and F.Y.M. on the yield of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) G.M. (c) Nil. (ii) Loam soil. (iii) G.M. (iv) CO. S. 510 (improved). (v) (a) N.A. (b) Flat planting with tractor. (c) 1560 buds/plot. (d) Rows 3' apart. (e) N.A. (vi) 20.3.1956. (vii) Irrigated. (viii) N.A. (ix) 45". (x) 15 and 20.2.1957.

2. TREATMENTS :5 manurial treatments : M_0 =No manure (control), M_1 =120 lb./ac. of N as A/S applied in furrows at planting, M_2 =120 lb./ac. of N as F.Y.M. applied 15 to 30 days before planting, M_3 =60 lb./ac. of N as A/S and 60 lb./ac. of N as F.Y.M. mixed together and applied 15 to 30 days before planting and M_4 =60 lb./ac. of N as F.Y.M. applied 15 to 30 days before planting and 60 lb./ac. of N as A/S applied in furrows at planting.**3. DESIGN :**

(i) and (ii) 4 replications in R.B.D. (iii) (a) 60' × 24'. (b) 54' × 18'. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of sugarcane. (iv) (a) and (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 27.18 tons/ac. (ii) 1.54 tons/ac. (iii) Treatment differences are highly significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	M_0	M_1	M_2	M_3	M_4
Av. yield	23.97	25.83	27.47	29.02	29.63

S.E./mean = 0.82 tons/ac.

Crop :- Sugarcane.**Ref :- U.P. 57(191).****Zone :- Golagokrannath (Kheri, c.f.).****Type :- 'M'.**

Object :—To study the effect of A/S and F.Y.M. on the yield of Sugarcane.

1. BASAL CONDITIONS :

(i) to (x) N.A.

2. TREATMENTS :

Same as in expt. no. 56 (307) above.

3. DESIGN :

(i) and (ii) R.B.D. with 4 replications. (iii) (a) N.A. (b) 67' × 18'. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of sugarcane. (iv) (a) and (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 22.05 tons/ac. (ii) 0.03 tons/ac. (iii) Treatment differences are significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	M_0	M_1	M_2	M_3	M_4
Av. yield	21.12	23.70	22.84	19.52	23.09

S.E./mean = 0.02 tons/ac.

Crop :- Sugarcane.**Ref :- U.P. 58(284).****Zone :- Golagokranath (Kheri, c.f.).****Type :- 'M'.**

Object :—To study the effect of A/S and F.Y.M. on the yield of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Fallow. (c) N.A. (ii) Sandy loam. (iii) N.A. (iv) CO. S.510. (v) (a) 1 ploughing by disc plough, 3 by offset and 9 by harrow. (b) Flat furrows opened by tractor. (c) to (e) N.A. (vi) 18 and 19 10.1957. (vii) N.A. (viii) 7 hoeings by *kassi*. (ix) and (x) N.A.

2. TREATMENTS

Same as in expt. no. 56(307) on page 1060.

3. DESIGN :

(i) and (ii) R.B.D. with 6 replications. (iii) (a) N.A. (b) 58' × 18'. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of sugarcane. (iv) (a) and (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 20.71 tons/ac. (ii) 2.82 tons/ac. (iii) Treatment differences are significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	M ₀	M ₁	M ₂	M ₃	M ₄
Av. yield	17.10	23.45	20.93	21.41	20.67

S.E./mean = 1.15 tons/ac.

Crop :- Sugarcane.**Ref :- U.P. 59(318).****Zone :- Golagokerannath (Kheri, c.f.).****Type :- 'M'.**

Object :—To study the efficacy of Stera meal planting mixture on Sugarcane.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) *Dhaincha*. (c) N.A. (ii) Sandy loam. (iii) Compost at 20 C.L./ac. + F.Y.M. at 20 C.L./ac. (iv) CO.S. 510. (v) (a) 7 *desi* ploughings, 3 tractor ploughings and 1 harrowing. (b) to (e) N.A. (vi) 15.2.1959. (vii) Irrigated. (viii) 7 hoeings. (ix) N.A. (x) 31.1.1960 to 1.2.1960.

2. TREATMENTS :

3 manurial treatments : T₁ = Control (60 lb./ac. of N as A/S), T₂ = Stera meal planting mixture (60 lb./ac. of N + 86 lb./ac. of P₂O₅ + 43 lb./ac. of K₂O) + A/S at 60 lb./ac. of N, T₃ = G.N.C. (60 lb./ac. of N + 18 lb./ac. of P₂O₅ + 17 lb./ac. of K₂O) + A/S at 60 lb./ac. of N + Super at 68 lb./ac. of P₂O₅ + Mur. Pot. at 17 lb./ac. of K₂O.

3. DESIGN :

(i) and (ii) R.B.D. with 6 replications. (iii) (a) N.A. (b) 54' × 21'. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Sugarcane yield. (iv) (a) and (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 15.29 tons/ac. (ii) 2.38 tons/ac. (iii) Treatment differences are significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	T ₁	T ₂	T ₃
Av. yield	13.08	15.70	17.10

S.E./mean = 0.97 tons/ac.

Crop :- Sugarcane.**Ref :- U.P. 54(253).****Zone :- Golagokarannath (Kheri, c.f.).****Type :- 'M'.**

Object :—To study the effect of different methods of application of P on Sugarcane.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) *Sanai* for G.M. (c) 100 mds./ac. of press mud. (ii) Heavy loam. (iii) 12 mds./ac. of cake at planting+*Sanai* G.M. (iv) CO. 527 (improved). (v) (a) N.A. (b) Flat planting. (c) 65 (3 budded) setts/row. (d) Rows 3' apart. (e) N.A. (vi) 4.2.1954. (vii) Irrigated. (viii) and (ix) N.A. (x) 2 and 3.3.1955.

2. TREATMENTS :

3 methods of application of 120 lb./ac. of P_2O_5 : M_0 =Control (No P_2O_5), M_1 =Broadcast before planting and M_2 =Applied at 3" to 4" depth in furrows before planting.

3. DESIGN :

(i) and (ii) 6 replications in R.B.D. (iii) (a) 60'×24'. (b) 54'×18'. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Germination %, no. of tillers, millable cane, yield of sugarcane and juice analysis. (iv) (a) and (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 15.56 tons/ac. (ii) 3.74 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	M_0	M_1	M_2
Av. yield	14.58	16.11	15.98

S.E./mean = 1.53 tons/ac.

Crop :- Sugarcane.**Ref :- U.P. 54(255).****Zone :- Golagokarannath (Kheri, c.f.).****Type :- 'M'.**

Object :—To study the effect of Super in combination with G.M. on the yield of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) As per treatments. (c) As per treatments+150 mds./ac. of press mud before *sanai* sowing. (ii) Heavy loam. (iii) 12 mds./ac. cake at planting time. (iv) CO. 527 (improved). (v) (a) N.A. (b) Flat planting. (c) 65 (3-budded) setts/row. (d) Rows 3' apart. (e) N.A. (vi) 4.2.1954. (vii) Irrigated. (viii) and (ix) N.A. (x) 2 and 3.3.1955.

2. TREATMENTS :

3 treatments : T_1 =*Sanai* G.M. (control), T_2 =Super at 60 lb./ac. of P_2O_5 applied at the time of *sanai* sowing and T_3 =Super at 60 lb./ac. of P_2O_5 applied at the time of turning of *sanai*.

3. DESIGN :

(i) and (ii) 6 replications in R.B.D. (iii) (a) 60'×24'. (b) 54'×18'. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Germination %, tiller count, millable cane, yield of cane and juice analysis. (iv) (a) 1953—contd. (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 19.53 tons/ac. (ii) 3.48 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	T ₁	T ₂	T ₃
Av. yield	20.19	18.25	20.15

S.E./mean = 1.42 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 55(255).

Zone :- Golagokranath (Kheri,c.f.).

Type :- 'M'.

Object :—To study the effect of Super in combination with G.M. on the yield of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) As per treatments. (c) As per treatments+100 mds./ac. of press mud. (ii) Heavy loam. (iii) 8 mds./ac. of G.N.C.+1½ mds./ac. of A/S on 5.3.1955. (iv) CO.S. 510 (improved). (v) (a) 2 ploughings by harrow plough and 4 harrowings by *disc* harrow. (b) Flat planting. (c) 1560 buds/plot. (d) 8 rows/plot. (e) N.A. (vi) 5 and 6.3.1955. (vii) Irrigated. (viii) 1 earthing by tractor, 7 hoeings by *kudali* and 1 hoeing by cultivator. (ix) 45". (x) N.A.

2. TREATMENTS :

Same as in expt. no. 54(255) on page 1062.

3. DESIGN :

(i) and (ii) 6 replications in R.B.D. (iii) (a) 60'×28'. (b) 53'×21'. (iv) Yes.

4. GENERAL :

Same as in expt. no. 54(255) on page 1062.

5. RESULTS :

(i) 31.09 tons/ac. (ii) 5.83 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	T ₁	T ₂	T ₃
Av. yield	31.28	30.65	31.34

S.E./mean = 2.38 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 56(313).

Zone :- Golagokarannath (Kheri, c.f.).

Type :- 'M'.

Object :—To study the effect of Super in combination with G.M. on the yield of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) As per treatments. (c) 100 mds./ac. of press mud. (ii) Loam soil. (iii) Cake and Urea mixture (7 : 1 ratio) at 25 lb./ac. of N on 9 6.1956. (iv) CO.S. 510 (improved). (v) (a) 8 harrowings. (b) Flat planting. (c) 1320 buds/plot. (d) Rows 3' apart. (e) N.A. (vi) 30 and 31.1.1956. (vii) Irrigated. (viii) 3 hoeings. (ix) 45". (x) N.A.

2. TREATMENTS :

Same as in expt. no. 54(255) on page 1062.

3. DESIGN :

(i) and (ii) 6 replications in R.B.D. (iii) (a) 50'×28'. (b) 43'×21'. (iv) Yes.

4. GENERAL :

Same as in expt. no. 54(255) on page 1062.

5. RESULTS :

(i) 29.32 tons/ac. (ii) 3.12 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	T ₁	T ₂	T ₃
Av. yield	30.44	29.26	28.26

S.E./mean = 1.27 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 57(177).

Zone :- Golagokarannath (Kheri, c.f.).

Type :- 'M'.

Object :—To study the effect of Super in combination with G.M. on the yield of Sugarcane.

1. BASAL CONDITIONS :

(i) to (x) N.A.

2. TREATMENTS :

T₁=*Sanai* or *Dhaincha* G.M. (control), T₂=P₂O₅ at 60 lb./ac. as Super broadcast at the time of sowing *Sanai* or *Dhaincha* and T₃=P₂O₅ at 60 lb./ac. as Super at the time of ploughing in *Sanai* or *Dhaincha* crop.

3. DESIGN :

(i) and (ii) R.B.D. with 6 replications. (iii) (a) N.A. (b) 44' × 18'. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of sugarcane. (iv) (a) 1954—N.A. (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 39.42 tons/ac. (ii) 4.11 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	T ₁	T ₂	T ₃
Av. yield	36.89	39.57	41.80

S.E./mean = 1.68 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 59(378).

Zone :- Golagokarannath (Kheri, c.f.).

Type :- 'M'.

Object :— To study the effect of different sources of P in the presence of N on Sugarcane.

1. BASAL CONDITIONS :

(i) (a) and (b) N.A. (c) As per treatments. (ii) Sandy loam. (iii) Nil. (iv) CO.S. 510. (v) (a) 3 disc plough, 1 harrow plough and 7 harrowings. (b) Flat planting in furrows opened by tractor. (c) to (e) N.A. (vi) 12 and 13.3.1959. (vii) Irrigated. (viii) 11 hoeings. (ix) N.A. (x) 14 and 15.2.1960.

2. TREATMENTS :

T₁=G.M. alone, T₂=F.Y.M. at 60 lb./ac. of N applied 6 weeks before planting, T₃=A/S at 60 lb./ac. of N applied at planting, T₄=G.M.+Super applied at 100 lb./ac. of P₂O₅ at sowing of G.M., T₅=G.M.+Dical. Phos. at 100 lb./ac. of P₂O₅ at sowing of G.M. crop, T₆=G.M.+Super at 100 lb./ac. of P₂O₅ at planting of cane, T₇=G.M.+Dical. Phos. at 100 lb./ac. of P₂O₅ at planting of cane, T₈=F.Y.M. at 60 lb./ac. of N applied 6 weeks before planting and Super at 100 lb./ac. of P₂O₅ applied at planting, T₉=F.Y.M. at 60 lb./ac. of N and Super at 100 lb./ac. of P₂O₅ mixed together and applied 6 weeks before planting and T₁₀=A/S at 60 lb./ac. of N and Super at 100 lb./ac. of P₂O₅ applied at planting.

3. DESIGN :

(i) and (ii) R.B.D. with 4 replications. (iii) (a) 50' × 28'. (b) 44' × 21'. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of sugarcane. (iv) (a) 1957—1959. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 31.07 tons/ac. (ii) 3.65 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	T ₁	T ₂	T ₃	T ₄	T ₅	T ₆	T ₇	T ₈	T ₉	T ₁₀
Av. yield	26.28	32.89	32.15	28.69	29.39	34.68	29.83	32.84	32.31	31.63

S E./mean = 1.82 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 56(487).

Zone :- Golagokarnnath (Kheri c.f.).

Type :- 'M'.

Object :— To study the effect of N and P on the yield of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) *Sanai* in 2 trials, fallow in 3 trials, paddy in 7 trials and potato in 1 trial. (c) N.A. (ii) In 4 trials clay loam while in rest of the trials it is sandy loam. (iii) N.A. in 6 trials, G.M. by *sanai* in 2 trials and F.Y.M. at 160 mds./ac. in 5 trials. (iv) CO. 527. (v) (a) to (e) N.A. (vi) February, 1956. (vii) Irrigated. (viii) Hoeings and earthings. (ix) N.A. (x) Dec., 1956 to Jan., 1957.

2. TREATMENTS :

All combinations of (1) and (2)

(1) 4 levels of N : N₀=0, N₁=60, N₂=120 and N₃=180 lb./ac.

(2) 3 levels of P₂O₅ : P₀=0, P₁=40 and P₂=80 lb./ac.

3. DESIGN :

(i) and (ii) In the zone 13 villages were selected and in each village the experiment was conducted as an R.B.D. with 3 replications. (iii) (a) and (b) Varies for different experiments. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. for 5 trials, 1 rep. of 1 trial poor, patchy growth in 1 trial, crop lodged in 3 trials and good growth in 3 trials. Attack of wilt and borer in 5 trials, attack of wilt only in 2 trials, no disease in 2 trials and information not available in 4 trials. (iii) Yield of sugarcane. (iv) and (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 29.48 tons/ac. (ii) 2.58 tons/ac. (iii) Main effect of N and P are highly significant. (iv) Av. yield of sugarcane in tons/ac.

	N ₀	N ₁	N ₂	N ₃	Mean
P ₀	22.48	28.06	29.85	29.55	27.48
P ₁	25.94	32.23	34.59	32.77	31.38
P ₂	25.21	29.43	32.11	31.55	29.58
Mean	24.54	29.91	32.18	31.29	29.48

S.E. of N marginal mean = 0.24 tons/ac.

S.E. of P marginal mean = 0.21 tons/ac.

S.E. of body of table = 0.41 tons/ac.

Crop :- Sugarcane.**Ref :- U.P. 59(321).****Zone :- Golagokarannath (Kheri, c.f.).****Type :- 'M'.**

Object :— To study the effect of different organic and inorganic manures on Sugarcane.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) *Dhaincha* as G.M. (c) N.A. (ii) Sandy loam. (iii) 60 lb./ac. of N as G.M. (iv) CO.S. 510. (v) (a) 3 disc ploughings, 1 harrow ploughing and 11 harrowings. (b) Planting in flat furrows opened by tractor. (c) N.A. (d) 3½' between rows. (e) N.A. (vi) 12 and 13.3.1959. (vii) Irrigated. (viii) 4 hoeings. (ix) 46.1". (x) N.A.

2. TREATMENTS :

6 sources of 60 lb./ac. of N : S₀=Control, S₁=A/C, S₂=A/S, S₃=Urea, S₄=Blood meal and S₅=G.N.C.

3. DESIGN :

(i) and (ii) R.B.D. with 4 replications. (iii) (a) 60' × 28'. (b) N.A. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Sugarcane yield. (iv) (a) 1956--1959. (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 19.71 tons/ac. (ii) 1.44 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	S ₀	S ₁	S ₂	S ₃	S ₄	S ₅
Av. yield	18.04	20.97	20.57	19.14	20.42	19.14

S.E./mean = 0.72 tons/ac.

Crop :- Sugarcane.**Ref :- U.P. 57(76).****Zone :- Daurala (Meerut, c.f.).****Type :- 'M'.**

Object :— To find out the optimum level of N for Sugarcane (ratoon).

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Sugarcane. (c) N.A. (ii) Sandy loam. (iii) Nil. (iv) CO.S. 245 (improved). (v) (a) to (c) N.A. (d) Rows 3' apart. (e) N.A. (vi) 7 to 24.3.1957. (vii) Irrigated. (viii) 5 hoeings by spade, 1 earthing by spade and binding of cane. (ix) N.A. (x) 27 and 28.12.1957.

2. TREATMENTS :

4 levels of N : N₀=0, N₁=40, N₂=80 and N₃=120 lb./ac.
N top dressed on 30.4.1957 as mixture of G.N.C. and A/S in 1 : 1 ratio.

3. DESIGN :

(i) and (ii) R.B.D. with 4 replications. (iii) (a) 87' × 27'. (b) 87' × 21'. (iv) Yes.

4. GENERAL :

(i) N.A. (ii) Roguing done against smut. (iii) Spraying of Endrine at 10 ozs. in 50 gallons of water. (iii) Tiller count, juice analysis and yield of sugarcane. (iv) (a) and (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 11.73 tons/ac. (ii) 2.49 tons/ac. (iii) Treatment differences are significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	N ₀	N ₁	N ₂	N ₃
Av. yield	9.78	9.55	12.37	15.22

S.E./mean = 1.24 tons/ac.

Crop :- Sugarcane.**Ref :- U.P. 56(51).****Zone :- Maliana (Meerut, c.f.).****Type :- 'M'.**

Object :—To find out the optimum level of N for Sugarcane (ratoon).

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Sugarcane. (c) N.A. (ii) Loam. (iii) Nil. (iv) CO.S. 245 (improved). (v) (a) to (c) N.A. (d) Rows 3' apart. (e) N.A. (vi) Ratoon : 4th week of March, 1956. (vii) Irrigated. (viii) 2 hoeings by *desi* plough, 2 hoeings by cultivator and binding of cane. (ix) N.A. (x) 13 to 15.12.1956.

2. TREATMENTS :

4 levels of N : $N_0=0$, $N_1=40$, $N_2=80$ and $N_3=120$ lb./ac.
N top dressed as mixture of A/S and G.N.C. in 1 : 1 ratio.

3. DESIGN :

(i) and (ii) R.B.D. with 4 replications. (iii) (a) 73'×24'. (b) 73'×18'. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Juice analysis and yield of sugarcane. (iv) (a) 1955–1957 (trial failed in 1955). (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 9.10 tons/ac. (ii) 1.90 tons/ac. (iii) Treatment differences are significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	N_0	N_1	N_2	N_3
Av. yield	6.9	7.53	11.18	10.73

S.E./mean = 0.95 tons/ac.

Crop :- Sugarcane.**Ref :- U.P. 57(75).****Zone :- Maliana (Meerut, c.f.).****Type :- 'M'.**

Object :—To find out the optimum level of N for Sugarcane (ratoon).

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Sugarcane. (c) N.A. (ii) N.A. (iii) Nil. (iv) CO.S. 245 (improved). (v) (a) to (c) N.A. (d) Rows 3' apart. (e) N.A. (vi) Ratoon : 24.3.1957. (vii) Irrigated. (viii) 6 hoeings. (ix) N.A. (x) 3 to 6.1.1958.

2. TREATMENTS to 4. GENERAL :

Same as in expt. no. 56(51) above.

5. RESULTS :

(i) 15.19 tons/ac. (ii) 1.08 tons/ac. (iii) Treatment differences are highly significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	N_0	N_1	N_2	N_3
Av. yield	13.76	13.80	16.16	17.06

S.E./mean = 0.54 tons/ac.

Crop :- Sugarcane.**Ref :- U.P. 56(56).****Zone :- Maliana (Meerut, c.f.).****Type :- 'M'.**

Object :—To study the effect of A/S and A/C on Sugarcane.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Loam. (iii) 80 lb./ac. of N as F.Y.M. (iv) CO.S. 245 (improved). (v) (a) N.A. (b) Trench planting. (c) 102 (3-budded) setts/row. (d) Rows 3' apart. (e) N.A. (vi) 3.3.1956. (vii) Irrigated. (viii) 1 hoeing, 2 earthings and binding of cane. (ix) N.A. (x) 26 and 27.3.1957.

2. TREATMENTS :

3 sources of 60 lb./ac. of N : S_0 =Control (no application), S_1 =A/S and S_2 =A/C. N applied on 4.3.1956.

3. DESIGN :

(i) and (ii) R.B.D. with 4 replications. (iii) (a) 100'×30'. (b) 100'×24'. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Germination %, tiller counts and yield of sugarcane. (iv) (a) and (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 24.40 tons/ac. (ii) 0.84 tons/ac. (iii) Treatment differences are highly significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	S_0	S_1	S_2
Av. yield	22.61	24.73	25.85

S.E./mean = 0.42 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 57(62).

Zone :- Maliana (Meerut, c.f.).

Type :- 'M'.

Object :- To find out the suitable time of application of F.Y.M. and a mixture of G.N.C. and A/S to Sugarcane.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) *Guar*. (c) N.A. (ii) Sandy loam. (iii) Nil. (iv) CO.S. 245 (improved). (v) (a) 14 ploughings by tractor and *desi* plough. (b) Trench planted. (c) 65 (3-budded) setts/row. (d) Rows 3' apart. (e) N.A. (vi) 12 and 13.2.1957. (vii) Irrigated. (viii) 8 hoeings by *khurpi* and cultivator. (ix) N.A. (x) 22 and 23.3.1958.

2. TREATMENTS :

6 manurial treatments : M_1 =60 lb./ac. of N as F.Y.M. applied before planting, M_2 = M_1 +60 lb./ac. of N as mixture at planting, M_3 = M_1 +60 lb./ac. of N as mixture in June, M_4 =60 lb./ac. of N as F.Y.M. applied at planting, M_5 = M_4 +60 lb./ac. of N as mixture applied at planting and M_6 = M_4 +60 lb./ac. of N as mixture applied in June.

Mixture contains G.N.C. and F.Y.M. in 1 : 1 ratio.

3. DESIGN :

(i) and (ii) R.B.D. with 4 replications. (iii) (a) 63'×27'. (b) 63'×21'. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Tiller count, sugarcane yield and juice analysis. (iv) (a) and (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 17.40 tons/ac. (ii) 1.37 tons/ac. (iii) Treatment differences are significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	M_1	M_2	M_3	M_4	M_5	M_6
Av. yield	18.85	17.77	18.96	16.49	16.33	16.01

S.E./mean = 0.66 tons/ac.

Crop :- Sugarcane.**Ref :- U.P. 54(128).****Zone :- Modinagar (Meerut, c.f.).****Type :- 'M'.**

Object :—To find out the suitable time of application of F.Y.M. and a mixture of G.N.C. and A/S on Sugarcane.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Fallow. (c) Nil. (ii) Sandy loam. (iii) Nil. (iv) CO.S. 321 (improved). (v) (a) N.A. (b) Flat planting. (c) 52 (3-budded) setts/row. (d) Rows 3' apart. (e) N.A. (vi) 16.3.1954. (vii) to (ix) N.A. (x) 4, 5 and 7.3.1955.

2. TREATMENTS :**Main-plot treatments :**

2 times of application of 60 lb./ac. of N as F.Y.M. : $F_1=2$ months before planting and $F_2=At$ planting.

Sub-plot treatments :

3 times of application of 60 lb./ac. of N as mixture : $M_0=Control$ (no application), $M_1=At$ planting and $M_2=In$ June.

Mixture contains G.N.C. and A/S in 1 : 1 ratio.

3. DESIGN :

(i) and (ii) Split-plot with 4 replications. (iii) (a) $50' \times 21'$. (b) $44' \times 15'$. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Germination %, tiller count, millable cane and yield of sugarcane. (iv) (a) and (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 25.49 tons/ac. (ii) (a) 4.74 tons/ac. (b) 3.03 tons/ac. (iii) Interaction of $T \times M$ is significant. (iv) Av. yield of sugarcane in tons/ac.

	M_0	M_1	M_2	Mean
F_0	26.97	19.56	29.34	25.29
F_1	26.94	28.21	21.92	25.69
Mean	26.96	23.88	25.63	25.49

S.E. of difference of two

- | | |
|-----------------------------------|-----------------|
| 1. T marginal means | = 1.94 tons/ac. |
| 2. M marginal means | = 1.52 tons/ac. |
| 3. M means at the same level of T | = 2.14 tons/ac. |
| 4. T means at the same level of M | = 2.60 tons/ac. |

Crop :- Sugarcane.**Ref :- U.P. 55(105).****Zone :- Modinagar (Meerut, c.f.).****Type :- 'M'.**

Object :—To find out the optimum level of N for Sugarcane (ratoon).

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Sugarcane. (c) N.A. (ii) Loam. (iii) Nil. (iv) N.A. (v) (a) N.A. (b) Flat planting. (c) 75 setts (3 budded)/row. (d) Rows 3' apart. (e) N.A. (vi) Ratoon : 7,11 and 12.3.1955. (vii) Irrigated. (viii) 3 hoeings. (ix) N.A. (x) 21 and 22.12.1955.

2. TREATMENTS :

4 levels of N as castor cake : $N_0=0$, $N_1=40$, $N_2=80$ and $N_3=120$ lb./ac. N applied on 8.4.1955.

3. DESIGN :

(i) and (ii) R.B.D. with 4 replications. (iii) (a) $73' \times 21'$. (b) $67' \times 15'$. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Tiller count, yield of sugarcane and juice analysis. (iv) (a) and (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 14.66 tons/ac. (ii) 4.02 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	N ₀	N ₁	N ₂	N ₃
Av. yield	15.53	15.81	12.55	14.74

S.E./mean = 2.01 tons/ac.

Crop :- Sugarcane.

Zone :- Mohiuddinpur (Meerut, c.f.).

Ref :- U.P. 56(55).

Type :- 'M'.

Object :- To find out the optimum level of N for Sugarcane (ratoon).

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Sugarcane. (c) N.A. (ii) Clay loam. (iii) Nil. (iv) CO.S. 321 (improved). (v) (a) N.A. (b) and (c) N.A. (d) Rows 3' apart. (e) N.A. (vi) Ratoon : 3rd week of March, 1956. (vii) Irrigated. (viii) and (ix) N.A. (x) 3 to 5.1.1957.

2. TREATMENTS :

4 levels of N : N₀=0, N₁=40, N₂=80 and N₃=120 lb./ac.
N top dressed as mixture of G.N.C. and A/S in 1 : 1 ratio.

3. DESIGN :

(i) and (ii) R.B.D. with 4 replications. (iii) (a) 85' × 22'. (b) 85' × 15'. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Tillers and yield of sugarcane. (iv) (a) 1956--1957. (b) No. (c) Ni. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 26.30 tons/ac. (ii) 3.28 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	N ₀	N ₁	N ₂	N ₃
Av. yield	23.82	27.92	27.04	26.43

S.E./mean = 1.64 tons/ac.

Crop :- Sugarcane.

Zone :- Mohiuddinpur (Meerut, c.f.).

Ref :- U.P. 57(60).

Type :- 'M'.

Object :- To find out the optimum level of N for Sugarcane (ratoon).

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Sugarcane. (c) N.A. (ii) N.A. (iii) Nil. (iv) CO.S. 321 (improved). (v) (a) to (c) N.A. (d) Rows 3' apart. (e) N.A. (vi) N.A. (vii) Irrigated. (viii) 2 hoeings by cultivator and binding of cane. (ix) N.A. (x) 21 to 24.12.1957.

2. TREATMENTS :

Same as in expt. no. 56(55) above.

3. DESIGN :

(i) and (ii) R.B.D. with 4 replications. (iii) (a) 80'×30'. (b) 80'×24'. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Tiller count, juice analysis and yield of sugarcane. (iv) (a) 1956—1957. (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 23.25 tons/ac. (ii) 6.45 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	N ₀	N ₁	N ₂	N ₃
Av. yield	20.31	20.22	25.81	26.68

S.E./mean = 3.22 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 55(101).

Zone :- Mowana Kalan (Meerut, c.f.).

Type :- 'M'.

Object :—To find out the optimum level of N for Sugarcane (ratoon).

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Sugarcane. (c) N.A. (ii) Sandy loam. (iii) N.A. (iv) CO. 321 (improved). (v) (a) N.A. (b) Flat planting. (c) to (e) N.A. (vi) Ratoon : 7.3.1955. (vii) Irrigated. (viii) 3 hoeings, 1 earthing and binding of cane. (ix) N.A. (x) 20 and 30.12.1955.

2. TREATMENTS :

Same as in expt. no. 56(55) on page 1070.

3. DESIGN :

(i) and (ii) R.B.D. with 4 replications. (iii) (a) 54'×46'. (b) 48'×40'. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Tiller count, yield of sugarcane and juice analysis. (iv) (a) 1955—1957. (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 22.43 tons/ac. (ii) 1.88 tons/ac. (iii) Treatment differences are significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	N ₀	N ₁	N ₂	N ₃
Av. yield	19.16	22.89	23.36	24.32

S.E./mean = 0.94 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 56(52).

Zone :- Mowana Kalan (Meerut, c.f.).

Type :- 'M'.

Object :—To find out the optimum level of N for Sugarcane (ratoon).

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Sugarcane. (c) N.A. (ii) Sandy loam. (iii) Nil. (iv) CO.S. 321 (improved). (v) (a) to (c) N.A. (d) Rows 3' apart. (e) N.A. (vi) Ratoon : 1st week of April, 1956. (vii) Irrigated. (viii) Hoeing by *desi* plough, 2 earthings and binding of canes. (ix) N.A. (x) 22 to 25.12.1956.

2. TREATMENTS :

Same as in expt. no. 56(55) on page 1070.

3. DESIGN :

(i) and (ii) R.B.D. with 4 replications. (iii) (a) 73' × 24'. (b) 73' × 18'. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Tiller count, yield of sugarcane and juice analysis. (iv) (a) 1955-1957. (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 27.80 tons/ac. (ii) 2.40 tons/ac. (iii) Treatment differences are highly significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	N ₀	N ₁	N ₂	N ₃
Av. yield	23.24	27.42	29.12	31.43

S.E./mean = 1.20 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 57(73).

Zone :- Mowana Kalan (Meerut, c.f.).

Type :- 'M'.

Object :- To find out the optimum level of N for Sugarcane (ratoon).

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Sugarcane. (c) N.A. (ii) N.A. (iii) Nil. (iv) CO.S. 245 (improved). (v) (a) to (c) N.A. (d) Rows 3' apart. (e) N.A. (vi) Ratoon : 3rd week of March, 1957. (vii) Irrigated. (viii) and (ix) N.A. (x) 12 and 13.12.1957.

2. TREATMENTS :

Same as in expt. no. 56(53) on page 1070.

3. DESIGN :

(i) and (ii) R.B.D. with 6 replications. (iii) (a) 76' × 27'. (b) 76' × 21'. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Tiller count, juice analysis and yield of sugarcane. (iv) (a) 1955-1957. (b) No. (c) Nil. (v) (a) and (b) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 18.86 tons/ac. (ii) 1.65 tons/ac. (iii) Treatment differences are highly significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	N ₀	N ₁	N ₂	N ₃
Av. yield	15.63	18.43	20.36	21.01

S.E./mean = 0.82 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 56(60).

Zone :- Mowana Kalan (Meerut, c.f.).

Type :- 'M'.

Object :- To study the effect of A/S and A/C on Sugarcane.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Pea for fodder. (c) Nil. (ii) Sandy loam. (iii) 80 lb./ac. of N as F.Y.M. (iv) CO.S. 245 (improved). (v) (a) 3 ploughings by tractor and 2 harrowings by disc harrow. (b) Flat planting. (c) 76, sets (3-budded)/row. (d) Rows 3' apart. (e) N.A. (vi) 6.3.1956. (vii) Irrigated. (viii) 2 blind hoeings, 5 hoeings by cultivator, earthing up twice and binding of canes. (ix) N.A. (x) 14 and 15.3.1957.

2. TREATMENTS :

3 sources of 60 lb./ac. of N : $S_0=0$, $S_1=A/S$ and $S_2=A/C$.

N applied in two doses $\frac{1}{2}$ at planting and half 3 months after planting.

3. DESIGN :

(i) and (ii) R.B.D. with 6 replications. (iii) (a) 74' × 30'. (b) 68' × 24'. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Germination %, no. of tillers and yield of sugarcane. (iv) (a) and (b) No. (c) Nil.

(v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 35.30 tons/ac. (ii) 1.71 tons/ac. (iii) Treatment differences are highly significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	S_0	S_1	S_2
Av. yield	32.04	34.31	39.56
S.E./mean = 0.70 tons/ac.			

Crop :- Sugarcane.

Ref :- U.P. 58(466).

Zone :- Mawana Kalan (Meerut, c.f.).

Type :- 'M'.

Object :- To study the effect of N and different sources and times of application of P on Sugarcane.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) *Guar*. (c) As per treatments. (ii) Sandy loam. (iii) Nil. (iv) CO. S. 515 (improved). (v) (a) 3 ploughings by tillers, 1 ploughing by *desi* plough and 1 *palewa*. (b) Flat planting. (c) 1206 buds/plot. (d) Rows 3' apart. (e) N.A. (vi) 3.3.1958. (vii) Irrigated. (viii) 1 blind hoeing. (ix) N.A. (x) 19 and 20.2.1959.

2. TREATMENTS :

8 manurial treatments : $T_1=100$ lb./ac. of P_2O_5 as Dical. phos. applied at sowing of G.M., $T_2=100$ lb./ac. of P_2O_5 as Kotka phos. applied at sowing of G.M., $T_3=100$ lb./ac. of P_2O_5 as Super applied at sowing of G.M., $T_4=G.M.$ grown without P_2O_5 and turned in, $T_5=60$ lb./ac. of N as A/S+100 lb./ac. of P_2O_5 as Dical. Phos. applied in furrows at planting of cane, $T_6=60$ lb./ac. of N as A/S+100 lb./ac. of P_2O_5 as Kotka Phos. applied in furrows at the time of planting, $T_7=60$ lb./ac. of N as A/S+100 lb./ac. of P_2O_5 as Super applied in furrows at the time of planting and $T_8=60$ lb./ac. of N as A/S at planting.

3. DESIGN :

(i) and (ii) R.B.D. with 4 replications. (iii) (a) and (b) 65' × 18'. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Germination %, no. of tillers, juice analysis and yield of sugarcane. (iv) (a) and (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 1180 tons/ac. (ii) 1.43 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	T_1	T_2	T_3	T_4	T_5	T_6	T_7	T_8
Av. yield	12.16	12.26	11.18	10.86	12.99	11.83	12.16	11.00
S.E./mean = 0.72 tons/ac.								

Crop :- Sugarcane.**Ref :- U.P. 56(50).****Zone :- Sakoti Tanda (Meerut, c.f.).****Type :- 'M'.**

Object :—To find out the optimum level of N for Sugarcane (ratoon).

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Sugarcane. (c) N.A. (ii) Sandy loam. (iii) Nil. (iv) CO. S. 245 (improved). (v) (a) to (c) N.A. (d) Rows 3' apart. (e) N.A. (vi) Ratoon : 3.3.1956 to 16.3.1956. (vii) Irrigated. (viii) Hoeing by *desi* plough, 1 hoeing by spade and binding of cane. (ix) N.A. (x) 27 to 29.12.1956.

2. TREATMENTS :

4 levels of N : N_0 =Control, N_1 =40, N_2 =80 and N_3 =120 lb./ac.

N top-dressed as mixture of G.N.C. and A/S in 1 : 1 ratio.

3. DESIGN :

(i) and (ii) R.B.D. with 4 replications. (iii) (a) 80'×65'. (b) 75.5'×65'. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Juice analysis and yield of sugarcane. (iv) (a) 1956—1957. (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 17.16 tons/ac. (ii) 1.35 tons/ac. (iii) Treatment differences are highly significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	N_0	N_1	N_2	N_3
Av. yield	14.42	16.63	18.24	19.36

S.E./mean = 0.67 tons/ac.

Crop :- Sugarcane.**Ref :- U.P. 57(77).****Zone :- Sakoti Tanda (Meerut, c.f.).****Type :- 'M'.**

Object :—To find out the optimum level of N for Sugarcane (ratoon).

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Sugarcane. (c) N.A. (ii) Loam. (iii) Nil. (iv) CO. S. 245 (improved). (v) (a) to (c) N.A. (d) Rows 3' apart. (e) N.A. (vi) N.A. (vii) Irrigated. (viii) and (ix) N.A. (x) 24 and 25.12.1957.

2. TREATMENTS :

Same as in expt. no. 56(50) above.

3. DESIGN :

(i) and (ii) R.B.D. with 4 replications. (iii) (a) 75'×21'. (b) 75'×15'. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) No. of tillers, juice analysis and yield of sugarcane. (iv) (a) 1956—1957. (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 12.33 tons/ac. (ii) 2.48 tons/ac. (iii) Treatment differences are significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	N_0	N_1	N_2	N_3
Av. yield	8.68	12.13	12.64	15.85

S.E./mean = 1.24 tons/ac.

Crop :- Sugarcane.**Ref :- U.P. 56(58).****Zone :- Simbhaoli (Meerut, c.f.).****Type :- 'M'.**

Object :— To find out the suitable time of application of F.Y.M. and a mixture of G.N.C. and A/S for Sugarcane.

1 BASAL CONDITIONS :

(i) (a) N.A. (b) Rape seed. (c) N.A. (ii) Sandy loam. (iii) G.M. (*lahi*) ploughed in. (iv) CC.S 245 (improved). (v) (a) 1 ploughing by *desi* plough, 3 harrowings by disc harrow and 4 harrowings by harrow. (b) Flat planting. (c) 75 setts (3 budded)/row. (d) 3' between rows. (e) N.A. (vi) 24.3.1956. (vii) Irrigated. (viii) 1 blind hoeing by *kassi*, 1 hoeing by *kassi* and 3 hoeings by cultivator. (ix) N.A. (x) 13, 14.1.1957.

2. TREATMENTS :

5 manurial treatments : $T_1=60$ lb./ac. of N as F.Y.M. applied $2\frac{1}{2}$ months before planting, $T_2=T_1+60$ lb./ac. of N as mixture at the time of planting, $T_3=T_1+60$ lb./ac. of N as mixture applied in June, $T_4=60$ lb./ac. of N as F.Y.M. at the time of planting, $T_5=T_4+60$ lb./ac. of N as mixture at the time of planting and $T_6=T_4+60$ lb./ac. of N as mixture applied in June.

Mixture is prepared of G.N.C. and A/S in 1 : 1 ratio.

3. DESIGN :

(i) and (ii) R.B.D. with 4 replications. (iii) (a) $73' \times 24'$. (b) $67' \times 18'$. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Germination %, r.o. of tillers, juice analysis and yield of sugarcane. (iv) (a) and (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 14.84 tons/ac. (ii) 1.35 tons/ac. (iii) Treatment differences are highly significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	T_1	T_2	T_3	T_4	T_5	T_6
Av. yield	13.51	18.26	16.82	12.73	13.56	14.19

S.E./mean = 0.67 tons/ac.

Crop :- Sugarcane.**Ref :- U.P. 57(82).****Zone :- Simbhaoli (Meerut, c.f.).****Type :- 'M'.**

Object :— To find out the optimum dose of N for Sugarcane (ratoon).

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Sugarcane. (c) N.A. (ii) Clay loam. (iii) Nil. (iv) CO.S. 245 (improved). (v) (a) to (c) N.A. (d) Rows 3' apart. (e) N.A. (vi) N.A. (vii) Irrigated. (viii) and (ix) N.A. (x) 27 and 28.11.1959.

2. TREATMENTS :

4 levels of N : $N_0=0$, $N_1=40$, $N_2=80$ and $N_3=120$ lb./ac.

N was applied as top dressing on 21.6.1957 in the form of a mixture of G.N.C. and A/S in 1 : 1 ratio.

3. DESIGN :

(i) and (ii) R.B.D. with 4 replications. (iii) (a) $73' \times 34'$. (b) $70' \times 29'$. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Juice analysis and yield of sugarcane. (iv) (a) and (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 14.67 tons/ac. (ii) 1.64 tons/ac. (iii) Treatment differences are highly significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	N ₀	N ₁	N ₂	N ₃
Av. yield	11.82	13.89	15.48	17.49

S.E./mean = 0.82 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 58(282).

Zone :- Bilari (Moradabad, c.f.).

Type :- 'M'.

Object :— To study the effect of A/S and F.Y.M. on the yield of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Potato. (c) N.A. (ii) Loam. (iii) N.A. (iv) CO.S. 510. (v) (a) 5 ploughings by tractor and cultivator. (b) Flat planting. (c) to (e) N.A. (vi) 10 and 11.3.1958. (vii) Irrigated. (viii) 3 hoeings. (ix) N.A. (x) 20.2.1959.

2. TREATMENTS :

5 manurial treatments: M₀=Control (no manure), M₁=120 lb./ac. of N as A/S in furrows at planting, M₂=120 lb./ac. of N as F.Y.M. 15 to 30 days before planting, M₃=120 lb./ac. of N, $\frac{1}{2}$ as A/S and $\frac{1}{2}$ as F.Y.M. applied mixed 15 to 30 days before planting and M₄=120 lb./ac. of N, $\frac{1}{2}$ as F.Y.M. applied 15 to 30 days before planting and $\frac{1}{2}$ as A/S applied in furrows at planting.

3. DESIGN :

(i) and (ii) R.B.D. with 6 replications. (iii) (a) N.A. (b) 58'×21'. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of sugarcane. (iv) (a) and (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 18.61 tons/ac. (ii) 1.57 tons/ac. (iii) Treatment differences are highly significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	M ₀	M ₁	M ₂	M ₃	M ₄
Av. yield	15.82	18.52	18.66	19.46	20.61

S.E./mean = 0.64 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 55(102).

Zone :- Mansurpur (Muzaffarnagar).

Type :- 'M'.

Object :— To find out the optimum level of N for Sugarcane (ratoon).

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Sugarcane. (c) N.A. (ii) Sandy loam. (iii) N.A. (iv) CO. 321 (improved). (v) and (vi) N.A. (vii) Irrigated. (viii) and (ix) N.A. (x) 22 and 23.1.1956.

2. TREATMENTS :

4 levels of N : N₀=0, N₁=40, N₂=80 and N₃=120 lb./ac.
N applied as G.N.C. and A/S in 1 : 1 ratio.

3. DESIGN :

(i) and (ii) R.B.D. with 4 replications. (iii) (a) 66'×36'. (b) 60'×30'. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) No. of tillers, yield of sugarcane and juice analysis. (iv) (a) 1955—1957. (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 20.64 tons/ac. (ii) 1.99 tons/ac. (iii) Treatment differences are significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	N ₀	N ₁	N ₂	N ₃
Av. yield	17.80	19.27	23.40	22.09

S.E./mean = 0.99 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 56(49).

Zone :- Mansurpur (Muzaffarnagar, c.f.).

Type :- 'M'.

Object :—To find out the optimum level of N for Sugarcane (ratoon).

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Sugarcane. (c) N.A. (ii) Sandy loam. (iii) Nil. (iv) CO. S. 321 (improved). (v) (a) to (c) N.A. (d) Rows 3' apart. (e) N.A. (vi) N.A. (vii) Irrigated. (viii) 1 earthing. (ix) N.A. (x) 26 and 27.11.1956.

2. TREATMENTS :

Same as in expt. no. 55(102) on page 1076.

3. DESIGN :

(i) and (ii) R.B.D. with 4 replications. (iii) (a) 75'×28'. (b) 69'×22.5'. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Juice analysis and yield of sugarcane. (iv) (a) 1955—1957. (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 20.13 tons/ac. (ii) 3.10 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	N ₀	N ₁	N ₂	N ₃
Av. yield	18.71	19.43	21.92	20.44

S.E./mean = 1.55 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 57(83).

Zone :- Mansurpur (Muzaffarnagar, c.f.).

Type :- 'M'.

Object :—To find out the optimum level of N for Sugarcane (ratoon).

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Sugarcane. (c) N.A. (ii) Sandy loam. (iii) Nil. (iv) CO. S. 321 (improved). (v) (a) to (c) N.A. (d) Rows 3' apart. (e) N.A. (vi) Ratoon : 8 to 15.2.1957. (vii) Irrigated. (viii) 4 hoeings, binding of canes and 1 earthing. (ix) N.A. (x) 13 and 14.1.1958.

2. TREATMENTS :

Same as in expt. no. 55(102) on page 1076.

3. DESIGN :

(i) and (ii) R.B.D. with 4 replications. (iii) (a) 80'×30'. (b) 80'×24'. (iv) Yes.

4. GENERAL :

(i) N.A. (ii) Spraying with Gammexane. (iii) N.A. (iii) Yield of sugarcane and juice analysis. (iv) (a) 1955—1957. (b) No. (c) Nil. (v) N.A. (vi) Nil. (vii) The yield of plot with treatment N₂ in one replication was missing.

5. RESULTS :

(i) 20.44 tons/ac. (ii) 1.52 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	N ₀	N ₁	N ₂	N ₃
Av. yield	20.74	21.23	20.41	19.40
S.E./mean (except N ₂)	= 0.76 tons/ac.			
S.E./N ₂ mean	= 0.91 tons/ac.			

Crop :- Sugarcane.

Ref :- U.P. 56(47).

Zone :- Rohana kalan (Muzaffarnagar, c.f.).

Type :- 'M'.

Object :—To find out the optimum level of N for Sugarcane (ratoon).

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Sugarcane. (c) N.A. (ii) Loam. (iii) Nil. (iv) CO. S. 245 (improved). (v) (a) to (c) N.A. (d) Rows 3' apart. (e) N.A. (vi) N.A. (vii) Irrigated. (viii) 2 hoeings by *kassi*, 1 hoeing by cultivator, 1 weeding by *khurpi* and binding of cane. (ix) N.A. (x) 19 and 20.12.1956.

2. TREATMENTS :

Same as in expt. no. 55(102) on page 1076.

3. DESIGN :

(i) and (ii) R.B.D. with 4 replications (iii) (a) 88' × 27'. (b) 88' × 22.5'. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Juice analysis and yield of sugarcane. (iv) (a) 1956—1957. (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 22.43 tons/ac. (ii) 2.29 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	N ₀	N ₁	N ₂	N ₃
Av. yield	23.03	20.79	23.24	22.66

S.E./mean = 1.14 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 57(72).

Zone :- Rohana kalan (Muzaffarnagar, c.f.).

Type :- 'M'.

Object :—To find out the optimum level of N for Sugarcane (ratoon).

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Sugarcane. (c) N.A. (ii) Loam. (iii) Nil. (iv) CO. S. 545 (improved). (v) (a) to (c) N.A. (d) Rows 3' apart. (e) N.A. (vi) *Ratoon* : 20 to 26.3.1957. (vii) Irrigated. (viii) 3 hoeings by spade and binding of cane. (ix) N.A. (x) 21 and 22.12.1957.

2. TREATMENTS :

Same as in expt. no. 55(102) on page 1076.

3. DESIGN :

(i) and (ii) R.B.D. with 4 replications. (iii) (a) 87' × 27'. (b) 81' × 22'. (iv) Yes.

4. GENERAL :

Same as in expt. no. 55(102) on page 1076.

5. RESULTS :

(i) 17.78 tons/ac. (ii) 1.60 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	N ₀	N ₁	N ₂	N ₃
Av. yield	17.06	17.74	17.66	18.66

S.E./mean = 0.80 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 55(104).

Zone :- Shamli (Muzaffarnagar, c.f.).

Type :- 'M'.

Object :—To find out the optimum level of N for Sugarcane (ratoon).

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Sugarcane. (c) N.A. (ii) Light loam. (iii) Nil. (iv) CO. 245 (improved). (v) (a) N.A. (b) Flat planting. (c) N.A. (d) Rows 3' apart. (e) N.A. (vi) *Ratoon* : 4 to 7.3.1955. (vii) Irrigated. (viii) 7 hoeings. (ix) N.A. (x) 15 and 16.12.1955.

2. TREATMENTS :

4 levels of N : N₀=0, N₁=40, N₂=80 and N₃=120 lb./ac.

N applied as G.N.C. and A/S in 1 : 1 ratio.

3. DESIGN :

(i) and (ii) R.B.D. with 4 replications. (iii) (a) 64' × 30'. (b) 1/30.04 ac. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) No. of tillers, yield of sugarcane and juice analysis. (iv) (a) 1955—1957. (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 15.82 tons/ac. (ii) 1.02 tons/ac. (iii) Treatment differences are highly significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	N ₀	N ₁	N ₂	N ₃
Av. yield	11.95	14.46	16.73	20.14

S.E./mean = 0.51 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 56(48).

Zone :- Shamli (Muzaffarnagar, c.f.).

Type :- 'M'.

Object :—To find out the optimum level of N for Sugarcane (ratoon).

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Sugarcane. (c) N.A. (ii) Light loam. (iii) Nil. (iv) CO. 245 (improved). (v) (a) to (c) N.A. (d) Rows 3' apart. (e) N.A. (vi) N.A. (vii) Irrigated. (viii) 2 hoeings by spade, 1 hoeing by *desi* plough, 1 hoeing by cultivator, 1 earthing and 2 bindings of cane. (ix) N.A. (x) 30.11.1956 and 1.12.1956.

2. TREATMENTS :

Same as in expt. no. 55(104) above.

3. DESIGN :

(i) and (ii) R.B.D. with 4 replications. (iii) (a) 85' × 22.5'. (b) 79' × 17.5'. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Juice analysis and yield of sugarcane. (iv) (a) 1955—1957. (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 24.86 tons/ac. (ii) 3.26 tons/ac. (iii) Treatment differences are highly significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	N ₀	N ₁	N ₂	N ₃
Av. yield	18.58	24.63	23.92	32.29

S.E./mean = 1.63 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 57(64).

Zone :- Shamli (Muzaffarnagar, c.f.).

Type :- 'M'.

Object :—To find out the optimum level of N for Sugarcane (ratoon).

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Sugarcane. (c) N.A. (ii) N.A. (iii) Nil. (iv) CO. S. 321 (improved). (v) (a) to (c) N.A. (d) Rows 3' apart. (e) N.A. (vi) *Ratoon* : 1 to 6.4.1957. (vii) Irrigated. (viii) 3 hoeings by spade and binding of canes. (ix) N.A. (x) 8 to 11.3.1958.

2. TREATMENTS :

Same as in expt. no. 55(104) on page 1079.

3. DESIGN :

(i) and (ii) R.B.D. with 4 replications. (iii) (a) and (b) 73' × 20'. (iv) Yes.

4. GENERAL :

(i) N.A. (ii) Spraying of Agroicide at 2 lb. in 40 gallons of water. (iii) Sugarcane yield and juice analysis. (iv) (a) 1956—1957. (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 35.03 tons/ac. (ii) 1.80 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	N ₀	N ₁	N ₂	N ₃
Av. yield	33.21	35.40	35.74	35.77

S.E./mean = 0.90 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 58(465).

Zone :- Shamli (Muzaffarnagar, c.f.).

Type :- 'M'.

Object :—To study the effect of different sources of P on Sugarcane when applied through G.M. crop or direct to plant cane in conjunction with A/S.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) *Guar*. (c) As per treatments. (ii) Sandy loam. (iii) Nil. (iv) CO.S. 245 (improved). (v) (a) N.A. (b) Flat planting. (c) 1176 buds/plot. (d) Rows 3' apart. (e) N.A. (vi) 17.2.1958. (vii) Irrigated. (viii) 1 blind hoeing and 2 hoeings by cultivator. (ix) N.A. (x) 17 and 19.3.1959.

2. TREATMENTS :

8 manurial treatments : M₁=100 lb./ac. of P₂O₅ as Dical. Phos. applied at sowing of G.M. crop, M₂=100 lb./ac. of P₂O₅ as Kotka Phosphate applied at sowing of G.M. crop, M₃=100 lb./ac. of P₂O₅ as Super applied at sowing of G.M. crop, M₄=G.M. crop grown without P₂O₅ and turned in, M₅=60 lb./ac. of N as A/S+100 lb./ac. of P₂O₅ as Dical. Phos. applied in furrows at planting, M₆=60 lb./ac. of N as A/S+100 lb./ac. of P₂O₅ as Kotka Phos. applied in furrows at the time of planting, M₇=60 lb./ac. of N as A/S+100 lb./ac. of P₂O₅ as Super in furrows at the time of planting and M₈=60 lb./ac. of N as A/S at planting.

G.M. crop grown with and without P₂O₅ and turned in.

3. DESIGN :

(i) and (ii) R.B.D. with 4 replications. (iii) (a) 54' × 21'. (b) 54' × 15'. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Germination %, no. of tillers, juice analysis and yield of sugarcane (iv) (a) and (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 32.91 tons/ac. (ii) 2.97 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	M ₁	M ₂	M ₃	M ₄	M ₅	M ₆	M ₇	M ₈
Av. yield	34.16	34.38	31.27	31.97	33.26	30.94	34.02	33.27

S.E./mean = 1.48 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 56(498).

Zone :- Shamli (Muzaffarnagar, c.f.).

Type :- 'M'.

Object :—To study the effect of different levels of N and P on the yield of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Fallow in 2 trials, *methi* in 2, pea in 2 and paddy in 1 trial. (c) N.A. (ii) Loam, clay loam and loamy sand. (iii) 150 mds./ac. of F.Y.M. from 20.2.1956 to 25.3.1956. (iv) CO.S. 321 in 6 trials and CO.S. 245 in 1 trial. (v) (a) N.A. (b) Flat planting. (c) 1 sett (3 budded)/running foot. (d) Rows 3' apart. (e) N.A. (vi) 31.3.1956 to 8.4.1956. (vii) Irrigated. (viii) 3 to 5 hoeings. (ix) N.A. (x) 30.1.1957 to 21.2.1957.

2. TREATMENTS :

All combinations of (1) and (2)

(1) 4 levels of N as A/S : N₀=0, N₁=60, N₂=120, and N₃=180 lb./ac.

(2) 3 levels of P₂O₅ as Super : P₀=0, P₁=40 and P₂=80 lb./ac.

$\frac{1}{3}$ dose of N and full dose of P₂O₅ applied at planting as placement in furrows below the cane setts. $\frac{2}{3}$ dose of N applied as top dressing.

3. DESIGN :

(i) and (ii) 7 trials were conducted in the zone. In each trial 3 replications were taken in R.B.D. (iii) (a) N.A. (b) Varies from 1/118.05 ac. to 1/47.14 ac. (iv) Yes.

4. GENERAL :

(i) Good. (ii) Slight attack of top borers, root borers and white ants. (iii) Juice analysis and yield of sugarcane. (iv) (a) and (b) No. (c) Nil. (v) N.A. (vi) Nil. (vii) The error variances were found to be heterogenous and further, on weighted analysis 'treatments × places' interaction was found to be non significant. Therefore, single degree of freedom corresponding to linear, quadratic and cubic components of N were tested. Results of each trial are also given separately.

RESULTS :

Results of different experiments conducted in the zone

Village : Fatehpur

(i) 17.65 tons/ac. (ii) 2.07 tons/ac. (iii) Only N effect is highly significant, (iv) Av. yield of sugarcane in tons/ac.

	N ₀	N ₁	N ₂	N ₃	Mean
P ₀	11.70	18.07	17.26	22.24	17.32
P ₁	11.94	17.14	19.47	20.15	17.18
P ₂	13.31	17.37	22.18	20.91	18.44
Mean	12.32	17.53	19.64	21.10	17.65

S.E. of N marginal mean = 0.69 tons/ac.
 S.E. of P marginal mean = 0.60 tons/ac.
 S.E. of body of table = 1.19 tons/ac.

Village : Lilona

(i) 28.39 tons/ac. (ii) 3.33 tons/ac. (iii) Only N effect is significant. (iv) Av. yield of sugarcane in tons/ac.

	N ₀	N ₁	N ₂	N ₃	Mean
P ₀	24.00	27.14	30.12	31.63	28.22
P ₁	25.88	30.14	26.73	29.26	28.00
P ₂	25.48	29.40	30.59	30.34	28.95
Mean	25.12	28.89	29.15	30.41	28.39

S.E. of N marginal mean = 1.11 tons/ac.

S.E. of P marginal mean = 0.96 tons/ac.

S.E. of body of table = 1.92 tons/ac.

Village : Khandrauli

(i) 24.34 tons/ac. (ii) 2.53 tons/ac. (iii) Only N effect is highly significant. (iv) Av. yield of sugarcane in tons/ac.

	N ₀	N ₁	N ₂	N ₃	Mean
P ₀	16.35	25.28	25.35	25.46	23.11
P ₁	20.09	23.98	24.74	28.08	24.22
P ₂	20.11	28.12	27.25	27.24	25.68
Mean	18.85	25.79	25.78	26.93	24.34

S.E. of N marginal mean = 0.84 tons/ac.

S.E. of P marginal mean = 0.73 tons/ac.

S.E. of body of table = 1.46 tons/ac.

Village : Bhiswal

(i) 32.68 tons/ac. (ii) 4.12 tons/ac. (iii) Only N effect is highly significant. (iv) Av. yield of sugarcane in tons/ac.

	N ₀	N ₁	N ₂	N ₃	Mean
P ₀	26.66	33.78	34.71	34.45	32.40
P ₁	26.87	32.97	33.88	35.72	32.36
P ₂	26.63	36.53	34.68	35.28	33.28
Mean	26.72	34.43	34.42	35.15	32.68

S.E. of N marginal mean = 1.37 tons/ac.

S.E. of P marginal mean = 1.19 tons/ac.

S.E. of body of table = 2.38 tons/ac.

Village : Kairana

(i) 38.63 tons/ac. (ii) 3.66 tons/ac. (iii) Only N effect is highly significant. (iv) Av. yield of sugarcane in tons/ac.

	N ₀	N ₁	N ₂	N ₃	Mean
P ₀	32.79	38.14	41.29	40.63	38.21
P ₁	33.24	37.14	38.44	39.84	37.16
P ₂	38.28	38.88	40.93	44.02	40.53
Mean	34.77	38.05	40.22	41.50	38.63

S.E. of N marginal mean	= 1.22 tons/ac.
S.E. of P marginal mean	= 1.05 tons/ac.
S.E. of body of table	= 2.11 tons/ac.

Village : Mundait

(i) 22.21 tons/ac. (ii) 3.52 tons/ac. (iii) Only N effect is highly significant. (iv) Av. yield of sugarcane in tons/ac.

	N ₀	N ₁	N ₂	N ₃	Mean
P ₀	17.28	18.98	22.65	25.63	21.14
P ₁	16.58	24.09	27.64	25.85	23.54
P ₂	15.99	23.82	23.44	24.55	21.95
Mean	16.62	22.30	24.58	25.34	22.21

S.E. of N marginal mean	= 1.17 tons/ac.
S.E. of P marginal mean	= 1.02 tons/ac.
S.E. of body of table	= 2.03 tons/ac.

Village : Alipur

(i) 20.75 tons/ac. (ii) 2.61 tons/ac. (iii) Only N effect is highly significant. (iv) Av. yield of sugarcane in tons/ac.

	N ₀	N ₁	N ₂	N ₃	Mean
P ₀	16.38	20.46	19.02	21.83	19.42
P ₁	17.98	19.10	21.89	23.70	20.67
P ₂	21.17	19.13	22.31	26.06	22.17
Mean	18.51	19.56	21.07	23.86	20.75

S.E. of N marginal mean	= 0.87 tons/ac.
S.E. of P marginal mean	= 0.75 tons/ac.
S.E. of body of table	= 1.50 tons/ac.

Results of Zone

Component of N	Av. response for the zone in tons/ac.	S.E. of response in tons/ac.	Significance
Linear	23.68	1.63	Highly significant
Quadratic	-3.22	0.73	Highly significant
Cubic	3.61	1.63	Significant

Crop :- Sugarcane.

Ref :- U.P. 55(256).

Zone :- Haldwani (Nainital, c.f.).

Type :- 'M'.

Object:—To study the effect of P when applied through G.M. crop or direct to Sugarcane.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) and (c) As per treatments. (ii) Loam. (iii) N.A. (iv) CO. 453 (improved). (v) (a) and (b) N.A. (c) 90 setts (3 budded)/row. (d) Rows 3' apart. (e) N.A. (vi) 21 and 22.10.1954. (vii) Irrigated, (viii) and (ix) N.A. (x) 17 and 18.1.1956.

2. TREATMENTS :

3 manurial treatments : T₀=*Sanai* grown and turned in, T₁=Super at 60 lb./ac. of P₂O₅ broadcast at the time of sowing *sanai*, and T₂=Super at 60 lb./ac. of P₂O₅ applied at the time of ploughing in *sanai* crop as G.M.

3. DESIGN :

(i) and (ii) R.B.D. with 6 replications. (iii) (a) 90' × 18'. (b) 84' × 12'. (iv) Yes.

4. GENERAL :

(i) N.A. (ii) Crop damaged by wild animals. (iii) Germination %, no. of tillers, millable cane, yield of sugarcane and juice analysis. (iv) (a) 1953—1956 (not conducted in 1954). (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 73.64 tons/ac. (ii) 4.65 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	T ₀	T ₁	T ₂
Av. yield	75.60	75.34	69.97

S.E./mean = 1.90 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 56(312).

Zone :- Haldwani (Nainital, c.f.).

Type :- 'M'.

Object :—To study the effect of P when applied through G.M. crop or direct to Sugarcane.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) and (c) As per treatments. (ii) Loam. (iii) N.A. (iv) CO. 453 (improved). (v) (a) and (b) N.A. (c) 90 setts (3 budded)/row. (d) and (e) N.A. (vi) 26.1.1956. (vii) Irrigated. (viii) and (ix) N.A. (x) 13 to 15.4.1957.

2. TREATMENTS and 3. DESIGN :

Same as in expt. no. 55(256) on page 1083.

4. GENERAL :

(i) and (ii) N.A. (iii) Germination %, no. of tillers, millable cane, yield of sugarcane and juice analysis. (iv) (a) 1953—1956 (not conducted in 1954). (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 50.31 tons/ac. (ii) 2.39 tons/ac. (iii) Treatment differences are significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	T ₀	T ₁	T ₂
Av. yield	47.64	50.91	52.39

S.E./mean = 0.98 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 54(254).

Zone :- Haldwani (Nainital, c.f.).

Type :- 'M'.

Object :—To study the effect of methods of application of P on Sugarcane.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Loam. (iii) N.A. (iv) CO. 453 (improved). (v) (a) and (b) N.A. (c) 80 setts (3 budded)/row. (d) and (e) N.A. (vi) 14.2.1954. (vii) Irrigated. (viii) and (ix) N.A. (x) 7.2.1955.

2. TREATMENTS :

3 methods of application of 120 lb./ac. of P₂O₅ as Super : M₀ = Control (no application), M₁ = Broadcast before planting and M₂ = In furrows 3" to 4" deep before planting.

3. DESIGN :

(i) and (ii) R.B.D. with 6 replications. (iii) (a) and (b) 70'×21'. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Germination, %, no. of tillers, millable cane, yield of sugarcane and juice analysis. (iv) (a) 1953—1954. (b) No. (c) Nil. (v) (a) and (b) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 35.79 tons/ac. (ii) 3.97 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	M ₀	M ₁	M ₂
Av. yield	35.13	35.65	36.58

S.E./mean = 1.62 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 58(286).

Zone :- Haldwani (Nainital, c.f.).

Type :- 'M'.

Object :—To study the effect of different sources of P on sugarcane when applied through G.M. crop or direct to plant cane in conjunction with A/S.

1. BASAL CONDITIONS :

(i) (a) and (b) N.A. (c) As per treatments. (ii) Loam. (iii) N.A. (iv) CO.S. 510. (v) (a) 5 ploughings and 3 harrowings. (b) Flat planting. (c) to (e) N.A. (vi) 26.2.1958. (vii) Irrigated. (viii) 4 hoeings. (ix) and (x) N.A.

2. TREATMENTS :

10 manurial treatments : M₁=G.M.+100 lb./ac. of P₂O₅ as Super applied at sowing of G.M. crop, M₂=G.M.+100 lb./ac. of P₂O₅ as Dical. Phos. at sowing of G.M. crop, M₃=100 lb./ac. of P₂O₅ as Super at planting of sugarcane+G.M., M₄=100 lb./ac. of P₂O₅ as Dical. Phos. at planting of sugarcane+G.M., M₅=60 lb./ac. of N as F.Y.M. 6 weeks before planting+100 lb./ac. of P₂O₅ as Super at planting, M₆=60 lb./ac. of N as F.Y.M.+100 lb./ac. of P₂O₅ as Super mixed together and applied 6 weeks before planting, M₇=60 lb./ac. of N as A/S+100 lb./ac. of P₂O₅ as Super applied at planting, M₈=60 lb./ac. of N as G.M., M₉=60 lb./ac. of N as F.Y.M. 6 weeks before planting and M₁₀=60 lb./ac. of N as A/S applied at planting.

3. DESIGN :

(i) and (ii) R.B.D. with 4 replications. (iii) (a) 66'×18'. (b) 66'×12'. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of sugarcane. (iv) (a) N.A. (b) and (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 6.61 tons/ac. (ii) 0.94 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	M ₁	M ₂	M ₃	M ₄	M ₅	M ₆	M ₇	M ₈	M ₉	M ₁₀
Av. yield	6.40	6.52	6.60	6.50	7.45	7.02	5.78	6.89	6.22	6.70

S.E./mean = 0.47 tons/ac.

Crop :- Sugarcane.**Ref :- U.P. 59(324).****Zone :- Haldwani (Nainital).****Type :- 'M'.**

Object :—To study the effect of different sources of P on Sugarcane when applied through C.M. crop or direct to plant cane in conjunction with A/S.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Sugarcane (*ratoon*). (c) N.A. (d) Clay loam. (iii) Nil. (iv) CO. 846. (v) (a) 2 *desi* ploughings, 3 ploughings by Athens plough, 4 harrowings with *pata*. (b) Planted in flat furrows. (c) to (e) N.A. (vi) 8 and 23.1959. (vii) Irrigated. (viii) 2 hoeings by *kassi* and 1 hoeing by cultivator. (ix) 45°. (x) 27 and 28.2.1960.

2. TREATMENTS :

Same as in expt. no 58(286) on page 1085.

3. DESIGN :

(i) and (ii) R.B.D. with 4 replications. (iii) (a) 65'×18'. (b) 65'×12'. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Sugarcane yield. (iv) (a) 1957—1959. (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 24.52 tons/ac. (ii) 3.21 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	M ₁	M ₂	M ₃	M ₄	M ₅	M ₆	M ₇	M ₈	M ₉	M ₁₀
Av. yield	21.33	27.29	27.44	22.56	26.30	22.22	23.07	26.49	22.56	24.94

S.E./mean = 1.61 tons/ac.

Crop :- Sugarcane.**Ref :- U.P. 59(320).****Zone :- Haldwani (Nainital, c.f.).****Type :- 'M'.**

Object :— To study the effect of different sources of N on Sugarcane.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Sugarcane (*ratoon*). (c) N.A. (ii) (a) Clay loam. (iii) 60 lb./ac. of N as G.M. (iv) CO. 859. (v) (a) 2 ploughings by *desi* plough, 3 ploughings by Athens plough and 3 harrowings. (b) Planting in flat furrows. (c) to (e) N.A. (vi) 8.3.1959. (vii) Irrigated. (viii) 2 hoeings by *kassi* and 1 by cultivator. (ix) 45°. (x) N.A.

2. TREATMENTS :

7 sources of 60 lb./ac. of N : S₀=Control, S₁=A/C, S₂=A/S, S₃=Urea, S₄=Blood meal, S₅=G.N.C. and S₆=Fish meal.

G.N.C., Blood meal and Fish meal applied on 3.1.1959 A/S, A/C and Urea applied on 25.5.1959.

3. DESIGN :

(i) and (ii) R.B.D. with 4 replications. (iii) (a) and (b) 65'×18'. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Sugarcane yield. (iv) (a) 1956—1959. (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 18.01 tons/ac. (ii) 1.00 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	S ₀	S ₁	S ₂	S ₃	S ₄	S ₅	S ₆
Av. yield	17.12	18.51	19.10	18.07	17.59	18.00	17.71

S.E./mean = 0.50 tons/ac.

Crop :- Sugarcaae.**Ref :- U.P. 56(282).****Zone :- Haldwani (Nainital, c.f.).****Type :- 'M'.**

Object :— To study the effect of A/C and A/S on the yield of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Loam. (iii) N.A. (iv) CO. 453 (improved). (v) (a) and (b) N.A. (c) 65 setts (3 budded)/row. (d) Rows 3' apart. (e) N.A. (vi) 26.1.1956. (vii) Irrigated. (viii) and (ix) N.A. (x) 15 to 18.4.1957.

2. TREATMENTS :3 sources of 60 lb./ac. of N : S_0 =Control (no application), S_1 =A/C and S_2 =A/S.**3. DESIGN :**

(i) and (ii) R.B.D. with 4 replications. (iii) (a) and (b) 66.5'×24'. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Germination %, no. of tillers, millable cane, yield of sugarcane and juice analysis. (iv) (a) 1956—contd. (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 30.74 tons/ac. (ii) 2.02 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	S_0	S_1	S_2
Av. yield	29.83	31.45	30.93

S.E./mean = 0.82 tons/ac.

Crop :- Sugarcane.**Ref :- U.P. 57(176).****Zone :- Haldwani (Nainital, c.f.).****Type :- 'M'.**

Object :— To study the effect of A/S and A/C on the yield of Sugarcane.

1. BASAL CONDITIONS :

(i) to (x) N.A.

2. TREATMENTS :3 sources of 60 lb./ac. of N : S_0 =Control (no application), S_1 =A/C and S_2 =A/S.**3. DESIGN :**

(i) and (ii) R.B.D. with 6 replications. (iii) (a) N.A. (b) 64'×21'. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of sugarcane. (iv) (a) 1956—contd. (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 29.06 tons/ac. (ii) 2.12 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	S_0	S_1	S_2
Av. yield	29.21	27.73	30.25

S.E./mean = 0.86 tons/ac.

Crop :- Sugarcane.**Ref :- U.P. 56(293).****Zone :- Baheri (Nainital, c.f.).****Type :- 'M'.**

Object :— To study the effect of different sources of N on Sugarcane.

1. BASAL CONDITIONS :

(i) to (iii) N.A. (iv) CO. 453 (improved). (v) (a) to (c) N.A. (d) Rows 3' apart. (e) N.A. (vi) 2nd week of March, 1956. (vii) Irrigated. (viii) and (ix) N.A. (x) 25 to 27.3.1957.

2. TREATMENTS :5 sources of 60 lb./ac. of N : S_0 =Control, S_1 =Urea, S_2 =A, N, S_3 =A/S and S_4 =A/C.**3. DESIGN :**

(i) and (ii) R.B.D. with 5 replications. (iii) (a) and (b) 67' × 17.5'. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of sugarcane. (iv) (a) and (b) N (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 14.10 tons/ac. (ii) 2.24 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	S_0	S_1	S_2	S_3	S_4
Av. yield	11.75	15.28	15.05	14.72	13.70

S.E./mean = 1.00 tons/ac.

Crop :- Sugarcane.**Ref :- U.P. 56(310).****Zone :- Kashipur (Nainital, c.f.).****Type :- 'M'.**

Object :—To study the effect of A/S and F.Y.M. on the yield of Sugarcane.

1. BASAL CONDITIONS :(i) (a) N.A. (b) *Sasai*. (c) Nil. (ii) Loam. (iii) G.M. (*santai*). (iv) CO. S. 245 (improved). (v) (a) N.A. (b) Flat planting in furrows. (c) 64 setts (3 budded)/row. (d) Rows 3' apart. (e) N.A. (vi) 17 and 18.2.1956. (vii) Irrigated. (viii) and (ix) N.A. (x) 22 and 23 12.1956.**2. TREATMENTS :**5 manurial treatments : M_0 =No manure (control). M_1 =120 lb./ac. of N as A/S, applied in furrows at planting, M_2 =120 lb./ac. of N as F.Y.M. applied 15 to 30 days before planting, M_3 =60 lb./ac. of N as A/S and 60 lb./ac. of N as F.Y.M. mixed together and applied 15 to 30 days before planting and M_4 =60 lb./ac. of N as F.Y.M. applied 15 to 30 days before planting and 60 lb./ac. of N as A/S applied in furrows at planting.**3. DESIGN :**

(i) and (ii) R.B.D. with 6 replications. (iii) (a) 64' × 27'. (b) 58' × 21'. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of sugarcane. (iv) (a) 1956—contd. (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 20.56 tons/ac. (ii) 1.87 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	M_0	M_1	M_2	M_3	M_4
Av. yield	18.14	21.24	22.30	20.85	20.27

S.E./mean = 0.76 tons/ac.

Crop :- Sugarcane.**Ref :- U.P. 57(196).****Zone :- Kashipur (Nainital, c.f.).****Type :- 'M'.**

Object :—To study the effect of time of application of A/S and F.Y.M. on the yield of Sugarcane.

1. BASAL CONDITIONS :(i) (a) N.A. (b) *Lahi*. (c) N.A. (ii) Light loam. (iii) N.A. (iv) CO. S. 245. (v) (a) N.A. (b) Flat planting in furrows. (c) to (e) N.A. (vi) 5 and 6.2.1957. (vii) Irrigated. (viii) and (ix) N.A. (x) 26 and 27 2.1958.**2. TREATMENTS :**

Same as in expt. no. 56(310) on page 1088.

3. DESIGN :

(i) and (ii) R.B.D. with 6 replications. (iii) (a) 60' × 24'. (b) 54' × 18'. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of sugarcane. (iv) (a) 1956—contd. (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil

5. RESULTS :

(i) 30.94 tons/ac. (ii) 2.70 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	M ₀	M ₁	M ₂	M ₃	M ₄
Av. yield	26.00	30.45	35.34	30.53	32.40

S.E./mean = 1.10 tons/ac.

Crop :- Sugarcane.**Ref :- U.P. 58(500).****Zone :- Kashipur (Nainital, c.f.).****Type :- 'M'.**

Object :—To study the effect of time of application of A/S and F.Y.M. on the yield of Sugarcane.

1. BASAL CONDITIONS :(i) (a) to (c) N.A. (ii) Sandy light loam. (iii) N.A. (iv) CO. S. 245. (v) (a) 2 ploughings and 3 harrowings. (b) Flat planting. (c) to (e) N.A. (vi) N.A. (vii) Irrigated. (viii) 3 hoeings by *kassi*. (ix) N.A. (x) 6 to 9.2.1959.**2. TREATMENTS :**

Same as in expt. no. 56(310) on page 1088.

3. DESIGN :

(i) and (ii) R.B.D. with 6 replications. (iii) (a) 60' × 24'. (b) 54' × 18'. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of sugarcane. (iv) (a) 1956—contd. (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 21.98 tons/ac. (ii) 3.82 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	M ₀	M ₁	M ₂	M ₃	M ₄
Av. yield	20.10	20.61	21.43	23.00	24.77

S.E./mean = 1.56 tons/ac.

Crop :- Sugarcane.**Ref :- U.P. 57(194).****Zone :- Pilibhit (Pilibhit, c.f.).****Type :- 'M'.**

Object :—To study the effect of time of application of A/S and F.Y.M. on the yield of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Fallow. (c) Nil. (ii) Sandy loam. (iii) N.A. (iv) CO. S. 245. (v) (a) to (e) N.A. (vi) 22.2.1957. (vii) Irrigated. (viii) to (x) N.A.

2. TREATMENTS :5 manurial treatments : M_0 =Control (no manure), M_1 =120 lb./ac. of N as A/S applied in furrows at planting, M_2 =120 lb./ac. of N as F.Y.M. applied 15 to 30 days before planting, M_3 =120 lb./ac. of N half as F.Y.M.+half as A/S applied mixed 15 to 30 days before planting and M_4 =120 lb./ac. of N $\frac{1}{2}$ applied as F.Y.M. 15 to 30 days before planting and $\frac{1}{2}$ as A/S applied in furrows at planting.**3. DESIGN :**

(i) and (ii) R.B.D. with 6 replications. (iii) (a) 73' x 24'. (b) 67' x 18'. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of sugarcane. (iv) (a) 1957—1958. (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 41.41 tons/ac. (ii) 2.40 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	M_0	M_1	M_2	M_3	M_4
Av. yield	40.70	39.60	41.94	42.42	42.41

S.E./mean = 0.98 tons/ac.

Crop :- Sugarcane.**Ref :- U.P. 58(280).****Zone :- Pilibhit (Pilibhit, c.f.).****Type :- 'M'.**

Object :—To study the effect of time of application of A/S and F.Y.M. on the yield of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Sandy loam. (iii) N.A. (iv) CO. S. 245. (v) (a) to (e) N.A. (vi) 25.3.1958. (vii) Irrigated. (viii) and (ix) N.A. (x) 18 to 20.1.1959.

2. TREATMENTS :

Same as in expt. no. 57(194) above.

3. DESIGN :

(i) and (ii) R.B.D. with 6 replications. (iii) (a) 73' x 21'. (b) 67' x 15'. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of sugarcane. (iv) (a) 1957—1958. (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 17.70 tons/ac. (ii) 3.31 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	M_0	M_1	M_2	M_3	M_4
Av. yield	17.43	15.04	19.75	18.13	18.17

S.E./mean = 1.35 tons/ac.

Crop :- Sugarcane.**Ref :- U.P. 57(188).****Zone :- Rampur (Rampur, c.f.).****Type :- 'M'.**

Object :—To study the effect of different sources of P on Sugarcane when applied through G.M. crop or direct to plant cane in conjunction with A/S.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) and (c) As per treatments. (ii) Loam. (iii) N.A. (iv) CO. S. 453. (v) (a) to (e) N.A. (vi) 24 to 26.9.1956. (vii) Irrigated. (viii) and (ix) N.A. (x) December, 1957.

2. TREATMENTS :

6 manurial treatments : T_1 =G.M. + 100 lb./ac. of P_2O_5 as Dical. phos. at sowing of G.M. crop, T_2 =G.M. + 100 lb./ac. of P_2O_5 as Super at sowing of G.M. crop, T_3 =G.M. grown and turned in, T_4 =60 lb./ac. of N as A/S + 100 lb./ac. of P_2O_5 as Dical. phos. at planting, T_5 =60 lb./ac. of N as A/S + 100 lb./ac. of P_2O_5 as Super at planting and T_6 =60 lb./ac. of N as A/S alone.

Sanai crop as G.M. is used.

3. DESIGN :

(i) and (ii) R.B.D. with 6 replications. (iii) (a) 73' × 21'. (b) 67' × 15'. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of sugarcane. (iv) (a) 1957—N.A. (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 31.25 tons/ac. (ii) 3.86 tons/ac. (iii) Treatment differences are highly significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	T_1	T_2	T_3	T_4	T_5	T_6
Av. yield	28.74	28.92	28.14	34.70	31.80	35.19

S.E./mean = 1.58 tons/ac.

Crop :- Sugarcane.**Ref :- U.P. 59(379).****Zone :- Rampur (Rampur, c.f.).****Type :- 'M'.**

Object :—To study the effect of different sources of P on Sugarcane when applied through G.M. crop or direct to plant cane in conjunction with A/S.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) and (c) As per treatments. (ii) Loam. (iii) N.A. (iv) CO. 356. (v) (a) 2 Meston ploughings and 8 *desi* ploughings. (b) Planted in flat furrows. (c) to (e) N.A. (vi) 23 and 24.2.1959. (vii) Irrigated. (viii) 2 hoeings by *kassi*. (ix) N.A. (x) 23.12.1959 to 5.1.1960.

2. TREATMENTS :

10 manurial treatments : M_1 =G.M. grown and turned in, M_2 =F.Y.M. at 60 lb./ac. of N applied 6 weeks before planting, M_3 =A/S at 60 lb./ac. of N applied at planting, M_4 =G.M. + Super applied at 100 lb./ac. of P_2O_5 at sowing of G.M. crop, M_5 =G.M. + Dical. phos. applied at 100 lb./ac. of P_2O_5 at sowing of G.M. crop, M_6 =G.M. + Super applied at 100 lb./ac. of P_2O_5 at planting of sugarcane, M_7 =G.M. + Dical. phos. applied at 100 lb./ac. of P_2O_5 at planting of sugarcane, M_8 =F.Y.M. at 60 lb./ac. of N applied 6 weeks before planting and Super at 100 lb./ac. of P_2O_5 applied at planting, M_9 =F.Y.M. at 60 lb./ac. of N and Super at 100 lb./ac. of P_2O_5 mixed together and applied 6 weeks before planting and M_{10} =A/S at 60 lb./ac. of N and Super at 100 lb./ac. of P_2O_5 applied at planting.

3. DESIGN :

(i) and (ii) R.B.D. with 4 replications. (iii) (a) 82' × 18'. (b) 76' × 12'. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of sugarcane. (iv) (a) 1959—N.A. (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 27.51 tons/ac. (ii) 3.28 tons/ac. (iii) Treatment differences are significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	M ₁	M ₂	M ₃	M ₄	M ₅	M ₆	M ₇	M ₈	M ₉	M ₁₀
Av. yield	24.66	26.82	27.71	25.87	23.18	33.13	30.85	26.33	28.05	28.54

S.E./mean = 1.64 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 58(283).

Zone :- Rampur (Rampur, c.f.).

Type :- 'M'.

Object :—To study the effect of time of application of A/S and F.Y.M. on the yield of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) *Sanai*. (c) N.A. (ii) Sandy loam. (iii) N.A. (iv) CO.S. 514. (v) (a) 15 ploughings by *desi* plough. (b) Planted flat in furrows. (c) to (e) N.A. (vi) 9 and 10.10.1957. (vii) Irrigated. (viii) 4 hoeings by *kassi*. (ix) and (x) N.A.

2. TREATMENTS :

Same as in expt. no. 57(194) on page 1090.

3. DESIGN :

(i) and (ii) R.B.D. with 6 replications. (iii) (a) 60' × 18'. (b) 54' × 18'. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (ii) Yield of sugarcane. (iv) and (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 45.41 tons/ac. (ii) 6.52 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	M ₀	M ₁	M ₂	M ₃	M ₄
Av. yield	40.01	41.95	48.57	48.94	47.59

S.E./mean = 2.66 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 57(178).

Zone :- Rampur (Rampur, c.f.).

Type :- 'M'.

Object :—To study the effect of A/S and A/C on the yield of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Loam. (iii) N.A. (iv) CO. 453. (v) (a) N.A. (b) Planted flat in furrows. (c) to (e) N.A. (vi) 27.9.1956. (vii) Irrigated. (viii) to (x) N.A.

2. TREATMENTS :

3 sources of 60 lb./ac. of N : S₀=Control (no application), S₁=A/C and S₂=A/S.

3. DESIGN :

(i) and (ii) R.B.D. with 5 replications. (iii) 64' × 18'. (b) 58' × 12'. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of sugarcane. (iv) (a) 1957—N.A. (b) No. (c) Nil. (v) (a) and (b) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 25.43 tons/ac. (ii) 3.25 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	S ₀	S ₁	S ₂
Av. yield	23.76	27.43	25.10
S.E./mean = 1.45 tons/ac.			

Crop :- Sugarcane.

Ref :- U.P. 57(182).

Zone :- Rampur (Rampur, c.f.).

Type :- 'M'.

Object :—To study the effect of A/S and A/C on the yield of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) *Sanai*. (c) N.A. (ii) Sandy loam. (iii) G.M. (*sanai*). (iv) CO. 510. (v) (a) N.A. (b) Flat planting in furrows. (c) to (e) N.A. (vi) N.A. (vii) Irrigated. (viii) to (x) N.A.

2. TREATMENTS :

Same as in expt. no. 57(178) on page 1092.

3. DESIGN :

(i) and (ii) R.B.D. with 6 replications. (iii) (a) 66'×18'. (b) 60'×12'. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of sugarcane. (iv) (a) and (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 20.21 tons/ac. (ii) 3.15 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	S ₀	S ₁	S ₂
Av. yield	17.77	22.18	20.68
S.E./mean = 1.28 tons/ac.			

Crop :- Sugarcane.

Ref :- U.P. 57(180).

Zone :- Rampur (Rampur, c.f.).

Type :- 'M'.

Object :— To study the effect of N applied alone and in combination with P and K on Sugarcane.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) *Sanai*. (c) N.A. (ii) N.A. (iii) G.M. (*sanai*). (iv) CO.S. 514. (v) (a) N.A. (b) Flat planting in furrows. (c) to (e) N.A. (vi) 12 and 13.2.1957. (vii) Irrigated. (viii) and (ix) N.A. (x) 3 to 6.1.1958.

2. TREATMENTS :

5 manurial treatments : M₀=Control (no manure), M₁=60 lb./ac. of N, M₂=M₁+60 lb./ac. of P₂O₅, M₃=M₁+120 lb./ac. of K₂O and M₄=M₂+120 lb./ac. of K₂O.
N, P and K applied as A/S, Super and Mur. Pot. respectively.

3. DESIGN :

(i) and (ii) R.B.D. with 6 replications. (iii) (a) 44' × 30'. (b) 38' × 24'. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of sugarcane. (iv) (a) and (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 27.08 tons/ac. (ii) 3.73 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	M ₀	M ₁	M ₂	M ₃	M ₄
Av. yield	23.81	27.93	28.02	26.56	29.06

S.E./mean = 1.52 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 57(187).

Zone :- Rampur (Rampur, c.f.).

Type :- 'M'.

Object :— To study the effect of Aldrinised A/S and A/S on the yield of Sugarcane.

1. BASAL CONDITIONS :

(i) to (x) N.A.

2. TREATMENTS :

5 manurial treatments : M₀=Control, M₁=40 lb./ac. of N as Aldrinised A/S+active Aldrin at 1 lb./ac. in furrows at planting, M₂=40 lb./ac. of N as A/S+Aldrin at 1 lb./ac. in furrows at planting, M₃=40 lb./ac. of N as A/S and M₄=Aldrin at 1 lb./ac.

3. DESIGN :

(i) and (ii) R.B.D. with 6 replications. (iii) (a) N.A. (b) 43' × 18'. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of sugarcane. (iv) (a) 1957—1958. (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 15.31 tons/ac. (ii) 3.94 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	M ₀	M ₁	M ₂	M ₃	M ₄
Av. yield	12.68	17.59	17.11	13.94	15.26

S.E./mean = 1.61 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 58(290).

Zone :- Rampur (Rampur, c.f.).

Type :- 'M'.

Object :—To study the effect of Aldrinised A/S on Sugarcane.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) *Sanai*. (c) N.A. (ii) Sandy soil. (iii) N.A. (iv) CO.S. 510. (v) (a) N.A. (b) Flat planting. (c) to (e) N.A. (vi) 12 and 13.11.1957. (vii) Irrigated. (viii) to (x) N.A.

2. TREATMENTS :

Same as in expt. no. 57(187) above.

3. DESIGN :

(i) and (ii) R.B.D. with 6 replications. (iii) (a) N.A. (b) 37'×24'. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of sugarcane. (iv) (a) 1957—1958. (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 10.65 tons/ac. (ii) 1.41 tons/ac. (iii) Treatment differences are highly significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	M ₀	M ₁	M ₂	M ₃	M ₄
Av. yield	8.43	13.52	11.91	10.11	9.29

S.E./mean = 0.58 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 59(323).

Zone :- Rampur (Rampur, c.f.).

Type :- 'M'.

Object :—To study the effect of different sources of N on Sugarcane.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) *Sanai*. (c) Nil. (ii) Sandy loam. (iii) 60 lb./ac. of N as G.M. (*sanai*). (iv) CO. 846. (v) (a) 2 ploughings for turning in of *sanai*, and 16 ploughings by *desi* plough. (b) Planting flat in furrows. (c) to (e) N.A. (vi) 25 and 26.2.1959. (vii) Irrigated. (viii) 4 hoeings by *kassi*. (ix) and (x) N.A.

2. TREATMENTS :

6 sources of 60 lb./ac. of N : S₀=Control, S₁=A/C, S₂=A/S, S₃=Urea, S₄=Blood meal and S₅=G.N.C. N applied at planting.

3. DESIGN :

(i) and (ii) R.B.D. with 6 replications. (iii) (a) 78'×21'. (b) N.A. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of sugarcane. (iv) (a) and (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 14.14 tons/ac. (ii) 3.89 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	S ₀	S ₁	S ₂	S ₃	S ₄	S ₅
Av. yield	12.27	16.05	15.21	12.60	14.22	14.51

S.E./mean = 1.59 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 59(316).

Zone :- Rampur (Rampur, c.f.).

Type :- 'M'.

Object :—To study the efficacy of Stera meal planting mixture on Sugarcane.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) *Sanai*. (c) N.A. (ii) Sandy loam. (iii) N.A. (iv) CO. 846. (v) (a) 2 ploughings for turning in of *sanai* and 16 *desi* ploughings. (b) to (e) N.A. (vi) 21 and 22.2.1959. (vii) Irrigated. (viii) 1 hoeing by *kassi*. (ix) N.A. (x) 3 to 7.2.1960.

2. TREATMENTS :

3 manurial treatments : $M_1=60$ lb./ac. of N as A/S, $M_2=Stera$ meal (60 lb./ac. of N+86 lb./ac. of P_2O_5+43 lb./ac. of K_2O)+60 lb./ac. of N as A/S and $M_3=G.N.C.$ (60 lb./ac. of N+18 lb./ac. of P_2O_5+26 lb./ac. of K_2O)+60 lb./ac. of N as A/S+68 lb./ac. of P_2O_5 as Super+17 lb./ac. of K_2O as Mur. Pot.

Manures applied on 21 and 22.2.1959.

3. DESIGN :

(i) and (ii) R.B.D. with 6 replications. (iii) (a) 78'×21'. (b) 72'×15'. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of sugarcane. (iv) (a) and (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 14.82 tons/ac. (ii) 2.99 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	M_1	M_2	M_3
Av. yield	13.94	15.44	15.09

S.E./mean = 1.22 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 58(499).

Zone :- Rampur (Rampur, c.f.).

Type :- 'M'.

Object :—To study the effect of N alone and in combination with P on Sugarcane.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Fallow. (c) Nil. (ii) Loam. (iii) 60 lb./ac. of N as F.Y.M. in 5 trials and 30 lb./ac. of N as F.Y.M. in one trial. (iv) CO. 356 (improved). (v) (a) to (e) N.A. (vi) February, 1958. (vii) Irrigated. (viii) Hoeings and earthings. (ix) N.A. (x) January, 1959.

2. TREATMENTS :

All combinations of (1) and (2)

(1) 4 levels of N : $N_0=0$, $N_1=60$, $N_2=120$ and $N_3=180$ lb./ac.

(2) 3 levels of P_2O_5 : $P_0=0$, $P_1=40$ and $P_2=80$ lb./ac.

3. DESIGN :

(i) and (ii) In the zone 6 villages were selected and in each village treatments are tried in R.B.D. with 3 replications. (iii) N.A. (iv) Yes.

4. GENERAL :

(i) N.A. (ii) Crop was slightly affected by top borer in one trial. (iii) Yield of sugarcane (v) (a) 1958—1959. (b) No. (c) Nil. (v) N.A. (vi) Nil. (vii) As the error variances were found to be heterogeneous and also on further weighted analysis "treatment × villages" interaction was found to be non-significant, single degree of freedom for each one of linear, quadratic, and cubic component of N was tested Here responses and S.E.'s of each component of N are given.

5. RESULTS :

Av. response of N for the zone in tons/ac.	S.E. of response in tons/ac.	Significance
Linear 10.95	2.3212	Highly significant
Quadratic 1.17	1.0383	Not significant
Cubic 0.30	1.9088	Not significant

Crop :- Sugarcane.**Ref :- U.P. 59(549).****Zone :- Rampur (Rampur, c.f.).****Type :- 'M'.**

Object :—To study the effect of N alone and in combination with P on Sugarcane.

1. **BASAL CONDITIONS :**
(i) (a) to (c) N.A. (ii) Loamy sand. (iii) 150 mds./ac. of F.Y.M. (iv) CO. 356 (improved). (v) (a) to (e) N.A. (vi) February, 1959. (vii) Irrigated. (viii) Hoeings and earthings. (ix) and (x) N.A.
2. **TREATMENTS :**
Same as in expt. no. 58(499) on page 1096.
3. **DESIGN :**
(i) and (ii) In the zone 9 villages were selected and in each village treatments are tried in R.B.D. with 3 replications. (iii) (a) and (b) N.A. (iv) Yes.
4. **GENERAL :**
(i) N.A. (ii) Damage by rats in 4 trials. (iii) Yield of sugarcane. (iv) (a) 1958—1959. (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.
5. **RESULTS :**
(i) 30.02 tons/ac. (ii) 2.98 tons/ac. (iii) P effect alone is significant. (iv) Av. yield of sugarcane in tons/ac.

	N ₀	N ₁	N ₂	N ₃	Mean
P ₀	28.69	28.71	29.92	30.91	29.56
P ₁	28.28	29.15	29.75	30.50	29.42
P ₂	30.86	30.65	32.47	30.33	31.08
Mean	29.28	29.50	30.71	30.58	30.02

S.E. of N marginal mean = 0.57 tons/ac.
 S.E. of P marginal mean = 0.50 tons/ac.
 S.E. of body of table = 0.99 tons/ac.

Crop :- Sugarcane.**Ref :- U.P. 56(46).****Zone :- Deoband (Saharanpur, c.f.).****Type :- 'M'.**

Object :— To find out the optimum level of N for Sugarcane (ratoon).

1. **BASAL CONDITIONS :**
(i) (a) N.A. (b) Sugarcane. (c) N.A. (ii) Loam. (iii) Nil. (iv) CO.S. 245 (improved). (v) (a) to (c) N.A. (d) Rows 3' apart. (e) N.A. (vi) Ratoon : 21 to 27.4.1956. (vii) Irrigated. (viii) 1 hoeing by *desi* plough, 1 hoeing by cultivator and 2 binding of canes. (ix) N.A. (x) 6 to 8.12.1956.
2. **TREATMENTS :**
4 levels of N : N₀=0, N₁=40, N₂=80 and N₃=120 lb./ac.
N top dressed as mixture of G.N.C. and A/S in 1 : 1 ratio.
3. **DESIGN :**
(i) and (ii) R.B.D. with 4 replications. (iii) (a) 85'×24'. (b) 79'×18'. (iv) Yes.
4. **GENERAL :**
(i) and (ii) N.A. (iii) Juice analysis and yield of sugarcane. (iv) (a) 1956—1957. (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 12.84 tons/ac. (ii) 2.41 tons/ac. (iii) Treatment differences are highly significant. (iv) Av yield of sugarcane in tons/ac.

Treatment	N ₀	N ₁	N ₂	N ₃
Av. yield	8.59	11.72	13.68	17.38

S.E./mean = 1.20 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 57(71).

Zone :- Deoband (Saharanpur, c.f.).

Type :- 'M'.

Object :— To find out the optimum level of N for Sugarcane (ratoon).

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Sugarcane. (c) N.A. (ii) N.A. (iii) Nil. (iv) CO. S. 245 (improved). (v) (a) to (c) N.A. (d) Rows 3' apart. (e) N.A. (vi) N.A. (vii) Irrigated. (viii) 2 hoeings by cultivator. (ix) N.A. (x) 20 to 22.12.1957.

2. TREATMENTS :

Same as in expt. no. 56(46) on page 1097.

3. DESIGN :

(i) and (ii) R.B.D with 4 replications. (iii) (a) 100' × 21'. (b) 94' × 15'. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of sugarcane and juice analysis. (iv) (a) 1956–1957. (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 13.65 tons/ac. (ii) 0.86 tons/ac. (iii) Treatment differences are highly significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	N ₀	N ₁	N ₂	N ₃
Av. yield	10.48	13.33	15.17	15.61

S.E./mean = 0.43 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 58(464).

Zone :- Deoband (Saharanpur, c.f.).

Type :- 'M'.

Object :— To study the effect of different sources of P on Sugarcane when applied through G.M. crop or direct to plant cane in combination with A/S.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Pea. (c) As per treatments. (ii) Loam. (iii) Nil. (iv) CO. S. 245 (improved). (v) (a) 4 ploughings by *desi* plough and 1 *pelewa*. (b) Fiat planting. (c) 1407 buds/plot. (d) Row 3' apart. (e) N.A. (vi) 4.3.1958. (vii) Irrigated. (viii) 1 hoeing by *kassi* and 7 hoeings by cultivator and spade. (ix) N.A. (x) 29 to 31.3.1959.

2. TREATMENTS :

8 manurial treatments : M₁=G.M. grown and turned in, M₂=100 lb./ac. of P₂O₅ as Dical. phos. at sowing of G.M. crop, M₃=100 lb./ac. of P₂O₅ as Kotka phos. at sowing of G.M. crop, M₄=100 lb./ac. of P₂O₅ as Super at sowing of G.M. crop, M₅=60 lb./ac. of N as A/S+100 lb./ac. of P₂O₅ as Dical. phos. applied in furrows at planting of cane, M₆=60 lb./ac. of N as A/S+100 lb./ac. of P₂O₅ as Kotka phos. applied

in furrows at the time of planting cane, $M_7=60$ lb./ac. of N as A/S+100 lb./ac. of P_2O_5 as Super in furrows at the time of planting of cane and $M_8=60$ lb./ac. of N as A/S at planting of cane.

3. DESIGN :

(i) and (ii) R.B.D. with 4 replications. (iii) (a) $65' \times 21'$. (b) $59' \times 15'$. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Germination %, no. of tillers, juice analysis and yield of sugarcane. (iv) (a) and (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 31.18 tons/ac. (ii) 3.14 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	M_1	M_2	M_3	M_4	M_5	M_6	M_7	M_8
Av. yield	32.37	32.93	35.15	30.71	30.06	30.17	31.15	26.90

S.E./mean = 1.57 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 59(547).

Zone :- Deoband (Saharanpur, c.f.).

Type :- 'M'.

Object :—To study the effect of different levels of N and P on the yield of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Paddy. (c) Nil. (ii) Sandy silty loam. (iii) 60 lb./ac. of N as F.Y.M. (iv) CO. S. 245 (improved). (v) (a) N.A. (b) Flat planting. (c) 64 setts (3 budded)/row. (d) Rows 3' apart. (e) N.A. (vi) 29.3.1959. (vii) Unirrigated. (viii) 3 hoeings by *kassi*, 3 hoeings by cultivator and 2 tyings of cane. (ix) N.A. (x) 23 and 24.2.1960.

2. TREATMENTS :

All combinations of (1) and (2)

(1) 4 levels of N as A/S : $N_0=0$, $N_1=60$, $N_2=120$ and $N_3=180$ lb./ac.

(2) 3 levels of P_2O_5 as Super : $P_0=0$, $P_1=40$ and $P_2=80$ lb./ac.

$\frac{1}{3}$ rd dose of N and full dose of P_2O_5 applied at planting by placement in furrows below the cane setts and $\frac{2}{3}$ of N top dressed.

3. DESIGN :

(i) and (ii) R.B.D. with 3 replications. (iii) (a) $64' \times 27'$. (b) $58' \times 21'$. (iv) Yes.

4. GENERAL :

(i) Normal. (ii) Nil. (iii) Yield of sugarcane. (iv) (a) and (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 19.34 tons/ac. (ii) 2.72 tons/ac. (iii) Only N effect is highly significant. (iv) Av. yield of sugarcane in tons/ac.

	N_0	N_1	N_2	N_3	Mean
P_0	13.99	20.60	19.27	19.41	18.32
P_1	12.40	17.36	23.89	24.03	19.42
P_2	15.45	21.19	22.99	21.55	20.29
Mean	13.95	19.72	22.05	21.66	19.34

S.E. of N marginal mean	= 0.91 tons/ac.
S.E. of P marginal mean	= 0.79 tons/ac.
S.E. of body of table	= 1.57 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 59(548).

Zone :- Deoband (Saharanpur, c.f.).

Type :- 'M'.

Object :—To study the effect of different levels of N and P on the yield of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Fodder corps. (c) Nil. (ii) Loam, clay loam and sandy loam. (iii) 60 lb./ac. of N as F.Y.M. (iv) CO. S. 321 and CO. S. 245. (v) (a) N.A. (b) Flat planting. (c) 1 sett (3 budded)/running foot. (d) Rows 3' apart. (e) N.A. (vi) 21.2.1959 to 22.3.1959. (vii) Irrigated. (viii) Blind hoeing, hoeings by *kassi* or spade or cultivator and tying of canes. (ix) N.A. (x) 22.1.1960 to 28.2.1960.

2. TREATMENTS :

Same as in expt. no. 59(547) on page 1099.

3. DESIGN :

(i) and (ii) 9 trials were conducted in the zone. In each trial 3 replications were taken in R.B.D. (iii) (a) N.A. (b) Varies from 1/46.54 ac. to 1/33.61 ac. (iv) Yes.

4. GENERAL :

(i) Normal. (ii) Slight attack of top borer in 5 trials. (iii) Yield of sugarcane and juice analysis. (iv) (a) and (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 28.23 tons/ac. (ii) 3.97 tons/ac. (iii) N effect is highly significant and P effect is significant. (iv) Av. yield of sugarcane in tons/ac.

	N ₀	N ₁	N ₂	N ₃	Mean
P ₀	23.10	27.89	29.31	29.33	27.41
P ₁	24.97	28.28	30.36	30.20	28.45
P ₂	24.05	29.24	30.53	31.51	28.84
Mean	24.04	28.47	30.07	30.35	28.23

S.E. of N marginal mean	= 0.44 tons/ac.
S.E. of P marginal mean	= 0.38 tons/ac.
S.E. of body of table	= 0.76 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 56(59).

Zone :- Iqbalpur (Saharanpur, c.f.).

Type :- 'M'.

Object :—To find out the optimum level of N for Sugarcane (ratoon).

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Sugarcane. (c) N.A. (ii) Sandy loam. (iii) Nil. (iv) CO. S. 321 (improved). (v) (a) to (c) N.A. (d) Rows 3' apart. (e) N.A. (vi) N.A. (vii) Irrigated. (viii) and (ix) N.A. (x) 16 and 17.12.1956.

2. TREATMENTS :

Same as in expt. no. 56(46) on page 1097.

3. DESIGN :

(i) and (ii) R.B.D. with 4 replications. (iii) (a) 65' × 36'. (b) 59' × 30. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of sugarcane. (iv) (a) 1956—1957. (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 12.81 tons/ac. (ii) 1.53 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	N ₀	N ₁	N ₂	N ₃
Av. yield	11.16	14.03	12.48	13.57

S.E./mean = 0.76 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 57(69).

Zone :- Iqbalpur (Saharanpur, c.f.).

Type :- 'M'.

Object :—To find out the optimum level of N for Sugarcane (ratoon).

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Sugarcane. (c) N.A. (ii) N.A. (iii) Nil. (iv) CO.S. 245 (improved). (v) (a) to (c) N.A. (d) Rows 3' apart. (e) N.A. (vi) Ratoon : 14.3.1957. (vii) Irrigated. (viii) 2 hoeings by *kassi* and *khurpa*. (ix) N.A. (x) 13.12.1957.

2. TREATMENTS :

Same as in expt. no. 56(46) on page 1097.

3. DESIGN :

(i) and (ii) R.B.D. with 4 replications. (iii) (a) 56' × 36'. (b) 50' × 31.5'. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of sugarcane and juice analysis. (iv) (a) 1956—1957. (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 19.02 tons/ac. (ii) 1.14 tons/ac. (iii) Treatment differences are highly significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	N ₀	N ₁	N ₂	N ₃
Av. yield	15.04	18.53	20.01	22.51

S.E./mean = 0.57 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 59(77).

Zone :- Lhaksar (Saharanpur, c.f.).

Type :- 'M'.

Object :—To study the effect of N on Sugarcane.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Paddy. (c) N.A. (ii) Sandy loam. (iii) Nil. (iv) CO.S. 245 (improved). (v) (a) 16 ploughings and 2 plankings. (b) Flat planting. (c) 75 (3 budded) setts/row. (d) 3' between rows. (e) N.A. (vi) 5.3.1959. (vii) N.A. (viii) 2 blind hoeings. (ix) N.A. (x) 18 to 25.3.1960.

2. TREATMENTS :

5 manurial treatments : M₀=Control, M₁=60 lb./ac. of N as F.Y.M., M₂=M₁+80 lb./ac. of N as A/S, M₃=M₁+80 lb./ac. of N as A/C and M₄=M₁+80 lb./ac. of N as Urea.

A/S, A/C and Urea applied in two equal doses at planting and in June.

3. DESIGN :

(i) and (ii) R.B.D. with 4 replications. (iii) (a) 73' × 24'. (b) 67' × 18'. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Germination %, no. of tillers, juice analysis and yield of sugarcane. (iv) (a) and (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 26.34 tons/ac. (ii) 3.95 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	M ₀	M ₁	M ₂	M ₃	M ₄
Av. yield	28.76	21.65	28.62	28.32	24.35

S.E./mean = 1.97 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 55(103).

Zone :- Saharanpur (Saharanpur, c.f.).

Type :- 'M'.

Object :—To find out the optimum level of N for Sugarcane (ratoon).

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Sugarcane. (c) N.A. (ii) Loam. (iii) Nil. (iv) CO. 245 (improved). (v) (a) N.A. (b) Flat planting. (c) to (e) N.A. (vi) Ratoon : 20.3.1955. (vii) Irrigated. (viii) 3 hoeings by cultivator and 1 earthing by spade. (ix) N.A. (x) 12.12.1955.

2. TREATMENTS :

4 levels of N : N₀=0, N₁=40, N₂=80 and N₃=120 lb./ac.
N applied as G.N.C.+A/S in 1 : 1 ratio.

3. DESIGN :

(i) and (ii) R.B.D. with 4 replications. (iii) (a) 70' × 33'. (b) 64' × 27.5'. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (ii) No. of tillers and yield of sugarcane. (iv) (a) 1955—1957. (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 13.31 tons/ac. (ii) 1.78 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	N ₀	N ₁	N ₂	N ₃
Av. yield	11.70	12.51	14.74	14.29

S.E./mean = 0.89 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 56(61).

Zone :- Saharanpur (Saharanpur, c.f.).

Type :- 'M'.

Object :—To find out the optimum level of N for Sugarcane (ratoon).

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Sugarcane. (c) N.A. (ii) Clay loam. (iii) Nil. (iv) CO.S. 245 (improved). (v) (a) to (c) N.A. (d) Rows 3' apart. (e) N.A. (vi) N.A. (vii) Irrigated. (viii) 1 hoeing by spade, 1 earthing up and 1 binding of cane. (ix) N.A. (x) 12.12.1956.

2. TREATMENTS :

Same as in expt. no. 55(103) on page 1102.

3. DESIGN :

(i) and (ii) R.B.D. with 4 replications. (iii) (a) 73' × 18'. (b) 67' × 12'. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of sugarcane. (iv) (a) 1955—1957. (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 16.48 tons/ac. (ii) 2.94 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	N ₀	N ₁	N ₂	N ₃
Av. yield	15.76	17.84	16.15	16.18

S.E./mean = 1.47 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 57(70).

Zone :- Saharanpur (Saharanpur, c.f.).

Type :- 'M'.

Object :— To find out the optimum level of N for Sugarcane (ratoon).

1. BASAL CONDITIONS .

(i) (a) N.A. (b) Sugarcane. (c) N.A. (ii) N.A. (iii) Nil. (iv) CO.S. 245 (improved). (v) (a) to (c) N.A. (d) Rows 3' apart. (e) N.A. (vi) Ratoon : 15 to 22.2.1957. (vii) Irrigated. (viii) 4 hoeings by *desi* plough and 1 earthing. (ix) N.A. (x) 9, 10.12.1957.

2. TREATMENTS :

Same as in expt. no. 55(103) on page 1102.

3. DESIGN :

(i) and (ii) R.B.D. with 4 replications. (iii) (a) 72' × 36'. (b) 67' × 30'. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) No. of tillers, juice analysis and yield of sugarcane. (iv) (a) 1955—1957. (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 23.01 tons/ac. (ii) 0.66 tons/ac. (iii) Treatment differences are highly significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	N ₀	N ₁	N ₂	N ₃
Av. yield	21.09	22.42	23.19	25.34

S.E./mean = 0.33 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 55(100).

Zone :- Saharanpur (Saharanpur, c.f.).

Type :- 'M'.

Object :— To find out the suitable time of application of F.Y.M. and a mixture of G.N.C. and A/S for Sugarcane.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Fallow. (c) Nil. (ii) Loam. (iii) Nil. (iv) CO.S. 24 (improved). (v) (a) 2 ploughings by victory plough and 9 ploughings by *desi* plough. (b) Flat planting. (c) 44 (3 budded) setts/row. (d) Rows 3' apart. (e) N.A. (vi) 15.3.1955. (vii) Irrigated. (viii) 2 earthings, 3 hoeings by *kassi* and 3 hoeings by cultivator. (ix) N.A. (x) 22 and 23.1.1956.

2. TREATMENTS :

Main-plot treatments :

2 times of application of 60 lb./ac. of N as F.Y.M. : F_1 = Before planting and F_2 = At planting.

Sub-plot treatments :

3 times of application of 60 lb./ac. of N as mixture : M_0 =No application, M_1 =At planting and M_2 = In June.

Mixture contains G.N.C. and A/S in 1 : 1 ratio.

3. DESIGN :

(i) and (ii) Split-plot having 4 replications with 2 main-plots/replication and 3 sub-plots/main-plot. (iii) (a) $42' \times 30'$. (b) $36' \times 24'$. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) No. of tillers, yield of sugarcane and juice analysis. (iv) (a) 1955-1957. (b) No. (c) Nil. (v) (a) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 26.53 tons/ac. (ii) (a) 3.47 tons/ac. (b) 3.05 tons/ac. (iii) None of the effects is significant. (iv) Av. yield of sugarcane in tons/ac.

	M_0	M_1	M_2	Mean
F_1	26.62	28.32	29.35	28.10
F_2	24.21	24.48	26.17	24.95
Mean	25.42	26.40	27.76	26.53

S.E. of difference of two

1. F marginal means = 1.42 tons/ac.
2. M marginal means = 1.52 tons/ac.
3. M means at the same level of F = 2.16 tons/ac.
4. F means at the same level of M = 2.26 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 56(57).

Zone :- Saharanpur (Saharanpur, c.f.).

Type :- 'M'.

Object :- To find out the suitable time of application of F.Y.M. and a mixture of G.N.C. and A/S for Sugarcane.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Paddy. (c) N.A. (ii) Clay loam. (iii) N.A. (iv) CO. S. 245 (improved). (v) (a) 7 ploughings by *desi* plough and 3 ploughings by tractor. (b) Flat planting. (c) 75 (3 budded) setts/row. (d) 3' between rows. (e) N.A. (vi) 1.4.1956. (vii) Irrigated. (viii) 2 hoeings and binding of cane. (ix) N.A. (x) 13 and 14.12.1956.

2. TREATMENTS :

6 manurial treatments : M_1 =60 lb./ac. of N as F.Y.M. applied before planting, M_2 = M_1 +60 lb./ac. of N as mixture at the time of planting, M_3 = M_1 +60 lb./ac. of N as mixture in June, M_4 =60 lb./ac. of N as F.Y.M. applied at the time of planting, M_5 = M_4 +60 lb./ac. of N as mixture applied at the time of planting and M_6 = M_4 +60 lb./ac. of N as mixture applied in June.

Mixture contains G.N.C. and A/S in 1 : 1 ratio.

3. DESIGN :

(i) and (ii) R.B.D. with 4 replications. (iii) (a) $73' \times 24'$. (b) $67' \times 18'$. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Germination %, no. of tillers, juice analysis and yield of sugarcane. (iv) (a) 1955-1957 (modified in 1956). (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 18.58 tons/ac. (ii) 3.27 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	M ₁	M ₂	M ₃	M ₄	M ₅	M ₆
Av. yield	16.15	17.65	19.33	15.62	22.44	20.31

S.E./mean = 1.63 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 57(61).

Zone :- Saharanpur (Saharanpur, c.f.).

Type :- 'M'.

Object :—To find out the suitable time of application of F.Y.M. and a mixture of G.N.C. and A,S to plant cane.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Pea. (c) Nil. (ii) Sandy loam. (iii) Nil. (iv) CO. S. 245 (improved). (v) (a) 7 ploughings. (b) Flat planting. (c) 75 setts (3 budded)/row (d) Rows 3' apart. (e) N.A. (vi) 25.3.1957. (vii) Irrigated. (viii) 6 hoeings and 1 earthing. (ix) Nil. (x) 20 and 21.2.1958.

2. TREATMENTS to 4. GENERAL :

Same as in expt. no. 56(57) on page 1104.

5. RESULTS :

(i) 20.51 tons/ac. (ii) 2.13 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	M ₁	M ₂	M ₃	M ₄	M ₅	M ₆
Av. yield	21.17	21.20	20.23	18.18	20.78	21.49

S.E /mean = 1.06 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 57(518).

Zone :- Saharanpur (Saharanpur, c.f.).

Type :- 'M'.

Object :—To study the effect of different levels of N and P on the yield of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) *Jowar*. (c) N.A. (ii) Silty loam. (iii) 60 lb./ac. of N as F.Y.M. (iv) CO. 535 (improved). (v) (a) N.A. (b) Flat planting. (c) 82 setts (3 budded) /row. (d) Rows 3' apart. (e) N.A. (vi) 12 and 13.4.1957. (vii) Unirrigated. (viii) 5 hoeings. (ix) N.A. (x) 31.1.1958 and 1.2.1958.

2. TREATMENTS :

All combinations of (1) and (2)

4 levels of N as A/S : N₀=0, N₁=60, N₂=120 and N₃=180 lb./ac.

3 levels of P₂O₅ as Super : P₀=0, P₁=40 and P₂=80 lb./ac.

1/3rd dose of N and full dose of P₂O₅ applied in furrows by placement at the time of planting. 2/3rd dose of N top dressed.

3. DESIGN :

(i) and (ii) R.B.D. with 3 replications. (iii) (a) 82' × 21'. (b) 76' × 15'. (iv) Yes.

4. GENERAL :

(i) Good. (ii) Slight attack of stem borer. (iii) Yield of sugarcane and juice analysis. (iv) (a) and (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 23.28 tons/ac. (ii) 1.68 tons/ac. (iii) Main effects of N and interaction N×P are highly significant. (iv) Av. yield of sugarcane in tons/ac.

	N ₀	N ₁	N ₂	N ₃	Mean
P ₀	18.71	20.31	24.48	27.46	22.74
P ₁	20.04	25.35	23.35	23.03	22.94
P ₂	22.16	21.69	27.43	25.31	24.15
Mean	20.30	22.45	25.09	25.27	23.28

S.E. of N marginal mean = 0.56 tons/ac.
 S.E. of P marginal mean = 0.48 tons/ac.
 S.E. of body of table = 0.97 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 57(519).

Zone :- Saharanpur (Saharanpur, c.f.).

Type :- 'M'.

Object :- To study the effect of different levels of N and P on the yield of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Loam, sandy loam and loamy. (iii) 150 mds./ac. of F.Y.M. (iv) CO.S. 321 in 4 trials and CO.S. 245 in 1 trial. (v) (a) N.A. (b) Flat planting. (c) 1 sett (3 budded)/row. (d) Rows 3' apart. (e) N.A. (vi) 25.3.1957 to 3.4.1957. (vii) Irrigated. (viii) 4 to 6 hoeings and 1 earthing. (ix) N.A. (x) 12 to 29.1.1958.

2. TREATMENTS :

Same as in expt. no. 57(518) on page 1105.

3. DESIGN :

(i) and (ii) 5 trials are conducted in the zone in R.B.D. with 3 replications. (iii) (a) N.A. (b) Varies from 1/41.02 ac. to 1/35.76 ac. (iv) Yes.

4. GENERAL :

(i) Good. (ii) Slight attack of stem and top borers. (iii) Yield of sugarcane and juice analysis. (iv) (a) 1957—1958. (b) No. (c) Nil. (v) N.A. (vi) Nil. (vii) The error variances were found to be heterogeneous and further, on weighted analysis "treatments × places" interaction was found to be non-significant. Therefore, single degree of freedom corresponding to linear, quadratic and cubic components of N are tested. Results of each trial separately are also given.

5. RESULTS :

Village : Khera Afgan

(i) 30.71 tons/ac. (ii) 3.18 tons/ac. (iii) Main effect of N is highly significant and P effect is significant. (iv) Av. yield of sugarcane in tons/ac.

	N ₀	N ₁	N ₂	N ₃	Mean
P ₀	27.19	28.25	27.97	31.87	28.82
P ₁	28.29	35.17	33.45	34.45	32.84
P ₂	23.90	32.84	30.61	34.48	30.46
Mean	26.46	32.09	30.68	33.60	30.71

S.E. of N marginal mean = 1.06 tons/ac.
 S.E. of P marginal mean = 0.92 tons/ac.
 S.E. of body of table = 1.83 tons/ac.

Village : Bhaspur

(i) 2.10 tons/ac. (ii) 2.91 tons/ac. (iii) Main effect of N alone is highly significant. (iv) Av. yield of sugarcane in tons/ac.

	N ₀	N ₁	N ₂	N ₃	Mean
P ₀	17.63	25.95	24.48	25.71	23.44
P ₁	20.33	25.32	26.02	24.42	24.02
P ₂	20.17	23.03	29.60	26.52	24.83
Mean	19.38	24.77	26.70	25.55	24.10

S.E. of N marginal mean = 0.97 tons/ac.
 S.E. of P marginal mean = 0.84 tons/ac.
 S.E. of body of table = 1.68 tons/ac.

Village : Baheri

(i) 22.20 tons/ac. (ii) 1.93 tons/ac. (iii) Main effect of N alone is highly significant. (iv) Av. yield of sugarcane in tons/ac.

	N ₀	N ₁	N ₂	N ₃	Mean
P ₀	17.30	23.03	23.28	23.24	21.71
P ₁	19.15	23.84	24.87	23.77	22.91
P ₂	18.38	22.11	25.04	22.43	21.99
Mean	18.28	22.99	24.40	23.15	22.20

S.E. of N marginal mean = 0.64 tons/ac.
 S.E. of P marginal mean = 0.56 tons/ac.
 S.E. of body of table = 1.11 tons/ac.

Village : Buddash khara

(i) 19.89 tons/ac. (ii) 2.07 tons/ac. (iii) Main effect of N alone is highly significant. (iv) Av. yield of sugarcane in tons/ac.

	N ₀	N ₁	N ₂	N ₃	Mean
P ₀	14.24	20.56	21.79	22.04	19.66
P ₁	14.70	20.02	20.63	21.92	19.32
P ₂	15.56	21.83	21.71	23.71	20.70
Mean	14.83	20.80	21.38	22.56	19.89

S.E. of N marginal mean = 0.69 tons/ac.
 S.E. of P marginal mean = 0.60 tons/ac.
 S.E. of body of table = 1.19 tons/ac.

Village : Chacharoli

(i) 35.11 tons/ac. (ii) 3.96 tons/ac. (iii) Main effect of N is highly significant and effect of P is significant. (iv) Av. yield of sugarcane in tons/ac.

	N ₀	N ₁	N ₂	N ₃	Mean
P ₀	24.99	38.82	34.82	34.83	33.36
P ₁	25.95	37.83	38.86	34.96	34.40
P ₂	31.58	38.92	39.46	40.31	37.57
Mean	27.51	38.52	37.71	36.70	35.11

S.E. of N marginal mean = 1.32 tons/ac.
 S.E. of P marginal mean = 1.14 tons/ac.
 S.E. of body of table = 2.28 tons/ac.

Results of zone

Component of N	Av. response for the zone in tons/ac.	S.E. of response in tons/ac.	Significance
Linear	20.36	1.68	Highly significant
Quadratic	-5.78	0.75	Highly significant
Cubic	4.45	1.68	Highly significant

Crop :- Sugarcane.

Ref :- U.P. 58(498).

Zone :- Saharanpur (Saharanpur, c.f.).

Type :- 'M'.

Object :— To study the effect of different levels of N and P the yield of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Loam, clay loam, sandy loam and silty loam. (iii) 60 lb./ac. of N as F.Y.M. (iv) CO.S. 245 in 7 trials, CO.S. 321 in 3 trials and CO.S. 356 in 1 trial. (v) (a) N.A. (b) Flat planting. (c) 1 sett (3 budded)/foot. (d) Rows 3' apart. (e) N.A. (vi) 15.2.1958 to 18.3.1958. (vii) Irrigated. (viii) 2 hoeings and 1 earthing. (ix) N.A. (x) 28.1.1959 to 7.3.1959.

2. TREATMENTS :

Same as in expt. no. 57(519) on page 1106.

3. DESIGN :

(i) and (ii) 11 trials were conducted in the zone in R.B.D. with 3 replications. (iii) (a) N.A. (b) Varies from 1/47.45 ac. to 1/35.76 ac. (iv) Yes.

4. GENERAL :

(i) Good. (ii) Slight attack of top borers. (iii) Yield of sugarcane and juice analysis. (iv) (a) 1957—1958. (b) No. (c) N.A. (v) N.A. (vi) Nil. (vii) 1 replication each in 2 trials were rejected as they were spoiled.

5. RESULTS :

(i) 24.86 tons/ac. (ii) 1.75 tons/ac. (iii) Main effects of N and P are highly significant. (iv) Av. yield of sugarcane in tons/ac.

	N ₀	N ₁	N ₂	N ₃	Mean
P ₀	20.34	24.33	25.84	26.13	24.16
P ₁	20.57	25.38	26.69	26.65	24.82
P ₂	21.93	25.17	27.09	28.23	25.60
Mean	20.95	24.96	26.54	27.00	24.86

S.E. of N marginal mean = 0.30 tons/ac.

S.E. of P marginal mean = 0.26 tons/ac.

S.E. of body of table = 0.53 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 56(281).

Zone :- Biswan (Sitapur, c.f.).

Type :- 'M'.

Object :—To study the effect of A/C and A/S on the yield of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) *Sanai*. (c) Nil. (ii) Sandy loam. (iii) G.M. (*Sanai*). (iv) CO.S. 510 (improved). (v) (a) 7 harrowings by cultivator fitted in tractor. (b) Flat planting. (c) 1500 buds/plot. (d) Rows 3' apart. (e) N.A. (vi) 21.2.1956. (vii) Irrigated. (viii) 2 hoeings by *kudali* and cultivator. (ix) N.A. (x) 12 and 13.4.1957.

2. TREATMENTS :

3 sources of 60 lb./ac. of N : S_0 =Control, S_1 =A/C and S_2 =A/S.

3. DESIGN :

(i) and (ii) R.B.D. with 6 replications. (iii) (a) 48' × 30'. (b) 42' × 24'. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Germination %, no. of tillers, millable cane, yield and juice analysis of sugarcane. (iv) (a) and (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 24.65 tons/ac. (ii) 5.76 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	S_0	S_1	S_2
Av. yield	24.27	24.07	25.62
S.E./mean = 2.35 tons/ac.			

Crop :- Sugarcane.

Ref :- U.P. 58(272).

Zone :- Biswan (Sitapur, c.f.).

Type :- 'M'.

Object :—To study the effect of A/S and F.Y.M. on the yield of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) *Pea+Sanai*. (c) N.A. (ii) Heavy loam. (iii) G.M. (*Sanai*). (iv) CO.S. 510. (v) (a) 5 ploughings by tractor and 3 harrowings by local harrow. (b) Flat planting. (c) to (e) N.A. (vi) 16.3.1958. (vii) Irrigated. (viii) 4 hoeings. (ix) N.A. (x) 20.2.1959.

2. TREATMENTS :

5 manurial treatments : M_0 =Control, M_1 =120 lb./ac. of N as A/S in furrows at planting, M_2 =120 lb./ac. of N as F.Y.M. 15 to 30 days before planting, M_3 =120 lb./ac. of N, $\frac{1}{2}$ as A/S and $\frac{1}{2}$ as F.Y.M. applied mixed 15 to 30 days before planting and M_4 =120 lb./ac. of N, $\frac{1}{2}$ as F.Y.M. applied 15 to 30 days before planting and $\frac{1}{2}$ as A/S applied in furrows at planting.

3. DESIGN :

(i) and (ii) R.B.D. with 6 replications. (iii) (a) N.A. (b) 60' × 21'. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of sugarcane. (iv) (a) and (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 14.64 tons/ac. (ii) 2.71 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	M_0	M_1	M_2	M_3	M_4
Av. yield	13.29	14.74	14.58	14.83	15.74
S.E./mean = 1.11 tons/ac.					

Crop :- Sugarcane.**Ref :- U.P. 58(273).****Zone :- Hargaon (Sitapur, c.f.).****Type :- 'M'.**

Object :—To study the effect of A/S and F.Y.M. on the yield of Sugarcane.

1. BASAL CONDITIONS :

(i) to (ix) N.A. (x) 25 to 31.1.1959.

2. TREATMENTS :

Same as in expt. no. 58(272) on page 1109.

3. DESIGN :

(i) and (ii) R.B.D. with 5 replications. (iii) (a) N.A. (b) 34' × 36'. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of Sugarcane. (iv) (a) and (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 14.56 tons/ac. (ii) 2.88 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	M ₀	M ₁	M ₂	M ₃	M ₄
Av. yield	15.23	13.83	14.34	14.73	14.67

S.E./mean = 1.29 tons/ac.

Crop :- Sugarcane.**Ref :- U.P. 54(256).****Zone :- Maholi (Sitapur, c.f.).****Type :- 'M'.**

Object :—To study the effect of Super in combination with G.M. on the yield of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) and (c) As per treatments. (ii) Loam soil. (iii) Nil. (iv) CO.S. 510 (improved). (v) (a) N.A. (b) Flat planting. (c) 1320 buds/plot. (d) Rows 3' apart. (e) N.A. (vi) 10 and 11.1.1954. (vii) Irrigated. (viii) and (ix) N.A. (x) 21.2.1955 to 21.3.1955.

2. TREATMENTS :3 manurial treatments : T₁=*Sanai* (G.M.), T₂=Super at 60 lb./ac. of P₂O₅ applied at the time of sowing of G.M. crop and T₃=Super at 60 lb./ac. of P₂O₅ applied at turning in of *sanai*.**3. DESIGN :**

(i) and (ii) R.B.D. with 6 replications. (iii) (a) 24' × 50'. (b) 18' × 44'. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Germination %, no. of tillers, yield of sugarcane and juice analysis. (iv) (a) 1954—1955. (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 35.00 tons/ac. (ii) 2.34 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	T ₁	T ₂	T ₃
Av. yield	35.19	33.96	35.84

S.E./mean = 0.95 tons/ac.

Crop :- Sugarcane.**Ref :- U.P. 55(257).****Zone :- Maholi (Sitapur, c.f.).****Type :- 'M'.**

Object :—To study the effect of Super in combination with G.M. on the yield of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) and (c) As per treatments. (ii) Loam soil. (iii) N.A. (iv) CO.S. 510 (improved). (v) (a) N.A. (b) Flat planting. (c) 1560 buds/plot. (d) Rows 3' apart. (e) N.A. (vi) 19 and 20.2.1955. (vii) Irrigated. (viii) N.A. (ix) 40". (x) 15.4.1956 to 1.5.1956.

2. TREATMENTS :

Same as in expt. no. 54(256) on page 1110.

3. DESIGN :

(i) and (ii) R.B.D. with 6 replications. (iii) (a) 60' × 24'. (b) 54' × 18'. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Germination %, no. of tillers, millable cane, yield of sugarcane and juice analysis. (iv) (a) 1954—1955. (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 33.69 tons/ac. (ii) 2.58 tons/ac. (iii) Treatment differences are significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	T ₁	T ₂	T ₃
Av. yield	30.90	34.81	35.36

S.E./mean = 1.05 tons/ac.

Crop :- Sugarcane.**Ref :- U.P. 57(510).****Zone :- Maholi (Sitapur, c.f.).****Type :- 'M'.**

Object :—To study the effect of N alone and in combination with P on the yield of Sugarcane.

1. BASAL CONDITIONS :(i) (a) N.A. (b) Groundnut in 1 trial, Paddy in 3 trials, *Urd+Chari* in 1 trial, Fallow in one trial and *Char* in 1 trial. (c) N.A. (ii) Loamy sand. (iii) 60 lb./ac. of N as F.Y.M. (iv) CO.S. 321 (improved) in 4 trials and CO.S. 510 (improved) in 3 trials. (v) (a) to (e) N.A. (vi) March, 1957. (vii) Irrigated. (viii) Earthing and other practices. (ix) N.A. (x) January, 1958.**2. TREATMENTS :**

All combinations of (1) and (2)

(1) 4 levels of N : N₀=0, N₁=60, N₂=120 and N₃=180 lb./ac.(2) 3 levels of P₂O₅ : P₀=0, P₁=40 and P₂=80 lb./ac.**3. DESIGN :**

(i) and (ii) In the zone, 7 villages were selected. In each village treatments are tried in R.B.D. with 3 replications. (iii) (a) and (b) N.A. (iv) Yes.

4. GENERAL :

(i) N.A. (ii) Nil. (iii) Yield of sugarcane. (iv) (a) 1957—1958. (b) No. (c) Nil. (v) N.A. (vi) Nil. (vii) As the experimental errors were found heterogeneous and also on further weighted analysis "treatment × villages" interaction was found to be non-significant, single degree of freedom for each one of the linear, quadratic and cubic component of N were tested.

5. RESULTS :

Component of N	Av. response for the zone in tons/ac.	S.E. in tons/ac.	Significance
Linear	5.87	1.3409	Highly significant
Quadratic	—2.73	0.6096	Highly significant
Cubic	0.58	1.3409	Not significant

Crop :- Sugarcane.**Ref :- U.P. 58(486).****Zone :- Maholi (Sitapur, c.f.).****Type :- 'M'.**

Object :—To study the effect of N alone and in combination with P on the yield of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Loamy sand. (iii) 60 lb./ac. of N as F.Y.M. (iv) CO.S. 510 (improved). (v) (a) to (e) N.A. (vi) March, 1958. (vii) Irrigated. (viii) Hoeings and earthings. (ix) N.A. (x) February, 1959.

2. TREATMENTS :

Same as in expt. no. 57(510) on page 1111.

3. DESIGN :

(i) and (ii) In the zone 8 villages were selected. In each village treatments are tried in R.B.D. with 3 replications. (iii) (a) and (b) N.A. (iv) Yes.

4. GENERAL :

(i) Normal. (ii) Nil. (iii) Yield of sugarcane. (iv) (a) 1957—1958. (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 24.31 tons/ac. (ii) 1.97 tons/ac. (iii) N effect is highly significant. Interaction N×P and P effect are significant. (iv) Av. yield of sugarcane in tons/ac.

	N ₀	N ₁	N ₂	N ₃	Mean
P ₀	18.84	23.66	25.31	26.72	23.63
P ₁	19.95	23.89	26.37	27.12	24.23
P ₂	20.44	24.24	27.19	28.42	25.07
Mean	19.61	23.93	26.29	27.42	24.31

S.E. of N marginal mean = 0.66 tons/ac.

S.E. of P marginal mean = 0.57 tons/ac.

S.E. of body of table = 1.14 tons/ac.

Crop :- Sugarcane.**Ref :- U.P. 56(311).****Zone :- Maholi (Sitapur, c.f.).****Type :- 'M'.**

Object :—To study the effect of A/S and F.Y.M. on the yield of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Paddy. (c) N.A. (ii) Loam soil. (iii) N.A. (iv) CO.S. 510 (improved). (v) (a) 8 ploughings. (b) Flat planting. (c) 4920 buds/plot. (d) Rows 3' apart. (e) N.A. (vi) 18.2.1956. (vii) Irrigated. (viii) 3 hoeings by hand hoe. (ix) 35". (x) 29.3.1957 to 7.4.1957.

2. TREATMENTS :

Same as in expt. no. 58(272) on page 1109.

3. DESIGN :

(i) and (ii) R.B.D. with 6 replications. (iii) (a) 36'×60'. (b) 30'×54'. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Germination %, no. of tillers, millable cane, yield of sugarcane and juice analysis. (iv) (a) 1956—1958. (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 23.80 tons/ac. (ii) 1.54 tons/ac. (iii) Treatment differences are highly significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	M ₀	M ₁	M ₂	M ₃	M ₄
Av. yield	21.72	25.08	23.25	24.68	24.29

S.E./mean = 0.63 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 57(192).

Zone :- Maholi (Sitapur, c.f.).

Type :- 'M'.

Object :—To study the effect of A/S and F.Y.M. on the yield of Sugarcane.

1. BASAL CONDITIONS :

(i) to (x) N.A.

2. TREATMENTS :

Same as in expt. no. 58(272) on page 1109.

3. DESIGN :

(i) and (ii) R.B.D. with 6 replications. (iii) (a) N.A. (b) 66'×24'. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of sugarcane. (iv) (a) 1956—1958. (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 21.09 tons/ac. (ii) 1.86 tons/ac. (iii) Treatment differences are highly significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	M ₀	M ₁	M ₂	M ₃	M ₄
Av. yield	19.00	19.19	22.33	23.18	21.73

S.E./mean = 0.76 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 58(275).

Zone :- Maholi (Sitapur, c.f.)

Type :- 'M'.

Object :—To study the effect of A/S and F.Y.M. on the yield of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Paddy. (c) N.A. (ii) Sandy loam. (iii) N.A. (iv) CO. S. 510. (v) (a) 7 ploughings. (b) Flat planting in furrows. (c) N.A. (d) Rows 3' apart. (e) N.A. (vi) 18.11.1957. (vii) Irrigated. (viii) 3 hoeings and 2 harrowings. (ix) N.A. (x) 19.2.1959 to 3.3.1959.

2. TREATMENTS :

Same as in expt. no. 58(272) on page 1109.

3. DESIGN :

(i) and (ii) R.B.D. with 5 replications. (iii) (a) N.A. (b) 42'×39'. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of sugarcane. (iv) (a) 1956—1958. (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 22.15 tons/ac. (ii) 0.87 tons/ac. (iii) Treatment differences are highly significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	M ₀	M ₁	M ₂	M ₃	M
Av. yield	16.89	24.06	19.67	21.51	20.61

S.E./mean = 0.39 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 57(253).

Zone :- Maholi (Sitapur, c.f.).

Type :- 'M'.

Object :—To study the effect of different levels of N and P on the yield of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Groundnut. (c) N.A. (ii) Loamy sand. (iii) 60 lb./ac. of N. (iv) and (v) N.A. (vi) 10.3.1957. (vii) Irrigated. (viii) 5 hoeings. (ix) N.A. (x) 7 to 10.1.1958.

2. TREATMENTS :

All combinations of (1) and (2)

(1) 4 levels of N : N₀=0, N₁=60, N₂=120 and N₃=180 lb./ac.

(2) 3 levels of P₂O₅ : P₀=0, P₁=40 and P₂=80 lb./ac.

3. DESIGN :

(i) and (ii) R.B.D. with 3 replications. (iii) (a) 67.2' × 18'. (b) 61.2' × 12'. (iv) Yes.

4. GENERAL :

(i) N.A. (ii) Nil. (iii) Yield of sugarcane. (iv) (a) and (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 14.52 tons/ac. (ii) 1.37 tons/ac. (iii) Main effect of N alone is highly significant. (iv) Av. yield of sugarcane in tons/ac.

	N ₀	N ₁	N ₂	N ₃	Mean
P ₀	14.36	13.94	15.23	15.30	14.71
P ₁	12.28	13.50	15.63	15.55	14.24
P ₂	13.59	14.92	12.88	17.05	14.61
Mean	13.41	14.12	14.58	15.97	14.52

S.E. of N marginal mean = 0.46 tons/ac.

S.E. of P marginal mean = 0.39 tons/ac.

S.E. of body of table = 0.79 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 56(303).

Zone :- Rosa (Shahjahanpur, c.f.).

Type :- 'M'.

Object :—To study the effect of A/S and F.Y.M. on the yield of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Wheat. (c) N.A. (ii) Sandy loam. (iii) N.A. (iv) CO.S. 510 (improved). (v) (a) 12 *desi* ploughings and 6 ploughings by *praja* plough. (b) Flat planting. (c) 1800 buds/plot. (d) Rows 3' apart. (e) N.A. (vi) 5 and 6.3.1956. (vii) Irrigated. (viii) 6 hoeings by *kassi* and 1 earthing by spade. (ix) 40". (x) 16 to 25.1.1957.

2. TREATMENTS :

5 manurial treatments : M_0 =Control, M_1 =120 lb./ac. of N as A/S applied in furrows at planting, M_2 =120 lb./ac. of N as F.Y.M. applied 15 to 30 days before planting, M_3 =60 lb./ac. of N as A/S and 60 lb./ac. of N as F.Y.M. mixed together and applied 15 to 30 days before planting and M_4 =60 lb./ac. of N as F.Y.M. applied 15 to 30 days before planting and 60 lb./ac. of N as A/S in furrows at planting.³

3. DESIGN :

(i) and (ii) R.B.D. with 4 replications. (iii) (a) 73'×24'. (b) 67'×18'. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Germination %, no. of tillers, millable cane and yield of sugarcane. (iv) (a) 1956—1958. (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 30.57 tons/ac. (ii) 2.94 tons/ac. (iii) Treatment differences are highly significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	M_0	M_1	M_2	M_3	M_4
Av. yield	22.24	34.07	31.51	32.45	32.60

S.E./mean = 1.47 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 57(210).

Zone :- Rosa (Shahjahanpur, c.f.).

Type :- 'M'.

Object :—To study the effect of A/S and F.Y.M. on the yield of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Sandy loam. (iii) to (vi) N.A. (vii) Irrigated. (viii) to (x) N.A.

2. TREATMENTS :

Same as in expt. no. 56(308) on page 1114.

3. DESIGN :

(i) and (ii) R.B.D. with 6 replications. (iii) (a) N.A. (b) 66'×18'. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of sugarcane. (iv) (a) 1956—1958. (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 27.95 tons/ac. (ii) 2.40 tons/ac. (iii) Treatment differences are highly significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	M_0	M_1	M_2	M_3	M_4
Av. yield	22.33	30.35	28.73	29.69	28.67

S.E./mean = 0.98 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 58(281).

Zone :- Rosa (Shahjahanpur, c.f.).

Type :- 'M'.

Object :—To study the effect of A/S and F.Y.M. on the yield of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Paddy. (c) N.A. (ii) Sandy loam. (iii) N.A. (iv) CO. 527. (v) (a) to (e) N.A. (vi) 15.3.1958. (vii) Irrigated. (viii) and (ix) N.A. (x) 13 to 15.2.1959.

2. TREATMENTS :

Same as in expt. no 56(308) on page 1114.

3. DESIGN :

(i) and (ii) R.B.D. with 6 replications. (iii) (a) 60' × 18'. (b) 54' × 12'. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of sugarcane. (iv) (a) 1956—1958. (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 35.75 tons/ac. (ii) 4.30 tons/ac. (iii) Treatment differences are highly significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	M ₀	M ₁	M ₂	M ₃	M ₄
Av. yield	27.84	39.61	37.43	38.27	35.59

S.E./mean = 1.75 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 56(244).

Zone :- Ghugli (Gorakhpur, c.f.).

Type :- 'M'.

Object :—To study the effect of A/S and A/C on the yield of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Fallow. (c) N.A. (ii) N.A. (iii) 200 mds./ac. of F.Y.M. (iv) CO.S. 443. (v) (a) 8 ploughings by tractor. (b) Flat planting. (c) to (e) N.A. (vi) 1.3.1956. (vii) Unirrigated. (viii) 5 hoeings. (ix) N.A. (x) 18.2.1957.

2. TREATMENTS :

3 sources of 60 lb./ac of N : S₀=Control, S₁=A/S and S₂=A/C.

3. DESIGN :

(i) and (ii) R.B.D. with 4 replications. (iii) (a) 65' × 27'. (b) 59' × 21'. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of sugarcane. (iv) (a) and (b) No. (c) Nil. (v) N.A. (vi) and (vii) N.I.

5. RESULTS :

(i) 5.61 tons/ac. (ii) 0.89 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	S ₀	S ₁	S ₂
Av. yield	5.65	5.29	5.89

S.E./mean = 0.45 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 59(292).

Zone :- Bhatni (Deoria, c.f.).

Type :- 'M'.

Object :— To study the effect of A/S and F.Y.M. on the yield of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Pea. (c) N.A. (ii) and (iii) N.A. (iv) BO. 17. (v) (a) 7 ploughings by *desi* plough. (b) Flat planting. (c) to (e) N.A. (vi) 20.2.1959. (vii) Irrigated. (viii) and (ix) N.A. (x) 24 and 25.12.1959.

2. TREATMENTS :

Same as in expt. no. 56(308) on page 1114.

3. DESIGN :

(i) and (ii) R.B.D. with 4 replications. (iii) (a) 112'×13'. (b) 112'×9'. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of sugarcane. (iv) (a) and (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 24.84 tons/ac. (ii) 2.44 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugar in tons/ac.

Treatment	M ₀	M ₁	M ₂	M ₃	M ₄
Av. yield	24.49	24.87	24.76	25.42	24.68

S.E /mean = 1.22 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 59(380).

Range :- Rohilkhand (c.f.).

Type :- 'M'.

Object :— To study the effect of N, P and K on the yield of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Loam. (iii) N.A. (iv) CO.S. 215 at 3 places, CO.S. 510 at 8 places and CO.S. 527 at 1 place. (v) and (vi) N.A. (vii) Irrigated. (viii) to (x) N.A.

2. TREATMENTS :

4 manurial treatments : M₁=120 lb./ac. of N as A/S, M₂=M₁+80 lb./ac. of P₂O₅ as Super, M₃=M₂+60 lb./ac. of K₂O as Mur. Pot. and M₄=M₂+120 lb./ac. of K₂O as Mur. Pot.
Half dose of N and full dose of P₂O₅ and K₂O applied in furrows at planting. Half dose of N top dressed.

3. DESIGN :

(i) and (ii) Trial conducted at 12 places in the range in R.B.D. (iii) (a) and (b) N.A. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of sugarcane. (iv) (a) 1959—N.A. (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 23.21 tons/ac. (ii) 2.45 tons/ac. (iii) Treatment differences are highly significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	M ₁	M ₂	M ₃	M ₄
Av. yield	20.77	23.93	23.17	24.97

S.E./mean = 0.71 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 59(381).

Range :- Central (c.f.).

Type :- 'M'.

Object :— To study the effect of N, P and K on the yield of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Loam. (iii) N.A. (iv) CO.S 510. (v) and (vi) N.A. (vii) Irrigated. (viii) to (x) N.A.

2. TREATMENTS :

Same as in expt no. 59(380) on page 1117.

3. DESIGN :

(i) and (ii) Trial conducted at 7 places in the range in R.B.D. (iii) (a) and (b) N.A. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of sugarcane. (iv) (a) 1959—N.A. (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 25.29 tons/ac. (ii) 2.60 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	M ₁	M ₂	M ₃	M ₄
Av. yield	24.34	25.22	26.44	25.16

S.E./mean = 0.98 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 55(402).

Zone :- Baheri (Bareilly, c.f.).

Type :- 'MV'.

Object :—To study the effect of different levels of N and P on Sugarcane varieties.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Fallow in 2 trials and *lahi* in 1 trial. (c) Nil. (ii) *Domat* and *matiyar* (iii) 300 mds./ac. as F.Y.M. in 1 trial and 225 mds./ac. as F.Y.M. in 1 trial. (iv) As per treatments. (v) (a) to (c) N.A. (vi) 19 to 23.3.1955. (vii) Irrigated. (viii) 4 hoeings. (ix) N.A. (x) 11 to 15.1.1956.

2. TREATMENTS :

All combinations of (1), (2) and (3)

(1) 3 varieties : V₁=CO. S. 245, V₂=CO. 510 and V₃=CO. 527.

(2) 3 levels of N as A/S : N₀=0, N₁=60 and N₂=120 lb./ac.

(3) 3 levels of P₂O₅ as Super ; P₀=0, P₁=40 and P₂=80 lb./ac.

½ dose of N and full dose of P₂O₅ applied at planting and ½ dose of N as top dressing.

3. DESIGN :

(i) and (ii) 3 trials were conducted in the zone. At each place 3³ confounded unreplicated trial was conducted in 3 blocks per replication. (iii) (a) N.A. (b) Varies from 1/45.37 ac. to 1/44.40 ac. (iv) Yes.

4. GENERAL :

(i) N.A. (ii) Nil. (iii) Yield of sugarcane. (iv) (a) 1955—N.A. (b) No. (c) Nil. (v) N.A. (vi) Nil. (vii) Actually 4 expts. were conducted at 4 different places in the zone but one expt. has been rejected as the yields were very low and no reason for it were available. V×N×P confounded in each trial.

5. RESULTS :

(i) 20.11 tons/ac. (ii) 4.82 tons/ac. (iii) V, N and P effects are highly significant. (iv) Av. yield of sugarcane in tons/ac.

	V ₁	V ₂	V ₃	Mean	P ₀	P ₁	P ₂
N ₀	18.30	15.29	19.66	17.75	14.36	18.42	20.47
N ₁	23.91	16.89	20.79	20.53	16.40	20.04	25.16
N ₂	24.49	17.78	23.89	22.05	18.74	21.71	25.71
Mean	22.23	16.65	21.45	20.11	16.50	20.06	23.78
P ₀	17.76	13.47	18.25				
P ₁	22.47	16.43	21.27				
P ₂	26.46	20.05	24.82				

S.E. of any marginal mean = 0.93 tons/ac.
S.E. of body of any table = 1.61 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 54(372).

Zone :- Seohara (Bijnor, c.f.).

Type :- 'MV'.

Object :—To study the effect of different levels of N and P on Sugarcane varieties.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) *Banger*. (iii) N.A. (iv) As per treatments. (v) (a) to (e) N.A. (vi) 15 to 17.3.1954
(vii) to (ix) N.A. (x) February, 1955.

2. TREATMENTS :

All combinations of (1), (2) and (3)

(1) 3 varieties : $V_1=CO. 617$, $V_2=CO. S. 245$ and $V_3=CO. 356$.

(2) 3 levels of N as A/S : $N_0=0$, $N_1=60$ and $N_2=120$ lb./ac.

(3) 3 levels of P_2O_5 as Super : $P_0=0$, $P_1=40$ and $P_2=80$ lb./ac.

3. DESIGN :

(i) and (ii) 2 trials were conducted in the zone. At each place 3^3 confounded unreplicated trial was conducted in 3 blocks per replication. (iii) (a) and (b) $70' \times 21'$ for one trial and $52' \times 27'$ for the other
(iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of sugarcane. (iv) (a) and (b) No. (c) Nil. (v) N.A. (vi) Nil. (vii) $V \times N \times P$ confounded each trial.

5. RESULTS :

(i) 20.43 tons/ac. (ii) 4.45 tons/ac. (iii) V effect alone is highly significant. (iv) Av. yield of sugarcane in tons/ac.

	V_1	V_2	V_3	Mean	P_0	P_1	P_2
N_0	16.55	23.24	19.06	19.62	19.70	18.47	20.69
N_1	16.64	26.59	19.90	21.04	21.94	19.50	21.69
N_2	15.35	26.31	20.19	20.62	20.19	21.00	20.66
Mean	16.18	25.38	19.72	20.43	20.61	19.66	21.01
P_0	15.72	25.66	20.46				
P_1	16.55	24.67	17.75				
P_2	16.28	25.81	20.94				

S.E. of any marginal mean = 1.05 tons/ac.
S.E. of body of any table = 1.82 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 54(373).

Zone :- Seohara (Bijnor, c.f.).

Type :- 'MV'.

Object :—To study the effect of different levels of N and P on Sugarcane varieties.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) *Banger* to *banger loam*. (iii) N.A. (iv) As per treatments. (v) (a) to (e) N.A. (vi) 9 to 15.3.1954. (vii) to (ix) N.A. (x) February, 1955.

2. TREATMENTS :

All combinations of (1), (2) and (3)

(1) 3 varieties : $V_1=CO. 510$, $V_2=CO. S. 321$ and $V_3=CO. 617$.

(2) 3 levels of N as A/S : $N_0=0$, $N_1=60$ and $N_2=120$ lb./ac.

(3) 3 levels of P_2O_5 as Super : $P_0=0$, $P_1=40$ and $P_2=80$ lb./ac.

3. DESIGN :

(i) and (ii) 6 trials were conducted in the zone. At each place 3^3 confounded unreplicated trial was conducted in 3 blocks per replication. (iii) (a) and (b) 1/30.25 ac. to 1/27.92 ac. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of sugarcane. (iv) (a) and (b) No. (c) Nil. (v) N.A. (vi) Nil. (vii) $V \times N \times P$ confounded in each trial.

5. RESULTS :

(i) 20.81 tons/ac. (ii) 3.69 tons/ac. (iii) Main effects of N and V are highly significant. (iv) Av. yield of sugarcane in tons/ac.

	V_1	V_2	V_3	Mean	P_0	P_1	P_2
N_0	19.29	20.99	15.06	18.45	17.98	18.50	18.87
N_1	21.44	25.82	16.73	21.33	21.60	20.55	21.83
N_2	23.05	26.17	18.74	22.66	22.14	22.75	23.08
Mean	21.26	24.33	16.84	20.81	20.57	20.60	21.26
P_0	20.76	24.78	16.18				
P_1	21.13	23.89	16.78				
P_2	21.90	24.31	17.57				

S.E. of any marginal mean = 0.50 tons/ac.

S.E. of body of any table = 0.87 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 55(403).

Zone :- Gola (Lakhimpur Kheri, c.f.).

Type :- 'MV'.

Object :- To study the effect of different levels of N and P on Sugarcane varieties.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Paddy in 5 trials, *sana* in one trial and fallow in 3 trials (c) N.A. (ii) N.A. (iii) 300 mds./ac. of F.Y.M. in 2 trials, 200 mds./ac. of F.Y.M. in 1 trial, 160 mds. ac. of F.Y.M. in 1 trial and *sana* (G.M.) + 200 mds./ac. of F.Y.M. in 1 trial. (iv) As per treatments. (v) (a) to (e) N.A. (vi) February, 1955. (vii) Irrigated. (viii) 3 to 5 hoeings. (ix) N.A. (x) January, 1956.

2. TREATMENTS :

All combinations of (1), (2) and (3)

(1) 3 varieties : $V_1=CO. S. 443$, $V_2=CO. S. 510$ and $V_3=CO. S. 527$,

(2) 3 levels of N : $N_0=0$, $N_1=60$ and $N_2=120$ lb./ac.

(3) 3 levels of P_2O_5 : $P_0=0$, $P_1=40$ and $P_2=80$ lb./ac.

3. DESIGN :

(i) and (ii) 9 trials were conducted in the zone. At each place 3^3 confounded unreplicated trial was conducted in 3 blocks. (iii) (a) and (b) N.A. (iv) Yes.

4. GENERAL :

(i) N.A. (ii) In 6 trials attack of stem borer, wilt and red rot observed. (iii) Yield of sugarcane. (iv) (a) and (b) No. (c) Nil. (v) N.A. (vi) Nil. (vii) $V \times N \times P$ confounded in all the trials.

5 RESULTS :

(i) 21.95 tons/ac. (ii) 2.08 tons/ac. (iii) Main effects of V, N and P are highly significant. (iv) Av. yield of sugarcane in tons/ac.

	N ₀	N ₁	N ₂	Mean	P ₀	P ₁	P ₂
V ₁	16.24	21.10	22.80	20.05	17.87	20.36	21.91
V ₂	17.08	22.56	24.19	21.28	19.10	21.39	23.34
V ₃	20.19	26.67	26.73	24.53	22.52	24.45	26.62
Mean	17.84	23.44	24.57	21.95	19.83	22.07	23.96
P ₀	16.02	21.09	22.38				
P ₁	17.86	23.89	24.45				
P ₂	19.63	25.34	26.90				

S.E. of any marginal mean = 0.40 tons/ac.
S.E. of body of any table = 0.69 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 54(370).

Zone :- Rohana Kalan (Muzaffarnagar, c.f.).

Type :- 'MV'.

Object :—To study the effect of different levels of N and P on the yield of different varieties of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Pea in three trials and *urd* in one. (c) N.A. (ii) Loam, sandy loam and heavy loam. (iii) 150 to 200 mds./ac. of F.Y.M. applied 2 to 3 weeks before planting. (iv) As per treatments. (v) (a) N.A. (b) Line sowing. (c) 50 to 60 mds./ac. (d) Rows 3' apart. (e) N.A. (vi) 10.3.1954 to 2.4.1954. (vii) Irrigated. (viii) 5 to 6 hoeings and tying of canes. (ix) N.A. (x) 2 to 14.2.1955.

2. TREATMENTS :

All combinations of (1), (2) and (3)

(1) 3 varieties : V₁=CO. 650, V₂=CO.S. 245 and V₃=CO.S. 321.

(2) 3 levels of N as A/S : N₀=0, N₁=60 and N₂=120 lb./ac.

(3) 3 levels of P₂O₅ as Super : P₀=0, P₁=40 and P₂=80 lb./ac.

½rd dose of N and full dose of P₂O₅ applied by placement below the cane setts at planting and ¾rds dose of N applied as top dressing at tillering time in the 2nd week of June, 1954.

3. DESIGN :

(i) and (ii) 4 trials were conducted in the zone. At each place 3³ confounded unreplicated trial was conducted in 3 blocks per replication. (iii) (a) N.A. (b) 1/58.08 ac. to 1/37.81 ac. (iv) Yes.

4. GENERAL :

(i) Good. (ii) Slight attack of borer in V₁ in all trials and in V₂ in one expt. (iii) Yield of sugarcane and juice analysis. (iv) (a) and (b) No. (c) Nil. (v) N.A. (vi) Nil. (vii) Actually 5 trials were conducted at 5 different places in the zone but one trial has been rejected as its 4 plots were harvested by the cultivator and no yield data of these plots were available. V×N×P confounded in all trials.

5. RESULTS :

(i) 28.83 tons/ac. (ii) 2.61 tons/ac. (iii) Main effects of V and N are highly significant. (iv) Av. yield of sugarcane in tons/ac.

	V ₁	V ₂	V ₃	Mean	P ₀	P ₁	P ₂
N ₀	23.95	26.33	26.53	25.60	25.71	25.60	25.49
N ₁	27.52	30.04	31.07	29.54	29.41	29.30	29.92
N ₂	29.78	32.73	31.51	31.34	31.01	30.29	32.72
Mean	27.08	29.70	29.70	28.83	28.71	28.40	29.38
P ₀	26.48	29.45	30.20				
P ₁	26.80	29.49	28.91				
P ₂	27.98	30.16	30.00				

S.E. of any marginal mean = 0.43 tons/ac.
 S.E. of body of any table = 0.75 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 55(401).

Zone :- Shamli (Muzaffarnagar, c.f.).

Type :- 'MV'.

Object :- To study the effect of different levels of N and P on the yield of different varieties of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) *Methi* in three trials, cotton in one trial, maize in one trial, chillies+maize in one trial. In one trial—N.A. (c) N.A. (ii) Loam, clay loam and loamy sand. (iii) Nil in 3 trials, 150 mds./ac. of F.Y.M. in 2 trials and 200 mds./ac. of F.Y.M. in 2 trials. (iv) As per treatments. (v) (a) N.A. (b) Line sowing. (c) 50 to 60 mds./ac. (d) Rows 3' apart. (e) N.A. (vi) 24.2.1955 to 1.4.1955. (vii) Irrigated. (viii) 3 to 6 hoeings and tying of canes. (ix) N.A. (x) 28.1.1956 to 9.3.1956.

2. TREATMENTS :

All combinations of (1), (2) and (3)

(1) 3 varieties of sugarcane : V₁=CO. 312, V₂=CO.S. 245 and V₃=CO.S. 321.

(2) 3 levels of N as A/S : N₀=0, N₁=60 and N₂=120 lb./ac.

(3) 3 levels of P₂O₅ as Super : P₀=0, P₁=40 and P₂=80 lb./ac.

‡rd dose of N and full dose of P₂O₅ applied by placement below the cane setts at planting. ‡rd dose of N applied as top dressing during the period 13.6.1955 to 17.6.1955.

3. DESIGN :

(i) and (ii) 7 trials were conducted in the zone. At each place 3³ confounded unreplicated trial was conducted in 3 blocks per replication. (iii) (a) N.A. (b) Varies from 1/57.62 ac. to 1/35.59 ac. (iv) Yes.

4. GENERAL :

(i) In 4 trials good and in one poor. (ii) Nil in 4 trials, slight attack of borers in 3 trials. (iii) Yield of sugarcane and juice analysis. (iv) (a) and (b) No. (c) Nil. (v) N.A. (vi) Nil. (vii) Actually 8 trials were conducted at 8 different places in the zone but one trial has been rejected as its 7 plots were harvested by the cultivator and no yield data of these plots were available. V×N×P confounded in all the trials.

5. RESULTS :

(i) 25.41 tons/ac. (ii) 3.94 tons/ac. (iii) V and N effects are highly significant. (iv) Av. yield of sugarcane in tons/ac.

	V ₁	V ₂	V ₃	Mean	P ₀	P ₁	P ₂
N ₀	21.39	17.41	19.88	19.56	18.99	19.95	19.74
N ₁	30.41	25.96	27.27	27.88	27.29	28.48	27.88
N ₂	31.12	26.94	28.35	28.80	27.45	29.02	29.93
Mean	27.64	23.44	25.17	25.41	24.58	25.82	25.85
P ₀	27.66	22.51	23.56				
P ₁	27.39	24.20	25.86				
P ₂	27.87	23.60	26.07				

S.E. of any marginal mean = 0.50 tons/ac.
S.E. of body of any table = 0.86 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 55(259).

Site :- Govt. Agri. Farm, Bahraich.

Type :- 'C'.

Object :— To find out a suitable rotation for Sugarcane.

1. BASAL CONDITIONS :

(i) (a) and (b) As per treatments. (c) N.A. (ii) (a) Sandy loam. (b) Refer soil analysis, Bahraich. (iii) 21.10.1954, 21.1.1955 and 20.3.1955. (iv) (a) 5 ploughings. (b) Flat planting. (c) N.A. (d) Rows 3' apart. (e) N.A. (v) 800 lb./ac. of G.N.C. (vi) CO. 453. (vii) Irrigated. (viii) 11 hoeings and 1 weeding. (ix) 45°. (x) N.A.

2. TREATMENTS :

6 rotational treatments : R_1 =Paddy—Fallow—Sugarcane (January planting), R_2 =Paddy—*Dhaincha*—Fallow—Sugarcane (January planting), R_3 =Paddy+*Dhaincha*—Pea+Sugarcane (October planting), R_4 =Paddy+*Dhaincha*—Gram—Sugarcane (October planting), R_5 =Paddy—Pea—Sugarcane (March planting) and R_6 =Paddy—Gram—Sugarcane (March planting).

3. DESIGN :

(i) R.B.D. (ii) (a) 6. (b) N.A. (iii) 4. (iv) (a) and (b) 48'×30'. (v) Nil. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of sugarcane. (iv) (a) and (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 21.77 tons/ac. (ii) 4.99 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	R_1	R_2	R_3	R_4	R_5	R_6
Av. yield	25.29	24.34	20.00	25.97	17.36	17.64

S.E./mean = 2.50 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 59(203).

Site :- Govt. Agri. Farm, Kalai.

Type :- 'C'.

Object :— To study the effect of growing different intercrops in rotation with Sugarcane.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) (a) Loam. (b) N.A. (iii) As per treatments. (iv) (a) 6 ploughings by *desi* plough. (b) Flat planting. (c) 90 setts (3 budded)/row. (d) Rows 3' apart. (e) N.A. (v) Blood meal at 20 lb./ac. of N+Castor cake at 42 lb./ac. of N+A/S at 60 lb./ac. of N. (vi) CO.S. 245. (vii) Irrigated. (viii) 6 hoeings by *kassi* and 1 earthing. (ix) 39.72". (x) 22.2.1960.

2. TREATMENTS :

10 cultural treatments : T_1 =Sugarcane (autumn planted on 15.10.1958), T_2 = T_1 +pea intercropped, T_3 = T_1 +gram intercropped, T_4 = T_1 +mustard intercropped, T_5 =Sugarcane (spring planted on 17.3.1959), T_6 = T_5 after pea, T_7 = T_5 after gram, T_8 = T_5 after mustard, T_9 =Sugarcane (spring planted on 5.4.1959) and T_{10} = T_5 +*moong* intercropped.

3. DESIGN :

(i) R.B.D. (ii) (a) 10. (b) 88'×150'. (iii) 4. (iv) (a) 88'×15'. (b) 82'×9'. (v) 3'×3'. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Germination %, millable cane, juice analysis, and sugarcane yield. (iv) (a) and (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 18.97 tons/ac. (ii) 3.43 tons/ac. (iii) Treatment differences are highly significant. (iv) Av yield of sugarcane in tons/ac.

Treatment	T ₁	T ₂	T ₃	T ₄	T ₅	T ₆	T ₇	T ₈	T ₉	T ₁₀
Av. yield	23.15	25.88	23.20	21.71	15.75	16.55	11.97	16.43	15.41	19.62

S.E./mean = 1.74 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 55(284).

Site :- Students' Instrl., Farm, Govt. Agri. College, Kanpur. Type :- 'C'.

Object :—To study the effect of growing different crops along with Sugarcane.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) *Lobia*. (c) Nil. (ii) (a) Sandy loam. (b) Refer soil analysis, Kanpur. (iii) 26.2.1955 to 23.1955. (iv) (a) 1 Victory ploughing and 1 *desi* ploughing. (b) Flat planting. (c) N.A. (d) 3' between rows. (e) N.A. (v) F.Y.M. and A/S applied. (vi) CO. 453. (vii) Irrigated. (viii) 4 hoeings and 1 earthing. (ix) 42.03". (x) 14.1.1956.

2. TREATMENTS :

4 cultural treatments: T₁=Sugarcane alone, T₂=Sugarcane + *moong* intercropped, T₃=Sugarcane + *bhindi* intercropped and T₄=Sugarcane + *torai* intercropped.

3. DESIGN :

(i) R.B.D. (ii) (a) 4. (b) N.A. (iii) 5. (iv) (a) 220' × 16'. (b) 220' × 12'. (v) N.A. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of sugarcane. (iv) (a) and (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 11.94 tons/ac. (ii) 0.96 tons/ac. (iii) Treatment differences are highly significant. (iv) Av yield of sugarcane in tons/ac.

Treatment	T ₁	T ₂	T ₃	T ₄
Av. yield	12.97	13.12	12.05	9.63

S.E./mean = 0.43 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 54(50).

Site :- Sugarcane Res. Sub-Stn., Kunraghat.

Type :- 'C'.

Object :—To find out a suitable rotation for Sugarcane.

1. BASAL CONDITIONS :

(i) (a) and (b) As per treatments. (c) Nil. (ii) (a) Sandy loam. (b) Refer soil analysis, Kunraghat. (iii) 23.10.1953, 25.1.1954 and 28.3.1954. (iv) (a) 7 *desi* ploughings and 4 Victory ploughings. (b) Flat planting. (c) 60 setts (3 budded)/row. (d) and (e) N.A. (v) 60 lb./ac. of N as G.N.C. + 60 lb./ac. of N as A/S. (vi) CO. 451 (improved mid. late). (vii) Irrigated. (viii) 5 hoeings and 1 earthing. (ix) N.A. (x) 31.12.1954 to 28.2.1955.

2. TREATMENTS :

6 rotational treatments : R₁=Paddy—Fallow—Sugarcane (January planted), R₂=Paddy—*Dhaincha*—Fallow—Sugarcane (January planted), R₃=Paddy—*Dhaincha*—Pea—Sugarcane (October planted), R₄=Paddy—*Dhaincha*—Gram—Sugarcane (October planted), R₅=Paddy—Pea—Sugarcane (March planted) and R₆=Paddy—Gram—Sugarcane (March planted).

3. DESIGN :

(i) R.B.D. (ii) (a) 6. (b) N.A. (iii) 4. (iv) (a) 27'×59'. (b) 21'×53'. (v) 3'×3'. (vi) Yes.

4. GENERAL :

(i) Normal. (ii) Nil. (iii) Germination %, no. of tillers and yield of sugarcane. (iv) (a) 1954—1956. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 23.62 tons/ac. (ii) 5.97 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	R ₁	R ₂	R ₃	R ₄	R ₅	R ₆
Av. yield	25.25	24.75	21.75	20.90	26.15	22.95

S.E./mean = 2.99 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 55(33).

Site :- Sugarcane Res. Sub-Stn., Kunraghat.

Type :- 'C'.

Object :—To find out a suitable rotation for Sugarcane.

. BASAL CONDITIONS :

(i) (a) and (b) As per treatments. (c) N.A. (ii) (a) Sandy loam. (b) Refer soil analysis, Kunraghat. (iii) 20.10.1954, 25.1.1955 and 26.3.1955. (iv) (a) 5 ploughings. (b) Flat planting. (c) 60 setts (3 budded)/row. (d) and (e) N A. (v) 60 lb./ac. of N as G.N.C.+20 lb./ac. of N as A/S. (vi) CO.S. 443. (vii) Irrigated. (viii) 7 hoeings and 1 earthing. (ix) 68.56". (x) 6.3.1956 to 1.4.1956.

2. TREATMENTS :

Same as in expt. no. 54(50) on page 1124.

3. DESIGN :

(i) R.B.D. (ii) (a) 6. (b) N.A. (iii) 4. (iv) (a) 56'×27'. (b) 50'×21'. (v) 3'×3'. (vi) Yes.

4. GENERAL :

(i) Normal. (ii) Nil. (iii) Germination %, no. of tillers, millable canes and yield of sugarcane. (iv) (a) 1952—1956. (b) No. (c) Nil. (v) to (vii) Nil.

5 RESULTS :

(i) 15.17 tons/ac. (ii) 2.22 tons/ac. (iii) Treatment differences are highly significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	R ₁	R ₂	R ₃	R ₄	R ₅	R ₆
Av. yield	15.94	18.77	14.93	14.58	14.18	12.61

S.E./mean = 1.11 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 56(118).

Site :- Sugarcane Res. Sub-Stn., Kunraghat.

Type :- 'C'.

Object :—To find out a suitable rotation for Sugarcane.

1. BASAL CONDITIONS :

(i) (a) and (b) As per treatments. (c) Nil. (ii) (a) Sandy loam. (b) Refer soil analysis, Kunraghat. (iii) 2.11.1955, 20.1.1956, 23.3.1956 and 9.4.1956. (iv) (a) 3 ploughings by *desi* plough, 2 plankings and 1 ploughing by other implements. (b) Flat planting. (c) 60 setts (3 budded)/row. (d) Rows 3' apart. (e) N.A. (v) 60 lb./ac. of N as G.N.C.+20 lb./ac. of N as A/S. (vi) CO.S. 510 (early). (vii) Irrigated. (viii) 6 hoeings by *kassi* and 1 earthing. (ix) 82.95". (x) 10.1.1957 to 24.3.1957.

2. TREATMENTS :

Same as in expt. no. 54(50) on page 1124.

3. DESIGN :

(i) R.B.D. (ii) (a) 6. (b) N.A. (iii) 4. (iv) (a) 27'×56'. (b) 21'×50'. (v) 3'×3'. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Germination %, no. of tillers, millable canes, juice analysis and yield of sugarcane. (iv) (a) 1952—1956. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 15.09 tons/ac. (ii) 2.98 tons/ac. (iii) Treatment differences are highly significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	R ₁	R ₂	R ₃	R ₄	R ₅	R ₆
Av. yield	15.81	17.71	21.19	21.73	11.52	2.58

S.E./mean = 1.49 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 55(151).

Site :- Sugarcane Res. Sub-Stn., Kunraghat.

Type :- 'C'.

Object :-To study the effect of different times of harvesting of plant cane for autumn and spring planted Sugarcane.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) (a) Sandy loam. (b) Refer soil analysis, Kunraghat. (iii) As per treatments. (iv) (a) N.A. (b) Trench planting. (c) 50 setts (3 budded)/row. (d) Rows 3' apart. (e) N.A. (v) G.N.C.+A/S applied. (vi) N.A. (vii) Irrigated. (viii) 8 hoeings by *kassi* and 1 earthing. (ix) 70.58". (x) As per treatments.

2. TREATMENTS :

Main-plot treatments :

2 dates of planting cane : D₁=24.10.1954 (autumn) and D₂=4.3.1955 (spring).

Sub-plot treatments :

3 dates of harvesting : T₁=9.11.1955, T₂=2.2.1956 and T₃=Plant cane on 9.11.1955 and ratoon on 2.2.1956.

3. DESIGN :

(i) Split-plot. (ii) (a) 2 main-plots/replication and 3 sub-plots/main-plot. (b) N.A. (iii) 3. (iv) (a) and (b) 50'×24'. (v) Nil. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Germination %, no. of tillers, millable cane, juice analysis and yield of sugarcane (iv) (a) and (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 21.77 tons/ac. (ii) (a) 12.57 tons/ac. (b) 3.31 tons/ac. (iii) None of the effects is significant. (iv) Av. yield of sugarcane in tons/ac.

	T ₁	T ₂	T ₃	Mean
D ₁	19.75	20.44	22.00	20.73
D ₂	20.09	27.06	21.28	22.81
Mean	19.92	23.75	21.64	21.77

S.E. of difference of two

1. D marginal means = 5.92 tons/ac.
2. T marginal means = 1.91 tons/ac.
3. T means at the same level of D = 2.71 tons/ac.
4. D means at the same level of T = 6.32 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 54(64).

Site :- Sugarcane Res. Sub-Stn. Muzaffarnagar.

Type :- 'C'.

Object :— To study the effect of growing different inter-crops in rotation with Sugarcane.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) As per treatments. (c) Nil. (ii) (a) Loam. (b) Refer soil analysis, Muzaffarnagar. (iii) 2.10.1954, 19.2.1955, 31.3.1955 and 19.4.1955. (iv) (a) N.A. (b) Planted flat. (c) 42,000 buds/ac. (d) Rows 3' apart. (e) N.A. (v) 70 lb./ac. of N as compost+70 lb./ac. of N as A/S+G.N.C. (vi) CO.S 245 (medium early). (vii) Irrigated. (viii) Hoeing, weeding and earthing. (ix) 52.11". (x) 14 to 16.12.1955.

2. TREATMENTS :

8 cultural treatments: T₁=Autumn planted sugarcane, T₂=T₁ with gram inter-cropped, T₃=T₁ with pea inter-cropped, T₄=Spring planted sugarcane after gram, T₅=Spring planted sugarcane after pea, T₆=Spring planted sugarcane after wheat, T₇=Onion inter-cropped with spring planted sugarcane and T₈=Spring planted sugarcane after fallow.

One row each of gram and pea and two rows of onion are taken in between rows of cane.

3. DESIGN :

(i) R.B.D. (ii) (a) 8. (b) N.A. (iii) 4. (iv) (a) 1/28.03 ac. (b) 1/42.07 ac. (v) N.A. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Nil. (iii) Germination %, no. of tillers, millable cane countings and yield of sugarcane. (iv) (a) 1954—1956. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 20.33 tons/ac. (ii) 2.86 tons/ac. (iii) Treatment differences are highly significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	T ₁	T ₂	T ₃	T ₄	T ₅	T ₆	T ₇	T ₈
Av. yield	29.93	22.02	24.28	11.86	15.89	6.82	25.74	26.08

S.E./mean = 1.43 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 55(8).

Site :- Sugarcane Res. Sub-Stn., Muzaffarnagar.

Type :- 'C'.

Object :— To study the effect of growing different inter-crops in rotation with Sugarcane.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) As per treatments. (c) Nil. (ii) (a) Loam. (b) Refer soil analysis, Muzaffarnagar. (iii) 28.11.1955, 23.2.1956, 31.3.1956, 11.4.1956 and 18.4.1956. (iv) (a) 7 preparatory ploughings. (b) Flat planting. (c) 42,000 buds/ac. (d) Rows 3' apart. (e) N.A. (v) 100 lb./ac. of N as compost + 30 lb./ac. of N as A/S. (vi) CO.S. 245 (medium early). (vii) Irrigated. (viii) Hoeing, weeding and earthing. (ix) 70.54". (x) 22.2.1957.

2. TREATMENTS to 4. GENERAL :

Same as in expt. no. 54(64) on page 1127.

5. RESULTS :

(i) 13.60 tons/ac. (ii) 2.00 tons/ac. (iii) Treatment differences are highly significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	T ₁	T ₂	T ₃	T ₄	T ₅	T ₆	T ₇	T ₈
Av. yield	18.01	13.72	13.03	10.71	13.35	11.97	11.21	16.79

S.E./mean = 1.00 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 56(54).

Site :- Sugarcane Res. Sub-Stn., Muzaffarnagar.

Type :- 'C'.

Object :- To study the effect of growing different inter-crops in rotation with Sugarcane.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) As per treatments. (c) Nil. (ii) (a) Loam. (b) Refer soil analysis, Muzaffarnagar. (iii) 22.9.1956, 8.2.1957, 3.4.1957 and 28.4.1957. (iv) (a) Ploughing by *desi* plough, p.ankings and roller application (b) N.A. (c) 67 setts (3 budded)/row. (d) and (e) N.A. (v) 60 lb./ac. of N as G.N.C. + 60 lb./ac. of N as A/S. (vi) CO. 245 (medium). (vii) Irrigated. (viii) Hoeings. (ix) 62.43". (x) 24.2.1958 to 13.3.1958.

2. TREATMENTS :

Same as in expt. no. 54(64) on page 1127.

3. DESIGN :

(i) R.B.D. (ii) (a) 8. (b) 74' x 178.5'. (iii) 4. (iv) (a) 74' x 21'. (b) 68' x 15'. (v) 3' x 3'. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Juice analysis and yield of sugarcane. (iv) (a) and (b) No. (c) Nil. (v) (a) and (b) Nil. (vi) Heavy storm on 26.6.1957 followed by hail storm. (vii) Nil.

5. RESULTS :

(i) 20.25 tons/ac. (ii) 3.02 tons/ac. (iii) Treatment differences are highly significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	T ₁	T ₂	T ₃	T ₄	T ₅	T ₆	T ₇	T ₈
Av. yield	23.61	22.13	21.77	15.55	18.63	15.04	22.86	22.38

S.E./mean = 1.51 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 58(57).

Site :- Sugarcane Res. Sub-Stn., Muzaffarnagar.

Type :- 'C'.

Object :- To study the effect of different types of placement of buds at planting of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) G.M.—Wheat—Cotton—Sugarcane. (b) Cotton. (c) N.A. (ii) (a) Loam. (b) Refer soil analysis, Muzaffarnagar. (iii) N.A. (iv) (a) 3 ploughings by turning plough, 5 ploughings by *desi* plough, 1 planking and 1 *palewa*. (b) Flat planting. (c) 22 setts (3 budded) /row. (d) Rows 3' apart. (e) N.A. (v) 70 lb /ac. of N as G.N.C.+70 lb./ac. of N as A/C applied at 1st irrigation. (vi) CO. S. 515 (medium). (vii) Irrigated. (viii) 2 blind hoeings by *kassi*, 2 plankings, 6 diggings, 4 hoeings by cultivator and 1 earthing. (ix) 43.98%. x) 6.12.1958.

2. TREATMENTS :

2 methods of placement of buds : T_1 =As usual at planting and T_2 =At sides while planting.

3. DESIGN :

(i) R.B.D. (ii) (a) 2. (b) N.A. (iii) 4. (iv) (a) and (b) 20' × 12'. (v) Nil. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of sugarcane and juice analysis. (iv) (a) and (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 30.77 tons/ac. (ii) 2.05 tons/ac. (iii) Treatment difference is not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	T_1	T_2
Av. yield	31.07	30.47

S.E./mean = 1.02 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 59(364).

Site :- Sugarcane Res. Sub-Stn., Muzaffarnagar.

Type :- 'C'.

Object :—To study the effect of providing trash cover for control of weeds on Sugarcane.

1. BASAL CONDITIONS :

(i) (i) to (c) N.A. (ii) (a) Loam. (b) Refer soil analysis, Muzaffarnagar. (iii) N.A. (iv) (a) N.A. (b) Flat planting. (c) N.A. (d) Rows 3' apart. (e) N.A. (v) N.A. (vi) CO. 969 (medium late). (vii) to (x) N.A.

2. TREATMENTS :

3 cultural treatments : T_0 =Control (No hoeings and weedings. Earthing at proper time), T_1 =Trash cover 2" to 4" thick, no hoeings and weedings, earthing at proper time and T_2 =Normal cultivation, with proper hoeings and weedings. Earthing at proper time.

3. DESIGN :

(i) R.3.D. (ii) (a) 3. (b) N.A. (iii) 2. (iv) (a) and (b) 57' × 24'. (v) Nil. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of sugarcane and juice analysis. (iv) (a) and (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 22.46 tons/ac. (ii) 1.40 tons/ac. (iii) Treatment differences are significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	T_0	T_1	T_2
Av. yield	19.04	29.33	19.00

S.E./mean = 0.99 tons/ac.

Crop :- Sugarcane.**Ref :- U.P. 59(55).****Site :- Sugarcane Res. Sub-Stn., Muzaffarnagar.****Type :- 'C'.**

Object :—To study the effect of different seed rates on Sugarcane yield.

1. BASAL CONDITIONS :

(i) (a) Wheat—Cotton—Sugarcane. (b) Cotton. (c) N.A. (ii) (a) Loam. (b) Refer soil analysis, Muzaffarnagar. (iii) 7.3.1959. (iv) (a) 7 ploughings, 1 roller application, 2 plankings and 1 digging. (b) Flat planting. (c) As per treatments. (d) Rows 3' apart. (e) N.A. (v) 90 lb./ac. of N as compost+30 lb./ac. of N as A/S+30 lb./ac. of N as G.N.C. (vi) CO. S. 515 (medium). (vii) Irrigated. (viii) 2 diggings by *kassi*, 7 hoeings and 2 earthings. (ix) 31.89". (x) 5 to 17.2.1960.

2. TREATMENTS :

3 seed rates : $R_1=25,000$, $R_2=45,000$ and $R_3=65,000$ buds/ac.

3. DESIGN :

(i) R.B.D. (ii) (a) 3. (b) N.A. (iii) 6. (iv) (a) 40'×27'. (b) 34'×21. (v) 3'×3'. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Germination % no. of tillers, sugarcane yield and juice analysis. (v) (a) 1959—1961. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 25.44 tons/ac. (ii) 2.79 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	R_1	R_2	R_3
Av. yield	26.44	24.84	25.04

S.E./mean = 1.14 tons/ac.

Crop :- Sugarcane.**Ref :- U.P. 59(59).****Site :- Sugarcane Res. Sub-Stn., Muzaffarnagar.****Type :- 'C'.**

Object :—To study the effect of seed rate on Sugarcane yield.

1. BASAL CONDITIONS :

(i) (a) Wheat—Cotton—Sugarcane. (b) Cotton. (c) N.A. (ii) (a) Loam. (b) Refer soil analysis, Muzaffarnagar. (iii) 7.3.1959. (iv) (a) 7 ploughings, 1 roller application, 2 plankings and 1 digging. (b) Flat planting. (c) As per treatments. (d) Rows 3' apart. (e) N.A. (v) 90 lb./ac. of N as compost+30 lb./ac. of N as G.N.C. (vi) CO. S. 515 (medium). (vii) Irrigated. (viii) 2 diggings, 7 hoeings and 2 earthings. (ix) 31.89". (x) 25 to 27.2.1960.

2. TREATMENTS :

5 seed rates : $R_1=32$ setts/row as usual, $R_2=11$ setts/row and each sett 3' apart, $R_3=22$ setts/row and two setts 3' apart, $R_4=34$ setts (double setts) end to end in the same row and $R_5=64$ setts (double setts) 9" apart in two rows.

3. DESIGN :

(i) R.B.D. (ii) (a) 5. (b) N.A. (iii) 4. (iv) (a) and (b) 30'×18'. (v) Nil. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Germination percentage, no. of tillers, yield of sugarcane and juice analysis. (iv) (a) 1959—1960. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 26.50 tons/ac. (ii) 1.31 tons/ac. (iii) Treatment differences are highly significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	R ₁	R ₂	R ₃	R ₄	R ₅
Av. yield	27.29	23.49	25.30	27.85	28.55

S.E./mean = 0.65 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 59(52).

Site :- Sugarcane Res. Sub-Stn., Muzaffarnagar.

Type :- 'C'.

Object :—To study the effect of different methods of planting Sugarcane.

1. BASAL CONDITIONS :

(i) (a) Wheat—Cotton—Sugarcane. (b) Cotton. (c) N.A. (ii) (a) Loam. (b) Refer soil analysis, Muzaffarnagar. (iii) 12.3.1959. (iv) (a) 11 ploughings, 3 plankings, 3 roller applications and 1 harrowing. (b) Flat planting. (c) As per treatments. (d) Rows 3' apart. (e) N.A. (v) G.N.C. at 50 lb/ac. of N+A/S a 50 lb./ac. of N. (vi) CO. 975 (medium). (vii) Irrigated. (viii) 10 hoeings, 3 diggings and 2 earthings. (ix) 29.26". (x) 26.12.1959.

2. TREATMENTS :

2 methods of planting : M₁=Usual method with 320 setts/plot and M₂=Ring method with 156 setts/plot.

3. DESIGN :

(i) Paired-plot. (ii) (a) 2. (b) N.A. (iii) 3. (iv) (a) and (b) 30'×30'. (v) Nil. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Germination %, juice analysis and yield of sugarcane. (iv) (a) 1959—1960. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 21.75 tons/ac. (ii) 3.73 tons/ac. (iii) Treatment difference is not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	M ₁	M ₂
Av. yield	23.44	20.06

S.E./mean = 2.15 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 59(51).

Site :- Sugarcane Res. Sub-Stn., Muzaffarnagar.

Type :- 'C'.

Object :—To study the effect of trash cover and hoeing on Sugarcane.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) (a) Loam. (b) Refer soil analysis, Muzaffarnagar. (iii) 19.2.1959. (iv) (a) N.A. (b) Flat planting. (c) 60 setts (3 budded)/row. (d) Rows 3' apart. (e) N.A. (v) N.A. (vi) CO. 969 (medium late). (vii) Irrigated. (viii) N.A. (ix) 30.93". (x) 22.1.1960.

2. TREATMENTS :

3 cultural treatments : T₀=Control (no trash and no hoeing), T₁=Trash and no hoeing and T₂=Hoeing and no trash.

3. DESIGN :

(i) R.B.D. (ii) (a) 3. (b) 57'×84'. (iii) 2. (iv) (a) and (b) 57'×24'. (v) Nil. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Germination % and yield of sugarcane. (iv) 1959—contd. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 22.36 tons/ac. (ii) 1.41 tons/ac. (iii) Treatment differences are significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	T ₀	T ₁	T ₂
Av. yield	19.04	29.20	18.85

S.E./mean = 1.00 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 59(53).

Site :- Sugarcane Res. Sub-Stn., Muzaffarnagar.

Type :- 'C'.

Object :- To study the effect of different depths of planting of Sugarcane setts.

1. BASAL CONDITIONS :

(i) (a) Wheat—Cotton—Sugarcane. (b) Cotton. (c) N.A. (ii) (a) Loam. (b) Refer soil analysis, Muzaffarnagar. (iii) 11.3.1959. (iv) (a) N.A. (b) Flat planting. (c) 3¹ setts (3 budded)/row. (d) Rows 3' apart. (e) N.A. (v) G.N.C. at 50 lb./ac. of N+A/S at 50 lb./ac. of N. (vi) CO. 975 (medium). (vii) Irrigated. (viii) N.A. (ix) 31.89". (x) 17 to 20.3.1960.

2. TREATMENTS :

4 depths of planting setts : S₁=2", S₂=3½", S₃=4" and S₄=6".

3. DESIGN :

(i) R.B.D. (ii) (a) 4. (b) N.A. (iii) 3. (iv) (a) and (b) 30' × 15'. (v) Nil. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Germination %, no. of tillers, sugarcane yield and juice analysis. (iv) (a) 1959—cont'd. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 23.52 tons/ac. (ii) 3.44 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	S ₁	S ₂	S ₃	S ₄
Av. yield	26.27	21.88	22.00	23.95

S.E./mean = 1.98 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 54(125).

Site :- Sugarcane Res. Sub-Stn., Muzaffarnagar.

Type :- 'C'.

Object :- To study the effect of earthings and spacings on Sugarcane yield.

1. BASAL CONDITIONS :

(i) (a) G.M.—Wheat—Cotton—Sugarcane. (b) Cotton. (c) N.A. (ii) (a) Loam. (b) Refer soil analysis, Muzaffarnagar. (iii) 9 and 10.3.1954. (iv) (a) 7 ploughings, 4 plankings and 1 roller application. (b) Flat planting. (c) N.A. (d) As per treatments. (e) N.A. (v) 60 lb./ac. of N as compost+40 lb./ac. of N as G.N.C.+50 lb./ac. of N as A/S. (vi) CO.S. 321 (early). (vii) Irrigated. (viii) 1 weeding and 10 hoeings. (ix) 25.53". (x) 18 and 19.12.1954.

2. TREATMENTS :

Main-plot treatments:

2 levels of earthing : E₀=No earthing and E₁=Earthing.

Sub plot treatments :

3 spacings between rows : S₁=1½' (12 rows per plot), S₂=3' (6 rows per plot) and S₃=2' (9 rows per plot).

3. DESIGN :

(i) Split-plot. (ii) (a) 2 main-plots/replication and 3 sub-plots/main-plot. (b) 54'×94'. (iii) 3. (iv) (a) and (b) 45'×18'. (v) Nil. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of sugarcane. (iv) (a) 1954—1956. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 33.77 tons/ac. (ii) (a) 0.64 tons/ac. (b) 3.15 tons/ac. (iii) None of the effects is significant. (iv) Av. yield of sugarcane in tons/ac.

	S ₁	S ₂	S ₃	Mean
E ₀	32.68	31.37	36.95	33.67
E ₁	33.68	32.11	35.84	33.88
Mean	33.18	31.74	36.40	33.77

S.E. of difference of two

1. E marginal means	= 0.30 tons/ac.
2. S marginal means	= 1.82 tons/ac.
3. S means at the same level of E	= 2.57 tons/ac.
4. E means at the same level of S	= 2.11 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 55(125).

Site :- Sugarcane Res. Sub-Stn., Muzaffarnagar.

Type :- 'C'.

Object :—To study the effect of earthings and spacings on Sugarcane yield.

1. BASAL CONDITIONS :

(i) (a) G.M.—Wheat—Cotton—Sugarcane. (b) Cotton. (c) Nil. (ii) (a) Sandy loam. (b) Refer soil analysis, Muzaffarnagar. (iii) 27.2.1955. (iv) (a) 2 ploughings by soil turning plough, 7 ploughings by *desi* plough, 6 plankings and 2 roller applications. (b) Flat planting. (c) N.A. (d) As per treatments (e) N.A. (v) 60 lb./ac. of N as compost+60 lb./ac. of N as G.N.C.+30 lb./ac. of N as A/S. (vi) CO.S 321 (early). (vii) Irrigated. (viii) 4 hoeings by *kassi* and 3 hoeings by cultivator. (ix) 49.00". (x) 20.12 1955.

2. TREATMENTS :

Same as in expt. no. 54(125) on page 1132.

3. DESIGN :

(i) Split-plot. (ii) (a) 2 main-plots/replication and 3 sub-plots/main-plot. (b) 54'×122'. (iii) 3. (iv) (a) and (b) 59'×18'. (v) Nil. (vi) Yes.

4. GENERAL :

Same as in expt. no. 54(125) on page 1132.

5. RESULTS :

(i) 34.46 tons/ac. (ii) (a) 3.50 tons/ac. (b) 2.27 tons/ac. (iii) Only S effect is highly significant. (iv) Av. yield of sugarcane in tons/ac.

	S ₁	S ₂	S ₃	Mean
E ₀	36.67	27.49	37.47	33.88
E ₁	34.54	33.84	36.75	35.04
Mean	35.60	30.66	33.71	34.46

S.E. of difference of two

1. E marginal means	=	1.65 tons/ac.
2. S marginal means	=	1.31 tons/ac.
3. S means at the same level of E	=	1.85 tons/ac.
4. E means at the same level of S	=	2.24 tons/ac.

Crop :- Sugarcane.**Ref :- U.P. 56(45).****Site :- Sugarcane Res. Sub-Stn., Muzaffarnagar.****Type :- 'C'.**

Object :—To study the effect of earthings and spacings on Sugarcane yield.

1. BASAL CONDITIONS :

(i) (a) G.M.—Wheat—Cotton—Sugarcane. (b) Cotton. (c) N.A. (ii) (a) Loam. (b) Refer soil analysis, Muzaffarnagar. (iii) 5.3.1956. (iv) (a) 2 *palewa*, 9 ploughings, 3 plankings and levelling. (b) Flat planting. (c) 42 setts (3 budded)/row. (d) As per treatments. (e) N.A. (v) 60 lb./ac. of N as compost+45 lb./ac. of N as G.N.C.+15 lb./ac. of N as Urea+20 lb./ac. of N as A/S. (vi) CO S. 321 (early). (vii) Irrigated. (viii) 4 hoeings and 3 diggings. (ix) 73.24". (x) 20.2.1957.

2. TREATMENTS :

Same as in expt. no. 24(125) on page 1132.

DESIGN :

(i) Split-plot. (ii) (a) 2 main-plot/replication and 3 sub-plots/main-plot. (b) 54'×84'. (iii) 3. (iv) (a) and (b) 40'×18'. (v) Nil. (vi) Yes.

4. GENERAL :

Same as in expt. no. 54(125) on page 1132.

5. RESULTS :

(i) 29.69 tons/ac. (ii) (a) 2.22 tons/ac. (b) 1.66 tons/ac. (iii) Only S effect is highly significant. (iv) Av. yield of sugarcane in tons/ac.

	S ₁	S ₂	S ₃	Mean
E ₀	31.23	26.75	33.03	30.34
E ₁	30.83	26.95	29.36	29.05
Mean	31.03	26.85	31.20	29.69

S.E. of difference of two

1. E marginal means	=	1.05 tons/ac.
2. S marginal means	=	0.96 tons/ac.
3. S means at the same level of E	=	1.36 tons/ac.
4. E means at the same level of S	=	1.52 tons/ac.

Crop :- Sugarcane.**Ref :- U.P. 55(97).****Site :- Sugarcane Res. Sub-Stn., Muzaffarnagar.****Type :- 'C'.**

Object :—To study the effect of spacings and seed rates on Sugarcane yield.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) *Guar*. (c) Nil. (ii) (a) Loam. (b) Refer soil analysis, Muzaffarnagar. (iii) 15.3.1955. (iv) (a) 5 ploughings, 1 *palewa*, 6 plankings and 4 roller applications. (b) Flat planting. (c) and (d) As per treatments. (e) N.A. (v) 60 lb./ac. of N as compost+60 lb./ac. of N as G.N.C.+30 lb./ac. of N as A/S. (vi) CO. 312 (medium late). (vii) Irrigated. (viii) 7 hoeings and 1 earthing. (ix) 49.03". (x) 27.1.1956.

2. TREATMENTS :

4 cultural treatments : T_1 =Single setts at 3'×3' spacing with seed rate 10 setts (3 budded)/row, T_2 =Double setts at 3'×3' spacing with seed rate 20 setts (3 budded)/row, T_3 =Bud to bud planting in rows 3' apart with seed rate 32 setts (3 budded)/row and T_4 =Planting of setts at about 2" distance with seed rate 17 to 20 setts (3 budded)/row.

3. DESIGN :

(i) R.B.D. (ii) (a) 4. (b) 15'×139'. (iii) 3. (iv) (a) and (b) 33'×15'. (v) Nil. (vi) Yes.

4. GENERAL :

(i) N.A. (ii) Nil. (iii) Germination%, no. of tillers, millable canes and yield of sugarcane. (iv) (a) 1955—1956. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 22.47 tons/ac. (ii) 4.10 tons/ac. (iii) Treatment differences are highly significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	T_1	T_2	T_3	T_4
Av. yield	11.33	22.75	30.34	25.46

S.E./mean = 2.37 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 56(43).

Site :- Sugarcane Res. Sub-Stn., Muzaffarnagar.

Type :- 'C'.

Object :- To study the effect of spacings and seed rates on Sugarcane yield.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) *Chari*. (c) No. (ii) (a) Loam. (b) Refer soil analysis, Muzaffarnagar. (iii) 21.3.1956. (iv) (a) 6 ploughings, 1 roller application, 3 plankings and 1 *palewa*. (b) Flat planting. (c) and (d) As per treatments. (e) N.A. (v) Compost at 80 lb./ac. of N+G.N.C. at 60 lb./ac. of N+A/S at 20 srs./ac. (vi) CO. 312 (medium late). (vii) Irrigated. (viii) 4 hoeings, 1 digging by *kassi* and 2 earthings. (ix) 71.21". (x) 3.2.1957.

2. TREATMENTS :

Same as in expt. no. 55(97) on page 1134.

3. DESIGN :

(i) R.B.D. (ii) (a) 4. (b) 30'×48'. (iii) 2. (iv) (a) and (b) 30'×12'. (v) Nil. (vi) Yes.

4. GENERAL :

Same as in expt. no. 55(97) on page 1134.

5. RESULTS :

(i) 23.12 tons/ac. (ii) 3.67 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	T_1	T_2	T_3	T_4
Av. yield	23.85	25.22	22.56	20.85

S.E./mean = 2.60 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 54(126).

Site :- Sugarcane Res. Sub-Stn., Muzaffarnagar.

Type :- 'C'.

Object :- To study the effect of interculturing on Sugarcane.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) *Metha*. (c) Nil. (ii) (a) Loam. (b) Refer soil analysis, Muzaffarnagar. (iii) 26.3.1954. (iv) (a) 4 ploughings, 2 plankings and 2 roller applications. (b) Flat planting. (c) 52 setts (3 budded)/row. (d) Rows 3' apart. (e) N.A. (v) 40 lb./ac. of N as G.M. (*metha*) + 50 lb./ac. of N as A, S + 30 lb./ac. of N as G.N.C. (vi) N.A. (vii) Irrigated. (viii) 3 hoeings by *kassi*, 1 hoeing by cultivator and 1 earthing. (ix) 24.70%. (x) 15 to 19.12.1954.

2. TREATMENTS :

All combinations of (1) and (2)

(1) 2 methods of hoeing : M_1 = By bullocks and M_2 = Manual.

(2) 2 levels of hoeings : H_1 = 1 hoeing and H_2 = 2 hoeings after each irrigation.

3. DESIGN :

(i) Fact. in R.B.D. (ii) (a) 4. (b) N.A. (iii) 4. (iv) (a) and (b) 50' × 21'. (v) Nil. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of sugarcane. (iv) (a) 1954—1956. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 30.33 tons/ac. (ii) 1.57 tons/ac. (iii) None of the effects is significant. (iv) Av. yield of sugarcane in tons/ac.

	H_1	H_2	Mean
M_1	29.80	30.11	29.96
M_2	31.32	30.10	30.71
Mean	30.56	30.10	30.33

S.E. of any marginal mean = 0.56 tons/ac.
S.E. of body of table = 0.78 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 55(98).

Site :- Sugarcane Res. Sub-Stn., Muzaffarnagar.

Type :- 'C'.

Object :- To study the effect of interculturing on Sugarcane.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) *Cheri*. (c) Nil. (ii) (a) Loam. (b) Refer soil analysis, Muzaffarnagar. (iii) 15.3.1955. (iv) (a) 6 ploughings, 5 roller applications, 1 *palewa* and 6 plankings. (b) Flat planting. (c) 52 setts (3 budded)/row. (d) Rows 3' apart. (e) N.A. (v) 60 lb./ac. of N as compost + 50 lb./ac. of N as G.N.C. + 30 lb./ac. of N as A/S. (vi) CO. S. 245 (medium). (vii) Irrigated. (viii) 3 hoeings and 2 earthings. (ix) 49.19%. (x) 24.2.1956 to 8.3.1956.

2. TREATMENTS :

Same as in expt. no. 54(126) on page 1135.

3. DESIGN :

(i) Fact. in R.B.D. (ii) (a) 4. (b) 60' × 84'. (iii) 4. (iv) (a) and (b) 60' × 21'. (v) Nil. (vi) Yes.

4. GENERAL :

Same as in expt. no. 54(126) on page 1135.

5. RESULTS :

(i) 31.09 tons/ac. (ii) 2.18 tons/ac. (iii) Only M effect is significant. (iv) Av. yield of sugarcane in tons/ac.

	H ₁	H ₂	Mean
M ₁	29.67	29.16	29.42
M ₂	31.82	33.71	32.76
Mean	30.74	31.44	31.09

S.E. of any marginal mean = 0.77 tons/ac.

S.E. of body of table = 1.09 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 56(44).

Site :- Sugarcane Res. Sub-Stn., Muzaffarnagar.

Type :- 'C'.

Object :— To study the effect of interculturing on Sugarcane.

1. BASAL CONDITIONS :

(i) (a) G.M.—Wheat—Cotton—Sugarcane. (b) Cotton. (c) Nil. (ii) (a) Loam. (b) Refer soil analysis, Muzaffarnagar. (iii) 5.3.1956. (iv) (a) 9 ploughings, 4 plankings and levelling. (b) Flat planting. (c) 42 setts (3 budded)/row. (d) Rows 3' apart. (e) N.A. (v) 60 lb./ac. of N as compost+45 lb./ac. of N as G.N.C.+15 lb./ac. of N as Urea. (vi) CO.S. 245 (medium). (vii) Irrigated. (viii) 1 hoeing by cultivator, 1 earthing and binding of canes. (ix) 74.57". (x) 20.4.1957.

2. TREATMENTS :

Same as in expt. no. 54(126) on page 1135.

3. DESIGN :

(i) Fact. in R.B.D. (ii) (a) 4. (b) 40' × 84'. (iii) 4. (iv) (a) and (b) 40' × 21'. (v) Nil. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Germination, tillers, millable cane and yield of sugarcane. (iv) (a) 1954—1956. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 17.76 tons/ac. (ii) 1.37 tons/ac. (iii) Only M effect is significant. (iii) Av. yield of sugarcane in tons/ac.

	H ₁	H ₂	Mean
M ₁	15.77	18.05	16.91
M ₂	18.86	18.35	18.60
Mean	17.32	18.20	17.76

S.E. of any marginal mean = 0.52 tons/ac.

S.E. of body of table = 0.68 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 57(53).

Site :- Sugarcane Res. Sub-Stn., Muzaffarnagar.

Type :- 'C'.

Object :— To test the efficiency of Sugarcane seed from autumn, spring and ratoon crop.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Paddy. (c) N.A. (ii) (a) Loam. (b) Refer soil analysis, Muzaffarnagar. (iii) 30.9.1957. (iv) (a) 4 ploughings by *desi* plough and 3 plankings in autumn planting. (b) Flat planting. (c) 45 setts (3 budded)/row. (d) Rows 3' apart. (e) N.A. (v) Compost at 80 lb./ac. of N+G.N.C. at 20 lb./ac. of N+A/S at 20 lb./ac. of N. (vi) CO. 321 (early). (vii) Irrigated. (viii) 12 diggings, 3 hoeings with cultivator and 2 earthings. (ix) 46.48". (x) 29.11.1958.

2. TREATMENTS :

All combinations of (1) and (2)

(1) 2 types of setts : T_1 = Top setts and T_2 = Base setts.

(2) 3 sources of seed cane : C_1 = Spring, C_2 = Autumn and C_3 = Ratoon planted cane.

Top setts were taken from upper half portion of cane and base setts were taken from lower half portion of cane.

3. DESIGN :

(i) Fact. in R.B.D. (ii) (a) 6. (b) N.A. (iii) 4. (iv) (a) and (b) 45' x 15'. (v) Nil. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of sugarcane and juice analysis. (iv) (a) 1957—1959. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 22.58 tons/ac. (ii) 2.09 tons/ac. (iii) None of the effects is significant. (iv) Av. yield of sugarcane in tons/ac.

	C_1	C_2	C_3	Mean
T_1	22.57	23.68	22.73	22.99
T_2	23.21	21.40	21.87	22.16
Mean	22.89	22.54	22.30	22.58

S E. of C marginal mean = 0.74 tons/ac.
 S E. of T marginal mean = 0.60 tons/ac.
 S E. of body of table = 1.04 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 58(53).

Site :- Sugarcane Res. Sub-Stn., Muzaffarnagar.

Type :- 'C'.

Object :- To test the efficiency of Sugarcane seed from autumn, spring and ratoon crops.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) (a) Loam. (b) Refer soil analysis, Muzaffarnagar. (iii) 15.10.1958. (iv) (a) 4 ploughings and 1 planking. (b) Flat planting. (c) 45 setts (3 budded)/row. (d) Rows 3' apart. (e) N.A. (v) 80 lb./ac. of N as compost+20 lb./ac. of N as G.N.C.+20 lb./ac. of N as A/S. (vi) CO. 321 (early). (vii) Irrigated. (viii) 1 hoeing by *kassi*, 5 hoeings by cultivator, 1 digging by *kassi* and 1 earthing. (x) 35.31". (x) 23 to 27.11.1959.

2. TREATMENTS to 4. GENERAL :

Same as in expt. no. 57(53) on page 1137.

5. RESULTS :

(i) 22.15 tons/ac. (ii) 2.33 tons/ac. (iii) None of the effects is significant. (iv) Av. yield of sugarcane in tons/ac.

	C ₁	C ₂	C ₃	Mean
T ₁	21.48	23.64	23.19	22.77
T ₂	20.71	22.39	21.49	21.53
Mean	21.10	23.02	22.34	22.15

S.E. of C marginal mean = 0.82 tons/ac.
 S.E. of T marginal mean = 0.67 tons/ac.
 S.E. of body of table = 1.17 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 59(80).

Site :- Sugarcane Res. Sub-Stn., Muzaffarnagar.

Type :- 'C'.

Object :— To test the efficiency of Sugarcane seed from autumn, spring and ratoon crops.

1. BASAL CONDITIONS :

(i) (a) Wheat—*Guar*—Sugarcane. (b) *Guar*. (c) Nil. (ii) (a) Sandy loam. (b) Refer soil analysis, Muzaffarnagar. (iii) 30.9.1959. (iv) (a) 1 ploughing by Victory plough, 2 ploughings by *desi* plough and 3 plankings. (b) Flat planting. (c) 45 setts (3 budded)/row. (d) Rows 3' apart. (e) N.A. (v) 60 lb./ac. of N as compost+30 lb./ac. of N as G.N.C.+40 lb./ac. of N as A/S. (vi) CO.S. 321 (early). (vii) Irrigated. (viii) 13 hoeings by *kassi*, 5 diggings by spade, 2 hoeings by cultivator, 1 earthing and 3 times binding of canes. (ix) 30.54". (x) 6.12.1960 to 24.1.1961.

2. TREATMENTS :

Same as in expt. no. 57(53) on page 1137.

3. DESIGN :

(i) Fact. in R.B.D. (ii) (a) 6. (b) N.A. (iii) 4. (iv) (a) and (b) 58' × 15'. (v) Nil. (vi) Yes.

4. GENERAL :

Same as in expt. no. 57(53) on page 1137.

5. RESULTS :

(i) 41.36 tons/ac. (ii) 3.14 tons/ac. (iii) C effect is alone highly significant. (iv) Av. yield of sugarcane in tons/ac.

	C ₁	C ₂	C ₃	Mean
T ₁	45.71	39.01	41.02	41.91
T ₂	43.38	38.82	40.23	40.81
Mean	44.54	38.92	40.62	41.36

S.E. of C marginal mean = 1.11 tons/ac.
 S.E. of T marginal mean = 0.91 tons/ac.
 S.E. of body of table = 1.57 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 54(45).

Site :- Sugarcane Res. Sub-Stn., Muzaffarnagar.

Type :- 'C'.

Object :—To find out the possibilities of taking gram as a catch crop in Sugarcane.

1. BASAL CONDITIONS :

(i) (a) G.M.—Wheat—Fallow—Sugarcane. (b) Fallow. (c) Nil. (ii) (a) Light loam. (b) Refer soil analysis, Muzaffarnagar. (iii) As per treatments. (iv) (a) 5 to 7 ploughings. (b) Flat planting. (c) 42,000 buds/ac. (d) Rows 3' apart. (e) N.A. (v) Compost at 30 lb./ac. of N broadcast before planting + 60 lb./ac. of N as A/S + 35 lb./ac. of N as G.N.C. applied in the month of May and June. (vi) CO.S. 245 (medium). (vii) Irrigated. (viii) 5 to 7 hoeings and 1 earthing. (ix) 36.22". (x) 23.11.1954 to 14.12.1954.

2. TREATMENTS :**Main-plot treatments :**

2 times of planting. T_1 = Autumn planting (25.9.1953) and T_2 = Spring planting (4.3.1954).

Sub-plot treatments :

2 levels of catch crop : S_1 = No catch crop and S_2 = Gram as catch crop.

One row of gram between two rows of sugarcane.

3. DESIGN :

(i) Split-plot. (ii) (a) 2 main-plots/replication and 2 sub-plots/main-plot (b) N.A. (iii) 6. (iv) (a) 77' × 21'. (b) 71' × 15'. (v) 3' × 3'. (vi) Yes.

4. GENERAL :

(i) Satisfactory. (ii) Nil. (iii) Germination, tillers, millable cane countings and yield of sugarcane. (iv) (a) 1952—1954. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 42.07 tons/ac. (ii) (a) 2.41 tons/ac. (b) 1.99 tons/ac. (iii) T and S effects are highly significant. Interaction T × S is significant. (iv) Av. yield of sugarcane in tons/ac.

	S_1	S_2	Mean
T_1	52.65	40.58	46.62
T_2	41.67	33.36	37.52
Mean	47.16	36.97	42.07

S.E. of difference of two

- | | |
|-----------------------------------|-----------------|
| 1. T marginal means | = 0.98 tons/ac. |
| 2. S marginal means | = 0.81 tons/ac. |
| 3. S means at the same level of T | = 1.15 tons/ac. |
| 4. T means at the same level of S | = 1.28 tons/ac. |

Crop :- Sugarcane.

Ref :- U.P. 54(258).

Site :- Govt. Sugarcane Res. Sub-Stn , Neoli.

Type :- 'C'.

Object :-To study the effect of gram grown as inter crop with Sugarcane.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) (a) Sandy loam. (b) Refer soil analysis, Neoli. (iii) As per treatments. (iv) (a) 6 ploughings. (b) Flat planting. (c) 66 setts (3 budded)/row. (d) Rows 3' apart. (e) N.A. (v) Nil. (vi) CO. 453. (vii) Irrigated (viii) 1 harrowing with tractor, 6 hoeings with spade and 3 hoeings with cultivator. (ix) N.A. (x) 3.3.1955.

2. TREATMENTS :

3 cultural treatments : T_1 = October planted cane (13.10.1953) with gram as inter crop, T_2 = October planted cane (13.10.1953) and T_3 = February planted cane.

One row of gram is sown in between two rows of sugarcane.

3. DESIGN :

(i) R.B.D. (ii) (a) 3. (b) 81' × 64'. (iii) 4. (iv) (a) 64' × 27'. (b) 58' × 21'. (v) 3' × 3'. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Wilt. (iii) Germination%, tillering, shoot, millable cane and yield of sugarcane. (iv) (a) 1953—1955. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 22.33 tons/ac. (ii) 3.38 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	T ₁	T ₂	T ₃
Av. yield	21.41	21.73	23.84
S.E./mean = 1.69 tons/ac.			

Crop :- Sugarcane.

Ref :- U.P. 55(279).

Site :- Govt. Sugarcane Res. Sub-Stn., Neoli.

Type :- 'C'.

Object :—To study the effect of pea grown as inter crop with Sugarcane.

1. BASAL CONDITIONS :

(i) (a) *Dhaincha*—Sugarcane. (b) *Dhaincha*. (c) N.A. (ii) (a) Sandy loam. (b) Refer soil analysis, Neoli. (iii) As per treatments. (iv) (a) 7 ploughings and 1 harrowing. (b) Flat planting. (c) 66 setts (3 budded)/row. (d) Rows 3' apart. (e) N.A. (v) *Dhaincha* (G.M.)+F.Y.M. (vi) CO. S. 510. (vii) Irrigated. (viii) 4 hoeings with cultivator and 2 with spade. (ix) N.A. (x) 3 and 4.2.1956.

2. TREATMENTS :

3 cultural treatments : T₁=October planted cane (17.10.1954) with pea as inter crop, T₂=October planted cane (17.10.1954) and T₃=February planted cane (30.1.1955).

One row of pea is sown in between two rows of sugarcane.

3. DESIGN :

(i) R B.D. (ii) (a) 3. (b) 64'×63'. (iii) 5. (iv) (a) 64'×21'. (b) 58'×15'. (v) 3'×3'. (vi) Yes.

4. GENERAL :

(i) Normal. Lodging on 12.10.1955. (ii) N.A. (iii) Germination %, no. of tillers, millable cane, juice analysis and sugarcane yield. (iv) (a) 1953—1955. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 18.12 tons/ac. (ii) 7.18 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	T ₁	T ₂	T ₃
Av. yield	21.22	18.52	14.63
S.E./mean = 3.21 tons/ac.			

Crop :- Sugarcane.

Ref :- U.P. 57(369).

Site :- Tarai Sugarcane Res. Centre, Phoolbagh.

Type :- 'C'.

Object :—To study the effect of different seed rates on Sugarcane.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) (a) Clay loam. (b) Refer soil analysis, Phoolbagh. (iii) 1.3.1957. (iv) (a) 3 ploughings, 3 harrowings and 1 planking. (b) In furrows between the ridges. (c) As per treatments. (d) Rows 3' apart. (e) N.A. (v) 120 lb./ac. of N partly in organic form and partly as A/S on 7.8.1957. (vi) CO. 453. (vii) Unirrigated. (viii) 3 hoeings and 1 weeding. (ix) 55.79%. (x) 14 and 15.3.1958.

2. TREATMENTS :

3 seed rates : S₁=65,000, S₂=45,000 and S₃=25,000 buds/ac.

3. DESIGN :

(i) R.B.D. (ii) (a) 3. (b) N.A. (iii) 6. (iv) (a) 64'×21'. (b) 58'×15'. (v) 3'×3'. (vi) Yes.

4. GENERAL :

(i) Normal. (ii) A few plants damaged by stem borers and top borers. (iii) Germination count, tiller counts and yield of sugarcane. (iv) (a) 1957—1959. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 28.25 tons/ac. (ii) 2.89 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	S ₁	S ₂	S ₃
Av. yield	30.18	28.25	26.32

S.E./mean = 1.18 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 58(337).

Site :- Tarai Sugarcane Res. Centre, Phoolbagh.

Type :- 'C'.

Object :—To study the effect of different seed rates on Sugarcane.

1. BASAL CONDITIONS:

(i) (a) Nil. (b) *Lahi*. (c) N.A. (ii) (a) Clay loam. (b) Refer soil analysis, Phoolbagh. (iii) 3.3.1958. (iv) (a) 1 ploughing and 4 harrowings. (b) In furrows between ridges. (c) As per treatments. (d) Rows 3' apart. (e) N.A. (v) 120 lb./ac. of N as G.N.C.+A/S (vi) CO. 453. (vii) Unirrigated. (viii) 2 hoeings. (ix) 65.20". (x) 16 and 17.3.1959.

2. TREATMENTS to 4. GENERAL :

Same as in expt. no. 57(369) on page 1141.

5. RESULTS :

(i) 28.81 tons/ac. (ii) 3.03 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	S ₁	S ₂	S ₃
Av. yield	29.59	28.45	28.38

S.E./mean = 1.24 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 59(374).

Site :- Tarai Sugarcane Res. Centre, Phoolbagh.

Type :- 'C'

Object :—To study the effect of different seed rates on Sugarcane.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) *Jate*. (c) N.A. (ii) (a) Clay loam. (b) Refer soil analysis, Phoolbagh. (iii) 28.2.1959. (iv) (a) 1 ploughing and 2 harrowings. (b) In furrows between ridges. (c) As per treatments. (d) Rows 3' apart. (e) N.A. (v) 120 lb./ac. of N as A/S. (vi) CO. 453. (vii) Unirrigated. (viii) 4 hoeings. (ix) 42.41". (x) 20.3.1960.

2. TREATMENTS to 4. GENERAL :

Same as in expt. no. 57(369) on page 1141.

5. RESULTS :

(i) 20.29 tons/ac. (ii) 7.64 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	S ₁	S ₂	S ₃
Av. yield	20.73	20.96	19.18
S.E./mean = 3.12 tons/ac.			

Crop :- Sugarcane.

Ref :- U.P. 59(375).

Site :- Tarai Sugarcane Res. Centre., Phoolbagh.

Type :- 'C'.

Object :—To study the effect of planting Sugarcane in different seasons.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) and (c) N.A. (ii) (a) Clay loam. (b) Refer soil analysis, Phoolbagh. (iii) As per treatments. (iv) (a) 1 ploughing and 1 harrowing. (b) In furrows between ridges. (c) 66 setts (3 budded)/row. (d) Rows 3' apart. (e) N.A. (v) 120 lb./ac. of N as A/S. (vi) CO. 527. (vii) Unirrigated. (viii) 5 hoeings. (ix) 42.41". (x) 10 and 11.1.1960.

2. TREATMENTS :

4 methods of planting cane : M₁=Autumn planting (17.10.1958), M₂=Autumn planting (17.10.1958) inter-cropped with one row of mustard (early) in between two rows of cane, M₃=Spring planting (4.3.1959) of cane after fallow and M₄=Spring planting (4.3.1959) of cane after harvesting of mustard (early).

3. DESIGN :

(i) R.B.D. (ii) (a) 4. (b) N.A. (iii) 4. (iv) (a) 80'×24'. (b) 74'×18'. (v) 3'×3'. (vi) Yes.

4. GENERAL :

(i) Good. (ii) A few plants affected by shoot borer. (iii) Germination count, tillering count and sugarcane yield. (iv) (a) 1959—contd. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 43.19 tons/ac. (ii) 4.46 tons/ac. (iii) Treatment differences are highly significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	M ₁	M ₂	M ₃	M ₄
Av. yield	50.92	49.12	35.80	36.91

S.E./mean = 2.23 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 57(112)

Site :- State Soil Cons. Res. Demons. & Trg. Centre, Rehmankhara. Type :- 'C'.

Object :—To study the effect of methods of planting of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) (a) Sandy loam to loamy sand. (b) Refer soil analysis, Rehmankhara. (iii) 3.3.1957. (iv) (a) N.A. (b) As per treatments. (c) 1 sett (3 budded)/foot. (d) 3' between rows. (e) N.A. (v) T.C.+20 srs./plot of A/S+castor cake. (vi) CO.S. 443. (vii) Irrigated. (viii) As per treatments. (ix) N.A. (x) 27.2.1958. to 10.3.1958.

2. TREATMENTS :

6 methods of planting sugarcane : M₁=Flat planting in rows up and down the slope without earthing, M₂=Flat planting in rows across the slope without earthing, M₃=Flat planting in rows up and down the slope followed by earthing during rains, M₄=Flat planting in rows across the slope followed by earthing during rains, M₅=Trench planting up and down the slope followed by earthing during rains and M₆=Trench planting across the slope followed by earthing during rains.

3. DESIGN :

(i) R.B.D. (ii) (a) 6. (b) N.A. (iii) 4. (iv) (a) 66'×28'. (b) 60'×20'. (v) 3'×4'. (vi) Yes

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of sugarcane. (iv) (a) 1957—1959. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 19.36 tons/ac. (ii) 2.13 tons/ac. (iii) Treatment differences are highly significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	M ₁	M ₂	M ₃	M ₄	M ₅	M ₆
Av. yield	18.52	17.91	17.56	20.81	17.45	23.90

S.E./mean = 1.06 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 58(104).

Site :- State Soil Cons. Res. Demons. & Trg. Centre, Rehmankhara. Type :- 'C'.

Object :—To study the effect of methods of planting of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Sandy loam to loamy sand. (b) Refer soil analysis, Rehmankhara. (iii) 14 and 15.2.1958. (iv) (a) N.A. (b) As per treatments. (c) 1 sett (3 budded)/foot. (d) Rows 3' apart. (e) N.A. (v) G.N.C. and A/S applied. (vi) CO. S. 443. (vii) Irrigated. (viii) 7 hoeings. (ix) and (x) N.A.

2. TREATMENTS :

Same as in expt. no. 57(112) on page 1143.

3. DESIGN :

(i) R.B.D. (ii) (a) 6. (b) N.A. (iii) 4. (iv) (a) 75'×24'. (b) 69'×18'. (v) 3'×3'. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of sugarcane. (iv) (a) 1957—1959. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 24.30 tons/ac. (ii) 2.23 tons/ac. (iii) Treatment differences are significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	M ₁	M ₂	M ₃	M ₄	M ₅	M ₆
Av. yield	22.22	23.18	24.71	26.46	21.67	27.58

S.E./mean = 1.12 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 59(107).

Site :- State Soil Cons. Res. Demons. & Trg. Centre, Rehmankhara. Type :- 'C'.

Object :—To study the effect of methods of planting of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) (a) Sandy loam to loamy sand. (b) Refer soil analysis, Rehmankhara. (iii) 17 to 20.2.1959. (iv) (a) N.A. (b) As per treatments. (c) 1 sett (3 budded)/foot. (d) 3' between rows. (e) N.A. (v) 75 lb./ac. of N as Urea before planting. (vi) CO. S. 443. (vii) Irrigated. (viii) 3 hoeings. (ix) and (x) N.A.

2. TREATMENTS :

Same as in expt. no. 57(112) on page 1143.

3. DESIGN :

(i) R.B.D. (ii) (a) 6. (b) N.A. (iii) 4. (iv) (a) 66'×28'. (b) 60'×22'. (v) 3'×3'. (vi) Yes.

4. GENERAL :

(i) N.A. (ii) 15 lb./ac. of Alderine applied. (iii) Yield of sugarcane. (iv) (a) 1957—1959. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 20.34 tons/ac. (ii) 2.34 tons/ac. (iii) Treatment differences are significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	M ₁	M ₂	M ₃	M ₄	M ₅	M ₆
Av. yield	17.02	19.87	18.77	21.20	21.92	23.26

S.E./mean = 1.17 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 54(172).

Site :- Sugarcane Res. Stn., Shahjahanpur.

Type :- 'C'.

Object :—To study the effect of different seed rates on Sugarcane.

1. BASAL CONDITIONS :

(i) (a) Wheat—Fallow—G.M.—Sugarcane. (b) *Sanai*. (c) Nil. (ii) (a) Light loam. (b) Refer soil analysis. Shahjahanpur. (ix) 9.3.1954. (iv) (a) N.A. (b) Flat planting. (c) As per treatments. (d) Rows 3' apart. (e) N.A. (v) G.M. (*sanai*)+60 lb./ac. of N as A/S. (vi) CO. 453 (mid-late). (vii) Irrigated. (viii) 4 hoeings and 1 earthing. (ix) 38.46". (x) 12.1.1955.

2. TREATMENTS :

3 seed rates : S₁=25,000, S₂=45,000, and S₃=65,000 buds/ac.

3. DESIGN :

(i) R.B.D. (ii) (a) 3. (b) N.A. (iii) 3. (iv) (a) and (b) 40'×27'. (v) Nil. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Germination %, no. of tillers, juice analysis and yield of sugarcane. (iv) (a) 1957—1955. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 26.89 tons/ac. (ii) 1.15 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	S ₁	S ₂	S ₃
Av. yield	25.76	27.13	27.77

S.E./mean = 0.67 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 55(74).

Site :- Sugarcane Res. Stn., Shahjahanpur.

Type :- 'C'.

Object :—To study the effect of different seed rates on Sugarcane.

1. BASAL CONDITIONS :

(i) (a) Sugarcane—*Sanai*. (b) *Sanai*. (c) Nil. (ii) (a) Lcam. (b) Refer soil analysis, Shahjahanpur. (iii) 10.2.1955. (iv) (a) N.A. (b) Flat planting. (c) As per treatments. (d) Rows 3½' apart. (e) N.A. (v) G.M. (*sanai*)+60 lb./ac. of N as A/S. (vi) CO. 453 (late). (vii) Irrigated. (viii) 3 hoeings. (ix) 53.55". (x) 13.2.1956.

2. TREATMENTS :

3 seed rates : $S_1 = 25,000$, $S_2 = 45,000$ and $S_3 = 65,000$ buds/ac.

3. DESIGN :

(i) R.B.D. (ii) (a) 3. (b) N.A. (iii) 4. (iv) (a) $46' \times 33'$. (b) $40' \times 27'$. (v) $3' \times 3'$. (vi) Yes.

4. GENERAL :

(i) Normal. (ii) N.A. (iii) Germination %, no. of tillers, juice analysis and yield of sugarcane. (iv) (a) 1953—1955. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 25.47 tons/ac. (ii) 1.33 tons/ac. (iii) Treatment differences are significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	S_1	S_2	S_3
Av. yield	23.21	25.86	27.34

S.E./mean = 0.66 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 57(158).

Site :- Sugarcane Res. Stn., Shahjahanpur.

Type :- 'C'.

Object :—To study the effect of different seed rates on Sugarcane.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) *Dhaincha*. (c) Nil. (d) (a) Light loam. (b) Refer soil analysis, Shahjahanpur. (iii) 12.2.1957 (iv) (a) N.A. (b) Flat planting. (c) As per treatments. (d) Rows 3' apart. (e) N.A. (v) G.M. (*dhaincha*) + A/S at 60 lb./ac. of N. (vi) CO. 453 (mid-late). (vii) Irrigated. (viii) 7 hoeings, 1 earthing and binding of cane. (ix) 89.97%. (x) 19.12.1958.

2. TREATMENTS :

3 seed rates : $S_1 = 25,000$, $S_2 = 45,000$ and $S_3 = 65,000$ buds/ac.

3. DESIGN :

(i) R.B.D. (ii) (a) 3. (b) N.A. (iii) 4. (iv) (a) and (b) $40' \times 24'$. (v) Nil. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Germination %, juice analysis and yield of sugarcane. (iv) (a) 1957—contd. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 32.66 tons/ac. (ii) 1.51 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	S_1	S_2	S_3
Av. yield	30.96	33.45	33.56

S.E./mean = 0.76 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 58(181).

Site :- Sugarcane Res. Stn., Shahjahanpur.

Type :- 'C'.

Object :—To study the effect of different seed rates on Sugarcane.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) (a) Loam. (b) Refer soil analysis, Shahjahanpur. (iii) 24.10.1958. (iv) (a) to (e) N.A. (v) *Dhaincha* (G.M.)+A/S at 60 lb./ac. of N. (vi) CO. 453 (mid-late). (vii) Irrigated. (viii) 1 earthing, 1 binding and 3 hoeings. (ix) 39.72". (x) 20.1.1960.

2. TREATMENTS to 4. GENERAL :

Same as in expt. no. 57(158) on page 1146.

5. RESULTS :

(i) 28.17 tons/ac. (ii) 1.32 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	S ₁	S ₂	S ₃
Av. yield	28.24	27.53	28.73

S.E./mean = 0.66 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 54(175).

Site :- Sugarcane Res. Stn., Shahjahanpur.

Type :- 'C'.

Object :—To study the effect of different times of planting of setts on Sugarcane yield.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) (a) Loam. (iii) Refer soil analysis, Shahjahanpur. (iii) As per treatments. (iv) (a) 3 ploughings with victory plough, 3 with *desi* plough and 7 plankings. (b) Trench planting. (c) 54 setts (3 budded)/row. (d) Rows 3' apart. (e) N.A. (v) N.A. (vi) CO. 453 (mid-late). (vii) Irrigated. (viii) 2 weedings, 13 hoeings with *kassi* and 1 earthing. (ix) 55.62". (x) 19.1.1955 to 4.3.1955.

2. TREATMENTS :

3 dates of planting of sugarcane : D₁=*Adsali* planting (7.8.1953), D₂=Autumn planting (28.10.1953) and D₃=Spring planting (2.2.1954).

3. DESIGN :

(i) R.B.D. (ii) (a) 3. (b) 54'×52'. (iii) 4. (iv) (a) 52'×18'. (b) 46'×12'. (v) 3'×3'. (vi) Yes.

4. GENERAL :

(i) Good. (ii) N.A. (iii) Germination %, tiller counts, yield of sugarcane and juice analysis. (iv) (a) 1953—1955. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 35.05 tons/ac. (ii) 3.70 tons/ac. (iii) Treatment differences are significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	D ₁	D ₂	D ₃
Av. yield	34.39	40.86	29.91

S.E./mean = 1.85 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 55(159).

Site :- Sugarcane Res. Stn., Shahjahanpur.

Type :- 'C'.

Object :—To study the effect of different times of planting of setts on Sugarcane yield.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) (a) Loam. (b) Refer soil analysis, Shahjahanpur. (iii) As per treatments. (iv) (a) 2 ploughings by victory plough, 6 by *desi* plough and 7 plankings. (b) Flat planting. (c) 84 setts (3 budded)/row. (d) Rows 3' apart. (e) N.A. (v) 80 lb./ac. of N as G.N.C.+A/S. (vi) CO. 453 (mid-late). (vii) Irrigated. (viii) 3 weedings, 16 hoeings by *kassi*, 2 earthings and 2 bindings. (ix) 72.78". (x) 12.12.1955 to March, 1956.

2. TREATMENTS :

3 dates of planting of sugarcane : D_1 = *Adsali* planting (12.8.1954), D_2 = Autumn planting (24 and 25.9.1954) and D_3 = Spring planting (2.2.1955).

3. DESIGN :

(i) R.B.D. (ii) (a) 3. (b) $84' \times 54'$. (iii) 4. (iv) (a) $84' \times 18'$. (b) $78' \times 12'$. (v) $3' \times 3'$. (vi) Yes.

4. GENERAL :

(i) Good, lodged in October. (ii) Rat attack. Gammexane applied at 20 lb./ac. (iii) Yield of sugarcane, juice analysis, germination % and no. of tillers. (iv) (a) 1953—1955. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 35.78 tons/ac. (ii) 1.54 tons/ac. (iii) Treatment differences are significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	D_1	D_2	D_3
Av. yield	35.85	33.71	37.78

S.E./mean = 0.77 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 54(177).

Site :- Sugarcane Res. Stn., Shahjahanpur.

Type :- 'C'.

Object :- To study the effect of trash cover in controlling weed in Sugarcane.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) (a) Light loam. (b) Refer soil analysis, Shahjahanpur. (iii) 28.3.1954. (iv) (a) N.A. (b) Flat planting. (c) 25 setts (3 budded),/row. (d) Rows 3' apart. (e) N.A. (v) A/S at 100 lb./ac. of N. (vi) CO. 453 (mid-late). (vii) Irrigated. (viii) As per treatments + one hoeing. (ix) 33 46". (x) 4.1.1955.

2. TREATMENTS :

3 cultural treatments : T_1 = No trash spread and no hoeings. 1 Weeding and earthing in August. T_2 = Trash about 2" thick spread on the field soon after germination and no hoeings. Weedings and earthing in August and T_3 = Normal cultivation.

Trash spread at 30 C.L./ac. on 23.4.1954.

3. DESIGN :

(i) R.B.D. (ii) (a) 3. (b) N.A. (iii) 4. (iv) (a) and (b) $25' \times 18'$. (v) Nil. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Germination %, no. of tillers and yield of sugarcane. (iv) (a) 1954—1956 (modified in 1955). (b) No. (c) Nil. (v) to (vi) Nil.

5. RESULTS :

(i) 34.12 tons/ac. (ii) 2.69 tons/ac. (iii) Treatment differences are significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	T_1	T_2	T_3
Av. yield	29.41	36.16	36.79

S.E./mean = 1.34 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 55(162).

Site :- Sugarcane Res. Stn., Shahjahanpur.

Type :- 'C'.

Object :- To study the effect of trash cover in controlling weed in Sugarcane.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) (a) Light loam. (b) Refer soil analysis, Shahjahanpur. (iii) 24 and 25.2.1955. (iv) (a) N.A. (b) Flat planting. (c) 37 setts (3 budded)/row. (d) Rows 3' apart. (e) N.A. (v) A/S at 100 lb./ac. of N. (vi) CO. 453 (mid-late). (vii) Irrigated. (viii) As per treatments. (ix) 53.67". (x) 4 and 5.1.1956.

2. TREATMENTS :

4 cultural treatments : T_1 = Trash cover about 2" thick in between the lines to be spread after germination, no hoeings and weedings but earthing in August, T_2 = T_1 + A/S at 15 lb./ac. of N applied to trash plots at the time of providing trash cover over and above the normal dose for all treatments, T_3 = No trash spread, no hoeings, and weedings but earthing in August and T_4 = Normal cultivation.

Spreading of trash at 30 C.L./ac. on 16 and 17.5.1955.

3. DESIGN :

(i) R B D. (ii) (a) 4. (b) N.A. (iii) 6. (iv) (a) and (b) 18' × 35'. (v) Nil. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Germination % and yield of sugarcane. (iv) (a) 1954—1956. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 21.06 tons/ac. (ii) 1.59 tons/ac. (iii) Treatment differences are highly significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	T_1	T_2	T_3	T_4
Av. yield	20.87	22.55	16.36	24.45

S.E./mean = 0.65 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 56(136).

Site :- Sugarcane Res. Stn., Shahjahanpur.

Type :- 'C'.

Object :- To study the effect of trash cover in controlling weed in Sugarcane.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) (a) Light loam. (b) Refer soil analysis, Shahjahanpur. (iii) 2.3.1956. (iv) (a) N.A. (b) Flat planting. (c) 32 setts (3 budded)/row. (d) Rows 3' apart. (e) N.A. (v) A/S at 100 lb./ac. of N. (vi) CO. 453 (mid-late). (vii) Irrigated. (viii) As per treatments. (viii) 1 hoeing by *kassi* and binding of canes. (ix) 47.81". (x) 22.12.1956.

2. TREATMENTS :

Same as in expt. no. 55(162) on page 1148.

Trash spread at 30 C.L./ac. on 21.4.1956. Trash spreading on 21.4.1956., manuring on 22.4.1956, earthing on 22 and 24.7.1956, hoeings by *kassi* in treatment T_4 on 9 and 10.4.1956, 28.4.1956, 23.5.1956 and 9.6.1956.

3. DESIGN :

(i) R.B.D. (ii) (a) 4. (b) N.A. (iii) 5. (iv) (a) and (b) 18' × 30'. (v) Nil. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Germination %, weed counting, no. of tillers and yield of sugarcane. (iv) (a) 1954—1956 (modified in 1955). (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 35.27 tons/ac. (ii) 2.54 tons/ac. (iii) Treatment differences are significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	T_1	T_2	T_3	T_4
Av. yield	36.37	37.17	32.29	35.26

S.E./mean = 1.14 tons/ac.

Crop :- Sugarcane.**Ref :- U.P. 57(169).****Site :- Sugarcane Res. Stn. Shahjahanpur.****Type :- 'C'.**

Object :—To compare the effect of trash cover and smothering crops in controlling weed in Sugarcane.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) (a) Light loam. (b) Refer soil analysis, Shahjahanpur. (iii) 3.3.1957. (iv) (a) N.A. (b) Flat planting. (c) 50 setts (3 budded)/row. (d) Rows 3' apart. (e) N.A. (v) 4 mds/ac of A/S. (vi) CO. 453 (mid-late). (vii) Irrigated. (viii) As per treatments. (ix) 34.24". (x) 31.12.1957.

2. TREATMENTS :

5 cultural treatments : T₁=Trash cover 2" to 4" thick after germination, no hoeings and weedings. Earthing at proper time, T₂=Velvet beans (*mucuna*) as smothering crop, no hoeings and weedings. Earthing at proper time, T₃=Russian giant '*lobia*' as smothering crop, no hoeings and weedings. Earthing at the proper time, T₄=Normal cultivation with hoeings and weedings. Earthing at proper time and T₅=Normal cultivation but no hoeing and weedings. Earthing at proper time.

Trash spread on 21.4.1957.

3. DESIGN :

(i) R.B.D. (ii) (a) 5. (b) N.A. (iii) 4. (iv) (a) and (b) 45' × 18'. (v) Nil. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Germination %, cane counting and yield of sugarcane. (iv) (a) 1957—contd. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 32.40 ton/ac. (ii) 2.41 tons/ac. (iii) Treatment differences are highly significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	T ₁	T ₂	T ₃	T ₄	T ₅
Av. yield	40.46	33.47	27.15	35.32	25.62

S.E./mean = 1.20 tons/ac.

Crop :- Sugarcane.**Ref :- U.P. 58(173).****Site :- Sugarcane Res. Stn., Shahjahanpur.****Type :- 'C'.**

Object :—To compare the effect of trash cover and smothering crops in controlling weed in Sugarcane.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) (a) Light loam. (b) Refer soil analysis, Shahjahanpur. (iii) 19.2.1958. (iv) (a) N.A. (b) Flat planting. (c) 45 setts (3 budded)/row. (d) Rows 3' apart. (e) N.A. (v) 3 mds/ac. of A/S. (vi) CO. 453 (Mid.-late). (vii) Irrigated. (viii) As per treatments. (ix) 57.28". (x) 5.3.1959.

2. TREATMENTS :

5 cultural treatments : T₁=Trash cover 2" to 4" thick provided after germination. No hoeings and weedings except one hoeing at germination. Earthing at proper time, T₂=Russian giant '*lobia*' (*vigna catieng*) as a smothering crop. No hoeings and weedings except one hoeing at germination. Earthing at proper time, T₃=T₂ with one application of 2, 4—D sodium salt at 2 lbs./ac. when *lobia* fully covers the ground, T₄=Normal cultivation with proper hoeings and weedings. Earthing at the proper time and T₅=Normal cultivation but no hoeings and weedings except one hoeing at germination. Earthing at the proper time.

Trash spread on 13.4.1958.

3. DESIGN :

(i) R.B.D. (ii) (a) 5. (b) N.A. (iii) 4. (iv) (a) and (b) 40' × 24'. (v) Nil. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Germination %, no. of tillers, juice analysis and sugarcane yield. (iv) (a) 1957—contd. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 31.17 tons/ac. (ii) 2.12 tons/ac. (iii) Treatment differences are highly significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	T ₁	T ₂	T ₃	T ₄	T ₅
Av. yield	36.06	29.52	28.78	35.50	25.99

S.E./mean = 1.06 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 59(197).

Site :- Sugarcane Res. Stn., Shahjahanpur.

Type :- 'C'.

Object :—To compare the effect of trash cover and smothering crops in controlling weed in Sugarcane.

1. BASAL CONDITIONS :

(i) (a) to (e) N.A. (ii) (a) Light loam. (b) Refer soil analysis, Shahjahanpur. (iii) 19.2.1959. (iv) (a) N.A. (b) Flat planting. (c) 45 setts (3 budded)/row. (d) Rows 3' apart. (e) N.A. (v) A/S at 30 lb./ac. of N. (vi) CO.S. 510 (early). (vii) Irrigated. (viii) As per treatments. (ix) 24.67". (x) 22.2.1960 and 1.3.1960.

2. TREATMENTS and 3. DESIGN :

Same as in expt. no. 58(173) on page 1150.

4. GENERAL :

(i) N.A. (ii) Dusting with Gammexane. Attack of shoot borer. (iii) Germination count, juice analysis, millable cane and yield of sugarcane. (iv) (a) 1957—1959. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 23.99 tons/ac. (ii) 1.09 tons/ac. (iii) Treatment differences are highly significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	T ₁	T ₂	T ₃	T ₄	T ₅
Av. yield	28.41	21.87	21.25	26.65	21.76

S.E./mean = 0.54 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 55(158).

Site :- Sugarcane Res. Stn., Shahjahanpur.

Type :- 'C'.

Object :—To study the effect of planting top and lower setts during autumn and spring on the growth and yield of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) (a) Light loam. (b) Refer soil analysis, Shahjahanpur. (iii) As per treatments (Autumn : 18.10.1954 and Spring : 18.2.1955). (iv) (a) N.A. (b) Flat planting. (c) 1 sett (3 budded)/fcot. (c) Rows 3' apart. (e) N.A. (v) G.M. (*sanai*) at 40 lb./ac. of N and 60 lb./ac. of N as A/S. (vi) CO. 453 (mid-late). (vii) Irrigated. (viii) 4 to 8 hoeings. (ix) 57.47". (x) 23.12.1955.

2. TREATMENTS :

All combinations of (1) and (2)

(1) 2 times of planting : T₁=Autumn planting and T₂=Spring planting.

(2) 2 types of setts : S₁=Top setts and S₂=Lower setts.

The top setts were taken from the upper one third portion of cane and the lower setts from the lower two-third portion of cane

3. DESIGN :

(i) Fact. in R.B.D. (ii) (a) 4. (b) N.A. (iii) 3. (iv) (a) and (b) 40' × 24'. (v) Nil. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Germination %, no. of tillers, juice analysis and yield of sugarcane. (iv) (a) 1955--1957. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 30.07 tons/ac. (ii) 2.32 tons/ac. (iii) T and S effects are highly significant. (iv) Av. yield of sugarcane in tons/ac.

	T ₁	T ₂	Mean
S ₁	37.31	26.43	31.87
S ₂	31.30	25.26	28.28
Mean	34.30	25.85	30.07

S.E. of any marginal mean = 0.95 tons/ac.

S.E. of body of table = 1.34 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 56(126).

Site :- Sugarcane Res. Stn., Shahjahanpur.

Type :- 'C'.

Object :- To study the effect of planting top and lower setts during autumn and spring on the growth and yield of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) (a) Light loam. (b) Refer soil analysis, Shahjahanpur. (iii) As per treatments. (iv) (a) N.A. (b) Flat planting. (c) 1 sett (3 budded)/foot. (d) Rows 2' apart. (e) N.A. (v) G.M. (*sanai*) at 40 lb./ac. of N--A/S at 60 lb./ac. of N. (vi) CO. 453 (mid-late). (vii) Irrigated. (viii) 4 hoeings. (ix) 50.78". (x) 7.2.1957.

2. TREATMENTS and 3. DESIGN :

Same as in expt. no. 55(158) on page 1151.

4. GENERAL :

(i) Normal. Lodging in October. (ii) N.A. (iii) Germination %, no. of tillers and yield of sugarcane. (iv) (a) 1955--1957. (b) No. (c) Nil. (v) and (vi) Nil. (vii) The autumn planting was delayed due to continuous rains.

5. RESULTS :

(i) 30.63 tons/ac. (ii) 2.69 tons/ac. (iii) None of the effects is significant. (iv) Av. yield of sugarcane in tons/ac.

	S ₁	S ₂	Mean
T ₁	31.54	26.72	29.13
T ₂	32.19	32.08	32.14
Mean	31.86	29.40	30.63

S.E. of any marginal mean = 1.10 tons/ac.

S.E. of body of table = 1.55 tons/ac.

Crop :- Sugarcane.**Ref :- U.P. 57(152).****Site :- Sugarcane Res. Stn., Shahjahanpur.****Type :- 'C'.**

Object :—To study the effect of planting top and lower setts during autumn and spring on the growth and yield of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) (a) Light loam. (b) Refer soil analysis, Shahjahanpur. (iii) As per treatments (autumn : 26.10.1956 and spring : 19.2.1957). (iv) (a) N.A. (b) Flat planting. (c) 1 sett (3 budded)/foot. (d) Rows 3' apart. (e) N.A. (v) G.M. (*dhaincha*)+60 lb./ac. of N as A/S. (vi) CO. 453 (mid-late). (vii) Irrigated. (viii) N.A. (ix) 57.61". (x) N.A.

2. TREATMENTS to 4. GENERAL :

Same as in expt. no. 55(158) on page 1151.

5. RESULTS :

(i) 27.52 tons/ac. (ii) 3.03 tons/ac. (iii) None of the effects is significant. (iv) Av. yield of sugarcane in tons/ac.

	T ₁	T ₂	Mean
S ₁	28.17	27.37	27.77
S ₂	28.09	26.44	27.27
Mean	28.13	26.91	27.52

S.E. of any marginal mean = 1.24 tons/ac.

S.E. of body of table = 1.75 tons/ac.

Crop :- Sugarcane.**Ref :- U.P. 57(150).****Site :- Sugarcane Res. Stn., Shahjahanpur.****Type :- 'C'.**

Object :—To study the effect of planting setts taken from water shoots, upper and lower portions of cane on Sugarcane yield.

1. BASAL CONDITIONS :

i) (a) to (c) N.A. (ii) (a) Light loam. (b) Refer soil analysis, Shahjahanpur. (iii) 4.3.1957. (iv) (a) N.A. (b) Flat planting. (c) 1 sett (3 budded)/foot. (d) Rows 3' apart. (e) N.A. (v) G.M.+60 lb./ac. of N as A/S. (vi) CO. 453 (mid-late). (vii) Irrigated. (viii) N.A. (ix) 35.07". (x) N.A.

2. TREATMENTS :

4 types of setts : T₁=Control (usual planting material), T₂=Setts from water shoots, T₃=Setts from upper half of cane and T₄=Setts from lower half of cane.

3. DESIGN :

(i) R.B.D. (ii) (a) 4. (b) N.A. (iii) 4. (iv) (a) and (b) 40'×18'. (v) Nil. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Germination %, juice analysis, yield of sugarcane and millable cane. (iv) (a) 1957—1959. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 20.20 tons/ac. (ii) 3.27 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	T ₁	T ₂	T ₃	T ₄
Av. yield	21.21	19.74	19.14	20.69

S.E./mean = 1.63 tons/ac.

Crop :- Sugarcane.**Ref :- U.P. 58(158).****Site :- Sugarcane Res. Stn. Shahjahanpur.****Type :- 'C'.**

Object :— To study the effect of planting setts taken from water shoots and upper, lower portions of cane on Sugarcane yield.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Fallow. (c) Nil. (ii) (a) Light loam. (b) Refer soil analysis, Shahjahanpur. (iii) 10.2.1958. (iv) (a) N.A. (b) Flat planting. (c) 1 sett (3 budded)/foot. (d) Rows 3' apart. (e) N.A. (v) 100 lb./ac. of N as A/S. (vi) CO. 453 (mid-late). (vii) Irrigated. (viii) 6 hoeings and 1 earthing up. (ix) 56.60". (x) 12.1.1959.

2. TREATMENTS :

Same as in expt. no. 57(150) on page 1153.

3. DESIGN :

(i) R.B.D. (ii) (a) 4. (b) N.A. (iii) 4. (iv) (a) and (b) 47' × 18'. (v) Nil. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Germination %, juice analysis and yield of sugarcane. (iv) (a) 1957—1959. (b) No (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 33.95 tons/ac. (ii) 2.03 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac

Treatment	T ₁	T ₂	T ₃	T ₄
Av. yield	34.39	34.50	33.00	33.89

S.E./mean = 1.01 tons/ac.

Crop :- Sugarcane.**Ref :- U.P. 59(208).****Site :- Sugarcane Res. Stn., Shahjahanpur.****Type :- 'C'.**

Object :— To study the effect of planting setts taken from water shoots, upper and lower portions of cane on Sugarcane yield.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) (a) Loam. (b) Refer soil analysis, Shahjahanpur. (iii) 4.3.1959. (iv) (a) to (e) N.A. (v) 100 lb./ac. of N as A/S. (vi) CO. 453 (mid-late). (vii) Irrigated. (viii) 10 hoeings and 1 earthing. (ix) 24 62". (x) 21.1.1960.

2. TREATMENTS :

Same as in expt. no. 57(150) on page 1153.

3. DESIGN :

(i) R.B.D. (ii) (a) 4. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 40' × 21'. (v) N.A. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Germination %, millable cane, juice analysis and yield of sugarcane. (iv) (a) 1957—1959. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 23.02 tons/ac. (ii) 0.90 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	T ₁	T ₂	T ₃	T ₄
Av. yield	23.13	22.41	23.15	23.38

S.E./mean = 0.45 tons/ac.

Crop :- Sugarcane.**Ref :- U.P. 58(182).****Site :- Sugarcane Res. Stn., Shahjahanpur.****Type :- 'C'.**

Object :— To study the effect of different seasons of planting and harvesting of Sugarcane and seed taken from autumn and spring planted crops.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Fallow. (c) Nil. (ii) (a) Light loam. (b) Refer soil analysis, Shahjahanpur. (iii) As per treatments. (iv) 1 *palewa*, 12 ploughings and 4 plankings. (b) Flat planting. (c) 84 setts (3 budded /row. (d) Rows 3' apart. (e) N.A. (v) 120 lb./ac. of N as A/S+G.N.C. in 1 : 1 ratio. (vi) CO.S. 443 (mid-season). (vii) Irrigated. (viii) 9 hoeings, 1 earthing and 1 weeding. (ix) 56.5". (x) As per treatments.

2. TREATMENTS :**Main-plot treatments :**

All combinations of (1) and (2)

(1) 2 seasons of planting : P_1 =Autumn (Sept./Oct.) and P_2 =Spring (February).

(2) 2 seasons of harvesting : H_1 =Autumn (Sept./Oct.) and H_2 =Spring (February).

Sub-plot treatments :

2 types of seed : S_1 =Seed from autumn planted crop and S_2 =Seed from spring planted crop.

3. DESIGN :

(i) Split-plot. (ii) (a) 4 main-plots/replication ; 2 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) 84'×18', (b) 78'×12'. (v) 3'×3'. (vi) Yes.

4. GENERAL :

i) Good. (ii) Nil. (iii) Germination %, no. of tillers, millable cane, and yield of sugarcane. (iv) (a) 1958—1960. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 27.30 tons/ac. (ii) (a) 1.94 tons/ac. (b) 1.42 tons/ac. (iii) H effect is highly significant. Interactions $P \times H$ and $S \times P \times H$ are significant. (iv) Av. yield of sugarcane in tons/ac.

	H_1	H_2	Mean	S_1	S_2
P_1	26.93	28.86	27.90	28.31	27.49
P_2	24.01	29.40	26.70	26.47	26.94
Mean	25.47	29.13	27.30	27.39	27.21
S_1	25.88	28.90			
S_2	25.06	29.36			

S E. of difference of two

1. P or H marginal means	= 0.69 tons/ac.
2. S marginal means	= 0.50 tons/ac.
3. S means at the same level of P or H	= 0.71 tons/ac.
4. P or H means at the same level of S	= 0.85 tons/ac.
S.E. of body of $P \times H$ table	= 0.69 tons/ac.

Crop :- Sugarcane.**Ref :- U.P. 59(184).****Site :- Sugarcane Res. Stn., Shahjahanpur.****Type :- 'C'.**

Object :— To study the effect of different seasons of planting and harvesting of Sugarcane and seed taken from autumn and spring planted crops.

1. BASAL CONDITIONS :

(i) (ε) N.A. (b) *Dhaincha*. (c) Nil. (ii) (a) Light loam. (b) Refer soil analysis, Shahjahanpur. (iii) As per treatments. (iv) (a) 2 ploughings by Victory plough, 3 ploughings by cultivator, 8 ploughings by *desi*

plough and 11 plankings. (b) Flat planting. (c) 70 setts (3 budded)/row. (d) Rows 3' apart. (e) N.A. (v) G.M. (*dhaincha*) at 50 lb./ac. of N+70 lb./ac. of N as A/S. (vi) CO.S. 443 (mid-season). (vii) Irrigated. (viii) 1 earthing, 7 hoeings by *kassi* and 4 hoeings by cultivator. (ix) 39.72". (x) As per treatments.

2. TREATMENTS :

Same as in expt. no. 58(182) on page 1155.

3. DESIGN :

(i) Split-plot. (ii) (a) 4 main-plots/replication ; 2 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) 68' × 24'. (b) 62' × 18'. (v) 3' × 3'. (vi) Yes.

4. GENERAL :

(i) Good. Lodging due to heavy winds and rains on 23.9.1959. (ii) A few plants affected by 'Albino' disease. (iii) Germination %, no. of tillers, millable cane, juice analysis and yield of sugarcane. (iv) (a) 1958—1960. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 20.30 tons/ac. (ii) (a) 1.99 tons/ac. (b) 1.87 tons/ac. (iii) P effect alone is significant. (iv) Av. yield of sugarcane in tons/ac.

	P ₁	P ₂	Mean	S ₁	S ₂
H ₁	20.69	21.49	21.09	21.93	20.26
H ₂	17.68	21.33	19.51	18.95	20.07
Mean	19.19	21.41	20.30	20.44	20.16
S ₁	19.33	21.54			
S ₂	19.04	21.28			

S.E. of difference of two

- | | |
|--|-----------------|
| 1. H or P marginal means | = 0.70 tons/ac. |
| 2. S marginal means | = 0.66 tons/ac. |
| 3. S means at the same level of H or P | = 0.93 tons/ac. |
| 4. H or P means at the same level of S | = 0.96 tons/ac. |
| S.E. of body of H × P table | = 0.70 tons/ac. |

Crop :- Sugarcane (*Ratoon*).

Ref :- U.P. 59(183).

Site :- Sugarcane Res. Stn., Shahjahanpur.

Type :- 'C'.

Object :—To study the effect of harvesting plant cane in different seasons on the yield and quality of the subsequent ratoon crop.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Sugarcane. (c) 120 lb./ac. of N as A/S+G.N.C. in 1 : 1 ratio. (ii) (a) Light loam. (b) Refer soil analysis, Shahjahanpur. (iii) Ratoon : As per treatments. (iv) (a) N.A. (b) Flat planting. (c) 84 setts (3 budded)/row. (d) Rows 3' apart. (e) N.A. (v) 120 lb./ac. of N as A/S. (vi) CO. S. 443 (mid-season). (vii) Irrigated. (viii) 3 hoeings by *kassi*, 2 hoeings by cultivator and 1 binding of cane. (ix) 39.72". (x) 22 to 29.12.1959 and 8.1.1960.

2. TREATMENTS and 3. DESIGN :

Same as in expt. no. 58(182) on page 1155.

4. GENERAL :

(i) Good. Lodging of crop in September due to heavy winds and rains. (ii) Slight attack of rats. (iii) No. of tillers, millable canes, yield of sugarcane and juice analysis. (iv) (a) 1958—1960. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 18.44 tons/ac. (ii) (a) 12.94 tons/ac. (b) 1.82 tons/ac. (iii) N effect alone is highly significant. (iv) Av. yield of sugarcane in tons/ac.

	P ₁	P ₂	Mean	S ₁	S ₂
H ₁	14.68	15.91	15.29	15.44	15.14
H ₂	22.60	20.58	21.59	21.86	21.33
Mean	18.64	18.24	18.44	18.65	18.23
S ₁	18.39	18.91			
S ₂	18.89	17.58			

S.E. of difference of two

1. P or H marginal means = 1.04 tons/ac.
 2. S marginal means = 0.64 tons/ac.
 3. S means at the same level of P or H = 0.91 tons/ac.
 4. P or H means at the same level of S = 1.22 tons/ac.
- S.E. of body of P×H table = 1.04 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 59(180).

Site :- Sugarcane Res. Stn., Shahjahanpur.

Type :- 'C'.

Object :—To study the effect of different types of planting and other cultural practices as a protection against lodging on Sugarcane.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) *Lobia*. (c) Nil. (ii) (a) Light loam. (b) Refer soil analysis, Shahjahanpur. (iii) 24 and 25.2.1959. (iv) (a) 10 ploughings by *desi* plough, 1 ploughing by Victory plough and 1 *palewa*. (b) As per treatments. (c) 85 setts (3 budded)/row. (d) Rows 3' apart. (e) N.A. (v) A/S top dressed. (vi) CO. S. 510 (early). (vii) Irrigated. (viii) 1 blind hoeing and 4 to 6 hoeings by *kassi*. (ix) 29.72". (x) 7 to 16.3 1960.

2. TREATMENTS :

5 methods of planting : M₁=Flat planting followed by earthing, M₂=Flat planting followed by binding, M₃=Flat planting followed by earthing and binding, M₄=Trench planting with no earthing and M₅=Flat planting with no earthing or binding.

3. DESIGN :

(i) R.B.D. (ii) (a) 5. (b) N.A. (iii) 4. (iv) (a) 83'×27'. (b) 77'×21'. (v) 3'×3'. (vi) Yes.

4. GENERAL :

(i) Good. Lodging in September and October. (ii) Crop damaged by rats. (iii) Germination %, no. of tillers, millable cane, yield of sugarcane and juice analysis. (iv) (a) 1959—contd. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

i) 18.47 tons/ac. (ii) 1.71 tons/ac. (iii) Treatment differences are significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	M ₁	M ₂	M ₃	M ₄	M ₅
Av. yield	20.01	18.41	19.89	15.93	18.09

S.E./mean = 0.86 tons/ac.

Crop :- Sugarcane.**Ref :- U.P. 58(169).****Site :- Sugarcane Res. Stn., Shahjahanpur.****Type :- 'C'.**

Object :—To study the effect of wet and dry planting on Sugarcane yield.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) *Lobia*. (c) Nil. (ii) (a) Light loam. (b) Refer soil analysis, Shahjahanpur. (iii) 4.3.1958. (iv) (a) 5 ploughings by *desi* plough, 2 ploughings by Victory plough, levelling, 5 pluckings and 1 *palewa*. (b) Flat planting. (c) 40 setts (3 budded)/row. (d) Rows 3' apart. (e) N.A. (v) 10 lb./ac. of N as G.M. (*lobia*)+50 lb./ac. of N as blood meal+40 lb./ac. of N as A/S and G.N.C. mixture in 1 : 1 ratio. (vi) CO. S. 551 (medium). (vii) Irrigated. (viii) 5 hoeings by *kassi*, 1 hoeing by hand hoe and 1 earthing. (ix) 57.03%. (x) 20.3.1959.

2. TREATMENTS :

4 planting treatments : P₁=Dry planting and normal setting, P₂=Dry planting and setts with buds on sides, P₃=Wet planting and normal setting and P₄=Wet planting and setts with buds on sides.

3. DESIGN :

(i) L. Sq. (ii) (a) 4. (b) N.A. (iii) 4. (iv) (a) 40'×21'. (b) 34'×15'. (v) 3'×3'. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Some plants affected by 'Albino' disease. (iii) Germination %, no. of tillers, millable cane, yield of sugarcane and juice analysis. (iv) (a) 1958—1960. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 22.67 tons/ac. (ii) 2.26 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	P ₁	P ₂	P ₃	P ₄
Av. yield	22.83	22.14	22.43	22.28

S.E./mean = 1.13 tons/ac.

Crop :- Sugarcane.**Ref :- U.P. 59(175).****Site :- Sugarcane Res. Stn., Shahjahanpur.****Type :- 'C'.**

Object :—To study the effect of wet and dry planting on Sugarcane yield.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) *Lobia*. (c) Nil. (ii) (a) Light loam. (b) Refer soil analysis, Shahjahanpur. (iii) 6.3.1959. (iv) (a) 11 ploughings by *desi* plough, 1 ploughing by Victory plough and 1 *palewa*. (b) Flat planting. (c) 82 setts (3 budded)/row. (d) Rows 3' apart. (e) N.A. (v) A/S top dressed. (vi) CO. S. 551 (medium). (vii) Irrigated. (viii) 1 blind hoeing, 4 hoeings and 1 earthing. (ix) 29.06%. (x) 25.2.1960 to 8.3.1960.

2. TREATMENTS :

Same as in expt. no. 58(169) above.

3. DESIGN :

(i) R.B.D. (ii) (a) 4. (b) N.A. (iii) 4. (iv) (a) 83'×21'. (b) 77'×15'. (v) 3'×3'. (vi) Yes.

4. GENERAL :

(i) Good. Lodging in September due to heavy rains and winds. (ii) Crop damaged by rats. A few plants affected by 'Albino' disease. (iii) Germination %, no. of tillers, millable canes, yield of sugarcane and juice analysis. (iv) (a) 1958—1960. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 23.66 tons/ac. (ii) 2.11 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	P ₁	P ₂	P ₃	P ₄
Av. yield	22.74	24.00	23.55	24.34

S.E./mean = 1.05 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 59(174).

Site :- Sugarcane Res. Stn., Shahjahanpur.

Type :- 'C'.

Object :—To test the comparative merits of seeds drawn from autumn, spring and ratoon crops for autumn planting.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) *Dhaincha*. (c) Nil. (ii) (a) Light loam. (b) Refer soil analysis, Shahjahanpur. (iii) 12 and 14.10.1959. (iv) (a) 5 ploughings by *desi* plough and 5 plankings. (b) and (c) N.A. (d) Rows 3' apart. (e) N.A. (v) 50 lb./ac. of N as G.M. (*dhaincha*)+80 lb./ac. of N as A/S. (vi) CO. 859 (early). (vii) Irrigated. (viii) 8 hoeings by *kassi*, 1 hoeing by cultivator and 1 earthing. (ix) 82.83%. (x) 15 to 17.3.1961.

2. TREATMENTS :

3 types of seed : S₁=Seed taken from autumn planted crop, S₂=Seed taken from spring planted crop and S₃=Seed taken from ratoon crop.

3. DESIGN :

(i) R.B.D. (ii) (a) 3. (b) N.A. (iii) 4. (iv) (a) 83' × 12'. (b) 77' × 12'. (v) 3' on either side. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Crop affected by shoot borer. (iii) Germination %, no. of tillers, millable cane, yield of sugarcane and juice analysis. (iv) 1959—contd. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 17.58 tons/ac. (ii) 0.72 tons/ac. (iii) Treatment differences are highly significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	S ₁	S ₂	S ₃
Av. yield	19.61	17.23	15.91

S.E./mean = 0.36 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 55(163).

Site :- Sugarcane Res. Stn., Shahjahanpur.

Type :- 'C'.

Object :—To study the effect of mixed cropping of Sugarcane with other crops.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) (a) Loam. (b) Refer soil analysis, Shahjahanpur. (iii) T₁ to T₄=15.10.1954, T₅ and T₈=12.2.1955, T₆, T₇ and T₉=6.4.1955. (iv) (a) 22 ploughings. (b) Flat planting. (c) 84 (3 budded) setts/row. (d) and (e) N.A. (v) G.M. at 80 lb./ac. of N and A/S at 40 lb./ac. of N. (vi) CO.S. 510 (early). (vii) Irrigated. (viii) 23 plankings, 3 weedings, 16 hoeings by *kassi*, 1 by cultivator and 1 earthing. (ix) 5.47%. (x) 25 to 27.2.1955.

2. TREATMENTS :

9 treatments : T₁=Autumn planted sugarcane, T₂=T₁+gram in 2 rows T₃=T₁+pea in 1 row, T₄=T₁+*lahi* in 2 rows, T₅=Spring plant sugarcane cane, T₆=Late planting of sugarcane, T₇=Pea + T₆, T₈=*Lahi*+T₅ and T₉=Gram+T₆.

Other crops are sown in between two rows of sugarcane.

3. DESIGN :

(i) R.B.D. (ii) (a) 9. (b) 189' × 84'. (iii) 4. (iv) (a) 84' × 21'. (b) 78' × 15'. (v) 3' × 3'. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Gammexane at 20 lb./ac. applied at planting. (iii) Yield of sugarcane and juice analysis. Germination %, no. of tillers, millable cane and no. of shoots. (iv) (a) 1954—contd. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 24.36 tons/ac. (ii) 1.84 tons/ac. (iii) Treatment differences are highly significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	T ₁	T ₂	T ₃	T ₄	T ₅	T ₆	T ₇	T ₈	T ₉
Av. yield	29.23	22.39	26.41	22.33	29.90	21.68	22.67	25.74	18.91

S.E./mean = 0.92 tons/ac

Crop :- Sugarcane.

Ref :- U.P. 56(141).

Site :- Sugarcane Res. Stn., Shahjahanpur.

Type :- 'C'.

Object :—To study the effect of mixed cropping of Sugarcane with other crops.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) (a) Loam. (b) Refer soil analysis, Shahjahanpur. (iii) T₁ on 2,3.11.1955, T₅ on 29.2.1956, T₈ on 7.3.1956 and T₉ on 16, 17.4.1956. (iv) (a) 29 ploughings and 24 plankings. (b) Flat planting. (c) 82 setts (3 budded)/row. (d) N.A. (e) Nil. (v) G.M. at 80 lb./ac. of N and A/S at 40 lb./ac. of N. (vi) CO.S. 510 (early). (vii) Irrigated. (viii) 26 hoeings, 4 earthings, 3 bindings, 1 weeding and 2 gap fillings. (ix) 53.85". (x) 18.3.1957 and 24.4.1957.

2. TREATMENTS :

9 treatments: T₁=Autumn planting, T₂=T₁+1 row of gram, T₃=T₁+1 row of pea, T₄=T₁+1 row of *lahi*, T₅=Spring planting, T₆=Gram+T₅, T₇=Pea+T₅, T₈=*Lahi*+T₅ and T₉=Late planting in April.

3. DESIGN :

(i) R.B.D. (ii) (a) 9. (b) 162' × 82'. (iii) 4. (iv) (a) 82' × 18'. (b) 76' × 12'. (v) 3' × 3'. (vi) Yes

4. GENERAL :

(i) Good. Lodging on 28th September 1956, due to heavy rains and winds. (ii) Chlordane at 15 lb./ac. is applied at planting. (iii) Sugarcane yield. (iv) (a) 1954—contd. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 27.28 tons/ac. (ii) 2.35 tons/ac. (iii) Treatment differences are highly significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	T ₁	T ₂	T ₃	T ₄	T ₅	T ₆	T ₇	T ₈	T ₉
Av. yield	33.38	27.11	29.58	28.51	31.13	22.41	22.18	29.67	21.54

S.E./mean = 1.18 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 57(174).

Site :- Sugarcane Res. Stn., Shahjahanpur.

Type :- 'C'.

Object :—To study the effect of mixed cropping of Sugarcane with other crops.

1 BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) (a) Loam. (b) Refer soil analysis, Shahjahanpur. (iii) T_1 to $T_4=29, 30, 30, 1956$, $T_5=23.3, 1957$, $T_6=26.4, 1957$, $T_7=7.4, 1957$, $T_8=23.3, 1957$ and $T_9=26.4, 1957$. (iv) (a) 27 ploughings and 20 plankings. (b) Flat planting. (c) 84 setts (3 budded)/row. (d) N.A. (e) Nil. (v) 80 lb./ac. of N as G.N.C+40 lb./ac. of N as A/S+15 lb./ac. of Chlordane. (vi) CO.S. 510 (early). (vii) Irrigated. (viii) 5 weedings, 13 hoeings and 1 earthing. (ix) 47.54". (x) 11, 14 and 15.2.1958.

2 TREATMENTS :

Same as in expt. no. 56(141) on page 1160.

3. DESIGN :

(i) R.B.D. (ii) (a) 9. (b) 162'×84'. (iii) 4. (iv) (a) 84'×18'. (b) 78'×12'. (v) 3'×3'. (vi) Yes.

4. GENERAL :

(i) Good. (ii) No. (iii) Germination %, no. of tillers, millable cane, juice analysis, shoot and sugarcane yield. (iv) (a) 1954—contd. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 20.42 tons/ac. (ii) 2.31 tons/ac. (iii) Treatment differences are highly significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	T_1	T_2	T_3	T_4	T_5	T_6	T_7	T_8	T_9
Av. yield	25.36	18.20	22.84	22.77	19.55	17.09	21.53	18.82	17.66

S.E./mean = 1.16 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 55(292).

Zone :- Bareilly (Bareilly, c.f.).

Type :- 'C'.

Object :—To study the effect of spacings and seed rates on the yield of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Loam. (iii) N.A. (iv) CO. S. 321 (improved). (v) (a) and (b) N.A. (c) and (d) As per treatments. (e) N.A. (vi) N.A. (vii) Irrigated. (viii) and (ix) N.A. (x) 21.3.1956.

2. TREATMENTS :

3 cultural treatments : $C_1=3$ ft. spacing between rows with one sett per running foot of row length, $C_2=2$ ft. spacing between rows with one sett per running foot of row length and $C_3=2$ ft. spacing between rows with one sett per 1½ ft. of row length.

3. DESIGN :

(i) and (ii) R.B.D. with 5 replications. (iii) (a) N.A. (b) 66'×24' for C_1 and 66'×26' for C_2 and C_3 . (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of sugarcane. (iv) (a) 1955—1957. (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 30.63 tons/ac. (ii) 3.28 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	C_1	C_2	C_3
Av. yield	30.71	31.52	29.65

S.E./mean = 1.47 tons/ac.

Crop :- Sugarcane.**Ref :- U.P. 56(304).****Zone :- Bareilly (Bareilly, c.f.).****Type :- 'C'.**

Object :—To study the effect of spacing and seed rate on the yield of Sugarcane.

1. BASAL CONDITIONS :(i) (a) to (c) N.A. (ii) *Domat*. (iii) N.A. (iv) CO. S. 510 (*improved*). (v) (a) and (b) N.A. (c) and (d) As per treatments. (e) N.A. (vi) N.A. (vii) Irrigated. (viii) and (ix) N.A. (x) 9 to 11.3.1957.**2. TREATMENTS :**

Same as in expt. no. 55(292) on page 1161.

3. DESIGN :

(i) and (ii) R.B.D. with 6 replications. (iii) (a) and (b) 72' × 24'. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Germination %, no. of tillers and yield of sugarcane. (iv) (a) 1955--1957. (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 18.85 tons/ac. (ii) 3.16 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	C ₁	C ₂	C ₃
Av. yield	17.56	18.78	20.20

S.E./mean = 1.29 tons/ac.

Crop :- Sugarcane.**Ref :- U.P. 57(207).****Zone :- Bareilly (Bareilly, c.f.).****Type :- 'C'.**

Object :—To study the effect of spacing and seed rate on the yield of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Loam. (iii) N.A. (iv) CO. S. 510. (v) (a) and (b) N.A. (c) and (d) As per treatments. (e) N.A. (vi) N.A. (vii) to (x) N.A. (x) 3.2.1958.

2. TREATMENTS :

Same as in expt. no. 55(292) on page 1161.

3. DESIGN :

(i) and (ii) R.B.D. with 6 replications. (iii) (a) and (b) 72' × 24'. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of sugarcane. (iv) (a) 1955--1957. (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 15.06 tons/ac. (ii) 2.45 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	C ₁	C ₂	C ₃
Av. yield	13.95	16.61	14.61

S.E./mean = 1.00 tons/ac.

Crop :- Sugarcane.**Ref :- U.P. 55(261).****Zone :- Basti (Basti, c.f.).****Type :- 'C'.**

Object :—To study the effect of spacings and dipping of setts in phenol on Sugarcane.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Pea. (c) N.A. (ii) Clay loam. (iii) N.A. (iv) CO. 395. (v) (a) 6 ploughings. (b) Flat planting. (c) N.A. (d) As per treatments. (e) N.A. (vi) 4.4.1955. (vii) Irrigated. (viii) 2 hoeings. (ix) N.A. (x) 23 and 24.2.1956.

2. TREATMENTS :

All combinations of (1), (2) and (3)

(1) 2 sett treatments : T_1 =Setts dipped in 2 % phenol and T_2 =Setts undipped.(2) 2 spacings between setts : $S_1=3'$ and $S_2=2\frac{1}{2}'$.(3) 2 types of setts : R_1 =Normal (single setts) and R_2 =Double setts.**3. DESIGN :**(i) and (ii) R.B.D. with 4 replications. (iii) (a) $50' \times 36'$. (b) $44' \times 30'$. (iv) Yes.**4. GENERAL :**

(i) and (ii) N.A. (iii) Yield of sugarcane. (iv) (a) 1955—N.A. (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 6.49 tons/ac. (ii) 2.10 tons/ac. (iii) None of the effects is significant. (iv) Av. yield of sugarcane in tons/ac.

	S_1	S_2	Mean	R_1	R_2
T_1	6.27	6.77	6.52	6.00	7.03
T_2	6.51	6.42	6.46	6.34	6.59
Mean	6.39	6.60	6.49	6.17	6.81
R_1	5.81	6.53			
R_2	6.96	6.67			

S.E. of any marginal mean = 0.52 tons/ac.
 S.E. of body of any table = 0.74 tons/ac.

Crop :- Sugarcane.**Ref :- U.P. 55(260).****Zone :- Walterganj (Basti, c.f.).****Type :- 'C'.**

Object :—To study the effect of spacings and dipping of setts in phenol on Sugarcane.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) *Sanai*. (c) N.A. (ii) Sandy loam. (iii) 40 lb./ac. of N as G.M. (*sanai*)+20 lb/ac. of N as Castor cake. (iv) CO. 395. (v) (a) 7 ploughings. (b) and (c) N.A. (d) As per treatments. (e) N.A. (vi) 19 to 21.3.1955. (vii) Irrigated. (viii) 4 hoeings. (ix) N.A. (x) 27 and 28.2.1956.

2. TREATMENTS :

Same as in expt. no. 55(261) above.

3. DESIGN :(i) and (ii) R.B.D. with 4 replications. (iii) (a) $60' \times 30'$. (b) $54' \times 24'$. (iv) Yes.**4. GENERAL :**

(i) and (ii) N.A. (iii) Yield of sugarcane. (iv) (a) N.A. (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 13.04 tons/ac. (ii) 3.60 tons/ac. (iii) Interaction S×T alone is significant. (iv) Av. yield of sugarcane in tons/ac.

	S ₁	S ₂	Mean	R ₁	R ₂
T ₁	16.38	11.39	13.88	13.28	14.49
T ₂	11.83	12.55	12.19	11.93	12.45
Mean	14.10	11.97	13.04	12.60	13.48
R ₁	13.57	11.64			
R ₂	14.65	12.30			

S.E. of any marginal mean = 0.90 tons/ac.

S.E. of body of any table = 1.27 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 55(300).

Zone :- Bijnor (Bijnor, c.f.).

Type :- 'M'.

Object :—To study the effect of spacings and seed rates on the yield of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) *Sanai*. (c) Nil. (ii) Loam. (iii) G.M. (*sanai*) + 200 {m³}/ac. of F.Y.M. + 175 m³./ac. of press mud + 2 m³./ac. of A/S + 3 m³./ac. of manure mixture. (iv) CO.S. 245 (improved). (v) 10 ploughings. (b) Flat planting. (c) and (d) As per treatments. (e) N.A. (vi) 3.3.1955. (vii) Irrigated. (viii) 4 hoeings by spade, 1 hoeing by cultivator and 1 earthing. (ix) 36%. (x) 26.1.1956 to 31.1.1956.

2. TREATMENTS :

Same as in expt. no. 55(292) on page 1161.

3. DESIGN :

(i) and (ii) R.B.D. with 6 replications. (ii) (a) 72'×30'. (b) 66'×24' for C₁ and 66'×26' for C₂ and C₃. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Germination %, no. of tillers and yield of sugarcane. (iv) (a) 1955—1957. (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 28.55 tons/ac. (ii) 1.72 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	C ₁	C ₂	C ₃
Av. yield	28.96	27.04	29.65

S.E./mean = 0.70 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 56(325).

Zone :- Bijnor (Bijnor, c.f.).

Type :- 'C'.

Object :— To study the effect of spacings and seed rates on the yield of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Loam. (iii) N.A. (iv) CO.S. 245 (improved). (v) (a) N.A. (b) Flat planting. (c) and (d) As per treatments. (e) N.A. (vi) 12 and 14.3.1956. (vii) Irrigated. (viii) and (ix) N.A. (x) 31.1.1957 and 1.2.1957.

2. TREATMENTS :

Same as in expt. no. 55(292) on page 1161.

3. DESIGN :

(i) and (ii) R.B.D. with 6 replications. (iii) (a) 72'×30'. (b) 66'×24' for C₁ and 66'×26' for C₂ and C₃. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Germination % and yield of sugarcane. (iv) (a) 1955—1957. (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 21.52 tons/ac. (ii) 1.70 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	C ₁	C ₂	C ₃
Av. yield	20.95	22.36	21.25

S.E./mean = 0.70 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 57(237).

Zone :- Bijnor (Bijnor, c.f.).

Type :- 'C'.

Object :— To study the effect of different spacings and different seed rates on the yield of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) *Sanai*. (c) N.A. (ii) Sandy loam. (iii) 200 mds./ac. of compost. (iv) CO.S. 245. (v) (a) 8 ploughings by *desi* plough and 8 harrowings with tractor. (b) Flat planting. (c) and (d) As per treatments. (e) N.A. (vi) 22.2.1957. (vii) Irrigated. (viii) to (x) N.A.

2. TREATMENTS :

Same as in expt. no. 55(292) on page 1161.

3. DESIGN :

(i) and (ii) R.B.D. with 6 replications. (iii) (a) 72'×24'. (b) 66'×20'. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of sugarcane. (iv) (a) 1955—1957. (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 21.30 tons/ac. (ii) 2.17 tons/ac. (iii) Treatment differences are significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	C ₁	C ₂	C ₃
Av. yield	19.55	23.42	20.94

S.E./mean = 0.89 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 55(291).

Zone :- Dhampur (Bijnor c.f.).

Type :- 'C'.

Object :— To study the effect of spacings and seed rates on the yield of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Paddy. (c) N.A. (ii) Loam. (iii) 250 mds./ac. of compost + 1 md./ac. of manure mixture + 2 mds./ac. of A/S. (iv) CO.S. 321 (improved). (v) (a) 6 ploughings by tractor, 4 harrowings by tractor and 3 plankings. (b) Flat planting. (c) and (d) As per treatments. (e) N.A. (vi) 3.3.1955. (vii) Irrigated. (viii) 2 hoeings, 1 weeding and binding of cane. (ix) 32". (x) 17.2.1956 to 4.3.1956.

2. TREATMENTS :

Same as in expt. no. 55(292) on page 1161.

3. DESIGN :

(i) and (ii) R.B.D. with 6 replications. (iii) (a) 72' × 30'. (b) 66' × 24' for C₁ and 66' × 26' for C₂ and C₃. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Germination %, no. of tillers, millable cane and yield of sugarcane. (iv) (a) 1955—1957. (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 23.02 tons/ac. (ii) 1.31 tons/ac. (iii) Treatment differences are highly significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	C ₁	C ₂	C ₃
Av. yield	23.53	24.87	20.67

S.E./mean = 0.54 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 56(326).

Zone :- Dhampur (Bijnor, c.f.).

Type :- 'C'.

Object :— To study the effect of spacings and seed rates on the yield of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) *Dhaincha*. (c) Nil. (ii) Loam. (iii) G.M. (*dhaincha*). (iv) CO.S. 245. (v) (a) N.A. (b) Flat planting. (c) and (d) As per treatments. (e) N.A. (vi) 4.3.1956. (vii) Irrigated. (viii) N.A. (ix) 32". (x) 19 and 20.3.1957.

2. TREATMENTS :

Same as in expt. no. 55(292) on page 1161.

3. DESIGN :

(i) and (ii) R.B.D. with 6 replications. (iii) (a) 72' × 30'. (b) 66' × 24' for C₁ and 66' × 26' for C₂ and C₃. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of sugarcane. (iv) (a) 1955—1957. (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 25.90 tons/ac. (ii) 2.55 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	C ₁	C ₂	C ₃
Av. yield	24.09	28.12	25.50

S.E./mean = 1.04 tons/ac.

Crop :- Sugarcane.**Ref :- U.P. 57(236).****Zone :- Dhampur (Bijnor, c.f.).****Type :- 'C'.**

Object :—To study the effect of different seed rates and different spacings on the yield of Sugarcane.

1. BASAL CONDITIONS :(i) (a) N.A. (b) *Dhaincha*. (c) N.A. (ii) Light loam. (iii) N.A. (iv) CO.S. 245. (v) (a) and (b) N.A. (c) and (d) As per treatments. (e) N.A. (vi) 23.3.1957. (vii) Irrigated. (viii) to (x) N.A.**2. TREATMENTS :**

Same as in expt. no 55(292) on page 1161.

3. DESIGN :

(i) and (ii) R.B.D. with 6 replications. (iii) (a) 72'×30'. (b) 66'×24'. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of sugarcane. (iv) (a) 1955—1957. (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 18.98 tons/ac. (ii) 2.53 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	C ₁	C ₂	C ₃
Av. yield	18.04	19.62	19.28

S.E./mean = 1.03 tons/ac.

Crop :- Sugarcane.**Ref :- U.P. 55(293).****Zone :- Seohara (Bijnor, c.f.).****Type :- 'C'.**

Object :—To study the effect of spacings and seed rates on the yield of Sugarcane.

1. BASAL CONDITIONS :(i) (a) N.A. (b) *Sanai*. (c) Nil. (ii) Sandy loam. (iii) G.M. (*sanai*) + 200 mds./ac. of press mud. + 2½ mds./ac. of manure mixture with Chlordane + 70 srs./ac of A/S. (iv) (a) CO.S. 321 (improved). (v) (a) 12 ploughings and 6 harrowings. (b) N.A. (c) and (d) As per treatments. (e) N.A. (vi) 28.2.1955. (vii) Irrigated. (viii) 4 hoeings. (ix) and (x) N.A.**2. TREATMENTS :**

Same as in expt. no. 55(292) on page 1161.

3. DESIGN :(i) and (ii) R.B.D. with 6 replications. (iii) (a) 66'×30'. (b) 60'×24' for C₁ and 60'×26' for C₂ and C₃. (iv) Yes.**4. GENERAL :**

(i) Good, crop lodged. (ii) Attack of borer. (iii) Germination %, no. of tillers, millable cane, yield of sugarcane and juice analysis. (iv) (a) 1955—1957. (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 38.49 tons/ac. (ii) 5.62 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	C ₁	C ₂	C ₃
Av. yield	38.36	37.42	39.68

S.E./mean = 2.29 tons/ac.

Crop :- Sugarcane.**Ref :- U.P. 56(327).****Zone :- Seohara (Bijnor, c.f.).****Type :- 'C'.**

Object :—To study the effect of spacings and seed rates on the yield of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) *Sanai*. (c) Nil. (ii) Sandy loam. (iii) 250 mds./ac. of press mud. (iv) CO.S. 245 (improved).
 (v) (a) 13 ploughings and 7 harrowings. (b) Flat planting. (c) and (d) As per treatments. (e) N.A. (vi)
 10.3.1956. (vii) Irrigated. (viii) 5 hoeings, 2 earthings and binding of canes. (ix) 35". (x) 15.2.1957 to
 5.3.1957.

2. TREATMENTS :

Same as in expt. no. 55(292) on page 1161.

3. DESIGN :

(i) and (ii) R.B.D. with 6 replications. (iii) (a) 66'×30'. (b) 60'×24' for C₁ and 60'×26' for C₂ and C₃.
 (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Germination %, no. of tillers, millable cane, yield of sugarcane and juice analysis. (iv)
 (a) 1955—1957. (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 30.92 tons/ac. (ii) 1.73 tons/ac. (iii) Treatment differences are highly significant. (iv) Av. yield of sugar-
 cane in tons/ac.

Treatment	C ₁	C ₂	C ₃
Av. yield	33.03	30.94	28.79

S.E./mean = 0.71 tons/ac.

Crop :- Sugarcane.**Ref :- U.P. 57(255).****Zone :- Seohara (Bijnor, c.f.).****Type :- 'C'.**

Object :—To study the effect of different spacings and different seed rates on Sugarcane.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) *Sanai*. (c) N.A. (ii) Sandy loam. (iii) 250 mds. of press mud. + 1 md./ac. of A/S+2½ mds./ac.
 of cake. (iv) CO.S. 2+5. (v) (a) and (b) N.A. (c) and (d) As per treatments. (e) N.A. (vi) 22.2.1957.
 (vii) Irrigated. (viii) to (x) N.A.

2. TREATMENTS :

Same as in expt. no. 55(292) on page 1161.

3. DESIGN :

(i) and (ii) R.B.D. with 6 replications. (iii) (a) 72'×30'. (b) 60'×24' for C₁ and 60'×26' for C₂ and C₃.
 (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of sugarcane. (iv) (a) 1955—1957. (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 23.20 tons/ac. (ii) 3.24 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugar-
 cane in tons/ac.

Treatment	C ₁	C ₂	C ₃
Av. yield	25.14	21.32	23.14

S.E./mean = 1.32 tons/ac.

Crop :- Sugarcane.**Ref :- U.P. 59(76).****Zone :- Bulandshahr (Bulandshahr, c.f.).****Type :- 'C'.**

Object :—To study the effect of different times of planting of Sugarcane with and without an inter-crop.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Maize. (c) N.A. (ii) Sandy loam. (iii) 1 md./ac. of Super+15 srs./ac. of A/S+chlordan at 8 lb./ac. (iv) CO. 421 (improved). (v) (a) 5 ploughings. (b) Flat planting. (c) 65 (3 budded) setts/row. (d) and (e) N.A. (vi) 17.10.1959 and 26.3.1960. (vii) to (ix) N.A. (x) 23, 24, 28, 29.1.1961.

TREATMENTS :

6 cultural treatments : C_1 =Autumn planted sugarcane, C_2 = C_1 +gram as inter-crop, C_3 = C_1 +pea as inter-crop, C_4 =Spring planted sugarcane, C_5 = C_4 after gram and C_6 = C_4 after pea.

3. DESIGN :

(i) and (ii) R.B.D. with 4 replications. (iii) (a) 63'×30'. (b) 57'×24'. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Germination%, no. of tillers, yield of sugarcane and juice analysis. (iv) (a) 1959—N.A. (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 27.93 tons/ac. (ii) 3.46 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac

Treatment	C_1	C_2	C_3	C_4	C_5	C_6
Av. yield	26.70	30.69	25.54	27.47	28.93	28.22

S.E./mean = 1.73 tons/ac.

Crop :- Sugarcane.**Ref :- U.P. 59(72).****Zone :- Doiwala (Dehra Dun, c.f.).****Type :- 'C'.**

Object :—To study the effect of different times of planting of Sugarcane with and without an inter-crop.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) *Sanai*. (c) Nil. (ii) Sandy loam. (iii) N.A. (iv) CO. 421 (improved). (v) (a) N.A. (b) Trench planting. (c) 75 (3 budded) setts/row. (d) 3' between rows. (e) N.A. (vi) 19.10.1959, 11 and 12.2.1960. (vii) to (ix) N.A. (x) 12 and 13.1.1961.

2. TREATMENTS :

Same as in expt. no. 59(76) above.

3. DESIGN :

(i) and (ii) R.B.D. with 4 replications. (iii) (a) 73'×24'. (b) 67'×18'. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Germination %, no. of tillers, juice analysis and yield of sugarcane. (iv) (a) 1959—N.A. (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 15.80 tons/ac. (ii) 3.89 tons/ac. (iii) Treatment differences are significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	C_1	C_2	C_3	C_4	C_5	C_6
Av. yield	19.35	16.27	8.27	19.17	15.90	15.84.

S.E./mean = 1.94 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 55(268).

Zone :- Captainganj (Deoria, c.f.).

Type :- 'C'.

Object :—To study the effect of different spacings and dipping of setts in phenol on Sugarcane.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Pea. (c) N.A. (ii) *Bangar*. (iii) 10 mds/ac. of *neem* cake. (iv) CO.S. 443. (v) (a) 4 ploughings. (b) Flat planting. (c) N.A. (d) As per treatments. (e) N.A. (vi) 21.3.1955. (vii) Irrigated. (viii) 3 hoeings. (ix) N.A. (x) 24 to 31.3.1956.

2. TREATMENTS :

All combinations of (1), (2) and (3)

(1) 2 sett treatments : T_1 =Setts dipped in 2% phenol and T_2 =Setts undipped.(2) 2 spacings between setts : $S_1=3'$ and $S_2=2\frac{1}{2}'$.(3) 2 types of setts : R_1 =Normal (single setts) and R_2 =Double setts.

3. DESIGN :

(i) and (ii) R.B.D. with 4 replications. (iii) (a) $40' \times 30'$. (b) $34' \times 24'$ for S_1 and $35' \times 25'$ for S_2 . (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of sugarcane. (iv) (a) and (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 11.37 tons/ac. (ii) 1.17 tons/ac. (iii) Only S effect is significant. (iv) Av. yield of sugarcane in tons/ac.

	S_1	S_2	Mean	R_1	R_2
T_1	10.29	12.42	11.36	11.56	11.15
T_2	9.96	12.80	11.38	10.88	11.88
Mean	10.13	12.61	11.37	11.22	11.52
R_1	10.29	12.15			
R_2	9.97	13.07			

S.E. of any marginal mean = 0.34 tons/ac.

S.E. of body of any table = 0.48 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 55(316).

Zone :- Deoria (Deoria, c.f.).

Type :- 'C'.

Object :—To study the effect of spacings and dipping of setts in phenol on Sugarcane.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Clayey loam. (iii) 50 lb./ac. of N as castor cake and *neem* cake + 15 lb./ac. of N as A/S top dressed. (iv) CO.S. 443. (v) (a) 2 ploughings and 2 harrowings by tractor. (b) Flat planting. (c) N.A. (d) As per treatments. (e) N.A. (vi) 22.3.1955. (vii) Irrigated. (viii) 2 hoeings by *kudali*. (ix) N.A. (x) 15.3.1956.

2. TREATMENTS :

Same as in expt. no. 55(268) above.

3. DESIGN :

(i) and (ii) R.B.D. with 3 replications. (iii) (a) $56' \times 30'$. (b) $50' \times 24'$ for S_1 and $51' \times 25'$ for S_2 . (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of sugarcane. (iv) (a) 1955—N.A. (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 16.58 tons/ac. (ii) 2.83 tons/ac. (iii) Only main effect of T is significant. (iv) Av. yield of sugarcane in tons/ac.

	S ₁	S ₂	Mean	R ₁	R ₂
T ₁	15.00	15.63	15.32	14.76	18.87
T ₂	19.67	16.04	17.85	16.46	19.23
Mean	17.34	15.83	16.58	15.61	17.55
R ₁	17.00	14.22			
R ₂	17.67	17.44			

S.E. of any marginal mean = 0.82 tons/ac.

S.E. of body of any table = 1.16 tons ac.

Crop :- Sugarcane.

Ref :- U.P. 55(221).

Zone :- Deoria (Deoria, c.f.).

Type :- 'C'.

Object :—To study the effect of different spacings and dipping of setts in phenol on Sugarcane.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Fallow. (c) Nil. (ii) Sandy loam. (iii) 40 lb./ac. of N as press mud+40 lb./ac. of N as A/S+castor cake+40 lb./ac. of N as A/S top dressed. (iv) CO.S. 443. (v) (a) 1 ploughing. (b) Trench planting (c) N.A. (d) As per treatments. (e) N.A. (vi) 20 and 21.3.1955. (vii) Irrigated. (viii) and (ix) N.A. (x) 4.3.1956.

2. TREATMENTS :

Same as in expt. no, 55(268) on page 1170.

3. DESIGN :

(i) and (ii) R.B.D. with 3 replications. (iii) (a) 54'×30'. (b) 48'×24' for S₁ and 49'×25' for S₂. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of sugarcane. (iv) (a) 1955—N.A. (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 13.35 tons/ac. (ii) 1.96 tons/ac. (iii) Interaction T×S×R alone is highly significant. (iv) Av. yield of sugarcane in tons/ac.

	S ₁	S ₂	Mean	R ₁	R ₂
T ₁	13.04	13.29	13.17	13.18	13.15
T ₂	13.05	14.01	13.53	12.25	14.82
Mean	13.05	13.65	13.35	12.71	13.99
R ₁	12.29	13.13			
R ₂	13.80	14.16			

S.E. of any marginal mean = 0.57 tons/ac.

S.E. of body of any table = 0.80 tons/ac.

Crop :- Sugarcane.**Ref :- U.P. 56(337).****Zone :- Deoria (Deoria, c.f.).****Type :- 'C'.**

Object :—To study the effect of spacings and dipping of setts in phenol on Sugarcane.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Pea. (c) N.A. (ii) *Bhat* soil. (iii) 231 mds. of compost + 4 mds. of G.N.C. + 4½ mds. of castor cake. (iv) CO.S. 443. (v) (a) 4 ploughings. (b) Flat planting. (c) N.A. (d) As per treatments. (e) N.A. (vi) 5 to 17.3.1956. (vii) Unirrigated. (viii) 6 hoeings by *kudali*. (ix) N.A. (x) 19.3.1957.

2. TREATMENTS :

Same as in expt. no. 55(268) on page 1170.

3. DESIGN :(i) and (ii) R.B.D. with 2 replications. (iii) (a) 80' × 30'. (b) 74' × 24' for S₁ and 75' × 25' for S₂. (iv) Yes.**4. GENERAL :**

(i) and (ii) N.A. (iii) Yield of sugarcane. (iv) (a) 1955—N.A. (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 17.50 tons/ac. (ii) 2.41 tons/ac. (iii) Main effects of R and S are highly significant. (iv) Av. yield of sugarcane in tons/ac

	S ₁	S ₂	Mean	R ₁	R ₂
T ₁	17.07	19.11	18.09	16.69	19.49
T ₂	15.39	18.44	16.91	15.29	18.53
Mean	16.23	18.77	17.50	15.99	19.01
R ₁	14.78	17.20			
R ₂	17.68	20.35			

S.E. of any marginal mean = 0.85 tons/ac.

S.E. of body of any table = 1.70 tons/ac.

Crop :- Sugarcane.**Ref :- U.P. 54(265).****Zone :- Gauri bazar (Deoria, c.f.).****Type :- 'C'.**

Object :—To study the effect of different spacings and dipping of setts in phenol on Sugarcane.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) *Sanai*. (c) N.A. (ii) Clay loam. (iii) 80 lb./ac. of N as mixture of A/S and castor cake + 40 lb./ac. of N as G.M. (*sanai*). (iv) CO.S. 443. (v) (a) 2 ploughings and 1 harrowing by tractor. (b) and (c) N.A. (d) As per treatments. (e) N.A. (vi) 8.3.1954. (vii) Irrigated. (viii) and (ix) N.A. (x) 1.4.1955.

2. TREATMENTS :

All combinations of (1), (2) and (3)

(1) 2 sett treatments : T₁ = Setts dipped in 2% phenol and T₂ = Setts undipped.(2) 2 spacings between setts : S₁ = 3' and S₂ = 2½'.(3) 2 types of setts : R₁ = Normal (single setts) and R₂ = Double setts.**3. DESIGN :**(i) and (ii) R.B.D. with 3 replications. (iii) (a) 60' × 30'. (b) 54' × 24' for S₁ and 55' × 25' for S₂. (iv) Yes.**4. GENERAL :**

(i) and (ii) N.A. (iii) Yield of sugarcane. (iv) (a) 1954—N.A. (b) [No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 31.16 tons/ac. (ii) 1.58 tons/ac. (iii) Only R effect is significant. (iv) Av. yield of sugarcane in tons./ac.

	S ₁	S ₂	Mean	R ₁	R ₂
T ₁	31.63	31.75	31.69	30.70	32.69
T ₂	29.90	31.35	30.63	29.84	31.41
Mean	30.76	31.55	31.16	30.27	32.05
R ₁	29.50	31.04			
R ₂	32.03	32.06			

S.E. of any marginal mean = 0.46 tons/ac.
S.E. of body of any table = 0.65 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 55(222).

Zone :- Gauri bazar (Deoria, c f.).

Type :- 'C'.

Object :- To study the effect of different spacings and dipping of setts in phenol on Sugarcane.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) *Sanai*. (c) Nil. (ii) Clay loam. (iii) 80 lb./ac. of N as press mud+40 lb./ac. of N as A/S top-dressed. (iv) CO.S. 443. (v) (a) 4 ploughings and 1 harrowing by tractor. (b) Trench planting. (c) N.A. (d) As per treatments. (e) N.A. (vi) 15 and 19.3.1955. (vii) Irrigated. (viii) 8 hoeings and 1 earthing by *kudali*. (ix) N.A. (x) 4.3.1956.

2. TREATMENTS to 4. GENERAL :

Same as in expt. no. 54(265) on page 1172.

5. RESULTS :

(i) 22.82 tons/ac. (ii) 1.36 tons/ac. (iii) Only R effect is highly significant. (iv) Av. yield of sugarcane in tons/ac.

	S ₁	S ₂	Mean	R ₁	R ₂
T ₁	22.69	22.74	22.72	21.35	24.08
T ₂	22.84	22.99	22.92	21.23	24.61
Mean	22.77	22.87	22.82	21.29	24.35
R ₁	21.19	21.39			
R ₂	24.34	24.35			

S.E. of any marginal mean = 0.39 tons/ac.
S.E. of body of any table = 0.55 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 55(270).

Zone :- Gauri bazar (Deoria, c.f.).

Type :- 'C'.

Object :- To study the effect of different spacings and dipping of setts in phenol on Sugarcane.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) *Sanai*. (c) N.A. (ii) Sandy loam. (iii) 60 lb./ac. of N as press mud+30 lb./ac. of N as A/S top dressed. (iv) CO.S 443. (v) (a) 3 ploughings by tractor. (b) and (c) N.A. (d) As per treatments. (e) N.A. (vi) 7.4.1955. (vii) Irrigated. (viii) and (ix) N.A. (x) 8.3.1955.

2. TREATMENTS to 4. GENERAL :

Same as in expt. no. 54(265) on page 1172.

5. RESULTS :

(i) 28.29 tons/ac. (ii) 0.58 tons/ac. (iii) Main effects of R, S and interaction R×S are significant. (iv) Av. yield of sugarcane in tons/ac.

	S ₁	S ₂	Mean	R ₁	R ₂
T ₁	29.68	26.84	28.26	27.74	28.78
T ₂	29.66	26.98	28.32	27.81	28.83
Mean	29.67	26.91	28.29	27.78	28.80
R ₁	28.83	26.72			
R ₂	30.50	27.10			

S.E. of any marginal mean = 0.17 tons/ac.
S.E. of body of any table = 0.24 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 56(349).

Zone :- Gauri bazar (Deoria, c.f.).

Type :- 'C'.

Object :- To study the effect of different spacings and dipping of setts in phenol on Sugarcane.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) G.M. crop. (c) N.A. (ii) N.A. (iii) G.M. applied. (iv) CO.S. 443. (v) (a) 3 ploughings by tractor. (b) and (c) N.A. (d) As per treatments. (e) N.A. (vi) 21 and 22.3.1956. (vii) Irrigated. (viii) 6 hoeings. (ix) N.A. (x) 11.2.1957.

2. TREATMENTS to 4. GENERAL :

Same as in expt. no. 54(265) on page 1172.

5. RESULTS :

(i) 17.46 tons/ac. (ii) 2.40 tons/ac. (iii) None of the effects is significant. (iv) Av. yield of sugarcane in tons/ac.

	S ₁	S ₂	Mean	R ₁	R ₂
T ₁	17.62	18.20	17.91	16.80	19.02
T ₂	17.40	16.61	17.01	16.16	17.86
Mean	17.51	17.41	17.46	16.48	18.44
R ₁	16.76	16.20			
R ₂	18.26	18.62			

S.E. of any marginal mean = 0.69 tons/ac.
S.E. of body of any table = 0.98 tons/ac.

Crop :- Sugarcane.**Ref :- U.P. 55(266).****Zone :- Gauri bazar (Deoria, c.f.).****Type :- 'C'.**

Object :—To study the effect of growing different crops in rotation and as inter-crop on the yield of Sugarcane planted at different dates.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) As per treatments. (c) N.A. (ii) Sandy loam. (iii) 40 lb./ac. of N as A/S top dressed. (iv) CO.S. 416. (v) (a) 1 ploughing and 2 harrowings by tractor. (b) Trench planting. (c) to (e) N.A. (vi) 20.10.1954, 24.1.1955 and 24.3.1955. (vii) Irrigated. (viii) 10 hoeings and 1 earthing. (ix) N.A. (x) 29.2.1956.

2. TREATMENTS :

6 crop rotations : T_1 =Paddy—Fallow—Sugarcane (January planting), T_2 =Paddy+*Dhaincha*—Fallow—Sugarcane (January planting), T_3 =Paddy+*Dhaincha*—Pea+Sugarcane (October planting), T_4 =Paddy+*Dhaincha*—Gram+Sugarcane (October planting), T_5 =Paddy—Pea—Sugarcane (March planting) and T_6 =Paddy—Gram—Sugarcane (March planting).

3. DESIGN :

(i) and (ii) R.B.D. with 4 replications. (iii) (a) 60'×27'. (b) 54'×21'. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of sugarcane. (iv) (a) 1955—N.A. (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 15.03 tons/ac. (ii) 1.30 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	T_1	T_2	T_3	T_4	T_5	T_6
Av. yield	15.43	15.81	13.90	15.55	14.39	15.07

S.E./mean = 0.65 tons/ac.

Crop :- Sugarcane.**Ref :- U.P. 56(334).****Zone :- Gauri bazar (Deoria, c.f.).****Type :- 'C'.**

Object :—To study the effect of mechanical control of shoot borers on Sugarcane.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Sandy loam. (iii) N.A. (iv) CO. S. 416. (v) and (vi) N.A. (vii) Irrigated. (viii) to (x) N.A.

2. TREATMENTS :

2 cultural treatments : T_0 =Control (no treatment) and T_1 =Removal of affected shoots one to two inches below the ground level.

3. DESIGN :

(i) and (ii) R.B.D. with 6 replications. (iii) (a) 80'×27'. (b) 74'×21'. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Millable canes and yield of sugarcane. (iv) (a) and (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 14.22 tons/ac. (ii) 0.50 tons/ac. (iii) Treatment difference is highly significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	T_0	T_1
Av. yield	14.91	13.52

S.E./mean = 0.20 tons/ac.

Crop :- Sugarcane.**Ref :- U.P. 55(271).****Zone :- Khadda (Deoria, c.f.).****Type :- 'C'.**

Object :—To study the effect of different spacings and dipping of setts in phenol on the yield of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Paddy. (c) N.A. (ii) Loam. (iii) 16 mds./ac. of castor cake+152 srs/ac. of mixture of neem cake and A/S. (iv) CO. 356. (v) (a) 8 ploughings and 1 harrowing. (b) Flat planting. (c) N.A. (d) As per treatments. (e) N.A. (vi) 22.3.1955. (vii) N.A. (viii) 2 hoeings. (ix) N.A. (x) 27.2.1956.

2. TREATMENTS :

Same as in expt. no. 54(265) on page 1172.

3. DESIGN :(i) and (ii) R.B.D. with 4 replications. (iii) (a) 60'×30'. (b) 54'×24' for S₁ and 55'×25' for S₂. (iv) Yes.**4. GENERAL :**

(i) and (ii) N.A. (iii) Yield of sugarcane. (iv) (a) 1955—N.A. (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 7.16 tons/ac. (ii) 2.45 tons/ac. (iii) None of the effects is significant. (iv) Av. yield of sugarcane in tons/ac.

	S ₁	S ₂	Mean	R ₁	R ₂
T ₁	6.89	7.33	7.11	7.44	6.78
T ₂	6.06	8.35	7.20	7.05	7.35
Mean	6.48	7.84	7.16	7.25	7.07
R ₁	7.28	7.22			
R ₂	5.68	8.46			

S.E. of any marginal mean = 0.61 tons/ac.

S.E. of body of any table = 0.87 tons/ac.

Crop :- Sugarcane.**Ref :- U.P. 55(321).****Zone :- Lakshmiganj (Deoria, c.f.).****Type :- 'C'.**

Object :—To study the effect of spacing and dipping of setts in phenol on the yield of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Paddy. (c) N.A. (ii) *Bhat* soil. (iii) 9 mds./ac. of castor cake+12 srs/ac. of A/S. (iv) CO. 513. (v) (a) 5 ploughings. (b) and (c) N.A. (d) As per treatments. (e) N.A. (vi) N.A. (vii) Irrigated. (viii) 4 hoeings. (ix) and (x) N.A.

2. TREATMENTS :

Same as in expt. no. 54(265) on page 1172.

3. DESIGN :(i) and (ii) R.B.D. with 3 replications. (iii) (a) 70'×30'. (b) 64'×24' for S₁ and 65'×25' for S₂. (iv) Yes.**4. GENERAL :**

(i) and (ii) N.A. (iii) Sugarcane yield. (iv) (a) and (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 6.70 tons/ac. (ii) 1.44 tons/ac. (iii) None of the effects is significant. (iv) Av. yield of sugarcane in tons/ac.

	S ₁	S ₂	Mean	R ₁	R ₂
T ₁	6.94	6.59	6.76	6.36	7.16
T ₂	6.08	7.21	6.64	5.96	7.33
Mean	6.51	6.90	6.70	6.16	7.24
R ₁	5.88	6.45			
R ₂	7.14	7.35			

S.E. of any marginal mean = 0.42 tons/ac.

S.E. of body of any table = 0.59 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 55(312).

Zone :- Padrauna (Deoria, c.f.).

Type :- 'C'.

Object :—To study the effect of different spacings and dipping of setts in phenol on the yield of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) and (b) Pea. (c) N.A. (ii) *Bangar*. (iii) 10 mds./ac. of *neem* cake+2 mds./ac. of A/S. (iv) CO. 395. (v) (a) 3 ploughings. (b) Flat planting. (c) N.A. (d) As per treatments. (e) N.A. (vi) 30.3.1955. (vii) Irrigated. (viii) 3 hoeings. (ix) and (x) N.A.

2. TREATMENTS :

Same as in expt. no. 54(265) on page 1172.

3. DESIGN :

(i) and (ii) R.B.D. with 4 replications. (iii) (a) and (b) 65'×30'. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of sugarcane. (iv) (a) 1955—N.A. (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 9.89 tons/ac. (ii) 2.19 tons/ac. (iii) R effect alone is highly significant. (iv) Av. yield of sugarcane in tons/ac.

	S ₁	S ₂	Mean	R ₁	R ₂
T ₁	9.16	9.80	9.48	8.04	10.91
T ₂	9.46	11.17	10.31	9.40	11.23
Mean	9.31	10.48	9.89	8.72	11.07
R ₁	8.44	9.00			
R ₂	10.18	11.96			

S.E. of any marginal mean = 0.55 tons/ac.

S.E. of body of any table = 0.77 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 55(313).

Zone :- Padrauna (Deoria, c.f.).

Type :- 'C'.

Object :—To study the effect of different spacings and dipping of setts in phenol on the yield of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) and (b) Fallow. (c) Nil. (i) *Bangar*. (iii) 23 mds./ac. of castor cake. (iv) CO.S. 109. (v) (a) 2 ploughings by tractor. (b) and (c) N.A. (d) As per treatments. (e) N.A. (vi) 17.3.1955. (vii) Irrigated. (viii) 4 hoeings. (ix) N.A. (x) 18.3.1956.

2. TREATMENTS :

Same as in expt. no. 54(265) on page 1172.

3. DESIGN :

(i) and (ii) R.B.D. with 2 replications. (iii) (a) 80' × 30'. (b) 74' × 24' for S₁ and 75' × 25' for S₂. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (i) Yield of sugarcane. (iv) (a) 1955—N.A. (b) No. (c) Nil. (v) N.A. (vi) and (vii) N⁵.

5. RESULTS :

(i) 5.94 tons/ac. (ii) 1.16 tons/ac. (iii) None of the effects is significant. (iv) Av. yield of sugarcane in tons/ac.

	S ₁	S ₂	Mean	R ₁	R ₂
T ₁	6.52	5.64	6.08	6.14	6.02
T ₂	5.11	6.48	5.80	6.38	5.21
Mean	5.82	6.06	5.94	6.26	5.62
R ₁	5.66	6.86			
R ₂	5.97	5.26			

S.E. of any marginal mean = 0.41 tons/ac.

S.E. of body of any table = 0.58 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 56(297).

Zone :- Neoli (Etah, c.f.).

Type :- 'C'.

Object :- To study the effect of mixed cropping in Sugarcane planted at different dates.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Sandy loam. (iii) to (v) N.A. (vi) As per treatments. (vii) Irrigated. (viii) and (ix) N.A. (x) 4 and 6.1.1957.

2. TREATMENTS :

4 cultural treatments : T₁—Sugarcane (autumn planting), T₂—Sugarcane (autumn planting) with pea, T₃—Sugarcane (spring planting) after harvesting of pea and T₄—Sugarcane (spring planting).

3. DESIGN :

(i) and (ii) R.B.D. with 4 replications. (iii) (a) 64' × 21'. (b) 58' × 15' (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of sugarcane and juice analysis. (iv) (a) 1956—1958. (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 18.06 tons/ac. (ii) 2.13 tons/ac. (iii) Treatment differences are significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	T ₁	T ₂	T ₃	T ₄
Av. yield	19.67	16.44	15.23	20.90

S.E./mean = 1.06 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 57(241).

Zone :- Neoli (Etah, c.f.).

Type :- 'C'.

Object :—To study the effect of mixed cropping in Sugarcane planted at different dates.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) *Dhaincha*. (c) N.A. (ii) Sandy loam. (iii) 15 C.L./ac. of F.Y.M. (iv) CO.S. 510. (v) (a) 4 ploughings with tractor, 3 ploughings with *neoli* plough and 2 harrowings with tractor. (b) to (e) N.A. (vi) As per treatments. (vii) Irrigated. (viii) 6 hoeings. (ix) N.A. (x) 22 and 23.2.1958.

2. TREATMENTS to 4. GENERAL :

Same as in expt. no. 56(297) on page 1178.

5. RESULTS :

(i) 16.62 tons/ac. (ii) 0.79 tons/ac. (iii) Treatment differences are highly significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	T ₁	T ₂	T ₃	T ₄
Av. yield	16.53	17.17	15.09	17.71

S.E./mean = 0.39 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 58(288).

Zone :- Neoli (Etah, c.f.).

Type :- 'C'.

Object :—To study the effect of mixed cropping in Sugarcane planted at different dates.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) *Dhaincha*. (c) N.A. (ii) Sandy loam. (iii) Compost at 200 mds./ac.+1 md./ac. of A/S+1 md./ac of Urea. (iv) CO.S. 510. (v) (a) 5 ploughings with *neoli* plough, 1 ploughing by tractor and 2 harrowings by tractor. (b) to (e) N.A. (vi) As per treatments. (vii) Irrigated. (viii) 2 hoeings with cultivator and 3 hoeings with spade. (ix) N.A. (x) 16.1.1959.

2. TREATMENTS to 4. GENERAL :

Same as in expt. no. 56(297) on page 1178.

5. RESULTS :

(i) 22.76 tons/ac. (ii) 2.75 tons/ac. (iii) Treatment differences are highly significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	T ₁	T ₂	T ₃	T ₄
Av. yield	28.57	25.39	16.63	20.46

S.E./mean = 1.38 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 57(234).

Zone :- Neoli (Etah, c.f.).

Type :- 'C'.

Object :—To study the effect of different seed rates and spacings on the yield of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) *Sanai*. (c) N.A. (ii) N.A. (iii) 10 C.L./ac. of F.Y.M. (iv) CO.S. 510. (v) (a) 10 ploughings with tractor. (b) N.A. (c) and (d) As per treatments. (e) N.A. (vi) N.A. (vii) Irrigated. (viii) 1 hoeing. (ix) and (x) N.A.

2. TREATMENTS :

3 cultural treatments: $C_1=3'$ spacing between rows with one sett per running foot of row length, $C_2=2'$ spacing between rows with one sett running per foot of row length and $C_3=2'$ spacing between rows with one sett per $1\frac{1}{2}'$ of row length.

3. DESIGN :

(i) and (ii) R.B.D. with 6 replications. (iii) (a) $72' \times 24'$. (b) $66' \times 18'$. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (i) Yield of sugarcane. (iv) (a) and (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 29.81 tons/ac. (i) 1.33 tons/ac. (iii) Treatment differences are highly significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	C_1	C_2	C_3
Av. yield	26.55	28.84	34.06

S.E./mean = 0.54 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 55(265).

Zone :- Masodha (Faizabad, c.f.).

Type :- 'C'.

Object :- To study the effect of growing different crops in rotation and as inter-crop with Sugarcane planted at different dates.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) As per treatments. (c) N.A. (ii) Loam. (iii) Compost at 60 lb./ac. of N+G.N.C.+A/S at 28 lb./ac. of N. (iv) CO.S. 443. (v) (a) 4 ploughings by *praja* plough and 3 by *desi* plough. (b) Flat planting. (c) N.A. (d) 3' between rows. (e) N.A. (vi) As per treatments. (vii) Irrigated. (viii) 4 hoeings by *kudali* and 3 hoeings by cultivator. (ix) N.A. (x) 1 and 2.2.1956.

2. TREATMENTS :

Same as in expt. no. 55(266) on page 1175.

3. DESIGN :

(i) and (ii) R.B.D. with 4 replications. (iii) (a) $65' \times 27'$. (b) $59' \times 21'$. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of sugarcane. (iv) (a) 1955. (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 9.42 tons/ac. (ii) 2.24 tons/ac. (iii) Treatment differences are highly significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	R_1	R_2	R_3	R_4	R_5	R_6
Av. yield	13.81	13.33	11.87	11.99	2.82	2.70

S.E./mean = 1.12 tons/ac.

Crop :- Sugarcane.**Ref :- U.P. 54(274).****Zone :- Masodha (Faizabad, c.f.).****Type :- 'C'.**

Object :— To study the effect of different spacings and dipping of setts in phenol on the yield of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Fallow. (c) N.A. (ii) Loam. (iii) 70 lb./ac. of N as press mud compost+50 lb./ac. of N as A/S. (iv) CO.S. 443. (v) (a) 1 ploughing and 3 harrowings. (b) Flat planting. (c) N.A. (d) As per treatments. (e) N.A. (vi) 16 and 17.3.1954. (vii) Irrigated. (viii) 5 hoeings. (ix) N.A. (x) 7, 8, 10 and 1.4.1955.

2. TREATMENTS :**Main-plot treatments :**2 spacings between setts : $S_1=3'$ and $S_2=2\frac{1}{2}'$.**Sub-plot treatments :**

All combination of (1) and (2)

(1) 2 sett treatments : T_1 =Setts dipped in 2% phenol and T_2 =Setts undipped.(2) 2 types of setts : R_1 =Normal (single setts) and R_2 =Double setts.**3. DESIGN :**

(i) and (ii) Split-plot with 2 main-plots/replication, 4 sub-plots/main-plot and 3 replications. (iii) $30' \times 62'$. (b) $56' \times 24'$ for S_1 and $56' \times 25'$ for S_2 . (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of sugarcane. (iv) (a) 1954—1955. (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 24.79 tons/ac. (ii) (a) 0.80 tons/ac. (b) 1.63 tons/ac. (iii) Main effects of S, T and R are highly significant. (iv) Av. yield of sugarcane in tons/ac.

	S_1	S_2	Mean	R_1	R_2
T_1	26.25	27.96	27.10	24.77	29.44
T_2	20.46	24.50	22.48	19.92	25.04
Mean	23.36	26.23	24.79	22.34	27.24
R_1	20.64	24.05			
R_2	26.07	28.40			

S.E. of difference of two

1. S marginal means = 0.33 tons/ac.
2. R or T marginal means = 0.66 tons/ac.
3. R or T means at the same level of S = 0.94 tons/ac.
4. S means at the same level of R or T = 0.74 tons/ac.

Crop :- Sugarcane.**Ref :- U.P. 55(223).****Zone :- Masodha (Faizabad, c.f.).****Type :- 'C'.**

Object :— To study the effect of different spacings and dipping of setts in phenol on the yield of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) *Dhaincha*. (c) N.A. (ii) Loam. (iii) 40 lb./ac. of N as *dhaincha* G.M.+40 lb./ac. of N as press mud compost+30 lb./ac. of N as G.N.C.+16 lb./ac. of N as A/S. (iv) CO.S. 443 (improved). (v) (a) 4 disc harrowings by tractor and 3 ploughings by *desi* plough. (b) Flat planting. (c) N.A. (d) As per treatments. (e) N.A. (vi) 17 to 19.3.1955. (vii) Irrigated. (viii) and (ix) N.A. (x) 17, 18, 22 and 23.3.1956.

2. TREATMENTS :

All combinations of (1), (2) and (3)

(1) 2 sett treatments : T_1 =Setts dipped in 2% phenol and T_2 =Setts undipped.

(2) 2 types of setts : R_1 =Normal setts (single setts) and R_2 =Double setts.

(3) 2 spacings of setts : S_1 =3' and S_2 =2½'.

3. DESIGN :

(i) and (ii) R.B.D. with 3 replications. (iii) (a) 53' × 30'. (b) 47' × 24' for S_1 and 47' × 25' for S_2 . (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of sugarcane. (iv) (a) 1954-1955. (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 12.93 tons/ac. (ii) 1.41 tons/ac. (iii) Only R effect is highly significant. (iv) Av. yield of sugarcane in tons/ac.

	R_1	R_2	Mean	S_1	S_2
T_1	11.80	14.81	13.30	13.21	13.39
T_2	11.74	13.38	12.56	12.66	12.45
Mean	11.77	14.10	12.93	12.94	12.92
S_1	11.88	14.00			
S_2	11.65	14.19			

S.E. of any marginal mean = 0.41 tons/ac.

S.E. of body of any table = 0.58 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 55(314).

Zone :- Balrampur (Gonda, c.f.).

Type :- 'C'.

Object :-To study the effect of different spacings and dipping of setts in phenol on the yield of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) *Sarai*. (c) N.A. (ii) Sandy loam. (iii) 140 mds./ac. of compost+100 mds./ac. of F.Y.M. +30 lb./ac. of P_2O_5 as Super+neem cake+castor cake+A/S. (iv) CO.S. 443. (v) (a) 2 ploughings. (b) Trench planting. (c) N.A. (d) As per treatments. (e) N.A. (vi) 15.3.1955. (vii) Irrigated. (viii) 9 hoeings. (ix) 45°. (x) 6 and 7.2.1956.

2. TREATMENTS :

Same as in expt. no. 55(223) on page 1181.

3. DESIGN :

(i) and (ii) R.B.D. with 4 replications. (iii) (a) and (b) 45' × 30'. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of sugarcane. (iv) (a) and (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 17.28 tons/ac. (ii) 2.04 tons/ac. (iii) Only interaction $T \times S$ is highly significant. (iv) Av. yield of sugarcane in tons/ac.

	R ₁	R ₂	Mean	T ₁	T ₂
S ₁	17.13	17.63	17.38	18.81	15.95
S ₂	16.83	17.53	17.18	14.97	19.39
Mean	16.98	17.58	17.28	16.89	17.67
T ₁	16.15	17.64			
T ₂	17.81	17.53			

S.E. of any marginal mean = 0.51 tons/ac.
 S.E. of body of any table = 0.72 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 55(311).

Zone :- Nawabganj (Gonda, c.f.).

Type :- 'C'.

Object :-To study the effect of different spacings and dipping of setts in phenol on the yield of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) *Sanai*. (c) N.A. (ii) Sandy loam. (iii) G.M. (*sanai*) + 150 mds/ac. of F.Y.M + 10 lb./ac. of N as A/S. (iv) CO.S. 443. (v) (a) 5 ploughings. (b) Flat planting. (c) N.A. (d) As per treatments. (e) N.A. (vi) 16 and 17.3.1955. (vii) Irrigated. (viii) 6 hoeings. (ix) 45". (x) 27 and 28.2.1956.

2. TREATMENTS :

Same as in expt. no. 55(223) on page 1131.

3. DESIGN :

(i) and (ii) R.B.D. with 4 replications. (iii) (a) and (b) 65' x 30'. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of sugarcane. (iv) (a) and (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 16.41 tons/ac. (ii) 1.43 tons/ac. (iii) Only interaction T x R is significant. (iv) Av. yield of sugarcane in tons/ac.

	R ₁	R ₂	Mean	T ₁	T ₂
S ₁	14.24	17.36	15.80	17.89	13.72
S ₂	16.26	17.76	17.01	17.00	17.02
Mean	15.25	17.56	16.41	17.44	15.37
T ₁	14.57	20.32			
T ₂	15.94	14.80			

S.E. of any marginal mean = 0.36 tons/ac.
 S.E. of body of any table = 0.51 tons/ac.

Crop :- Sugarcane.**Ref :- U.P. 55(310).****Zone :- Tulsipur (Gonda, c.f.).****Type :- 'C'.**

Object :—To study the effect of different spacings and dipping of sets in phenol on the yield of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Paddy. (c) N.A. (ii) Clay loam. (iii) 150 mds./ac. of F.Y.M.+32 lb./ac. of N as castor cake+32 lb./ac. of N as A/S+36 lb./ac. of P₂O₅ as Super. (iv) CO.S. 443. (v) (a) 2 ploughings and 2 harrowings. (b) Flat planting. (c) N.A. (d) As per treatments. (e) N.A. (vi) 19 and 20.3.1955. (vii) Irrigated. (viii) 3 hoeings. (ix) N.A. (x) 4 and 5.3.1956.

2. TREATMENTS :

Same as in expt. no. 55(223) on page 1181.

3. DESIGN :

(i) and (ii) R.B.D. with 4 replications. (iii) (a) and (b) 60' × 20'. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (i) Yield of sugarcane. (iv) (a) and (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 16.40 tons/ac. (ii) 4.25 tons/ac. (iii) Main effect of S alone is significant. (iv) Av. yield of sugarcane in tons/ac.

	R ₁	R ₂	Mean	T ₁	T ₂
S ₁	14.03	14.81	14.42	15.03	13.81
S ₂	15.95	20.82	18.38	19.45	17.32
Mean	14.99	17.81	16.40	17.24	15.56
T ₁	17.12	17.36			
T ₂	12.86	18.27			

S.E. of any marginal mean = 1.06 tons/ac.

S.E. of body of any table = 1.50 tons/ac.

Crop :- Sugarcane.**Ref :- U.P. 55(262).****Zone :- Anandnagar (Gorakhpur, c.f.).****Type :- 'C'.**

Object :—To study the effect of different crops grown in rotation and as inter-crops with Sugarcane planted on different dates.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) As per treatments. (c) N.A. (ii) Sandy loam. (iii) 60 lb./ac. of N as press mud+30 lb./ac. of N as A/S. (iv) CO.S. 453. (v) (a) 3 ploughings. (b) Trench and flat planting. (c) to (e) N.A. (vi) 30.10 1954, 3 1.1955 and 29.3 1955. (vii) Irrigated. (viii) and (ix) N.A. (x) 15.3.1956.

2. TREATMENTS :

6 crop rotations: R₁=Paddy—fallow—Sugarcane (January planting), R₂=Paddy+*dhaincha*—fallow—sugarcane (January planting), R₃=Paddy+*dhaincha*—pea+sugarcane (October planting), R₄=Paddy+*dhaincha*—gram+sugarcane (October planting), R₅=paddy—pea—sugarcane (March planting) and R₆=Paddy—gram—sugarcane (March planting).

3. DESIGN :

(i) and (ii) R.B.D. with 4 replications. (iii) (a) N.A. (b) 54' × 21'. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of sugarcane. (iv) (a) 1955—1956. (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 24.08 tons/ac. (ii) 3.96 tons/ac. (iii) Treatment differences are significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	R ₁	R ₂	R ₃	R ₄	R ₅	R ₆
Av. yield	28.62	25.88	24.83	17.73	23.59	23.86

S.E./mean = 1.98 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 56(344).

Zone :- Anandnagar (Gorakhpur, c.f.).

Type :- 'C'.

Object :—To study the effect of different crops grown in rotation and as inter-crops with Sugarcane planted on different dates.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) As per treatments. (c) N.A. (ii) Sandy loam. (iii) and (iv) N.A. (v) (a) 2 ploughings and 3 harrowings. (b) to (e) N.A. (vi) 4.11.1955 to 3.2.1956. (vii) Irrigated. (viii) 6 hoeings and 1 earthing. (ix) N.A. (x) 6.2.1957.

2. TREATMENTS to 4. GENERAL :

Same as in expt. no. 55(262) on page 1184.

5. RESULTS :

(i) 27.50 tons/ac. (ii) 3.50 tons/ac. (iii) Treatment differences are significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	R ₁	R ₂	R ₃	R ₄	R ₅	R ₆
Av. yield	32.50	28.75	27.65	25.18	22.67	28.26

S.E./mean = 1.75 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 54(263).

Zone :- Anandnagar (Gorakhpur, c.f.).

Type :- 'C'.

Object :—To study the effect of different spacings and dipping of setts in phenol on Sugarcane.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Pea. (c) N.A. (ii) Sandy loam. (iii) 50 lb./ac. of N as press mud. (iv) CO. S. 453. (v) (a) 2 ploughings and 3 harrowings by tractor. (b) Trench planting. (c) N.A. (d) As per treatments. (e) N.A. (vi) 17 and 18.3.1954. (vii) Irrigated. (viii) 6 hoeings and 1 earthing. (ix) and (x) N.A.

2. TREATMENTS :

All combinations of (1), (2) and (3)

- (1) 2 sett treatments : T₁=Setts dipped in 2 % phenol and T₂=Setts undipped.
- (2) 2 types of setts : R₁=Normal (single setts) and R₂=Double setts.
- (3) 2 spacings of setts : S₁=3' and S₂=2½'.

3. DESIGN :

(i) and (ii) R.B.D. with 3 replications. (iii) (a) 46'×30'. (b) 41'×24' for S₁ and 40'×25' for S₂. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of sugarcane. (iv) (a) 1954—1957. (b) No. (c) Nil (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 27.68 tons/ac. (ii) 6.06 tons/ac. (iii) Only T effect is significant. (iv) Av. yield of sugarcane in tons/ac.

	R ₁	R ₂	Mean	S ₁	S ₂
T ₁	26.38	23.06	24.72	24.39	25.05
T ₂	32.34	28.96	30.65	29.79	31.51
Mean	29.36	26.01	27.68	27.09	28.28
S ₁	28.03	26.15			
S ₂	30.69	25.87			

S.E. of any marginal mean = 1.75 tons/ac.
S.E. of body of any table = 2.47 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 55(322).

Zone :- Anandnagar (Gorakhpur, c.f.).

Type :- 'C'.

Object :—To study the effect of different spacings and dipping of setts in phenol on the yield of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) *Sanai*. (c) N.A. (ii) Sandy loam. (iii) 60 lb./ac. of N as press mud. (iv) CO. S. 443. (v) (a) 1 ploughing and 1 harrowing. (b) Trench planting. (c) N.A. (d) As per treatments. (e) N.A. (vi) 26 and 27.3.1955. (vii) Irrigated. (viii) 7 hoeings and 1 earthing. (ix) N.A. (x) 6.3.1956.

2. TREATMENTS to 4. GENERAL :

Same as in expt. no. 54(263) on page 1185.

5. RESULTS :

(i) 23.81 tons/ac. (ii) 4.36 tons/ac. (iii) None of the effects is significant. (iv) Av. yield of sugarcane in tons/ac.

	R ₁	R ₂	Mean	S ₁	S ₂
T ₁	21.05	24.13	22.59	23.58	21.60
T ₂	24.99	25.06	25.02	26.53	23.51
Mean	23.02	24.60	23.81	25.06	22.56
S ₁	24.80	25.32			
S ₂	21.24	23.88			

S.E. of any marginal mean = 1.26 tons/ac.
S.E. of body of any table = 1.78 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 56(348).

Zone :- Anandnagar (Gorakhpur, c.f.).

Type :- 'C'.

Object :—To study the effect of different spacings and dipping of setts in phenol on the yield of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) G.M. crop. (c) N.A. (ii) Sandy loam. (iii) 50 lb./ac. of N as G.M.+30 lb./ac. of N as mixture of G.N.C. and A/S+33 lb./ac. of A/S. (iv) CO. S. 443. (v) (a) 1 ploughing and 2 harrowings. (b) and (c) N.A. (d) As per treatments. (e) N.A. (vi) 13 and 14.3.1956. (vii) Irrigated. (viii) 4 hoeings. (ix) and (x) N.A.

2. TREATMENTS to 4. GENERAL :

Same as in expt. no. 54(263) on page 1185.

3. RESULTS :

(i) 30.31 tons/ac. (ii) 3.28 tons/ac. (iii) Main effects of R and S are highly significant. (iv) Av. yield of sugarcane in tons/ac.

	R ₁	R ₂	Mean	S ₁	S ₂
T ₁	27.24	34.46	30.85	33.08	28.61
T ₂	28.58	31.06	29.82	32.76	26.77
Mean	27.90	32.71	30.31	32.92	27.70
S ₁	31.33	34.51			
S ₂	24.48	30.91			

S.E. of any marginal mean = 0.95 tons/ac.

S.E. of body of any table = 1.34 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 57(379).

Zone :- Anandnagar (Gorakhpur, c.f.).

Type :- 'C'.

Object :—To study the effect of spacings and dipping of setts in phenol on Sugarcane.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) *Sanai*. (c) N.A. (ii) Sandy loam. (iii) G.M. (*sanai*). (iv) CO. S. 443. (v) (a) 1 ploughing and 3 harrowings. (b) Trench planting. (c) N.A. (d) As per treatments. (e) N.A. (vi) 13.3.1957. (vii) Irrigated. (viii) 6 hoeings and 1 earthing. (ix) N.A. (x) 11.2.1958.

2. TREATMENTS to 4. GENERAL :

Same as in expt. no. 54(263) on page 1185.

5. RESULTS :

(i) 22.26 tons/ac. (ii) 5.25 tons/ac. (iii) None of the effects is significant. (iv) Av. yield of sugarcane in tons/ac.

	R ₁	R ₂	Mean	S ₁	S ₂
T ₁	20.80	21.01	20.91	19.80	22.02
T ₂	26.58	20.65	23.61	23.51	23.71
Mean	23.69	20.83	22.26	21.66	22.86
S ₁	23.96	19.35			
S ₂	23.42	22.31			

S.E. of any marginal mean = 1.51 tons/ac.

S.E. of body of any table = 2.14 tons/ac.

Crop :- Sugarcane.**Ref :- U.P. 55(269).****Zone :- Captainganj (Gorakhpur, c.f.).****Type :- 'C'.**

Object :—To study the effect of different spacings and dipping of setts in phenol on the yield of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Potato. (c) N.A. (ii) Sandy loam. (iii) 60 lb./ac. of N as press mud+40 lb./ac. of N as castor cake. (iv) CO.S. 443. (v) (a) 1 ploughing and 1 harrowing. (b) and (c) N.A. (d) As per treatments. (e) N.A. (vi) 30.3.1955. (vii) Irrigated. (viii) 5 hoeings and 1 earthing. (ix) N.A. (x) 12.3.1956.

2. TREATMENTS :

Same as in expt. no. 54(263) on page 1185.

3. DESIGN :(i) and (ii) R.B.D. with 3 replications. (iii) (a) 60' × 30'. (b) 54' × 24' for S₁ and 55' × 25' for S₂. (iv) Yes.**4. GENERAL :**

(i) and (ii) N.A. (iii) Yield of sugarcane. (iv) (a) 1955—1956. (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 7.69 tons/ac. (ii) 2.56 tons/ac. (iii) R effect alone is highly significant. (iv) Av. yield of sugarcane in tons/ac.

	S ₁	S ₂	Mean	R ₁	R ₂
T ₁	8.20	7.94	8.07	4.95	11.20
T ₂	8.02	6.57	7.30	5.56	9.04
Mean	8.11	7.26	7.69	5.26	10.12
R ₁	5.35	5.16			
R ₂	10.88	9.36			

S.E. of any marginal mean = 0.74 tons/ac.

S.E. of body of any table = 1.04 tons/ac.

Crop :- Sugarcane.**Ref :- U.P. 56(347).****Zone :- Captainganj (Gorakhpur, c.f.).****Type :- 'C'.**

Object :—To study the effect of different spacings and dipping of setts in phenol on the yield of Sugarcane.

1. BASAL CONDITIONS :(i) (a) N.A. (b) Pea. (c) N.A. (ii) *Bangar*. (iii) 150 mds./ac. of press mud+8 mds./ac. of neem cake+1.5 mds./ac. of A/S. (iv) N.A. (v) (a) 7 ploughings by *desi* plough. (b) Flat planting. (c) N.A. (d) As per treatments. (e) N.A. (vi) 3.4.1956. (vii) Irrigated. (viii) 3 hoeings by *kudali*. (ix) N.A. (x) 14.2.1957.**2. TREATMENTS :**

Same as in expt. no. 54(263) on page 1185.

3. DESIGN :(i) and (ii) R.B.D. with 2 replications. (iii) (a) N.A. (b) 46' × 24' for S₁ and 47' × 25' for S₂. (iv) Yes.**4. GENERAL :**

(i) and (ii) N.A. (iii) Sugarcane yield. (iv) (a) 1955—1956. (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 11.96 tons/ac. (ii) 2.30 tons/ac. (iii) None of the effects is significant. (iv) Av. yield of sugarcane in tons/ac.

	S ₁	S ₂	Mean	R ₁	R ₂
T ₁	12.91	13.88	13.40	12.90	13.89
T ₂	10.69	10.34	10.52	10.02	11.02
Mean	11.80	12.11	11.96	11.45	12.46
R ₁	11.50	11.40			
R ₂	12.10	12.81			

S.E. of any marginal mean = 0.81 tons/ac.
 S.E. of body of any table = 1.15 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 55(264).

Zone :- Captainganj (Gorakhpur, c.f.).

Type :- 'C'.

Object :—To study the effect of different crops grown in rotation and as inter-crops with Sugarcane planted on different dates.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) As per treatments. (c) N.A. (ii) *Bangar*. (iii) 10 mds./ac. of *neem* cake+2 mds./ac. of A/S. (iv) CO. 617. (v) (a) N.A. (b) Flat planting. (c) to (e) N.A. (vi) 16.10.1954, 16.1.1955 and 2.4.1955. (vii) Irrigated. (viii) and (ix) N.A. (x) 8.3.1956.

2. TREATMENTS :

Same as in expt. no. 55(262) on page 1184.

3. DESIGN :

(i) and (ii) R.B.D. with 4 replications. (iii) (a) 60'×21'. (b) 54'×15'. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of sugarcane. (iv) (a) 1955—1956. (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 12.07 tons/ac. (ii) 1.23 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	R ₁	R ₂	R ₃	R ₄	R ₅	R ₆
Av. yield	10.74	12.41	12.16	12.56	12.59	11.98

S.E./mean = 0.61 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 56(284).

Zone :- Captainganj (Gorakhpur, c.f.).

Type :- 'C'.

Object :—To study the effect of different crops growing in rotation and as inter-crops with Sugarcane planted on different dates.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) As per treatments. (c) N.A. (ii) *Bangar*. (iii) 1½ mds./ac. of A/S. (iv) CO.S. 443. (v) (a) 5 ploughings by tractor. (b) Flat planting. (c) to (e) N.A. (vi) As per treatments. (vii) Irrigated. (viii) 1 earthing and 8 hoeings by *kudali*. (ix) N.A. (x) 14.2.1957.

2. TREATMENTS :

Same as in expt. no. 55(262) on page 1184.

3. DESIGN :

(i) and (ii) R.B.D. with 4 replications. (iii) (a) 85'×24'. (b) 79'×18'. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of sugarcane. (iv) (a) 1955—1956. (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 12.17 tons/ac. (ii) 2.06 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	R ₁	R ₂	R ₃	R ₄	R ₅	R ₆
Av. yield	10.55	13.40	11.92	14.03	12.31	10.80

S.E./mean = 0.84 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 54(275).

Zone :- Sardarnagar (Gorakhpur, c.f.).

Type :- 'C'.

Object :—To study the effect of different spacings and dipping of setts in phenol on the yield of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) *Urid*. (c) N.A. (ii) Sandy loam. (iii) 1½ mds./ac. of A/S. (iv) CO. S. 443. (v) (a) 2 ploughings. (b) Trench planting. (c) N.A. (d) As per treatments. (e) N.A. (vi) 8, 9.3.1954. (vii) Irrigated. (viii) 4 hoeings and 1 earthing. (ix) N.A. (x) 30.4.1955.

2. TREATMENTS :

All combinations of (1), (2) and (3)

(1) 2 sett treatments : T₁=Setts dipped in 2 % phenol and T₂=Setts undipped.

(2) 2 types of setts : R₁=Normal(single setts) and R₂=Double setts.

(3) 2 spacings between setts : S₁=3' and S₂=2½'.

3. DESIGN :

(i) and (ii) R.B.D. with 3 replications. (iii) (a) 53'×30'. (b) 47'×24' for S₁ and 48'×25' for S₂. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of sugarcane. (iv) (a) 1954—1955. (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 23.14 tons/ac. (ii) 2.23 tons/ac. (iii) None of the effects is significant. (iv) Av. yield of sugarcane in tons/ac.

	S ₁	S ₂	Mean	R ₁	R ₂
T ₁	23.76	22.84	23.30	24.82	21.79
T ₂	24.09	21.86	22.98	23.21	22.75
Mean	23.93	22.35	23.14	24.02	22.27
R ₁	24.30	23.73			
R ₂	23.56	20.98			

S.E. of any marginal mean = 0.64 tons/ac.

S.E. of body of any table = 0.91 tons/ac.

Crop :- Sugarcane.**Ref :- U.P. 55(320).****Zone :- Sardarnagar (Gorakhpur, c.f.).****Type :- 'C'.**

Object :—To study the effect of different spacings and dipping of setts in phenol on the yield of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) G.M. crop. (c) N.A. (ii) Sandy loam. (iii) N.A. (iv) CO. S. 443. (v) (a) 1 ploughing and 1 harrowing. (b) Trench planting. (c) N.A. (d) As per treatments. (e) N.A. (vi) 17, 18.3.1955. (vii) Irrigated. (viii) 3 hoeings. (ix) N.A. (x) 22.3.1956.

2. TREATMENTS to 4. GENERAL :

Same as in expt. no. 54(275) on page 1190.

5. RESULTS :

(i) 30.56 tons/ac. (ii) 3.64 tons/ac. (iii) None of the effects is significant. (iv) Av. yield of sugarcane in tons/ac.

	R ₁	R ₂	Mean	T ₁	T ₂
S ₁	30.40	31.28	30.84	30.87	30.82
S ₂	30.48	30.06	30.27	30.47	30.08
Mean	30.44	30.67	30.56	30.67	30.45
T ₁	30.04	31.30			
T ₂	30.85	30.04			

S.E. of any marginal mean = 1.05 tons/ac.

S.E. of body of any table = 1.49 tons/ac.

Crop :- Sugarcane.**Ref :- U.P. 56(346).****Zone :- Sardarnagar (Gorakhpur, c.f.).****Type :- 'C'.**

Object :—To study the effect of different spacings and dipping of setts in phenol on the yield of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) G.M. crop. (c) N.A. (ii) N.A. (iii) G.M.+1 md./ac. of A/S. (iv) CO. S. 443. (v) (a) to (c) N.A. (d) As per treatments. (e) N.A. (vi) 19, 20.3.1956. (vii) Irrigated. (viii) 2 hoeings. (ix) N.A. (x) 2.3.1957

2. TREATMENTS :

Same as in expt. no. 54(275) on page 1190.

3. DESIGN :

(i) and (ii) R.B.D. with 3 replications. (iii) (a) 50'×30'. (b) 44'×24' for S₁ and 45'×25' for S₂. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of sugarcane. (iv) (a) 1954—1956. (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 18.68 tons/ac. (ii) 2.13 tons/ac. (iii) Only S effect is significant. (iv) Av. yield of sugarcane in tons/ac

	R ₁	R ₂	Mean	T ₁	T ₂
S ₁	17.94	17.54	17.74	17.79	17.69
S ₂	20.04	19.21	19.62	19.81	19.44
Mean	18.99	18.37	18.68	18.80	18.56
T ₁	19.87	17.72			
T ₂	18.11	19.02			

S.E. of any marginal mean = 0.62 tons/ac.
 S.E. of body of any table = 0.87 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 55(263).

Zone :- Sardarnagar (Gorakhpur, c.f.).

Type :- 'C'.

Object :-To study the effect of growing different crops in rotation and as inter-crops with Sugarcane planted on different dates.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) As per treatments. (c) N.A. (ii) Sandy loam. (iii) 20 lb./ac. of N as A/S. (iv) CO. 453. (v) (a) 1 ploughing and 1 harrowing. (b) Trench and flat planting. (c) to (e) N.A. (vi) 10.10.1954, 25.1.1955 and 19.3.1955. (vii) Irrigated. (viii) 6 hoeings and 1 earthing. (ix) N.A. (x) 13.3.1956.

2. TREATMENTS :

6 crop rotations : R₁=Paddy—fallow—sugarcane (January planting), R₂=Paddy+*dhaincha*—fallow—sugarcane (January planting), R₃=Paddy+*dhaincha*—pea+sugarcane (October planting), R₄=Paddy+*dhaincha*—gram+sugarcane (October planting), R₅=Paddy—pea—sugarcane (March planting) and R₆=Paddy—gram—sugarcane (March planting).

3. DESIGN :

(i) and (ii) R.B.D. with 4 replications. (iii) (a) 60'×27'. (b) 54'×21'. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of sugarcane. (iv) (a) 1955—1956. (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 29.09 tons/ac. (ii) 3.68 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	R ₁	R ₂	R ₃	R ₄	R ₅	R ₆
Av. yield	30.74	31.11	26.16	27.35	32.40	26.77

S.E./mean = 1.84 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 56(345).

Zone :- Sardarnagar (Gorakhpur, c.f.).

Type :- 'C'.

Object :-To study the effect of sowing different crops in rotation and as inter-crops with Sugarcane planted on different dates.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) As per treatments. (c) N.A. (ii) N.A. (iii) 1 md/ac. of A/S. (iv) CO. 453. (v) (a) to (e) N.A. (v) As per treatments. (vii) Irrigated. (viii) 6 hoeings. (ix) N.A. (x) 18.3.1957.

2. TREATMENTS to 4. GENERAL :

Same as in expt. no. 55(263) on page 1192.

5. RESULTS :

(i) 24.22 tons/ac. (ii) 1.19 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	R ₁	R ₂	R ₃	R ₄	R ₅	R ₆
Av. yield	24.38	23.94	24.59	24.09	23.77	24.53

S.E./mean = 0.60 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 55(267).

Zone :- Siswabazar (Gorakhpur, c.f.).

Type :- 'C'.

Object :—To study the effect of different spacings and dipping of setts in phenol on the yield of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) *Sanai*. (c) N.A. (ii) *Bangar*. (iii) G.M. (*sanai*) + 8 mds./ac. of *neem* cake + 250 mds./ac. of F.Y.M. + 1 md./ac. of A/S. (iv) CO.S. 443. (v) (a) 7 ploughings by tractor. (b) Flat planting. (c) N.A. (d) As per treatments. (e) N.A. (vi) 25.3.1955. (vii) to (ix) N.A. (x) 14 and 15.2.1956.

2. TREATMENTS :

Same as in expt. no. 54(275) on page 1190.

3. DESIGN :

(i) and (ii) R.B.D with 2 replications. (iii) (a) 65' × 30', (b) 59' × 24' for S₁ and 60' × 25' for S₂ (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of sugarcane. (iv) (a) and (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 11.60 tons/ac. (ii) 3.33 tons/ac. (iii) Main effects of R and S are significant. Interaction R × T is significant. (iv) Av. yield of sugarcane in tons/ac.

	S ₁	S ₂	Mean	R ₁	R ₂
T ₁	9.22	15.29	12.25	12.09	12.41
T ₂	9.14	12.77	10.96	6.39	15.52
Mean	9.18	14.03	11.60	9.24	13.97
R ₁	7.59	10.89			
R ₂	10.77	17.17			

S.E. of any marginal mean = 1.18 tons/ac.
S.E. of body of any table = 1.66 tons/ac.

Crop :- Sugarcane.**Ref :- U.P. 55(295).****Zone :- Hardoi (Hardoi, c.f.).****Type :- 'C'.**

Object :--To study the effect of different spacings and seed rates on the yield of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) *Urd.* (c) N.A. (ii) Heavy loam. (iii) 200 mds./ac. of F.Y.M. + 2.5 mds./ac. of manure mixture + 1 md./ac. of A/S. (iv) CO. 453 (improved). (v) (a) 6 ploughings by *desi* plough and 1 harrowing. (b) Flat planting. (c) and (d) As per treatments. (e) N.A. (vi) 3 and 4.4.1955. (vii) Irrigated. (viii) 4 hoeings. (ix) 46". (x) 6 to 8.3.1956.

2. TREATMENTS :

3 cultural treatments : $C_1=3'$ spacing between rows with one sett per running foot of row-length, $C_2=2'$ spacing between rows with one sett per running foot of row-length and $C_3=2'$ spacing between rows with one sett per $1\frac{1}{2}'$ of row-length.

3. DESIGN :

(i) and (ii) R.B.D. with 6 replications. (iii) (a) $72' \times 30'$. (b) $65' \times 24'$ for C_1 and $66' \times 26'$ for C_2 and C_3 . (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Germination %, no. of tillers, millable canes, yield of sugarcane and juice analysis. (iv) (a) and (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 17.16 tons/ac. (ii) 4.87 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	C_1	C_2	C_3
Av. yield	18.63	15.66	17.18

S.E./mean = 1.99 tons/ac.

Crop :- Sugarcane.**Ref :- U.P. 56(318).****Zone :- Aira (Kheri, c.f.).****Type :- 'C'.**

Object :--To study the effect of different spacings and seed rates on the yield of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) *Dhaincha*. (c) Nil. (ii) Loam soil. (iii) G.M. (*Dhaincha*). (iv) CO. 527 (improved). (v) (a) N.A. (b) Flat planting. (c) and (d) As per treatments. (e) N.A. (vi) 25.3.1956. (vii) Irrigated. (viii) N.A. (ix) 45". (x) 20 to 26.2.1957.

2. TREATMENTS :

Same as in expt. no. 55(295) above.

3. DESIGN :

(i) and (ii) R.B.D. with 6 replications. (iii) (a) $72' \times 24'$. (b) $66' \times 18'$ for C_1 and $66' \times 20'$ for C_2 and C_3 . (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Germination %, no. of tillers, millable cane and yield of sugarcane. (iv) (a) 1956--1957 (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 28.95 tons/ac. (ii) 1.37 tons/ac. (iii) Treatment differences are highly significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	C ₁	C ₂	C ₃
Av. yield	32.01	29.21	25.62

S.E./mean = 0.56 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 57(240).

Zone :- Aira (Kheri, c.f.).

Type :- 'C'.

Object :-To study the effect of different seed rates and spacings on the yield of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Loam soil. (iii) and (iv) N.A. (v) (a) and (b) N.A. (c) and (d) As per treatments. (e) N.A. (vi) N.A. (vii) Irrigated. (viii) to (x) N.A.

2. TREATMENTS :

Same as in expt. no. 55(295) on page 1194.

3. DESIGN :

(i) and (ii) R.B.D. with 6 replications. (iii) (a) N.A. (b) 66'×20'. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of sugarcane. (iv) (a) and (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 8.99 tons/ac. (ii) 0.48 tons/ac. (iii) Treatment differences are highly significant. (iv) Av yield of sugarcane in tons/ac.

Treatment	C ₁	C ₂	C ₃
Av. yield	7.82	10.48	8.67

S.E./mean = 0.20 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 56(319).

Zone :- Golagokarannath (Kheri, c.f.).

Type :- 'C'.

Object :-To study the effect of different spacings and seed rates on the yield of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) G.M. crop. (c) Nil. (ii) Loam soil. (iii) G.M. (iv) CO.S. 510 (improved). (v) (a) N.A. (b) Flat planting. (c) and (d) As per treatments. (e) N.A. (vi) 20.3.1956. (vii) Irrigated. (viii) N.A. (ix) 45". (x) 22 and 23.2.1957.

2. TREATMENTS :

Same as in expt. no. 55(295) on page 1194.

3. DESIGN :

(i) and (ii) R.B.D. with 6 replications. (iii) (a) 60'×24'. (b) 54'×18' for C₁ and 54'×20' for C₂ and C₃. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Germination %, no. of tillers, millable cane, yield of sugarcane and juice analysis. (iv) (a) and (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 23.97 tons/ac. (ii) 2.18 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	C ₁	C ₂	C ₃
Av. yield	23.94	25.68	22.29
S.E./mean = 0.89 tons/ac.			

Crop :- Sugarcane.

Ref :- U.P. 56(137).

Zone :- Golagokarannath (Kheri, c.f.).

Type :- 'C'.

Object :—To study the effect of providing trash cover for control of weeds on the yield of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Heavy soil. (iii) and (iv) N.A. (v) (a) N.A. (b) Flat planting. (c) 1 sett (3 budded)/foot. (d) Rows 3' apart. (e) N.A. (vi) to (x) N.A.

2. TREATMENTS :

3 cultural treatments : T₁=Trash cover 4" to 6" thick, T₂=No trash, no hoeings and weedings but earthing at proper time and T₃=Normal cultivation with hoeings and earthing at proper time.

3. DESIGN :

(i) and (ii) R.B.D. with 6 replications. (iii) (a) N.A. (b) 1/55.0 ac. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of sugarcane. (iv) (a) 1956—1959. (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 16.23 tons/ac. (ii) 3.09 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	T ₁	T ₂	T ₃
Av. yield	18.00	14.79	15.91
S.E./mean = 1.26 tons/ac.			

Crop :- Sugarcane.

Ref :- U.P. 57(170).

Zone :- Golagokarannath (Kheri, c.f.).

Type :- 'C'.

Object :—To study the effect of providing trash cover for control of weeds on the yield of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Heavy loam. (iii) and (iv) N.A. (v) (a) N.A. (b) Flat planting. (c) 1 sett (3 budded)/foot. (d) Rows 3' apart. (e) N.A. (vi) to (x) N.A.

2. TREATMENTS :

3 cultural treatments : T₁=Trash cover 2" to 4" thick and earthing at proper time, T₂=Normal cultivation with proper hoeings, weedings and earthings and T₃=Control (no hoeings and weedings) but earthing at proper time.

3. DESIGN :

(i) and (ii) R.B.D. with 6 replications. (iii) (a) N.A. (b) 1/55 ac. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Height measurement and yield of sugarcane. (iv) (a) 1956—1959. (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 27.10 tons/ac. (ii) 2.48 tons/ac. (iii) Treatment differences are significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	T ₁	T ₂	T ₃
Av. yield	30.04	26.59	24.66

S.E./mean = 1.01 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 58(176).

Zone :- Golagokarannath (Kheri, c.f.).

Type :- 'C'.

Object :— To study the effect of providing trash cover for control of weeds on the yield of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Heavy soil. (iii) N.A. (iv) CO. S. 510 (improved). (v) (a) N.A. (b) Flat planting. (c) 1 sett (3 budded)/foot. (d) Rows 3' apart. (e) N.A. (vi) to (ix) N.A. (x) 14 and 15.2.1959.

2. TREATMENTS :

Same as in expt. no. 57(170) on page 1196.

3. DESIGN :

(i) and (ii) R.B.D. with 4 replications. (iii) (a) N.A. (b) 44' × 18'. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Germination %, no. of tillers, millable cane, juice analysis and yield of sugarcane. (iv) (a) 1956—1959. (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 31.09 tons/ac. (ii) 3.72 tons/ac. (iii) Treatment differences are significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	T ₁	T ₂	T ₃
Av. yield	33.94	34.51	24.83

S.E./mean = 1.86 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 59(202).

Zone :- Golagokarannath (Kheri, c.f.).

Type :- 'C'.

Object :— To study the effect of providing trash cover for control of weeds on the yield of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Heavy soil. (iii) N.A. (iv) CO. S. 416 (improved). (v) (a) N.A. (b) Flat planting. (c) 1 sett (3 budded)/foot. (d) Rows 3' apart. (e) N.A. (vi) to (ix) N.A. (x) 14 and 15.2.1960.

2. TREATMENTS :

Same as in expt. no. 57(170) on page 1196.

3. DESIGN :

(i) and (ii) R.B.D. with 4 replications. (iii) (a) N.A. (b) 44' × 21'. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Germinations %, no. of tillers, millable canes, yield of sugarcane and juice analysis (iv) (a) 1956—1959. (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 21.69 tons/ac. (ii) 4.36 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	T ₁	T ₂	T ₃
Av. yield	25.14	16.57	23.37
S.E./mean = 2.18 tons/ac.			

Crop :- Sugarcane.

Ref :- U.P. 58(178).

Zone :- Golagokarannath (Kheri, c.f.).

Type :- 'C'.

Object :— To study the effect of providing trash cover for control of weeds on the yield of Sugarcane ratoon crop.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Heavy soil. (iii) and (iv) N.A. (v) (a) N.A. (j) Flat planting. (c) 1 sett (3 budded)/foot. (d) Rows 3' apart. (e) N.A. (vi) to (ix) N.A. (x) 6 and 8.12.1958.

2. TREATMENTS :

Same as in expt. no. 57(170) on page 1196.

3. DESIGN :

(i) and (ii) R.B.D. with 6 replications. (iii) (a) N.A. (b) 44' × 18'. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (i.i) (a) Yield of sugarcane and juice analysis. (iv) (a) 1958--1959. (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 21.96 tons/ac. (ii) 1.40 tons/ac. (iii) Treatment differences are highly significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	T ₁	T ₂	T ₃
Av. yield	25.24	23.62	17.01
S.E./mean = 0.57 tons/ac.			

Crop :- Sugarcane.

Ref :- U.P. 59(201).

Zone :- Golagokarannath (Kheri, c.f.).

Type :- 'C'.

Object :— To study the effect of providing trash cover for control of weeds on the yield of Sugarcane ratoon crop.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Heavy loam. (iii) and (iv) N.A. (v) (a) N.A. (b) Flat planting. (c) 1 sett (3 budded)/foot. (d) Rows 3' apart. (e) N.A. (vi) to (ix) N.A. (x) 2 to 4.12.1959.

2. TREATMENTS :

Same as in expt. no. 57(170) on page 1196.

3. DESIGN :

(i) and (ii) R.B.D. with 4 replications. (iii) (a) N.A. (b) 44' × 18'. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) No. of tillers, millable cane, yield of sugarcane and juice analysis. (iv) (a) 1958--1959. (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 23.18 tons/ac. (ii) 1.67 tons/ac. (iii) Treatment differences are highly significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	T ₁	T ₂	T ₃
Av. yield	26.85	18.95	23.73

S.E./mean = 0.83 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 54(252).

Zone :- Golagokarannath (Kheri, c.f.).

Type :- 'C'.

Object :- To study the effect of mixed cropping on Sugarcane planted on different dates.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) *Sanai*. (c) Nil. (ii) Heavy soil. (iii) G.M. (*sanai*). (iv) CO.S. 245 (improved). (v) (a) and (b) N.A. (c) 65 setts(3 budded)/row. (d) Rows 3' apart. (e) N.A. (vi) 8 and 9.10.1953, 4.2.1954. (vii) Irrigated. (viii) and (ix) N.A. (x) 2 and 3.3.1955.

2. TREATMENTS :

4 cultural treatments : T₁=Sugarcane (autumn planting), T₂=T₁with gram inter-sown, T₃=T₁ with pea inter-sown and T₄=Sugarcane (spring planting).

3. DESIGN :

(i) and (ii) R.B.D. with 6 replications. (iii) (a) 60'×24'. (b) 54'×18'. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Germination %, no. of tillers, millable cane, yield of sugarcane and juice analysis. (iv) (a) 1954—1956. (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 20.09 tons/ac. (ii) 7.18 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	T ₁	T ₂	T ₃	T ₄
Av. yield	19.61	19.14	22.96	18.66

S.E./mean = 2.93 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 55(250).

Zone :- Golagokarannath (Kheri, c.f.).

Type :- 'C'.

Object :- To study the effect of mixed cropping on Sugarcane planted on different dates.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) *Sanai*. (c) Press mud at 100 mds./ac. (ii) Heavy loam. (iii) G.M. (*sanai*)+10 mds./ac. of *neem* cake. (iv) CO.S. 510 (improved). (v) (a) 2 ploughings and 2 harrowings. (b) Flat planting. (c) 1440 buds/plot. (d) Rows 3' apart. (e) N.A. (vi) 17, 18.10.1954, 21 and 22.3.1954. (vii) Irrigated. (viii) 6 hoeings by *kudali*, 6 hoeings by cultivators and 1 earthing by tractor. (ix) 45". (x) N.A.

2. TREATMENTS :

Same as in expt. no. 54(252) above.

3. DESIGN :

(i) and (ii) R.B.D. with 6 replications. (iii) (a) 50'×28'. (b) 43'×21'. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Germination %, no. of tillers, millable cane, yield of sugarcane and juice analysis. (iv) (a) 1954—1956. (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 27.66 tons/ac. (ii) 5.30 tons/ac. (iii) Treatment differences are highly significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	T ₁	T ₂	T ₃	T ₄
Av. yield	35.32	33.35	32.41	9.54

S.E./mean = 2.16 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 56(296).

Zone :- Golagokarannath (Kheri, c.f.).

Type :- 'C'.

Object :—To study the effect of mixed cropping on Sugarcane planted on different dates.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) *Sanai* (c) 100 mds./ac. of press mud. (ii) Loam soil. (iii) N.A. (iv) CO. S. 510 (improved). (v) (a) 2 ploughings by harrow plough, 3 harrowings by off set harrow. (b) Flat planting. (c) 1320 buds/plot. (d) Rows 3' apart. (e) N.A. (vi) As per treatments. (vii) Irrigated. (viii) 9 hoeings by hand hoe and bullocks. (ix) 45". (x) 6 and 7.3.1957.

2. TREATMENTS :

4 cultural treatments : T₁=Sugarcane (autumn planting), T₂=Sugarcane (autumn planting) with pea as intercrop, T₃=Sugarcane (spring planting) after harvesting of pea and T₄=Sugarcane (spring planting).

3. DESIGN :

(i) and (ii) R. B. D. with 6 replications. (iii) (a) 50' × 24'. (b) 44' × 18'. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Germination %, no. of tillers, millable cane, yield of sugarcane and juice analysis (iv) (a) 1954—1956. (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 33.48 tons/ac. (ii) 2.94 tons/ac. (iii) Treatment differences are highly significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	T ₁	T ₂	T ₃	T ₄
Av. yield	33.25	35.91	22.06	42.70

S.E./mean = 1.20 tons/ac

Crop :- Sugarcane.

Ref :- U.P. 59(64).

Zone :- Maliana (Meerut, c.f.).

Type :- 'C'.

Object :—To find out a suitable crop for rotation with Sugarcane.

1. BASAL CONDITIONS :

(i) (a) and (b) As per treatments. (c) N.A. (ii) Sandy loam. (iii) and (iv) N.A. (v) (a) and (b) N.A. (c) 60 setts (3 budded)/row. (d) 3' between rows. (e) N.A. (vi) to (ix) N.A. (x) 30 and 31.12.1959.

2. TREATMENTS :

6 crop rotations : T_1 =G.M.—Wheat—Cotton—Fallow—Sugarcane, T_2 =G.M.—Wheat—Cotton—*Metha*—Sugarcane, T_3 =G.M.—Wheat—Cotton—Pea—Sugarcane, T_4 =G.M.—Wheat—Pulses (*urd* and *moong*)—Pea—Sugarcane, T_5 =G.M.—Wheat—Maize+*moong*—*Lahi*—Sugarcane and T_6 =G.M.—Wheat—*Arvi*—Potato—Sugarcane.

3. DESIGN :

(i) and (ii) R.B.D. with 4 replications. (iii) (a) $58' \times 27'$. (b) $52' \times 21'$. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Germination %, no. of tillers and yield of sugarcane. (iv) (a) 1959—N.A. (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 29.01 tons/ac. (ii) 1.21 tons/ac. (iii) Treatment differences are highly significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	T_1	T_2	T_3	T_4	T_5	T_6
Av. yield	28.09	26.57	29.15	31.16	32.13	26.99

S.E./mean = 0.61 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 57(78).

Zone :- Modinagar (Meerut, c.f.).

Type :- 'C'.

Object :—To study the effect of mixed cropping in Sugarcane planted on different dates.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) *Guar*. (c) Nil. (ii) N.A. (iii) G.M. (*guar*) + 60 srs./ac. of A/S+2 mds./ac. of G.N.C. (iv) CO.S. 245 (improved). (v) (a) 5 ploughings by *desi* plough and tractor and 4 harrowings by tractor cultivator. (b) and (c) N.A. (d) 3' between rows. (e) N.A. (vi) 28, 29.10.1957, 12.2.1958 and 28.3.1958. (vii) Irrigated. (viii) 3 hoeings by cultivator. (ix) N.A. (x) 12 and 13.3.1959.

2. TREATMENTS :

6 cultural treatments : T_1 =Sugarcane (autumn planting), T_2 = T_1 +gram as inter-crop, T_3 = T_1 +pea as inter-crop, T_4 =Sugarcane (spring planting), T_5 = T_4 after harvesting of gram and T_6 = T_4 after harvesting of pea.

3. DESIGN :

(i) and (ii) R.B.D. with 4 replications. (iii) (a) $73' \times 24'$. (b) $73' \times 18'$. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Germination %, no. of tillers, juice analysis and yield of sugarcane. (iv) (a) and (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 22.95 tons/ac. (ii) 1.34 tons/ac. (iii) Treatment differences are highly significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	T_1	T_2	T_3	T_4	T_5	T_6
Av. yield	28.08	26.98	22.75	20.88	20.40	18.59

S.E./mean = 0.67 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 57(74).

Zone :- Mowana Kalan (Meerut, c.f.).

Type :- 'C'.

Object :—To study the effect of mixed cropping in Sugarcane planted on different dates.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) *Urd.* (c) N.A. (ii) Sandy loam. (iii) 100 mds./ac. of F.Y.M.+1 md. 35 srs./ac. of A/S+30 srs./ac. of urea. (iv) CO.S. 515 (improved). (v) (a) 4 ploughings by tractor and 2 ploughings by *desi* plough. (b) Flat planting. (c) 75 setts (3 budded)/row. (d) 3' between rows. (e) N.A. (vi) 14, 15.10.1957, 23.3.1958 and 11.4.1958. (vii) Irrigated. (viii) 1 blind hoeing, 6 hoeings by cultivator and spade and 1 earthing. (ix) N.A. (x) 18 to 21.1.1959.

2. TREATMENTS and 3. DESIGN :

Same as in expt. no. 57(78) on page 1201.

4. GENERAL :

(i) and (ii) N.A. (iii) Germination %, no. of tillers, juice analysis and yield of sugarcane. (iv) (a) 1957—1959. (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 23.67 tons/ac. (ii) 1.87 tons/ac. (iii) Treatment differences are highly significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	T ₁	T ₂	T ₃	T ₄	T ₅	T ₆
Av. yield	29.29	27.16	24.40	22.65	17.82	20.69

S.E./mean = 0.94 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 58(60).

Zone :- Mowana Kalan (Meerut, c.f.).

Type :- 'C'.

Object :—To study the effect of mixed cropping in Sugarcane planted on different dates.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) *Guar* and *urd.* (c) N.A. (ii) Sandy loam. (iii) and (iv) N.A. (v) (a) and (b) N.A. (c) 75 setts (3 budded)/row. (d) Rows 3' apart. (e) N.A. (vi) 23 to 25.10.1958. (vii) Irrigated. (viii) and (ix) N.A. (x) 22 to 24.1.1960.

2. TREATMENTS and 3. DESIGN :

Same as in expt. no. 57(78) on page 1201.

4. GENERAL :

(i) and (ii) N.A. (iii) Germination %, no. of tillers, juice analysis and yield of sugarcane. (iv) (a) 1957—1959. (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 22.01 tons/ac. (ii) 2.17 tons/ac. (iii) Treatment differences are highly significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	T ₁	T ₂	T ₃	T ₄	T ₅	T ₆
Av. yield	27.87	19.62	21.95	18.89	23.36	20.35

S.E./mean = 1.08 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 59(65).

Zone :- Mowana Kalan (Meerut, c.f.).

Type :- 'C'.

Object :—To study the effect of mixed cropping in Sugarcane planted on different dates.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Maize and *urd*. (c) N.A. (ii) Sandy loam. (iii) N.A. (iv) CO.S. 245 (improved). (v) (a) and (b) N.A. (c) 75 setts (3 budded)/row. (d) 3' between rows. (e) N.A. (vi) 15.10.1959 and 9.4.1960. (vii) Irrigated. (viii) to (x) N.A.

2. TREATMENTS and 3. DESIGN :

Same as in expt. no. 57(78) on page 1201.

4. GENERAL :

(i) and (ii) N.A. (iii) Germination %, no. of tillers, juice analysis and yield of sugarcane. (iv) (a) 1957—1959. (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 26.66 tons/ac. (ii) 2.60 tons/ac. (iii) Treatment differences are highly significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	T ₁	T ₂	T ₃	T ₄	T ₅	T ₆
Av. yield	35.95	30.10	29.13	23.20	16.38	25.19

S.E./mean = 1.30 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 58(61).

Zone :- Sakoti Tanda (Meerut, c.f.).

Type :- 'C'.

Object :—To study the effect of mixed cropping in Sugarcane planted on different dates.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Fallow. (c) Nil. (ii) Loam. (iii) 30 srs./ac. of A/S. (iv) CO. S. 245 (improved). (v) (a) 7 to 10 ploughings. (b) Flat planting. (c) 75 setts (3 budded)/row. (d) Rows 3' apart. (e) N.A. (vi) 25.10.1958, 17.3.1959 and 14.4.1959. (vii) Irrigated. (viii) and (ix) N.A. (x) 5 and 6.1.1960.

2. TREATMENTS and 3. DESIGN :

Same as in expt. no. 57(78) on page 1201.

4. GENERAL :

(i) and (ii) N.A. (iii) Germination %, no. of tillers, juice analysis and yield of sugarcane. (iv) (a) 1958—1959. (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 18.00 tons/ac. (ii) 1.86 tons/ac. (iii) Treatment differences are highly significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	T ₁	T ₂	T ₃	T ₄	T ₅	T ₆
Av. yield	21.22	20.91	20.52	18.00	13.13	14.21

S.E./mean = 0.93 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 59(67).

Zone :- Sakoti Tanda (Meerut, c.f.).

Type :- 'C'.

Object :—To study the effect of mixed cropping in Sugarcane planted on different dates.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) *Lobia*. (c) Nil. (ii) Loam. (iii) N.A. (iv) CO. S. 515 (improved). (v) (a) 4 ploughings by tractor and 1 harrowing. (b) Flat planting. (c) 52 setts (3 budded)/row. (d) 3' between rows. (e) N.A. (vi) 6, 7.10.1959, 15.3.1960 and 16.4.1960. (vii) to (ix) N.A. (x) 29 and 30.11.1960.

2. TREATMENTS :

Same as in expt. no. 57(78) on page 1201.

3. DESIGN :

(i) and (ii) R.B.D. with 4 replications. (iii) (a) 50' × 30'. (b) 44' × 24'. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Germination %, no. of tillers, juice analysis and yield of sugarcane. (iv) (a) 1958—1959. (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 18.51 tons/ac. (ii) 1.52 tons/ac. (iii) Treatment differences are highly significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	T ₁	T ₂	T ₃	T ₄	T ₅	T ₆
Av. yield	20.42	19.69	20.78	16.25	16.50	17.43

S.E./mean = 0.76 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 59(63).

Zone :- Sakoti Tanda (Meerut, c.f.).

Type :- 'C'.

Object :- To find out suitable crops for rotation with Sugarcane.

1. BASAL CONDITIONS :

(i) (a) and (b) As per treatments. (c) N.A. (ii) Loam. (iii) N.A. (iv) CO. S. 515 (improved). (v) (a) and (b) N.A. (c) 62 setts (3 budded)/row. (d) 3' between rows. (e) N.A. (vi) 11.3.1959. (vii) to (ix) N.A. (x) 6 and 7.1.1960.

2. TREATMENTS :

6 crop rotations: T₁=G.M.—Wheat—Cotton—Fallow—Sugarcane, T₂=G.M.—Wheat—Cotton—*Meiha*—Sugarcane, T₃=G.M.—Wheat—Cotton—Pea—Sugarcane, T₄=G.M.—Wheat—*Moong*—Pea—Sugarcane, T₅=G.M.—Wheat—Maize+*moong*—Pea—Sugarcane and T₆=G.M.—Wheat—*Arvi*—Potato—Sugarcane.

3. DESIGN :

(i) and (ii) R.B.D. with 4 replications. (iii) (a) 60' × 24'. (b) 60' × 18'. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Germination%, no. of tillers, juice analysis and yield of sugarcane. (iv) (a) 1959—N.A. (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 27.56 tons/ac. (ii) 3.26 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	T ₁	T ₂	T ₃	T ₄	T ₅	T ₆
Av. yield	27.46	27.16	28.77	26.58	26.18	29.24

S.E./mean = 1.63 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 57(79).

Zone :- Simbhaoli (Meerut, c.f.).

Type :- 'C'.

Object :- To study the effect of mixed cropping in Sugarcane planted on different dates.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Maize. (c) N.A. (ii) Loam. (iii) Top dressing of mixture of A/S+G.N.C. (iv) CO. S. 515 (improved). (v) (a) 4 ploughings by tractor. (b) Flat planting. (c) 66 setts (3 budded)/row. (d) 3' between-rows. (e) N.A. (vi) 13.10.1957, 30.3.1958 and 8.4.1958. (vii) Irrigated. (viii) 2 blind hoeings by *kassi* and 3 hoeings by cultivator. (ix) N.A. (x) 6 to 8.3.1959.

2. TREATMENTS :

Same as in expt. no. 57(78) on page 1201.

3. DESIGN :

(i) and (ii) R.B.D. with 4 replications. (iii) (a) 64'×24'. (b) 64'×18'. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Germination%, no. of tillers, juice analysis and yield of sugarcane. (iv) (a) and (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 24.31 tons/ac. (ii) 3.56 tons/ac. (iii) Treatment differences are highly significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	T ₁	T ₂	T ₃	T ₄	T ₅	T ₆
Av. yield	30.89	26.84	26.74	22.56	15.43	23.43

S.E./mean = 1.78 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 55(298).

Zone :- Amroha (Moradabad, c.f.).

Type :- 'C'.

Object :— To study the effect of different spacings and seed rates on the yield of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) *Urd* and *chari*. (c) N.A. (ii) Clay loam. (iii) 120 lb./ac. of N. (iv) CO.S. 245 (improved). (v) (a) 10 ploughings by *desi* plough. (b) Flat planting. (c) and (d) As per treatments. (e) N.A. (vi) 25.2.1955. (vii) Irrigated. (viii) 5 hoeings and 1 earthing. (ix) N.A. (x) 23 to 28.2.1956 and 3 to 12.3.1956.

2. TREATMENTS :

3 cultural treatments : C₁=3 ft. spacing between rows with one sett per running foot of row length,
C₂=2 ft. spacing between rows with one sett per running foot of row length and
C₃=2 ft. spacing between rows with one sett per 1½ ft. of row length.

3. DESIGN :

(i) and (ii) R.B.D. with 6 replications. (iii) (a) 72'×30'. (b) 72'×24'. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Germination %, no. of tillers, and yield of sugarcane. (iv) (a) 1955—1957. (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 45.27 tons/ac. (ii) 1.61 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	C ₁	C ₂	C ₃
Av. yield	44.26	45.51	46.05

S.E./mean = 0.66 tons/ac.

Crop :- Sugarcane.**Ref :- U.P. 56(328).****Zone :- Amroha (Moradabad, c.f.).****Type :- 'C'.**

Object :— To study the effect of different spacings and seed rates on the yield of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) *Chari* and *urd.* (c) N.A. (ii) *Domot.* (iii) 7½ mds./plot of compost+65 srs./plot of A/S+4 srs./plot of G.N.C. (iv) CO.S. 510 (improved). (v) (a) 15 ploughings by *desi* plough. (b) Flat planting. (c) and (d) As per treatments. (e) N.A. (vi) 14 to 16.3.1956. (vii) Irrigated. (viii) 4 hoeings by spade and 1 earthing. (ix) N.A. (x) 15 to 22, 25 to 29.4.1957 and 3, 4.5.1957.

2. TREATMENTS :

Same as in expt. no. 55(298) on page 1205.

3. DESIGN :

(i) and (ii) R.B.D. with 6 replications. (iii) (a) 72'×30'. (b) 1/27.50 ac. for C₁, 1/25.38 ac. for C₂ and C₃. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of sugarcane. (iv) (a) 1955—1957. (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 35.64 tons/ac. (ii) 0.98 tons/ac. (iii) Treatment differences are highly significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	C ₁	C ₂	C ₃
Av. yield	38.34	35.23	33.36

S.E./mean = 0.40 tons/ac.

Crop :- Sugarcane.**Ref :- U.P. 57(256).****Zone :- Amroha (Moradabad, c.f.).****Type :- 'C'.**

Object :— To study the effect of different spacings and seed rates on the yield of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Sandy loam. (iii) Compost at 250 mds./ac.—5 mds./ac. of manure mixture+2 mds./ac. of horn scals at planting. (iv) CO.S. 321. (v) (a) N.A. (b) Flat planting. (c) and (d) As per treatments. (e) N.A. (vi) N.A. (vii) Irrigated. (viii) to (x) N.A.

2. TREATMENTS :

Same as in expt. no. 55(298) on page 1205.

3. DESIGN :

(i) and (ii) R.B.D. with 6 replications. (iii) (a) 72'×30'. (b) 66'×24' for C₁, 66'×26' for C₂ and C₃. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of sugarcane. (iv) (a) 1955—1957. (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 33.50 tons/ac. (ii) 1.92 tons/ac. (iii) Treatment differences are highly significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	C ₁	C ₂	C ₃
Av. yield	35.60	36.17	28.72

S.E./mean = 0.78 tons/ac.

Crop :- Sugarcane.**Ref :- U.P. 56(332).****Zone :- Bilari (Moradabad, c.f.).****Type :- 'C'.**

Object :—To study the effect of different spacings and seed rates on the yield of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Loam. (iii) N.A. (iv) CO.S. 245 (improved). (v) (a) and (b) N.A. (c) and (d) As per treatments. (e) N.A. (vi) to (ix) N.A. (x) 22 and 23.3.1957.

2. TREATMENTS :

Same as in expt. no. 55(298) on page 1205.

3. DESIGN :(i) and (ii) R.B.D. with 6 replications. (iii) (a) N.A. (b) 67'×18' for C₁ and 67'×20' for C₂ and C₃. (iv) Yes.**4. GENERAL :**

(i) and (ii) N.A. (iii) Germination %, no. of tillers, millable cane and yield of sugarcane. (iv) (a) 1956—1957. (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 26.72 tons/ac. (ii) 2.32 tons/ac. (iii) Treatment differences are highly significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	C ₁	C ₂	C ₃
Av. yield	30.76	25.80	23.61

S.E./mean = 0.95 tons/ac.

Crop :- Sugarcane.**Ref :- U.P. 57(239).****Zone :- Bilari (Moradabad, c.f.).****Type :- 'C'.**

Object :—To study the effect of different spacings and seed rates on the yield of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Loam. (iii) and (iv) N.A. (v) (a) and (b) N.A. (c) and (d) As per treatments. (e) N.A. (vi) to (ix) N.A. (x) 16 to 26.3.1958.

2. TREATMENTS :

Same as in expt. no. 55(298) on page 1205.

3. DESIGN :

(i) and (ii) R.B.D. with 6 replications. (iii) (a) N.A. (b) 66'×20'. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of sugarcane. (iv) (a) 1956—1957. (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 21.71 tons/ac. (ii) 1.49 tons/ac. (iii) Treatment differences are highly significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	C ₁	C ₂	C ₃
Av. yield	24.30	21.00	19.83

S.E./mean = 0.61 tons/ac.

Crop :- Sugarcane.**Ref :- U.P. 59(62).****Zone :- Khatauli (Muzaffarnagar, c.f.).****Type :- 'C'.**

Object :- To find out suitable crops for rotation with Sugarcane.

1. BASAL CONDITIONS :

(i) (a) and (b) As per treatments. (c) N.A. (ii) Loam. (iii) 30 srs./ac. of A/S. (iv) CO.S. 245 (improved). (v) (a) 6 ploughings. (b) Flat planting. (c) 63 setts (3 budded)/row. (d) 3' between rows. (e) N.A. (vi) 17.3.1959. (vii) Irrigated. (viii) 6 hoeings. (ix) N.A. (x) 21 to 24.1.1960.

2. TREATMENTS :

6 crop rotations : $T_1 = \text{G.M.} - \text{Wheat} - \text{Cotton} - \text{Fallow} - \text{Sugarcane}$, $T_2 = \text{G.M.} - \text{Wheat} - \text{Cotton} - \text{Meiha} - \text{Sugarcane}$, $T_3 = \text{G.M.} - \text{Wheat} - \text{Cotton} - \text{Pea} - \text{Sugarcane}$, $T_4 = \text{G.M.} - \text{Wheat} - \text{Moong} - \text{Sugarcane}$, $T_5 = \text{G.M.} - \text{Wheat} - (\text{Maize} + \text{moong}) - \text{Lahi} - \text{Sugarcane}$ and $T_6 = \text{G.M.} - \text{Wheat} - \text{Arvi} - \text{Potato} - \text{Sugarcane}$.

3. DESIGN :

(i) and (ii) R.B.D. with 4 replications. (iii) (a) 61' x 21'. (b) 61' x 15'. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Germination %, no. of tillers, juice analysis and yield of sugarcane. (iv) (a) and (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 14.87 tons/ac. (ii) 1.75 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	T_1	T_2	T_3	T_4	T_5	T_6
Av. yield	14.34	14.02	15.92	16.40	12.85	15.69

S.E./mean = 0.88 tons/ac.

Crop :- Sugarcane.**Ref :- U.P. 59(78).****Zone :- Mansurpur (Muzaffarnagar, c.f.).****Type :- 'C'.**

Object :- To find out suitable crops for rotation with Sugarcane.

1. BASAL CONDITIONS :

(i) (a) and (b) As per treatments. (c) N.A. (ii) Sandy loam. (iii) 50 srs./ac. of A/S. (iv) CO.S. 245 (improved). (v) (a) and (b) N.A. (c) 52 setts (3 budded)/row. (d) 3' between rows. (e) N.A. (vi) 20.2.1959 (vii) Irrigated. (viii) 4 hoeings. (ix) N.A. (x) 17 to 20.1.1960.

2. TREATMENTS :

5 crop rotations : $T_1 = \text{G.M.} - \text{Wheat} - \text{Cotton} - \text{Fallow} - \text{Sugarcane}$, $T_2 = \text{G.M.} - \text{Wheat} - \text{Cotton} - \text{Metha} - \text{Sugarcane}$, $T_3 = \text{G.M.} - \text{Wheat} - \text{Cotton} - \text{Pea} - \text{Sugarcane}$, $T_4 = \text{G.M.} - \text{Wheat} - \text{Moong} - \text{Sugarcane}$ and $T_5 = \text{G.M.} - \text{Wheat} - \text{Maize} + \text{moong} - \text{Lahi} - \text{Sugarcane}$.

3. DESIGN :

(i) and (ii) R.B.D. with 4 replications. (iii) (a) 50' x 36'. (b) 44' x 30'. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Germination %, no. of tillers, juice analysis and yield of sugarcane. (iv) (a) and (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 16.17 tons/ac. (ii) 1.84 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	T ₁	T ₂	T ₃	T ₄	T ₅
Av. yield	15.16	17.04	17.10	14.36	17.20

S.E./mean = 0.92 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 57(65).

Zone :- Mansurpur (Muzaffarnagar, c.f.).

Type :- 'C'.

Object :—To study the effect of mixed cropping in Sugarcane planted on different times.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) *Sanai*. (c) Nil. (ii) Sandy loam. (iii) G.M. (*sanai*) + 5 mds./ac. of G.N.C. + 20 srs./ac. of A/S + 31 srs./ac. of Urea. (iv) CO.S. 245 (improved). (v) (a) 5 ploughings by tractor and one ploughing by *desi* plough. (b) Flat planting. (c) 75 setts (3 budded)/row. (d) and (e) N.A. (vi) 9.10.1957 and 29.3.1958. (vii) Irrigated. (viii) 4 hoeings by cultivator and 2 hoeings by spade. (ix) N.A. (x) 5 and 6.2.1959.

2. TREATMENTS :

6 cultural treatments : T₁=Sugarcane (autumn planting), T₂=T₁+*lahi* as inter-crop, T₃=T₁+pea as inter-crop, T₄=Sugarcane (spring planting) after harvesting of *lahi*, T₅=Sugarcane (spring planting) after harvesting of pea and T₆=Sugarcane (spring planting) after fallow.

3. DESIGN :

(i) and (ii) R.B.D. with 4 replications. (iii) (a) 73' × 21'. (b) 73' × 15'. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Germination %, no. of tillers, juice analysis and yield of sugarcane. (iv) (a) 1957--1959 (not conducted in 1958). (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 20.61 tons/ac. (ii) 2.78 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	T ₁	T ₂	T ₃	T ₄	T ₅	T ₆
Av. yield	22.04	21.11	22.25	18.78	20.23	19.28

S.E./mean = 1.39 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 59(68).

Zone :- Mansurpur (Muzaffarnagar, c.f.).

Type :- 'C'.

Object :—To study the effect of mixed cropping in Sugarcane planted on different times.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Sandy loam. (iii) N.A. (iv) CO.S. 245 (improved). (v) (a) N.A. (b) Flat planting. (c) 75 setts (3 budded)/row. (d) 2½' between rows. (e) N.A. (vi) 15 and 16.10.1959. (vii) to (ix) N.A. (x) 23 and 24.2.1961.

2. TREATMENTS :

Same as in expt. no. 57(65) above.

3. DESIGN :

(i) and (ii) R.B.D. with 4 replications. (iii) (a) 73' × 22'. (b) 67' × 16½'. (iv) Yes

4. GENERAL :

(i) and (ii) N.A. (iii) Germination %, no. of tillers, juice analysis and yield of sugarcane. (iv) (a) 1957--1959 (not conducted in 1958). (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 15.44 tons/ac. (ii) 2.53 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	T ₁	T ₂	T ₃	T ₄	T ₅	T ₆
Av. yield	18.12	15.38	17.46	14.91	13.63	13.16

S.E./mean = 1.27 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 55(307).

Zone :- Kashipur (Nainital, c.f.).

Type :- 'C'.

Object :—To study the effect of different spacings and seed rates on the yield of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) *Sanai*. (c) Nil. (ii) *Domat* soil. (iii) 2.75 mds./ac. of A/S+4 mds./ac. of castor cake. (iv) CO.S. 245 (improved). (v) (a) 4 ploughings by tractor and 4 harrowings by tractor harrow. (b) Flat planting. (c) and (d) As per treatments. (e) N.A. (vi) 23.3.1955. (vii) Unirrigated. (viii) Binding of cane, 9 hoeings by spade and 1 hoeing by tractor. (ix) 61.47". (x) 26, 27 and 29.12.1955.

2. TREATMENTS :

3 cultural treatments : C₁=3' spacing between rows with 1 sett per running foot of row length, C₂=2 ft. spacing between rows with one sett per running foot of row length and C₃=2 ft. spacing between rows with one sett per 1½ ft. of row length.

3. DESIGN :

(i) and (ii) R.B.D. with 6 replications. (iii) (a) 72' × 30'. (b) 66' × 24' for C₁, 66' × 26' for C₂ and C₃. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Germination %, no. of tillers and yield of sugarcane. (iv) (a) 1955--1957. (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 10.84 tons/ac. (ii) 3.00 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	C ₁	C ₂	C ₃
Av. yield	10.91	12.98	8.64

S.E./mean = 1.22 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 56(331).

Zone :- Kashipur (Nainital, c.f.).

Type :- 'C'.

Object :—To study the effect of different spacings and seed rates on the yield of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) *Sanai*. (c) Nil. (ii) Loam. (iii) G.M. (*sanai*). (iv) CO.S. 514 (improved). (v) (a) N.A. (b) Flat planting. (c) and (d) As per treatments. (e) N.A. (vi) 18 and 19.2.1956. (vii) to (ix) N.A. (x) 14 to 16.3.1957.

2. TREATMENTS :

Same as in expt. no. 55(307) on page 1210.

3. DESIGN :

(i) and (ii) R.B.D. with 6 replications. (iii) (a) 72'×24'. (b) 72'×18' for C₁, 72'×20' for C₂ and C₃. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Germination %, no. of tillers, yield of sugarcane and juice analysis. (iv) (a) 1955—1957. (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 26.37 tons/ac. (ii) 4.64 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	C ₁	C ₂	C ₃
Av. yield	27.41	28.66	23.05

S.E./mean = 1.90 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 57(195).

Zone :- Kashipur (Nainital, c.f.).

Type :- 'C'.

Object :—To study the effect of different spacings and seed rates on the yield of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) *Lahi*. (c) N.A. (ii) Loam. (iii) N.A. (iv) CO.S. 245. (v) (a) N.A. (b) Flat planting. (c) and (d) As per treatments. (e) N.A. (vi) 9.2.1957. (vii) to (ix) N.A. (x) 25 to 27.3.1958.

2. TREATMENTS :

Same as in expt. no. 55(307) on page 1210.

3. DESIGN :

(i) and (ii) R.B.D. with 6 replications. (iii) (a) 72'×24'. (b) 66'×18'. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of sugarcane. (iv) (a) 1955—1957. (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 16.58 tons/ac. (ii) 0.83 tons/ac. (iii) Treatment differences are highly significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	C ₁	C ₂	C ₃
Av. yield	17.12	19.01	13.61

S.E./mean = 0.34 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 54(251).

Zone :- Haldwani (Nainital, c.f.).

Type :- 'C'.

Object :—To study the effect of mixed cropping in Sugarcane planted on different dates.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Loam. (iii) N.A. (iv) CO. 453 (improved). (v) (a) to (e) N.A. (vi) 10.11.1953. (vii) Irrigated. (viii) and (ix) N.A. (x) 6.2.1955.

2. TREATMENTS :

4 cultural treatments : T_1 =Sugarcane (autumn planting), T_2 = T_1 with gram inter-sown, T_3 = T_1 with *lahi* inter-sown and T_4 =Sugarcane (spring planting).

3. DESIGN :

(i) and (ii) R.B.D. with 4 replications. (iii) (a) N.A. (b) $63' \times 18'$. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Germination%, no of tillers, millable cane, yield of sugarcane and juice analysis. (iv) (a) 1954—1955. (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 27.29 tons/ac. (ii) 4.26 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	T_1	T_2	T_3	T_4
Av. yield	28.49	23.83	30.03	26.81

S.E./mean = 2.13 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 55(251).

Zone :- Haldwani (Nainital, c.f.).

Type :- 'C'.

Object :—To study the effect of mixed cropping in Sugarcane planted on different dates.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Loam. (iii) N.A. (iv) CO. 453 (improved). (v) (a) and (b) N.A. (c) 65 sets (3 budded)/row. (d) Rows 3' apart. (e) N.A. (vi) 23.10.1954. (vii) Irrigated. (viii) and (ix) N.A. (x) 17 and 18.1.1956.

2. TREATMENTS :

4 cultural treatments : T_1 =Sugarcane (autumn planting), T_2 = T_1 with *lahi* as inter-crop, T_3 = T_1 with pea as inter-crop and T_4 =Sugarcane (spring planting).

3. DESIGN :

(i) and (ii) R.B.D. with 4 replications. (iii) (a) and (b) $66' \times 18'$. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Germination %, no. of tillers, millable cane, yield of sugarcane and juice analysis. (iv) (a) 1954—1955. (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 30.20 tons/ac. (ii) 4.22 tons/ac. (iii) Treatment differences are significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	T_1	T_2	T_3	T_4
Av. yield	36.54	29.87	26.79	27.60

S.E./mean = 2.11 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 56(138).

Zone :- Haldwani (Nainital, c.f.).

Type :- 'C'.

Object :—To study the effect of providing trash cover for control of weeds on Sugarcane.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Loam. (iii) and (iv) N.A. (v) (a) N.A. (b) Flat planting. (c) 1 sett (3 budded)/foot. (d) 3' between rows. (e) N.A. (vi) to (x) N.A.

2. TREATMENTS :

3 cultural treatments : T_1 =Trash cover 4" to 6" thick, T_2 =No trash cover, no hoeings and weedings but earthing at proper time and T_3 =Normal cultivation with hoeings and earthing at proper time.

3. DESIGN :

(i) and (ii) R.B.D. with 6 replications. (iii) (a) and (b) 1/36.3 ac. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of sugarcane. (iv) (a) and (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 26.17 tons/ac. (ii) 2.38 tons/ac. (iii) Treatment differences are highly significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	T_1	T_2	T_3
Av. yield	27.18	23.05	28.28

S.E./mean = 0.97 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 55(294).

Zone :- Pilibhit (Pilibhit, c.f.).

Type :- 'C'.

Object :- To study the effect of different spacings and seed rates on the yield of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) *Sanai*. (c) Nil. (ii) *Domat*. (iii) 40 lb./ac. of N as *sanai* (G.M.) + 14 lb./ac. of N as A/S. (iv) CO.S. 527 (improved). (v) (a) 4 ploughings and 8 harrowings. (b) Flat planting. (c) and (d) As per treatments. (e) N.A. (vi) 26.2.1955. (vii) Irrigated. (viii) 5 hoeings by *kudali*. (ix) N.A. (x) 14.2.1956.

2. TREATMENTS :

3 cultural treatments : C_1 =3 ft. spacing between rows with one sett per running foot of row length, C_2 =2 ft. spacing between rows with one sett per running foot of row length and C_3 =2 ft. spacing between rows with one sett per 1½ ft. of row length.

3. DESIGN :

(i) and (ii) R.B.D. with 5 replications. (iii) (a) 66'×24'. (b) 60'×18' for C_1 , 60'×20' for C_2 and C_3 . (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Germination %, no. of tillers, millable cane and yield of sugarcane. (iv) (a) 1955—1957. (expt. for 1956—N.A.) (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 25.95 tons/ac. (ii) 1.82 tons/ac. (iii) Treatment differences are highly significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	C_1	C_2	C_3
Av. yield	30.37	25.47	22.00

S.E./mean = 0.81 tons/ac.

Crop :- Sugarcane.**Ref :- U.P. 57(204).****Zone :- Pilibhit (Pilibhit, c.f.).****Type :- 'C'.**

Object :— To study the effect of different spacings and seed rates on the yield of Sugarcane.

1. BASAL CONDITIONS :(i) (a) N.A. (b) *Sanai*. (c) N.A. (ii) Loam. (iii) G.M. (*sanai*). (iv) CO.S. 321. (v) (a) N.A. (b) Flat planting. (c) and (d) As per treatments. (e) N.A. (vi) N.A. (vii) Irrigated. (viii) N.A. (ix) 40" to 50". (x) N.A.**2. TREATMENTS :**

Same as in expt. no. 55(294) on page 1213.

3. DESIGN :

(i) and (ii) R.B.D. with 6 replications. (iii) (a) 72' × 24'. (b) 66' × 18'. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of sugarcane. (iv) (a) 1955—1957 (expt. for 1956—N.A.). (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 22.64 tons/ac. (ii) 2.92 tons/ac. (iii) Treatment differences are highly significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	C ₁	C ₂	C ₃
Av. yield	20.30	27.94	19.69
S.E./mean = 1.19 tons/ac.			

Crop :- Sugarcane.**Ref :- U.P. 57(365).****Zone :- Rampur (Rampur, c.f.).****Type :- 'C'.**

Object :— To study the effect of providing trash cover for control of weeds on Sugarcane.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Sandy loam. (iii) N.A. (iv) CO. 356 (improved). (v) and (vi) N.A. (vii) Irrigated. (viii) to (x) N.A.

2. TREATMENTS :3 cultural treatments : T₁=Trash cover 2" to 4" thick and earthing at proper time, T₂=Normal cultivation with hoeings, weedings and earthing at proper time and T₃=Control (no hoeing and weeding but earthing at proper time).**3. DESIGN :**

(i) and (ii) R.B.D. with 5 replications. (iii) (a) N.A. (b) 26' × 15'. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of sugarcane. (iv) (a) 1957—1959. (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 24.01 tons/ac. (ii) 1.78 tons/ac. (iii) Treatment differences are highly significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	T ₁	T ₂	T ₃
Av. yield	26.81	24.02	21.21
S.E./mean = 0.80 tons/ac.			

Crop :- Sugarcane.**Ref :- U.P. 58(177).****Zone :- Rampur (Rampur, c.f.).****Type :- 'C'.**

Object :— To study the effect of providing trash cover for control of weeds in Sugarcane.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) *Sanai*. (c) N.A. (ii) Sandy loam. (iii) G.M. (*sanai*). (iv) CO. 356 (improved). (v) (a) N.A. (b) Flat planting (c) 45 setts (3 budded)/row. (d) 3' between rows. (e) N.A. (vi) 19 and 20.2.1958. (vii) to (ix) N.A. (x) 18 to 23.3.1959.

2. TREATMENTS :

Same as in expt. no. 57(365) on page 1214.

3. DESIGN :

(i) and (ii) R.B.D. with 6 replications. (iii) (a) 40'×21'. (b) 34'×15'. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Germination %, no. of tillers and yield of sugarcane. (iv) (a) 1957—1959. (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 22.41 tons/ac. (ii) 5.14 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	T ₁	T ₂	T ₃
Av. yield	26.89	20.58	19.76

S.E./mean = 2.09 tons/ac.

Crop :- Sugarcane.**Ref :- U.P. 59(200).****Zone :- Rampur (Rampur, c.f.).****Type :- 'C'.**

Object :— To study the effect of providing trash cover for control of weeds on Sugarcane.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Sandy loam. (iii) and (iv) N.A. (v) (a) N.A. (b) Flat planting. (c) 1 sett (3 budded)/running foot. (d) Rows 3' apart. (e) N.A. (vi) to (ix) N.A. (x) 8 to 10.2.1960.

2. TREATMENTS :

Same as in expt. no. 57(365) on page 1214.

3. DESIGN :

(i) and (ii) R.B.D. with 6 replications. (iii) (a) 66'×18'. (b) 60'×18'. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Germination %, no. of tillers, yield of sugarcane and juice analysis. (iv) (a) 1957—1959. (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 9.24 tons/ac. (ii) 2.70 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	T ₁	T ₂	T ₃
Av. yield	11.54	8.33	7.86

S.E./mean = 1.10 tons/ac.

Crop :- Sugarcane.**Ref :- U.P. 55(299).****Zone :- Rampur (Rampur, c.f.).****Type :- 'C'.**

Object :—To study the effect of different spacings and seed rates on the yield of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) *Sanai*. (c) Nil. (ii) Sandy loam. (iii) G.M. (*sanai*). (iv) CO.S. 514 (improved). (v) (a) and (b) N.A. (c) and (d) As per treatments. (e) N.A. (vi) 21 and 22.2.1955. (vii) Irrigated. (viii) and (ix) N.A. (x) 18 to 25.2.1956.

2. TREATMENTS :

3 cultural treatments : $C_1=3'$ spacing between rows with one sett per running foot of row length, $C_2=2'$ spacing between rows with one sett per running foot of row length and $C_3=2'$ spacing between rows with one sett per $1\frac{1}{2}$ ft. of row length.

3. DESIGN :

(i) and (ii) R.B.D. with 6 replications. (iii) (a) N.A. (b) $54' \times 18'$ for C_1 , $54' \times 20'$ for C_2 and C_3 . (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Germination %, no. of tillers and yield of sugarcane. (iv) (a) 1955—1957. (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 23.11 tons/ac. (ii) 1.08 tons/ac. (iii) Treatment differences are highly significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	C_1	C_2	C_3
Av. yield	26.07	22.47	20.80

S.E./mean = 0.44 tons/ac.

Crop :- Sugarcane.**Ref :- U.P. 56(333).****Zone :- Rampur (Rampur, c.f.).****Type :- 'C'.**

Object :—To study the effect of different spacings and seed rates on the yield of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) *Sanai*. (c) Nil. (ii) Sandy loam. (iii) F.Y.M. at 25 lb./ac. of N+Chlordane at 20 lb./ac. at planting. (iv) CO.S. 514 (improved). (v) (a) N.A. (b) Flat planting. (c) and (d) As per treatments. (e) N.A. (vi) 4 and 5.11.1955. (vii) Irrigated. (viii) and (ix) N.A. (x) 28.2.1957 to 3.3.1957.

2. TREATMENTS :

Same as in expt. no. 55(299) above.

3. DESIGN :

(i) and (ii) R.B.D. with 6 replications. (iii) (a) $63' \times 30'$. (b) $57' \times 24'$ for C_1 , $57' \times 26'$ for C_2 and C_3 . (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Germination %, no. of tillers and yield of sugarcane. (iv) (a) 1955—1957. (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 22.27 tons/ac. (ii) 1.90 tons/ac. (iii) Treatment differences are highly significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	C_1	C_2	C_3
Av. yield	24.75	23.76	18.30

S.E./mean = 0.77 tons/ac.

Crop :- Sugarcane.**Ref :- U.P. 57(179).****Zone :- Rampur (Rampur, c.f.).****Type :- 'C'.**

Object :—To study the effect of different spacings and seed rates on the yield of Sugarcane.

1. BASAL CONDITIONS :(i) (a) N.A. (b) *Sanai*. (c) N.A. (ii) Sandy loam. (iii) G.M. (*sanai*). (iv) CO.S. 514. (v) (a) and (b) N.A. (c) and (d) As per treatments. (e) N.A. (vi) 25 to 27.10.1956. (vii) to (x) N.A.**2. TREATMENTS :**

Same as in expt. no. 55(299) on page 1216.

3. DESIGN :

(i) and (ii) R.B.D. with 6 replications. (iii) (a) 66' × 30'. (b) 60' × 24'. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of sugarcane. (iv) (a) 1955—1957. (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 26.53 tons/ac. (ii) 2.56 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	C ₁	C ₂	C ₃
Av. yield	25.26	28.13	26.20

S.E./mean = 1.04 tons/ac.

Crop :- Sugarcane.**Ref :- U.P. 57(212).****Zone :- Rampur (Rampur, c.f.).****Type :- 'C'.**

Object :—To study the effect of mixed cropping in Sugarcane planted on different dates.

1. BASAL CONDITIONS :

(i) to (x) N.A.

2. TREATMENTS :4 cultural treatments : T₁=Sugarcane (autumn planting), T₂=T₁ with pea as inter-crop, T₃=Sugarcane (spring planting) after harvesting of pea and T₄=Sugarcane (spring planting).**3. DESIGN :**

(i) and (ii) R.B.D. with 6 replications. (iii) (a) N.A. (b) 58' × 12'. (iv) Yes.

4. GENERAL :

(i) to (iii) N.A. (iv) (a) and (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 22.24 tons/ac. (ii) 2.48 tons/ac. (iii) Treatment differences, are highly significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	T ₁	T ₂	T ₃	T ₄
Av. yield	23.91	29.86	27.56	7.61

S.E./mean = 1.01 tons/ac.

Crop :- Sugarcane.**Ref :- U.P. 56(305).****Zone :- Rosa (Shahjahanpur, c.f.).****Type :- 'C'.**

Object :—To study the effect of different spacings and seed rates on the yield of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) *Sanai*. (c) Nil. (ii) Sandy loam. (iii) *Sanai* (G.M.) + village compost at 210 mds./ac + A/S at 25½ mds./ac. (iv) CO.S. 510 (improved). (v) (a) 16 ploughings. (b) N.A. (c) and (d) As per treatments. (e) N.A. (vi) 5 and 6.3.1956. (vii) Irrigated. (viii) 1 earthing by spade and 6 hoeings by *kassi*. (ix) 40". (x) 1 to 5.2.1957.

2. TREATMENTS :

Same as in expt. no. 55(299) on page 1216.

3. DESIGN :

(i) and (ii) R.B.D. with 6 replications. (iii) (a) 72' × 24'. (b) 66' × 18' for C₁, 66' × 20' for C₂ and C₃. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Germination %, no. of tillers, millable cane and yield of sugarcane. (v) (a) 1956—1957. (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 31.70 tons/ac. (ii) 2.20 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	C ₁	C ₂	C ₃
Av. yield	32.48	31.69	30.92

S.E./mean = 0.90 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 57(235).

Zone :- Rosa (Shahjahanpur, c.f.).

Type :- 'C'.

Object :—To study the effect of different spacings and seed rates on the yield of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Sandy loam. (iii) and (iv) N.A. (v) (a) and (b) N.A. (c) and (d) As per treatments. (e) N.A. (vi) to (x) N.A.

2. TREATMENTS :

Same as in expt. no. 55(299) on page 1216.

3. DESIGN :

(i) and (ii) R.B.D. with 6 replications. (iii) (a) N.A. (b) 66' × 20'. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of sugarcane. (iv) (a) 1956—1957. (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 25.90 tons/ac. (ii) 2.28 tons/ac. (iii) Treatment differences are significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	C ₁	C ₂	C ₃
Av. yield	27.45	26.95	23.30

S.E./mean = 0.93 tons/ac.

Crop :- Sugarcane.**Ref :- U.P. 57(68).****Zone :- Deoband (Saharanpur, c.f.).****Type :- 'C'.**

Object :—To study the effect of mixed cropping on Sugarcane planted on different times.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Fallow. (c) Nil. (ii) Loam. (iii) 60 srs./ac. of A/S. (iv) CO.S. 245 (improved). (v) (a) 3 ploughings by *desi* plough and 4 ploughings by tractor. (b) Flat planting. (c) 68 setts (3 budded)/row. (d) Rows 3' apart. (e) N.A. (vi) 11.10.1957, 9.3.1958 and 28.3.1958. (vii) Irrigated. (viii) 6 hoeings. (ix) N.A. (x) 31.3.1959 to 1.4.1959.

2. TREATMENTS :

6 cultural treatments : T_1 =Sugarcane (autumn planting), T_2 = T_1 with gram as inter-crop, T_3 = T_1 with pea as inter-crop, T_4 =Sugarcane (spring planting) after gram, T_5 =Sugarcane (spring planting) after pea and T_6 =Sugarcane (spring planting).

3. DESIGN :

(i) and (ii) R.B.D. with 4 replications. (iii) (a) 66'×21'. (b) 60'×15'. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Germination %, no. of tillers, juice analysis and yield of sugarcane. (iv) (a) 1957—1959. (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 20.21 tons/ac. (ii) 1.82 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	T_1	T_2	T_3	T_4	T_5	T_6
Av. yield	21.60	19.30	18.85	22.43	19.54	19.54

S.E./mean = 0.91 tons/ac.

Crop :- Sugarcane.**Ref :- U.P. 58(62).****Zone :- Deoband (Saharanpur, c.f.).****Type :- 'C'.**

Object :—To study the effect of mixed cropping on Sugarcane planted on different times.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) *Lobia*. (c) Nil. (ii) Light loam. (iii) G.M. (*lobia*)+2.5 srs./plot. of A/S. (iv) CO.S. 245 (improved). (v) (a) 4 ploughings by *desi* plough. (b) Flat planting. (c) 58 setts (3 budded)/row. (d) Rows 3' apart. (e) N.A. (vi) 18.10.1958. (vii) to (x) N.A.

2. TREATMENTS :

Same as in expt. no. 57(68) above.

3. DESIGN :

(i) and (ii) R.B.D. with 4 replications. (iii) (a) 56'×27'. (b) 50'×21'. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Germination %, no. of tillers, juice analysis and yield of sugarcane. (iv) (a) 1957—1959. (b) No. (c) Nil (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 29.86 tons/ac. (ii) 2.20 tons/ac. (iii) Treatment differences are highly significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	T_1	T_2	T_3	T_4	T_5	T_6
Av. yield	35.78	31.36	30.11	24.14	28.36	29.40

S.E./mean = 1.10 tons/ac.

Crop :- Sugarcane.**Ref :- U.P. 59(69).****Zone :- Deoband (Saharanpur, c.f.).****Type :- 'C'.**

Object :—To study the effect of mixed cropping on Sugarcane planted on different times.

1. BASAL CONDITIONS :(i) (a) N.A. (b) *Lobia*. (c) N.A. (ii) Light loam. (iii) N.A. (iv) CO.S. 245 (improved). (v) (a) 13 ploughings. (b) Flat planting. (c) N.A. (d) Rows 3' apart. (e) N.A. (vi) 5.10.1959. (vii) to (ix) N.A. (x) 16 to 20.2.1961.**2. TREATMENTS :**

Same as in expt. no. 57(68) on page 1219.

3. DESIGN :

(i) and (ii) R.B.D. with 4 replications. (iii) (a) 56' × 27'. (b) 56' × 21'. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Germination %, no. of tillers, juice analysis and yield of sugarcane. (iv) (a) 1957—1959. (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 26.22 tons/ac. (ii) 2.24 tons/ac. (iii) Treatment differences are highly significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	T ₁	T ₂	T ₃	T ₄	T ₅	T ₆
Av. yield	31.24	28.48	29.10	22.96	18.48	27.08

S.E./mean = 1.12 tons/ac.

Crop :- Sugarcane.**Ref :- U.P. 57(67).****Zone :- Iqbalpur (Saharanpur, c.f.).****Type :- 'C'.**

Object :—To study the effect of mixed cropping on Sugarcane planted on different times.

1. BASAL CONDITIONS :(i) (a) N.A. (b) Wheat. (c) N.A. (ii) Sandy loam. (iii) N.A. (iv) CO.S. 245 (improved). (v) (a) 6 ploughings by *desi* plough and 2 ploughings by tractor. (b) Flat planting. (c) 75 setts (3 budded)/row. (d) Rows 3' apart. (e) N.A. (vi) 16.10.1957, 25.2.1958 and 12.4.1958. (vii) Irrigated. (viii) 3 blind hoeings by *kassi* and 7 hoeings by cultivator. (ix) N.A. (x) 12 and 13.3.1959.**2. TREATMENTS :**

Same as in expt. no. 57(68) on page 1219.

3. DESIGN :

(i) and (ii) R.B.D. with 4 replications. (iii) (a) 73' × 24'. (b) 67' × 18'. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Germination %, no. of tillers, juice analysis and yield of sugarcane. (iv) (a) 1955—1957. (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 14.71 tons/ac. (ii) 1.12 tons/ac. (iii) Treatment differences are highly significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	T ₁	T ₂	T ₃	T ₄	T ₅	T ₆
Av. yield	16.53	15.77	12.52	14.97	12.11	16.38

S.E./mean = 0.56 tons/ac.

Crop :- Sugarcane.**Ref :- U.P. 59(71).****Zone :- Iqbalpur (Saharanpur, c.f.).****Type :- 'C'.**

Object :—To study the effect of mixed cropping on Sugarcane planted on different times.

1. BASAL CONDITIONS :(i) (a) N.A. (b) Fallow. (c) Nil. (ii) Light loam. (iii) 35 srs./ac. of A/S+3 mds./ac. of G.N.C. (iv) CO. 951 (improved). (v) (a) 8 *desi* ploughings. (b) Flat planting. (c) 75 setts (3 budded)/row. (d) 3' between rows. (e) N.A. (vi) 21.10.1959. (vii) to (ix) N.A. (x) 6 to 8.2.1961.**2. TREATMENTS :**

Same as in expt. no. 57(68) on page 1219.

3. DESIGN :

(i) and (ii) R.B.D. with 4 replications. (iii) (a) 73' × 24'. (b) 67' × 18'. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Germination %, no. of tillers, juice analysis and yield of sugarcane. (iv) (a) 1957—1959 (expt. not conducted in 1958). (b), No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 27.17 tons/ac. (ii) 2.43 tons/ac. (iii) Treatment differences are highly significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	T ₁	T ₂	T ₃	T ₄	T ₅	T ₆
Av. yield	30.48	30.87	28.55	22.17	23.12	27.82

S.E./mean = 1.21 tons/ac.

Crop :- Sugarcane.**Ref :- U.P. 57(66).****Zone :- Saharanpur (Saharanpur, c.f.).****Type :- 'C'.**

Object :—To study the effect of mixed cropping on Sugarcane planted on different times.

1. BASAL CONDITIONS :(i) (a) N.A. (b) *Sanai*. (c) Nil. (ii) N.A. (iii) G.M. (*sanai*)+5 mds./ac. of A/S+4 mds./ac. of G.N.C. (iv) CO.S. 515 (improved). (v) (a) 4 ploughings, 8 applications of roller and 8 plankings. (b) Flat planting. (c) 92 setts (3 budded)/row. (d) 3' between rows. (e) N.A. (vi) 7.10.1957, 18.2.1958, 12.3.1958 and 1.4.1958. (vii) Irrigated. (viii) 4 blind hoeings and 15 hoeings by cultivator and *khurpi*. (ix) N.A. (x) 29 and 30.12.1958.**2. TREATMENTS**

Same as in expt. no. 57(68) on page 1219.

3. DESIGN :

(i) and (ii) R.B.D. with 4 replications. (iii) (a) 90' × 30'. (b) 84' × 24'. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Germination %, no. of tillers, juice analysis and yield of sugarcane. (iv) (a) 1957—1959. (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 19.30 tons/ac. (ii) 1.93 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	T ₁	T ₂	T ₃	T ₄	T ₅	T ₆
Av. yield	19.84	20.11	19.82	17.95	20.90	17.21

S.E./mean = 0.96 tons/ac.

Crop :- Sugarcane.**Ref :- U.P. 58(63).****Zone :- Saharanpur (Saharanpur, c.f.).****Type :- 'C'.**

Object :—To study the effect of mixed cropping on Sugarcane planted on different times.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) *Sanai*. (c) Nil. (ii) Loam. (iii) G.M. (*sanai*). (iv) CO.S. 245 (improved). (v) (a) 10 ploughings by *desi* plough. (b) Flat planting. (c) 62 setts (3 budded)/row. (d) 3' between rows. (e) N.A. (vi) 24.10.1958. (vii) to (ix) N.A. (x) 30.1.1960 to 1.2.1960.

2. TREATMENTS :

Same as in expt. no. 57(68) on page 1219.

3. DESIGN :

(i) and (ii) R.B.D. with 4 replications. (iii) (a) 60' × 30'. (b) 54' × 24'. (iv) Yes.

4. GENERAL :

(i) N.A. (ii) Aldrin applied. (iii) Germination %, no. of tillers, juice analysis and yield of sugarcane. (iv) (a) 1957—1959. (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 17.51 tons/ac. (ii) 1.92 tons/ac. (iii) Treatment differences are highly significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	T ₁	T ₂	T ₃	T ₄	T ₅	T ₆
Av. yield	19.29	19.55	19.81	10.68	17.07	18.65

S.E./mean = 0.96 tons/ac.

Crop :- Sugarcane.**Ref :- U.P. 59(70).****Zone :- Saharanpur (Saharanpur, c.f.).****Type :- 'C'.**

Object :—To study the effect of mixed cropping on Sugarcane planted on different times.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) *Sanai*. (c) Nil. (ii) Loam. (iii) G.M. (*sanai*). (iv) CO.S. 245 (improved). (v) (a) 7 ploughings by *desi* plough. (b) Flat planting. (c) 66 setts (3 budded)/row. (d) Rows 3' apart. (e) N.A. (vi) 23.10.1959. (vii) to (ix) N.A. (x) 27 and 28.12.1960.

2. TREATMENTS :

Same as in expt. no. 57(68) on page 1219.

3. DESIGN :

(i) and (ii) R.B.D. with 4 replications. (iii) (a) 64' × 27'. (b) 58' × 21'. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Germination %, no. of tillers, juice analysis and yield of sugarcane. (iv) (a) 1957—1959. (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 12.74 tons/ac. (ii) 1.54 tons/ac. (iii) Treatment differences are highly significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	T ₁	T ₂	T ₃	T ₄	T ₅	T ₆
Av. yield	15.12	13.27	14.52	7.85	9.51	16.15

S.E./mean = 0.77 tons/ac.

Crop :- Sugarcane.**Ref :- U.P. 59(66).****Zone :- Saharanpur (Saharanpur, c.f.).****Type :- 'C'.**

Object :—To find out suitable crops grown in rotation with Sugarcane.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) As per treatments. (c) N.A. (ii) Loam. (iii) 30 srs./ac. of A/S. (iv) CO. S. 245 (improved). (v) (a) 6 *desi* ploughings. (b) Flat planting. (c) 69 setts (3 budded)/row. (d) Rows 3' apart. (e) N.A. (vi) 21.2.1959. (vii) to (ix) N.A. (x) 27 to 29.1.1960.

2. TREATMENTS :

6 crop rotations : T_1 =G.M.—Wheat—Cotton—Fallow—Sugarcane, T_2 =G.M.—Wheat—Cotton—*Metha*—Sugarcane, T_3 =G.M.—Wheat—Cotton—Pea—Sugarcane, T_4 =G.M.—Wheat—*Urd*—Pea—Sugarcane, T_5 =G.M.—Wheat—*Bajra*+*urd*—Pea—Sugarcane and T_6 =G.M.—Wheat—*Lobia*—Potato—Sugarcane.

3. DESIGN :

(i) and (ii) R.B.D. with 4 replications. (iii) (a) 67'×24'. (b) 61'×18'. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Germination %, no. of tillers, juice analysis and yield of sugarcane. (iv) (a) and (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 26.26 tons/ac. (ii) 1.70 tons/ac. (iii) Treatment differences are highly significant. (iv) Av.yield of sugarcane in tons/ac.

Treatment	T_1	T_2	T_3	T_4	T_5	T_6
Av. yield	25.68	24.59	24.32	27.55	25.99	29.41

S.E./mean = 0.85 tons/ac.

Crop :- Sugarcane.**Ref :- U.P. 55(297).****Zone :- Biswan (Sitapur, c.f.).****Type :- 'C'.**

Object :—To study the effect of different spacings and seed rates on the yield of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Loam. (iii) N.A. (iv) CO. S. 510 (improved). (v) (a) and (b) N.A. (c) and (d) As per treatments. (e) N.A. (vi) N.A. (vii) Irrigated. (viii) and (ix) N.A. (x) 28.2.1956.

2. TREATMENTS :

3 cultural treatments : C_1 =3 ft. spacing between rows with one sett per running foot of row length, C_2 =2 ft. spacing between rows with one sett per running foot of row length and C_3 =2 ft. spacing between rows with one sett per 1½ ft. of row length.

3. DESIGN :

(i) and (ii) R.B.D. with 6 replications. (iii) (a) N.A. (b) 66'×24' for C_1 , 66'×26' for C_2 and C_3 . (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Germination %, no. of tillers, millable cane and yield of sugarcane. (iv) (a) 1955—contd. (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 21.81 tons/ac. (ii) 0.60 tons/ac. (iii) Treatment differences are highly significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	C ₁	C ₂	C ₃
Av. yield	24.96	18.42	22.04

S.E./mean = 0.24 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 55(296).

Zone :- Biswan (Sitapur, c.f.).

Type :- 'C'.

Object :— To study the effect of different spacings and seed rates on the yield of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Loam. (iii) N.A. (iv) CO. 453 (improved). (v) (a) and (b) N.A. (c) and (c) As per treatments. (e) N.A. (vi) N.A. (vii) Irrigated. (viii) and (ix) N.A. (x) 17 and 18.3.1956.

2. TREATMENTS to 4. GENERAL :

Same as in expt. no. 55(297) on page 1223.

5. RESULTS :

(i) 19.13 tons/ac. (ii) 2.12 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	C ₁	C ₂	C ₃
Av. yield	20.88	17.87	18.65

S.E./mean = 0.86 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 56(316).

Zone :- Bisawn (Sitapur, c.f.).

Type :- 'C'.

Object :—To study the effect of different spacings and seed rate on the yield of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) *Domat*. (iii) N.A. (iv) CO.S. 510 (improved). (v) (a) N.A. (b) Flat plant ng. (c) and (d) As per treatments. (e) N.A. (vi) 23.2.1956. (vii) Irrigated. (viii) and (ix) N.A. (x) 11.4.1957.

2. TREATMENTS :

Same as in expt. no. 55(297) on page 1223.

3. DESIGN :

(i) and (ii) R.B.D. with 6 replications. (iii) (a) 30'×72'. (b) [24'×72' for C₁, 26'×72' for C₂ and C₃. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Germination %, no. of tillers and yield of sugarcane. (iv) (a) 1955—contd. (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 17.82 tons/ac. (ii) 1.85 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	C ₁	C ₂	C ₃
Av. yield	18.50	17.99	16.97

S.E./mean = 0.75 tons/ac.

Crop :- Sugarcane.**Ref :- U.P. 57(184).****Zone :- Biswan (Sitapur, c.f.).****Type :- 'C'.**

Object :—To study the effect of different spacings and seed rates on the yield of Sugarcane.

1. BASAL CONDITIONS :

(i) to (iv) N.A. (v) (a) and (b) N.A. (c) and (d) As per treatments. (e) N.A. (vi) to (x) N.A.

2. TREATMENTS :

Same as in expt. no. 55(297) on page 1223.

3. DESIGN :

(i) and (ii) R.B.D. with 6 replications. (iii) (a) N.A. (b) 73' × 24'. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of sugarcane. (iv) (a) 1955—contd. (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 18.07 tons/ac. (ii) 2.54 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	C ₁	C ₂	C ₃
Av. yield	17.86	18.38	17.96

S.E./mean = 1.04 tons/ac.

Crop :- Sugarcane.**Ref :- U.P. 56(317).****Zone :- Hargaon (Sitapur, c.f.).****Type :- 'C'**

Object :—To study the effect of different spacings and seed rates on the yield of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Fallow. (c) Nil. (ii) Heavy loam. (iii) N.A. (iv) CO. 527 (improved). (v) (a) 7 ploughings. (b) Flat planting. (c) and (d) As per treatments. (e) N.A. (vi) 19 and 20.2.1956. (vii) Irrigated. (viii) 3 hoeings. (ix) 40%. (x) 14.2.1957.

2. TREATMENTS :3 cultural treatments : C₁=3 ft. spacing between rows with one sett per running foot of row length, C₂=2 ft. spacing between rows with one sett per running foot of row length and C₃=2 ft. spacing between rows with one sett per 1½' of row length.**3. DESIGN :**(i) and (ii) R.B.D. with 6 replications. (iii) (a) 66' × 24'. (b) 60' × 18' for C₁ and 60' × 20' for C₂ and C₃. (iv) Yes.**4. GENERAL :**

(i) and (ii) N.A. (iii) Germination %, no. of tillers, millable cane and yield of sugarcane. (iv) (a) 1956—1957. (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 26.00 tons/ac. (ii) 10.21 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	C ₁	C ₂	C ₃
Av. yield	25.63	22.16	30.21

S.E./mean = 4.17 tons/ac.

Crop :- Sugarcane.**Ref :- U.P. 57(238).****Zone :- Hargaon (Sitapur, c.f.).****Type :- 'C'.**

Object :— To study the effect of different spacings and seed rates on the yield of Sugarcane.

1. BASAL CONDITIONS :

(i) to (x) N.A.

2. TREATMENTS :

Same as in expt. no. 56(317) on page 1225.

3. DESIGN :

(i) and (ii) R.B.D. with 6 replications. (iii) (a) N.A. (b) 68' × 26'. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of sugarcane. (iv) to (vii) Nil.

5. RESULTS :

(i) 9.83 tons/ac. (ii) 2.32 tons/ac. (iii) Treatment differences are significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	C ₁	C ₂	C ₃
Av. yield	12.04	9.15	8.30

S.E./mean = 0.95 tons/ac.

Crop :- Sugarcane.**Ref :- U.P. 56(321).****Zone :- Maholi (Sitapur, c.f.).****Type :- 'C'.**

Object :— To study the effect of different spacings and seed rates on the yield of Sugarcane.

1. BASAL CONDITIONS :(i) (a) N.A. (b) *Santai*. (c) N.A. (ii) Loam. (iii) Compost at 80 mds./ac (iv) CO. S. 510 (improved). (v) (a) 7 ploughings by tractor. (b) Flat planting. (c) and (d) As per treatments. (e) N.A. (vi) 21.1.1956. (vii) Irrigated. (viii) 3 hoeings by hand hoe. (ix) 35". (x) 20 to 25.3.1957.**2. TREATMENTS :**

Same as in expt no. 56(317) on page 1225.

3. DESIGN :(i) and (ii) R.B.D. with 6 replications. (iii) (a) 72' × 30'. (b) 66' × 24' for C₁, 66' × 26' for C₂ and C₃. (iv) Yes.**4. GENERAL :**

(i) and (ii) N.A. (iii) Germination %, no. of tillers, millable cane and yield of sugarcane. (iv) (a) 1956—1957. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 27.96 tons/ac. (ii) 2.34 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	C ₁	C ₂	C ₃
Av. yield	28.43	27.91	27.55

S.E./mean = 0.96 tons/ac.

Crop :- Sugarcane.**Ref :- U.P. 57(254).****Zone :- Maholi (Sitapur, c.f.).****Type :- 'C'.**

Object :— To study the effect of different spacings and seed rates on the yield of Sugarcane.

1. BASAL CONDITIONS :

(i) to (iv) N.A. (v) (a) and (b) N.A. (c) and (d) As per treatments. (e) N.A. (vi) to (x) N.A.

2. TREATMENTS :

Same as in expt. no. 56(317) on page 1225.

3. DESIGN :

(i) and (ii) R.B.D. with 6 replications. (iii) (a) N.A. (b) 1/25.38 ac. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of sugarcane. (iv) (a) 1956—1957. (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 19.41 tons/ac. (ii) 1.50 tons/ac. (iii) Treatment differences are highly significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	C ₁	C ₂	C ₃
Av. yield	17.05	22.04	19.13

S.E./mean = 0.61 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 54(176).

Site :- Sugarcane Res. Sub-Stn., Kunraghat.

Type :- 'CV'

Object :— To study the effect of time of planting on different varieties of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) G.M.—wheat—cowpea—sugarcane—ratoon. (b) Cowpea. (c) Nil. (ii) (a) Sandy loam. (b) Refer soil analysis, Kunraghat. (iii) 25.10.1953 and 7 and 8.2.1954. (iv) (a) 1 ploughing by Victory plough and 1 planking. (b) Trench planting. (c) 60 (3 budded) setts/row. (d) 3' between rows. (e) 1 sett/foot (v) 60 lb./ac. of N as G.N.C. (vi) As per treatments. (vii) Irrigated. (viii) 10 hoeings. (ix) 35.07". (x) 21.10.1954 to 25.4.1955.

2. TREATMENTS :

Main-plot treatments

2 times of planting : T₁=October and T₂=February.

Sub-plot treatments :

12 varieties : V₁=CO. 313 (early), V₂=CO. 356 (late), V₃=CO. 393 (medium), V₄=CO. 95 (early), V₅=CO. 453 (late), V₆=CO. 513 (early), V₇=CO. 617 (medium), V₈=CO.S. 10 (medium), V₉=CO.S. 416 (early), V₁₀=CO.S. 397, V₁₁=CO.S. 443 (medium) and 9 V₁₂=CO.S. 511.

3. DESIGN :

(i) Split-plot. (ii) (a) 2 main-plots/replication ; 12 sub-plots/main-plot. (b) 174' × 147'. (iii) 2. (iv) (a) and (b) 56' × 18'. (v) Nil. (vi) Yes.

4. GENERAL :

(i) N.A. (ii) Nil. (iii) Germination %, no. of tillers, millable cane, juice analysis and sugarcane yield. (iv) (a) 1954—contd. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 18.11 tons/ac. (ii) (a) 3.49 tons/ac. (b) 3.48 tons/ac. (iii) T effect is significant. V effect and interaction T × V are highly significant. (iv) Av. yield of sugarcane in tons/ac.

	V ₁	V ₂	V ₃	V ₄	V ₅	V ₆	V ₇	V ₈	V ₉	V ₁₀	V ₁₁	V ₁₂	Mean
T ₁	12.33	12.08	23.13	23.00	27.96	21.32	24.83	23.36	16.08	24.19	25.37	24.01	21.47
T ₂	17.30	7.04	14.17	11.88	22.31	13.03	15.18	12.12	14.27	18.43	18.65	12.51	14.74
Mean	14.81	9.56	18.65	17.44	25.13	17.18	20.01	17.74	15.18	21.31	22.01	18.26	18.11

S.E. of difference of two

- | | | |
|-----------------------------------|---|---------------|
| 1. T marginal means | = | 0.82 tons/ac. |
| 2. V marginal means | = | 2.01 tons/ac. |
| 3. V means at the same level of T | = | 2.84 tons/ac. |
| 4. T means at the same level of V | = | 2.84 tons/ac. |

Crop :- Sugarcane (Ratoon).**Ref :- U.P. 55(161).****Site :- Sugarcane Res. Sub-Stn., Kunraghat.****Type :- 'CV'.**

Object :- To study the effect of time of planting on different varieties of Sugarcane.

BASAL CONDITIONS :

(i) (a) G.M.—Wheat—cowpea—sugarcane—ratoon. (b) Sugarcane. (c) 60 lb./ac. of N as G.N.C. + 80 lb./ac. of N as A/S + 20 lb./ac. of Gammexane. (ii) (a) Sandy loam. (b) Refer soil analysis, Kunraghat. (iii) Harvesting of plant cane : 21.10.1954 to 25.4.1955. (iv) (a) Nil. (b) Trench planting. (c) Ratoon crop. (d) 3' between rows. (e) 1 sett/foot. (v) 5 srs./plot of G.N.C. + 1.5 srs./plot of A/S. (vi) As per treatments (vii) Irrigated. (viii) 3 hoeings by *kassi*, 1 earthing and 1 binding of cane. (ix) 69.57". (x) 10 to 26.12.1955.

TREATMENTS to 4. GENERAL :

Same as in expt. no. 54(176) on page 1227.

RESULTS :

(i) 16.91 tons/ac. (ii) (a) 6.11 tons/ac. (b) 3.07 tons/ac. (iii) Only V effect is highly significant. (iv) Av. yield of sugarcane in tons/ac.

	V ₁	V ₂	V ₃	V ₄	V ₅	V ₆	V ₇	V ₈	V ₉	V ₁₀	V ₁₁	V ₁₂	Mean
T ₁	15.87	3.61	17.47	11.56	20.89	14.27	16.68	17.68	18.22	16.84	14.73	16.81	15.39
T ₂	18.92	5.16	18.18	12.92	27.49	15.82	17.32	18.21	24.72	25.66	18.39	18.31	18.43
Mean	17.39	4.39	17.82	12.24	24.19	15.05	17.00	17.94	21.47	21.25	16.56	17.56	16.91

S E of difference of two

- | | | |
|-----------------------------------|---|---------------|
| 1. T marginal means | = | 1.25 tons/ac. |
| 2. V marginal means | = | 1.53 tons/ac. |
| 3. V means at the same level of T | = | 2.17 tons/ac. |
| 4. T means at the same level of V | = | 2.42 tons/ac. |

Crop :- Sugarcane.**Ref :- U.P. 55(160).****Site :- Sugarcane Res. Sub-Stn., Kunraghat.****Type :- 'CV'.**

Object :- To study the effect of time of plantings on different varieties of Sugarcane.

BASAL CONDITIONS :

(i) (a) G.M.—wheat—cowpea—sugarcane. (b) Cowpea. (c) Nil. (ii) (a) Sandy loam. (b) Refer soil analysis, Kunraghat. (iii) 28.10.1954, 21 and 22.1.1955. (iv) (a) 4 ploughings and 1 planking. (b) Trench planting. (c) 60 setts (3 budded)/row. (d) Rows 3' apart. (e) 1 sett/foot. (v) 120 lb./ac. of N as G.N.C. + 80 lb./ac. of N as A/S in two equal doses. (vi) As per treatments. (vii) Irrigated. (viii) 14 hoeings by *kassi* and 2 earthings. (ix) 70.50". (x) 4.1.1956 to 21.3.1956.

TREATMENTS :**Main-plot treatments :**2 times of planting : T₁=Autumn and T₂=Spring planting.

Sub-plot treatments :

12 varieties : V_1 =CO. 313 (early), V_2 =CO. 356 (late), V_3 =CO. 393 (medium), V_4 =CO. 395 (early), V_5 =CO. 453 (late), T_6 =CO. 513 (early), T_7 =CO. 617 (medium), T_8 =CO.S. 109 (medium), V_9 =CO.S. 397, V_{10} =CO.S. 416 (early), V_{11} =CO.S. 443 (medium) and V_{12} =CO.S. 510 (early).

3. DESIGN :

(i) Split-plot. (ii) (a) 2 main-plots/replication, 12 sub-plots/main-plot. (b) N.A. (iii) 3. (iv) (a) and (b) 56' x 18'. (v) Nil. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Germination %, no. of tillers, millable cane, juice analysis and sugarcane yield. (iv) (a) 1955—contd. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 18.31 tons/ac. (ii) (a) 1.54 tons/ac. (b) 2.26 tons/ac. (iii) Main effects of T and V and interaction $T \times V$ are highly significant. (iv) Av. yield of sugarcane in tons/ac.

	V_1	V_2	V_3	V_4	V_5	V_6	V_7	V_8	V_9	V_{10}	V_{11}	V_{12}	Mean
T_1	15.87	7.42	20.17	15.75	24.64	12.83	23.65	21.94	19.26	24.73	29.46	29.87	20.47
T_2	17.72	8.39	14.18	14.11	19.81	15.17	14.40	13.39	15.91	15.52	23.36	21.86	16.15
Mean	16.79	7.91	17.17	14.93	22.23	14.00	19.02	17.67	17.58	20.13	26.41	25.87	18.31

S.E. of difference of two

1. T marginal means = 0.36 tons/ac.
2. V marginal means = 1.30 tons/ac.
3. V means at the same level of T = 1.84 tons/ac.
4. T means at the same level of V = 1.80 tons/ac.

Crop :- Sugarcane (Ratoon).

Ref :- U.P. 56(134).

Site :- Sugarcane Res. Sub-Stn., Kunraghat.

Type :- 'CV'.

Object :—To study the effect of time of planting on different varieties of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) G.M.—wheat—cowpea—sugarcane—ratoon. (b) Plant cane. (c) 120 lb./ac. of N as G.N.C.+40 lb./ac. of N as A/S. (ii) (a) Sandy loam. (b) Refer soil analysis, Kunraghat. (iii) Harvest of plant cane 4.1.1956 to 21.3.1956. (iv) (a) Nil. (b) Trench planting. (c) Ratoon crop. (d) Rows 3' apart. (e) 1 set/foot. (v) G.N.C. at 180 lb./ac. of N+Gammexane at 20 lb./ac. (vi) As per treatments. (vii) Irrigated. (viii) 7 hoeings and 1 earthing. (ix) 125.46". (x) 9.12.1957 to 23.12.1957.

2. TREATMENTS :

Same as in expt. no. 55(160) on page 1228.

3. DESIGN :

(i) Split-plot. (ii) (a) 2 main-plots/replication ; 12 sub-plots/main-plot. (b) N.A. (3) 4. (iv) (a) and (b) 56' x 18'. (v) Nil. (vi) Yes.

4. GENERAL :

Same as in expt. no. 55(160) on page 1228.

5. RESULTS :

(i) 13.53 tons/ac. (ii) (a) 2.57 tons/ac. (b) 2.23 tons/ac. (iii) Only V effect is highly significant. (iv) Av. yield of sugarcane in tons/ac.

	V ₁	V ₂	V ₃	V ₄	V ₅	V ₆	V ₇	V ₈	V ₉	V ₁₀	V ₁₁	V ₁₂	Mean
T ₁	11.08	3.29	17.82	7.14	15.24	9.56	11.44	10.13	17.25	19.59	16.95	21.86	13.45
T ₂	14.54	5.15	15.44	8.33	15.79	11.43	8.76	12.32	17.82	17.88	12.13	23.82	13.62
Mean	12.81	4.22	16.63	7.73	15.51	10.50	10.10	11.22	17.54	18.73	14.54	22.84	13.53

S.E. of difference of two

1. T marginal means = 0.52 tons/ac.
2. V marginal means = 1.12 tons/ac.
3. V means at the same level of T = 1.58 tons/ac.
4. T means at the same level of V = 1.60 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 56(130).

Site :- Sugarcane Res. Sub-Stn., Kunraghat.

Type :- 'CV'.

Object :- To study the effect of time of planting on different varieties of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) (a) Sandy loam. (b) Refer soil analysis, Kunraghat. (iii) As per treatments. (iv) (a) 5 ploughings. (b) Trench planting. (c) 60 setts (3 budded)/row. (d) 3' between rows. (e) 1 sett/foot. (v) G.M. at 50 lb./ac. of N, G.N.C. at 35 lb./ac. of N, A/S at 35 lb./ac. of N, G.N.C. at 30 lb./ac. of N and A/S at 30 lb./ac. of N top dressed. (vi) As per treatments. (vii) Irrigated. (viii) 3 hoeings to October planted canes by *kassi*, 8 general hoeings by *kassi* and 1 earthing. (ix) 82.86%. (x) 30.10.1956 to 3.2.1957.

2. TREATMENTS :

Main-plot treatments :

2 times of planting : T₁ = Autumn (28 and 29.10.1955) and T₂ = Spring (19.1.1956).

Sub-plot treatments :

12 varieties : V₁ = CO. 313 (early), V₂ = CO. 356 (late), V₃ = CO. 395 (early), V₄ = CO. 453 (late), V₅ = CO. 393 (medium), V₆ = CO. 513 (early), V₇ = CO.S. 538 (medium), V₈ = CO.S. 443 (medium), V₉ = CO.S. 109 (medium), V₁₀ = CO. 617 (medium), V₁₁ = CO.S. 416 (early) and V₁₂ = CO.S. 510 (early).

DESIGN :

(i) Split-plot. (ii) (a) 2 main-plots/replication, 12 sub-plots/main-plot. (b) N.A. (iii) 3. (iv) (a) and (b) 56' x 18'. (v) Nil. (vi) Yes.

GENERAL :

(i) and (ii) N.A. (iii) Germination %, no. of tillers, millable canes, juice analysis and sugarcane yield. (iv) (a) 1956 - contd. (b) No. (c) Nil. (v) to (vii) Nil.

RESULTS :

(i) 14.36 tons/ac. (ii) (a) 0.93 tons/ac. (b) 2.69 tons/ac. (iii) T and V effects and interaction T x V are highly significant. (iv) Av. yield of sugarcane in tons/ac.

	V ₁	V ₂	V ₃	V ₄	V ₅	V ₆	V ₇	V ₈	V ₉	V ₁₀	V ₁₁	V ₁₂	Mean
T ₁	13.44	10.95	8.70	30.01	11.56	12.79	13.78	28.98	10.86	14.44	13.00	29.75	16.52
T ₂	10.73	5.79	6.16	15.89	11.41	9.42	17.23	14.13	11.73	13.16	10.95	19.71	12.19
Mean	12.08	8.37	7.43	22.95	11.48	11.11	15.51	21.55	11.30	13.80	11.97	24.73	14.36

S.E. of difference of two

- | | |
|-----------------------------------|-----------------|
| 1. T marginal means | = 0.23 tons/ac. |
| 2. V marginal means | = 1.56 tons/ac. |
| 3. V means at the same level of T | = 2.20 tons/ac. |
| 4. T means at the same level of V | = 2.11 tons/ac. |

Crop :- Sugarcane (Ratoon).**Ref :- U.P. 57(156).****Site :- Sugarcane Res. Sub-Stn., Kunraghat.****Type :- 'CV'.**

Object :—To study the effect of time of planting on different varieties of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Plant cane. (c) G.M. at 50 lb./ac. of N+A/S at 65 lb./ac. of N+G.N.C. at 65 lb./ac. of N. (ii) (a) Sandy loam. (b) Refer soil analysis, Kunraghat. (iii) 30.10.1956 to 3.2.1957. (iv) (a) Nil. (b) Trench planting. (c) Ratoon crop. (d) 3' between rows. (e) 1 sett/foot. (v) G.N.C. at 100 lb./ac. of N in two doses + manure mixture at 40 lb./ac. of N+A/C at 40 lb./ac. of N. (vi) As per treatments. (vii) Irrigated. (viii) 12 hoeings, 2 earthings and binding of cane. (ix) 47.39". (x) 15 to 23.12.1957.

2. TREATMENTS :

Same as in expt. no. 56(130) on page 1230.

3. DESIGN :

(i) Split-plot. (ii) 2 main-plots/replication ; 12 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) and (b) 56' x 18'. (v) Nil. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) No. of tillers, millable cane, juice analysis and sugarcane yield. (iv) (a) 1956—contd. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 19.12 tons/ac. (ii) (a) 1.86 tons/ac. (b) 3.23 tons/ac. (iii) T and V effects are highly significant. Interaction T x V is highly significant. (iv) Av. yield of sugarcane in tons/ac.

	V ₁	V ₂	V ₃	V ₄	V ₅	V ₆	V ₇	V ₈	V ₉	V ₁₀	V ₁₁	V ₁₂	Mean
T ₁	14.82	13.40	10.79	36.50	16.74	17.15	23.58	29.65	16.67	18.69	23.33	29.19	20.38
T ₂	12.84	6.77	9.81	21.59	16.17	16.22	16.25	22.76	16.55	16.97	23.69	28.78	17.37
Mean	13.83	10.08	10.30	29.04	16.45	16.68	19.91	26.21	16.61	17.83	23.51	28.98	19.12

S.E. of difference of two

- | | |
|-----------------------------------|-----------------|
| 1. T marginal means | = 0.40 tons/ac. |
| 2. V marginal means | = 1.61 tons/ac. |
| 3. V means at the same level of T | = 2.28 tons/ac. |
| 4. T means at the same level of V | = 2.22 tons/ac. |

Crop :- Sugarcane.**Ref :- U.P. 57(155).****Site :- Sugarcane Res. Sub-Stn., Kunraghat.****Type :- 'CV'.**

Object :—To study the effect of time of planting on different varieties of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) (a) Sandy loam. (b) Refer soil analysis, Kunraghat. (iii) As per treatments. (iv) (a) 5 ploughings and 1 planking. (b) Trench planting. (c) 60 (3 budded) setts/row. (d) Rows 3' apart. (e) 1 sett/foot. (v) *Dhaincha* as G.M. at 50 lb./ac. of N+G.N.C. at 32 lb./ac. of N+Chlordane at 10 lb./ac. Top dressing with G.N.C. at 32 lb./ac. of N+manure mixture at 32 lb./ac. of N+A/C at 20 lb./ac. of N. (vi) As per treatments. (vii) Irrigated. (viii) 12 hoeings by *kassi*, 1 hoeing by cultivator, 1 earthing and binding of canes. (ix) 48.78%. (x) 2.1.1958 to 17.2.1958.

2. TREATMENTS :

Main-plot treatments :

2 times of planting : T_1 = Autumn planting and T_2 = Spring planting.

Sub-plot treatments :

12 varieties : V_1 = CO. 313 (early), V_2 = CO. 356 (late), V_3 = CO. 395 (early), V_4 = CO. 453 (late), V_5 = CO. 393 (medium), V_6 = CO. 524 (medium), V_7 = CO.S. 538 (medium), V_8 = CO.S. 443 (medium), V_9 = CO.S. 109 (medium), V_{10} = CO. 617 (medium), V_{11} = CO.S. 416 (early) and V_{12} = CO.S. 510 (early).

3. DESIGN :

(i) Split-plot. (ii) (a) 2 main-plots/replication ; 12 sub-plots/main-plot. (b) N.A. (iii) 3. (iv) (a, and (b) 56' x 18'. (v) Nil. (vi) Yes.

4. GENERAL :

(i) Satisfactory. (ii) Setts for treatment T_1 were treated in agallol at 1 lb in 2 gallons of water. (iii) Germination %, no. of tillers, height, millable canes, juice analysis and sugarcane yield. (iv) (a) 1957—contd. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 19.19 tons/ac. (ii) (a) 2.43 tons/ac. (b) 3.76 tons/ac. (iii) Only V effect is highly significant. (iv) Av. yield of sugarcane in tons/ac.

	V_1	V_2	V_3	V_4	V_5	V_6	V_7	V_8	V_9	V_{10}	V_{11}	V_{12}	Mean
T_1	8.86	20.74	9.19	27.92	17.00	24.14	24.74	26.87	16.99	19.95	19.30	21.42	19.76
T_2	11.96	17.90	9.19	25.00	20.88	22.57	22.31	22.04	17.77	19.09	13.92	20.93	18.63
mean	10.41	19.32	9.19	26.46	18.94	23.35	23.52	24.45	17.38	19.52	16.61	21.17	19.19

S.E. of difference of two

- | | |
|-----------------------------------|-----------------|
| 1. T marginal means | = 0.57 tons/ac. |
| 2. V marginal means | = 2.17 tons/ac. |
| 3. V means at the same level of T | = 3.07 tons/ac. |
| 4. T means at the same level of V | = 2.99 tons/ac. |

Crop :- Sugarcane (Ratoon).

Ref :- U.P. 58(153).

Site :- Sugarcane Res. Sub-Stn., Kunraghat.

Type :- 'CV'.

Object :- To study the effect of time of planting on different varieties of Sugarcane.

BASAL CONDITIONS :

(i) (a) N.A. (b) Plant cane. (c) *Dhaincha* G.M. at 50 lb./ac. of N, G.N.C. at 64 lb./ac. of N, mixture at 32 lb./ac. of N, A/C at 20 lb./ac. of N and Chlordane at 10 lb./ac. (ii) (a) Sandy loam. (b) Refer soil analysis, Kunraghat. (iii) 2.1.1958 to 17.2.1958. (iv) (a) N.A. (b) Trench planting. (c) Ratoon crop. (d) Rows 3' apart. (e) 1 sett/foot. (v) G.N.C. at 60 lb./ac. of N+A/S at 60 lb./ac. of N. (vi) As per treatments. (vii) Irrigated. (viii) 7 hoeings by *kassi*, 2 hoeings by cultivator and 1 earthing. (ix) 40.09%. (x) 14.12.1958 to 20.12.1958.

TREATMENTS :

Same as in expt. no. 57(155) on page 1231.

3. DESIGN :

(i) Split-plot. (ii) (a) 2 main-plots/replication ; 12 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) and (b) 56' × 18'. (v) Nil. (vi) Yes.

4. GENERAL:

(i) Good. (ii) N.A. (iii) No. of tillers, millable canes, juice analysis and sugarcane yield. (iv) (a) 1957—contd. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 13.05 tons/ac. (ii) (a) 2.75 tons/ac. (b) 2.70 tons/ac. (iii) Only V effect is highly significant. (iv) Av. yield of sugarcane in tons/ac.

	V ₁	V ₂	V ₃	V ₄	V ₅	V ₆	V ₇	V ₈	V ₉	V ₁₀	V ₁₁	V ₁₂	Mean
T ₁	10.61	3.74	7.29	17.00	15.66	14.09	19.27	13.20	11.89	12.72	13.00	17.15	12.97
T ₂	8.56	3.22	8.24	16.03	19.36	18.33	17.45	12.06	10.80	14.34	13.09	16.03	13.13
Mean	9.58	3.48	7.77	16.51	17.51	16.21	18.36	12.63	11.34	13.53	13.04	16.59	13.05

S.E. of difference of two

1. T marginal means = 0.56 tons/ac.
2. V marginal means = 1.35 tons/ac.
3. V means at the same level of T = 1.91 tons/ac.
4. T means at the same level of V = 1.91 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 59(171).

Site :- Sugarcane Res. Sub-Stn., Kunraghat.

Type :- 'CV'.

Object :—To study the effect of different times of planting on different varieties of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) *Dhaincha*. (c) Nil. (ii) (a) Sandy loam. (b) Refer soil analysis, Kunraghat. (iii) As per treatments. (iv) (a) For T₁ : 3 *desi* ploughings, 2 Victory ploughings, 2 ploughings by other implements and 3 plankings. For T₂ : 1 *desi* ploughing and 1 planking. (b) Flat planting. (c) 57 setts (3 budded)/row. (d) Rows 3' apart. (e) 1 sett/foot. (v) *Dhaincha* G.M. at 40 lb./ac. of N, G.N.C.+*neem* cake at 14 lb./ac. of N and A/S at 8 lb./ac. of N at planting. A/S at 60 lb./ac. of N top dressed. (vi) As per treatments. (vii) Irrigated. (viii) 12 hoeings and 2 earthings. (ix) 43.22". (x) 21.10.1959 to 7.3.1960.

2. TREATMENTS :

Main-plot treatments :

2 times of planting : T₁=Autumn (25, 26.10.1958) and T₂=Spring planting (16, 17.1.1959).

Sub-plot treatments :

12 varieties of sugarcane : V₁=CO.S. 416 (early), V₂=CO.S. 443 (medium), V₃=CO.S. 510 (early), V₄=CO. 524 (medium), V₅=CO. 527 (early), V₆=CO. 356 (late), V₇=CO. 617 (medium), V₈=B. O. 17 (medium late), V₉=B. O. 3 (medium), V₁₀=CO. 453 (late), V₁₁=CO. 974 (early) and V₁₂=CO. 1043 (medium late).

3. DESIGN :

(i) Split-plot. (ii) (a) 2 main-plots/replication ; 12 sub-plots/main-plot. (b) N.A. (iii) 3. (iv) (a) and (b) 55' × 18'. (v) Nil. (vi) Yes.

4. GENERAL:

(i) and (ii) N.A. (iii) Germination %, no. of tillers, millable cane, yield of sugarcane and juice analysis. (iv) (a) and (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 14.93 tons/ac. (ii) (a) 4.92 tons/ac. (b) 2.36 tons/ac. (iii) Only V effect is highly significant. (iv) Av. yield of sugarcane in tons/ac.

	V ₁	V ₂	V ₃	V ₄	V ₅	V ₆	V ₇	V ₈	V ₉	V ₁₀	V ₁₁	V ₁₂	Mean
T ₁	13.23	17.19	13.85	15.88	10.02	8.12	19.11	23.95	10.76	20.27	17.59	22.05	16.00
T ₂	9.86	13.28	13.17	17.04	10.47	5.52	16.74	19.18	13.25	17.40	16.58	13.74	13.85
Mean	11.54	15.24	13.51	16.46	10.24	6.82	17.92	21.56	12.01	18.83	17.08	17.90	14.93

S.E. of difference of two

1. T marginal means = 1.16 tons/ac.
2. V marginal means = 1.36 tons/ac.
3. V means at the same level of T = 1.92 tons/ac.
4. T means at the same level of V = 2.18 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 58(152).

Site :- Sugarcane Res. Sub-Stn., Kunraghat.

Type :- 'CV'.

Object :-To study the effect of different times of planting on different varieties of Sugarcane.

BASAL CONDITIONS :

(i) (a) N.A. (b) *Sanai*. (c) Nil. (ii) (a) Sandy loam. (b) Refer soil analysis, Kunraghat. (iii) As per treatments. (iv) (a) 2 ploughings by *desi* plough and 6 ploughings by Victory plough. (b) Trench planting. (c) 60 setts 3 budded/row. (d) Rows 3' apart. (e) 1 sett/foot. (v) G.M. at 30 lb./ac. of N, G.N.C. at 40 lb./ac. of N, A/S at 30 lb./ac. of N, A/S (top dressing) at 60 lb./ac. of N. Gammaxane applied in furrows at 20 lb./ac. (vi) As per treatments. (vii) Irrigated. (viii) 11 hoeings and 1 earthing. (ix) 42.82". (x) 2.10.1958 to 11.3.1959.

TREATMENTS :

Main-plot treatments :

2 times of planting : T₁=Autumn (30.10.1957 and 1.11.1957) and T₂=Spring planting (21.1.1958).

Sub-plot treatments :

9 varieties : V₁=CO.S. 416 (early), V₂=CO.S. 443 (medium), V₃=CO.S. 510 (early), V₄=CO. 524 (medium), V₅=CO. 527 (early), V₆=CO. 356 (late), V₇=CO. 453 (late), V₈=CO. 617 (medium) and V₉=B.O. 17 (medium late).

DESIGN :

(i) Split-plot. (ii) (a) 2 main-plots/replication ; 9 sub-plots/main-plot. (b) N.A. (iii) 3. (iv) (a) and (b) 56' x 18'. (v) Nil. (vi) Yes.

GENERAL :

(i) Good growth. (ii) N.A. (iii) Germination %, no. of tillers, millable, cane, yield of sugarcane and juice analysis. (iv) (a) and (b) No. (c) Nil. (v) to (vii) Nil.

RESULTS :

(i) 17.57 tons/ac. (ii) (a) 1.60 tons/ac. (b) 4.06 tons/ac. (iii) Only V effect is highly significant. (iv) Av. yield of sugarcane in tons/ac.

	V ₁	V ₂	V ₃	V ₄	V ₅	V ₆	V ₇	V ₈	V ₉	Mean
T ₁	13.01	24.55	15.82	14.50	15.75	11.80	22.86	21.47	22.00	17.97
T ₂	11.82	27.45	15.74	19.10	15.01	3.98	23.60	17.67	20.24	17.18
Mean	12.41	26.00	15.78	16.80	15.38	7.89	23.23	19.57	21.12	17.57

S.E. of difference of two

1. T marginal means	= 0.38 tons/ac.
2. V marginal means	= 2.34 tons/ac.
3. V means at the same level of T	= 3.31 tons/ac.
4. T means at the same level of V	= 3.16 tons/ac.

Crop :- Sugarcane (Ratoon).**Ref :- U.P. 59(170).****Site :- Sugarcane Res. Sub-Stn., Kunraghat.****Type :- 'CV'.**

Object :—To study the effect of different times of planting on different varieties of Sugarcane (ratoon crop).

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Plant cane. (c) G.M. at 30 lb./ac. of N. A/S at 90 lb./ac. of N, G.N.C. at 40 lb./ac. of N and Gammexane at 20 lb./ac. (ii) (a) Sandy loam. (b) Refer soil analysis, Kunraghat. (iii) Ratooning : 24.10.1953 to 11.3.1959. (iv) (a) Nil. (b) Trench planting. (c) Ratoon crop. (d) Rows 3' apart. (e) 1 sett/foot. (v) A/S at 78 lb./ac. of N. (vi) As per treatments. (vii) Irrigated. (viii) 4 hoeings and 3 earthings. (ix) 43.05'. (x) 27.11.1959 to 13.12.1959.

2. TREATMENTS :

Same as in expt. no. 58(152) on page 1234.

3. DESIGN :

(i) Split-plot. (ii) (a) 2 main-plots/replication ; 9 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) and (b) 56'×18'. (v) Nil. (vi) Yes.

4. GENERAL :

(i) N.A. (ii) Crop was badly affected by wilts. (iii) No. of tillers, millable cane, yield of cane and juice analysis. (iv) (a) and (b) No. (c) Nil. (v) (a) and (b) N.A. (vi) Nil. (vii) Varieties V₅ and V₆ have been rejected from the analysis as the yields are very low due to damage caused by disease etc.

5. RESULTS :

(i) 18.10 tons/ac. (ii) (a) 2.73 tons/ac. (b) 5.94 tons/ac. (iii) Only T effect is significant. (iv) Av. yield of sugarcane in tons/ac.

	V ₁	V ₂	V ₃	V ₄	V ₅	V ₆	V ₇	V ₈	V ₉	Mean
T ₁	18.04	15.50	18.71	13.69	—	—	16.81	14.24	18.45	15.49
T ₂	15.78	22.08	17.21	15.95	—	—	23.96	20.58	22.43	19.71
Mean	16.91	18.79	17.96	14.82	—	—	20.38	17.41	20.44	18.10

S.E. of difference of two

1. T marginal means	= 0.73 tons/ac.
2. V marginal means	= 2.97 tons/ac.
3. V means at the same level of T	= 4.20 tons/ac.
4. T means at the same level of V	= 3.96 tons/ac.

Crop :- Sugarcane.**Ref :- U.P. 54(361).****Site :- Sugarcane Res. Sub-Stn., Muzaffarnagar.****Type :- 'CV'.**

Object :—To study the effect of different times of planting on different varieties of Sugarcane.

BASAL CONDITIONS :

(i) (a) N.A. (b) *Guar*. (c) Nil. (ii) (a) Sandy loam. (b) Refer soil analysis, Muzaffarnagar. (iii) As per treatments. (iv) (a) 6 to 7 ploughings, plankings and 1 *palewa*. (b) Flat planting. (c) 45 setts (3 budded)/row. (d) Rows 3' apart. (e) N.A. (v) 60 lb./ac. of N as compost. 50 lb./ac. of N as G.N.C. and 30 lb./ac. of N as A/S. (vi) As per treatments. (vii) Irrigated. (viii) 8 to 12 hoeings, 3 earthings, 1 weeding and binding of canes. (ix) 54.61%. (x) 6.2.1956 to 18.3.1956.

TREATMENTS :**Main-plot treatments :**

2 times of planting : T_1 =Autumn (13.10.1954) and T_2 =Spring planting (19.2.1955).

Sub-plot treatments :

12 varieties : V_1 =CO. 312 (medium late), V_2 =CO. 313 (early), V_3 =CO. 421 (medium), V_4 =CO. 453 (medium late), V_5 =CO. 650 (medium), V_6 =CO. 957 (medium), V_7 =CO.S. 245 (medium), V_8 =CO.S. 321 (early), V_9 =CO.S. 468, V_{10} =CO.S. 470, V_{11} =CO.S. 477 and V_{12} =CO.S. 515 (medium).

DESIGN :

(i) Split-plot. (ii) (a) 2 main-plots/replication ; 12 sub-plots/main-plot. (b) 90'×180'. (iii) 4. (iv) (a) 43'×15'. (b) 37'×15'. (v) 3' at each end of the plot. (vi) Yes.

GENERAL :

(i) and (ii) N.A. (iii) Yield of sugarcane. (iv) (a) 1954—contd. (b) No. (c) Nil. (v) to (vii) Nil.

RESULTS :

(i) 32.70 tons/ac. (ii) (a) 6.56 tons/ac. (b) 4.13 tons/ac. (iii) Main effect of V and interaction $T \times V$ are highly significant. (iv) Av. yield of sugarcane in tons/ac.

	V_1	V_2	V_3	V_4	V_5	V_6	V_7	V_8	V_9	V_{10}	V_{11}	V_{12}	Mean
T_1	20.01	30.57	33.64	33.42	34.24	41.22	28.75	32.85	28.75	30.48	42.01	40.19	33.01
T_2	19.29	22.26	33.29	41.19	30.76	39.06	32.66	34.46	20.18	33.60	39.82	42.20	32.40
Mean	19.65	26.42	33.46	37.30	32.50	40.14	30.70	33.66	24.46	32.04	40.92	41.20	32.70

S.E. of difference of two

1. T marginal means	= 1.34 tons/ac.
2. V marginal means	= 2.06 tons/ac.
3. V means at the same level of T	= 2.92 tons/ac.
4. T means at the same level of V	= 3.10 tons/ac.

Crop :- Sugarcane (Ratoon).

Ref :- U.P. 56(464).

Site :- Sugarcane Res. Sub-Stn., Muzaffarnagar.

Type :- 'CV'.

Object :-To study the effect of different times of planting on different varieties of Sugarcane (ratoon crop).

BASAL CONDITIONS :

(i) (a) N.A. (b) Plant cane. (c) 60 lb./ac. of N as compost, 60 lb./ac. of N as G.N.C. and 30 lb./ac. of N as A/S. (ii) (a) Sandy loam. (b) Refer soil analysis, Muzaffarnagar. (iii) Ratooning : 6.2.1956 to 18.3.1956. (iv) (a) Nil. (b) Flat planting. (c) Ratoon crop. (d) Rows 3' apart. (e) N.A. (v) 40 lb./ac. of N as G.N.C. and 80 lb./ac. of N as urea. (vi) As per treatments. (vii) Irrigated. (viii) 2 hoeings and 3 weedings. (ix) 70.23%. (x) 16, 17 and 20.11.1956.

TREATMENTS and 3. DESIGN :

Same as in expt. no. 54(361) on page 1235.

GENERAL :

(i) Plants lodged badly hence poor tillering. (ii) Heavy infestation of Albino disease (50 %). (iii) Millable cane and yield of sugarcane. (iv) (a) 1954—contd. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 10.49 tons/ac. (ii) (a) 4.43 tons/ac. (b) 2.81 tons/ac. (iii) T effect is significant and V effect is highly significant. (iv) Av. yield of sugarcane in tons/ac.

	V ₁	V ₂	V ₃	V ₄	V ₅	V ₆	V ₇	V ₈	V ₉	V ₁₀	V ₁₁	V ₁₂	Mean
T ₁	2.80	7.07	3.78	10.91	5.67	13.18	3.99	11.02	5.58	9.83	11.71	16.15	8.47
T ₂	6.06	10.37	10.67	19.77	6.96	16.80	9.45	16.17	7.94	8.97	17.88	19.04	12.51
Mean	4.43	8.72	7.22	15.34	6.32	14.99	6.72	13.60	6.76	9.40	14.80	17.60	10.49

S.E. of difference of two

1. T marginal means = 0.90 tons/ac.
2. V marginal means = 1.40 tons/ac.
3. V means at the same level of T = 1.99 tons/ac.
4. T means at the same level of V = 2.10 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 56(465).

Site :- Sugarcane Res. Sub-Stn., Muzaffarnagar.

Type :- 'CV'.

Object :- To study the effect of different times of planting on different varieties of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) *Guar*. (c) Nil. (ii) (a) Sandy loam. (b) Refer soil analysis, Muzaffarnagar. (iii) As per treatments. (iv) (a) 7 to 8 ploughings, 6 plankings and roller application. (b) Flat planting. (c) 45 setts (3 budded)/row. (d) Rows 3' apart. (e) N.A. (v) 60 lb./ac. of N as compost, 50 lb./ac. of N as G.N.C. and 120 lb./ac. of N as A/S. (vi) As per treatments. (vii) Irrigated. (viii) Hoeings and earthing. (ix) 62.43". (x) 11.2.1958 to 14.3.1958.

2. TREATMENTS :

Main-plot treatments :

2 times of planting : T₁=Autumn (25, 26.9.1956) and T₂=Spring planting (6.2.1957).

Sub-plot treatments :

12 varieties of sugarcane : V₁=CO. 312 (medium late), V₂=CO. 313 (early), V₃=CO. 421 (medium), V₄=CO. 453 (medium late), V₅=CO. 951 (medium), V₆=CO. 969 (medium late), V₇=CO. 975 (medium), V₈=CO. 994 (early), V₉=CO. S. 245 (medium), V₁₀=CO.S. 321 (early), V₁₁=CO. S. 477 and V₁₂=CO. S. 515 (medium).

3. DESIGN :

(i) Split-plot. (ii) (a) 2 main-plots/replication ; 12 sub-plots/main-plot. (b) 182'×90'. (iii) 4. (iv) (a) 43'×15'. (b) 37'×15'. (v) 3' at each end. (vi) Yes.

4. GENERAL :

(i) III replication of T₁ treatment was generally poor. (ii) N.A. (iii) Germination %, no. of tillers, milable canes and yield of sugarcane. (iv) (a) 1956—1958. (b) No. (c) Nil. (v) (a) and (b) Nil. (vi) Heavy storm at 50 miles per hour passed over followed by hail and rain (1.2"). The leaves spitted badly and in treatment T₁ tender tops broke down to a great extent. (vii) Nil.

5. RESULTS :

(i) 18.34 tons/ac. (ii) (a) 3.69 tons/ac. (b) 3.38 tons/ac. (iii) Only T and V effects are highly significant. (iv) Av. yield of sugarcane in tons/ac.

	V ₁	V ₂	V ₃	V ₄	V ₅	V ₆	V ₇	V ₈	V ₉	V ₁₀	V ₁₁	V ₁₂	Mean
T ₁	10.31	14.35	19.34	19.27	27.99	23.76	25.44	23.38	20.13	23.14	21.62	21.78	20.88
T ₂	10.06	10.60	14.21	13.85	19.52	19.65	19.21	15.41	19.68	15.12	14.38	18.03	15.81
Mean	10.18	12.48	16.78	16.56	23.76	21.70	22.32	19.40	19.90	19.13	18.00	19.90	18.34

S.E. of difference of two

1. T marginal means = 0.75 tons/ac.
2. V marginal means = 1.69 tons/ac.
3. V means at the same level of T = 2.39 tons/ac.
4. T means at the same level of V = 2.41 tons/ac.

Crop :- Sugarcane (Ratoon).

Ref :- U.P. 58(461).

Site :- Sugarcane Res. Sub-Stn., Muzaffarnagar.

Type :- 'CV'.

Object :- To study the effect of different times of planting on different varieties of Sugarcane (ratoon crop).

BASAL CONDITIONS :

(i) (a) N.A. (b) Plant cane. (c) 60 lb./ac. of N as compost, 50 lb./ac. of N as G.N.C. and 120 lb./ac. of N as A/S. (ii) (a) Sandy loam. (b) Refer soil analysis, Muzaffarnagar. (iii) Ratooning : 11.2.1958 to 14.3.1958. (iv) (a) Nil. (b) Flat planting. (c) Ratoon crop. (d) Rows 3' apart. (e) N.A. (v) 70 lb./ac. of N as G.N.C. and 70 lb./ac. of N as A/S. (vi) As per treatments. (vii) Irrigated. (viii) N.A. (ix) 44.20". (x) 14 to 19.11.1958.

2. TREATMENTS and 3. DESIGN :

Same as in expt. no. 56(465) on page 1237.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of sugarcane. (iv) (a) and (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 16.52 tons/ac. (ii) (a) 7.31 tons/ac. (b) 3.02 tons/ac. (iii) Only V effect is highly significant. (iv) Av yield of sugarcane in tons/ac.

	V ₁	V ₂	V ₃	V ₄	V ₅	V ₆	V ₇	V ₈	V ₉	V ₁₀	V ₁₁	V ₁₂	Mean
T ₁	14.61	13.67	13.72	13.31	18.63	21.47	21.49	21.74	17.08	19.97	18.85	21.67	18.02
T ₂	12.59	14.65	8.32	11.31	15.89	19.35	19.81	16.06	16.13	17.02	16.26	12.83	15.02
Mean	13.60	14.16	11.02	12.31	17.26	20.41	20.65	18.90	16.60	18.50	17.56	17.25	16.52

S.E. of difference of two

1. T marginal means = 1.49 tons/ac.
2. V marginal means = 1.51 tons/ac.
3. V means at the same level of T = 2.14 tons/ac.
4. T means at the same level of V = 2.53 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 58(463).

Site :- Sugarcane Res. Sub-Stn., Muzaffarnagar.

Type :- 'CV'.

Object :- To study the effect of different times of planting on the yield of different varieties of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) *Lobia*. (c) N.A. (ii) (a) Sandy loam. (b) Refer soil analysis, Muzaffarnagar. (iii) As per treatments. (iv) (a) 4 to 7 ploughings and plankings. (b) Flat planting. (c) 45 setts (3 budded)/row. (d) Rows 3' apart. (e) N.A. (v) 90 lb./ac. of N as compost, 30 lb./ac. of N as A/S and 30 lb./ac. of N as G.N.C. (vi) As per treatments. (vii) Irrigated. (viii) 5 hoeings and 3 earthings. (ix) 27.94". (x) 19.11.1959 to 18.3.1960.

2. TREATMENTS :

Main-plot treatments :

2 times of planting : T_1 =Autumn (16.10.1958) and T_2 =Spring planting (17.2.1959).

Sub-plot treatments :

12 varieties : V_1 =CO. 312 (medium late), V_2 =CO. 421 (medium), V_3 =CO. 453 (medium late), V_4 =CO. 951 (medium), V_5 =CO. 969 (medium late), V_6 =CO. 975 (medium), V_7 =CO. 997 (early), V_8 =CO. 1007 (medium early), V_9 =CO. 1081 (medium), V_{10} =CO.S. 245 (medium), V_{11} =CO.S. 321 (early) and V_{12} =CO.S. 515 (medium).

3. DESIGN :

(i) Split-plot. (ii) (a) 2 main-plots/replication ; 12 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) 43' x 15'. (b) 37' x 15'. (v) 3' at each end. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Germination %, no. of tillers, juice analysis and yield of sugarcane. (iv) (a) and (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 24.28 tons/ac. (ii) (a) 4.65 tons/ac. (b) 3.87 tons/ac. (iii) Only V effect is highly significant. (iv) Av. yield of sugarcane in tons/ac.

	V_1	V_2	V_3	V_4	V_5	V_6	V_7	V_8	V_9	V_{10}	V_{11}	V_{12}	Mean
T_1	12.35	19.05	18.75	35.70	25.16	27.54	23.41	32.91	29.25	23.99	24.74	25.50	24.86
T_2	11.90	16.60	19.58	31.02	24.62	28.57	15.55	29.86	29.81	23.92	23.66	29.26	23.70
Mean	12.12	17.82	19.16	33.36	24.89	28.06	19.48	31.38	29.53	23.96	24.20	27.38	24.28

S.E. of difference of two

- | | |
|-----------------------------------|-----------------|
| 1. T marginal means | = 0.95 tons/ac. |
| 2. V marginal means | = 1.94 tons/ac. |
| 3. V means at the same level of T | = 2.74 tons/ac. |
| 4. T means at the same level of V | = 2.79 tons/ac. |

Crop :- Sugarcane.

Ref :- U.P. 57(500).

Site :- Sugarcane Res. Sub-Stn., Muzaffarnagar.

Type :- 'CV'.

Object :- To study the effect of different times of planting on the yield of different varieties of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) *Guar*. (c) Nil. (ii) (a) Sandy loam. (b) Refer soil analysis, Muzaffarnagar. (iii) As per treatments. (iv) (a) 8 to 12 ploughings, 3 plankings and *palewa*. (b) Flat planting. (c) 45 setts (3 budded)/row. (d) Rows 3' apart. (e) N.A. (v) *Guar* as G.M.+55 lb./ac. of N as compost+45 lb./ac. of N as G.N.C.+40 lb./ac. of N as A/S. (vi) As per treatments. (vii) Irrigated. (viii) 6 hoeings and 1 earthing. (ix) 51.72". (x) 22.2.1959 to 3.3.1959.

2. TREATMENTS :

Main-plot treatments :

2 times of planting : T_1 =Autumn (10.10.1957) and T_2 =Spring planting (25.2.1958).

Sub-plot treatments :

12 varieties : V_1 =CO. 312 (medium late), V_2 =CO. 313 (early), V_3 =CO. 421 (medium), V_4 =CO. 453 (medium late), V_5 =CO. 951 (medium), V_6 =CO. 969 (medium late), V_7 =CO. 975 (medium), V_8 =CO. 997 (early), V_9 =CO.S. 245 (medium), T_{10} =CO.S. 321 (early), V_{11} =CO.S. 515 (medium) and V_{12} =CO.S. 532 (early).

DESIGN :

(i) Split-plot. (ii) (a) 2 main-plots/replication ; 12 sub-plots/main-plot. (b) 90'×182'. (iii) 4. (iv) (a) 43'×15'. (b) 37'×15'. (v) 3' at each end. (vi) Yes.

GENERAL :

(i) and (ii) N.A. (iii) Yield of sugarcane. (iv) (a) and (b) No. (c) Nil. (v) to (vii) Nil.

RESULTS :

(i) 25.40 tons/ac. (ii) (a) 5.21 tons/ac. (b) 3.89 tons/ac. (iii) V effect and V×T interaction are highly significant. (iv) Av. yield of sugarcane in tons/ac.

	V ₁	V ₂	V ₃	V ₄	V ₅	V ₆	V ₇	V ₈	V ₉	V ₁₀	V ₁₁	V ₁₂	Mean
T ₁	21.33	20.43	25.09	26.02	30.89	27.20	36.44	28.03	20.35	24.82	27.32	25.22	26.93
T ₂	15.70	18.50	20.37	24.62	28.25	29.49	28.38	19.94	25.56	24.91	29.24	21.63	23.88
Mean	18.52	19.47	22.73	25.32	29.57	28.34	32.41	23.98	22.96	29.86	28.28	23.42	25.40

S.E. of difference of two

1. T marginal means = 1.06 tons/ac.
2. V marginal means = 1.95 tons/ac.
3. V means at the same level of T = 2.75 tons/ac.
4. T means at the same level of V = 2.84 tons/ac.

Crop :- Sugarcane (Ratoon).

Ref :- U.P. 59(519).

Site :- Sugarcane Res. Sub-Stn., Muzaffarnagar.

Type :- 'CV'.

Object :—To study the effect of different times of planting on the yield of different varieties of Sugarcane (ratoon crop).

BASAL CONDITIONS :

(i) (a) N.A. (b) Plant cane. (c) *Guar* as G.M., 55 lb./ac. of N as compost, 45 lb./ac. of N as G.N.C. and 40 lb./ac. of N as A/S. (ii) (a) Sandy loam. (b) Refer soil analysis, Muzaffarnagar. (iii) Harvesting of plantcane. 22.2.1959 to 3.3.1959. (iv) (a) Nil. (b) Flat planting. (c) Ratoon crop. (d) Rows 3' apart. (e) N.A. (v) 55 lb./ac. of N as compost, 45 lb./ac. of N as G.N.C. and 40 lb./ac. of N as A/S. (vi) As per treatments. (vii) Irrigated. (viii) 3 hoeings and digging. (ix) 29.46". (x) 19 to 20.11.1959.

2. TREATMENTS and 3. DESIGN :

Same as in expt. no. 57(500) on page 1239.

4. GENERAL :

(i) N.A. (ii) Spraying by Endrin, taking out smut affected stools on 6.5.1959. (iii) Millable canes, juice analysis and yield of sugarcane. (iv) (a) 1957—contd. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 14.20 tons/ac. (ii) (a) 6.05 tons/ac. (b) 3.15 tons/ac. (iii) Main effect of V is highly significant and interaction V×T is significant. (iv) Av. yield of sugarcane in tons/ac.

	V ₁	V ₂	V ₃	V ₄	V ₅	V ₆	V ₇	V ₈	V ₉	V ₁₀	V ₁₁	V ₁₂	Mean
T ₁	13.76	8.87	12.53	10.94	17.49	15.83	17.39	12.74	11.47	19.30	12.12	19.02	14.29
T ₂	10.40	9.59	10.13	13.54	17.13	18.23	18.39	9.54	12.80	15.70	18.95	14.96	14.11
Mean	12.08	9.23	11.33	12.24	17.31	17.03	17.89	11.14	12.14	17.50	15.54	16.99	14.20

S.E. of difference of two

1. T marginal means	=	1.23 tons/ac.
2. V marginal means	=	1.57 tons/ac.
3. V means at the same level of T	=	2.23 tons/ac.
4. T means at the same level of V	=	2.46 tons/ac.

Crop :- Sugarcane.**Ref :- U.P. 59(61).****Site :- Sugarcane Res. Sub-Stn., Muzaffarnagar.****Type :- 'CV'.**

Object :—To study the effect of cane seed of spring and autumn crops planted in Spring on the yield of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) (a) Loam. (b) Refer soil analysis, Muzaffarnagar. (iii) 18.2.1959. (iv) (a) 5 ploughings and 2 plankings. (b) Flat planting. (c) 56 setts (3 budded)/row. (d) Row to row 3'. (e) N.A. (v) Compost and G.N.C. applied Dose N.A. (vi) As per treatments. (vii) Irrigated. (viii) 5 diggings by *kassi*, 1 planking, 3 hoeings, 2 diggings by spade and 1 earthing. (ix) 31.89%. (x) 22.2.1960 to 2.3.1960.

2. TREATMENTS :

All combinations of (1), (2) and (3)

(1) 2 sources of seed cane : S_1 = From autumn cane and S_2 = From spring cane.

(2) 2 portions of the setts : P_1 = Base setts and P_2 = Top setts.

(3) 2 varieties : V_1 = CO. 997 and V_2 = CO. 951.

3. DESIGN :

(i) Fact. in R.B.D. (ii) (a) 8. (b) N.A. (iii) 3. (iv) (a) and (b) 15' × 54'. (v) N.A. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Germination %, no. of tillers, juice analysis and yield of sugarcane. (iv) (a) 1959—contd. (b) No. (c) Nil. (v) (a) and (b) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 17.74 tons/ac. (ii) 2.88 tons/ac. (iii) Main effect of V alone is highly significant. (iv) Av. yield of sugarcane in tons/ac.

	S_1	S_2	Mean	P_1	P_2
V_1	15.58	15.36	15.47	14.09	16.85
V_2	19.61	20.43	20.02	20.38	19.66
Mean	17.60	17.90	17.74	17.24	18.26
P_1	17.44	17.03			
P_2	17.75	18.76			

S.E. of any marginal mean = 0.83 tons/ac.

S.E. of body of any table = 1.18 tons/ac.

Crop :- Sugarcane.**Ref :- U.P. 54(259).****Site :- Sugarcane Res. Sub-Stn., Neoli.****Type :- 'CV'.**

Object :—To study the effect of time of harvesting of plant cane for proper ratooning of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) *Sanai*—Sugarcane. (b) *Sanai*. (c) N.A. (ii) (a) Sandy loam. (b) Refer soil analysis, Neoli. (iii) 18.2.1954. (iv) (a) 6 ploughings and 2 harrowings with tractor. (b) Flat planting. (c) 72 setts (3 budded)/row. (d) and (e) N.A. (v) *Sanai* for G.M. (vi) As per treatments. (vii) Irrigated. (viii) 7 hoeings. (ix) N.A. (x) As per treatments.

2. TREATMENTS :

Main-plot treatments :

3 dates of harvesting : $D_1=15$ th January, $D_2=15$ th February and $D_3=15$ th March 1955.

Sub-plot treatments :

2 varieties : $V_1=CO.S. 245$ and $V_2=CO.S. 453$.

Press mud applied on 20.12.1953 and spreading of manures on 21.12.1953.

3. DESIGN :

(i) Split-plot. (ii) (a) 3 main-plots/replication and 2 sub-plots/main-plot. (b) $70' \times 126'$. (iii) 4. (iv) (a) $70' \times 21'$. (b) $64' \times 15'$. (v) $3' \times 3'$. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Germination %, no. of tillers, millable cane and yield of sugarcane. (iv) (a) 1952—1955. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 24.00 tons/ac. (ii) (a) 13.00 tons/ac. (b) 3.06 tons/ac. (iii) None of the effects is significant. (iv) Av. yield of sugarcane in tons/ac.

	V_1	V_2	Mean
D_1	23.38	20.81	22.10
D_2	27.67	24.10	25.88
D_3	24.17	23.87	24.02
Mean	25.07	22.93	24.00

S.E. of difference of two

- | | |
|-----------------------------------|-----------------|
| 1. D marginal means | = 6.50 tons/ac. |
| 2. V marginal means | = 1.25 tons/ac. |
| 3. V means at the same level of D | = 2.16 tons/ac. |
| 4. D means at the same level of V | = 6.68 tons/ac. |

Crop :- Sugarcane (Ratoon).

Ref :- U.P. 55(278).

Site :- Sugarcane Res. Sub-Stn., Neoli.

Type :- 'CV'.

Object :- To study the effect of time of harvesting of plant cane for proper ratooning of Sugarcane.

BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) (a) Sandy loam. (b) Refer soil analysis, Neoli. (iii) As per treatments. (iv) (a) Burning of trashes on 21.3.1955. (b) Flat planting. (c) Ratoon crop. (d) and (e) N.A. (v) N.A. (vi) As per treatments. (vii) Irrigated. (viii) 2 hoeings. (ix) N.A. (x) 28.12.1955.

TREATMENTS :

Main-plot treatments :

3 dates of ratooning : $D_1=15.1.1955$, $D_2=15.2.1955$ and $D_3=15.3.1955$.

Sub-plot treatments :

2 varieties : $V_1=CO.S. 245$ and $V_2=CO.S. 453$.

DESIGN and 4. GENERAL :

Same as in expt. no. 54(259) on page 1241.

RESULTS :

(i) 6.07 tons/ac. (ii) (a) 5.45 tons/ac. (b) 1.45 tons/ac. (iii) None of the effects is significant. (iv) Av. yield of sugarcane in tons/ac.

	D ₁	D ₂	D ₃	Mean
V ₁	5.23	5.58	7.49	6.10
V ₂	5.33	6.13	6.65	6.04
Mean	5.28	5.86	7.07	6.07

S.E. of difference of two

1. D marginal means = 2.72 tons/ac.
2. V marginal means = 0.59 tons/ac.
3. V means at the same level of D = 1.03 tons/ac.
4. D means at the same level of V = 2.82 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 54(185).

Site :- Sugarcane Res. Stn., Shahjahanpur.

Type :- 'CV'.

Object :- To study the effect of time of planting on different varieties of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) *Dhaincha*—Sugarcane. (b) *Dhaincha*. (c) Nil. (ii) (a) Loam. (b) Refer soil analysis, Shahjahanpur. (iii) 13, 14 10.1953 and 17.2.1954. (iv) (a) 1 ploughing by Victory plough, 3 ploughings by *desi* plough, trench making and 3 plankings. (b) Flat planting. (c) 50 (3 budded) setts/row. (d) and (e) N.A. (v) *Dhaincha* for G.M. (vi) As per treatments. (vii) Irrigated. (viii) 21 hoeings with *kassi*, 1 with cultivator and 1 earthing. (ix) 44.14". (x) 4 to 28.2.1955, 1 and 5.3.1955.

2. TREATMENTS :

Main-plot treatments :

2 times of planting : T₁=Autumn (October) and T₂=Spring planting (February).

Sub-plot treatments :

9 varieties : V₁=CO.S. 245 (mid season), V₂=CO.S. 321 (early), V₃=CO.S. 443 (mid season), V₄=CO.S. 430 (mid season), V₅=CO.S. 510 (early), V₆=CO. 617 (mid season), V₇=CO. 622 (early), V₈=CO.K. 30 (mid season) and V₉=CO. 453 (mid late).

3. DESIGN :

(i) Split-plot. (ii) (a) 2 main-plots/replication ; 9 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) and (b) 15' × 50'. (v) Nil. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Nil. (iii) Juice analysis, germination %, no. of tillers, shoot and yield of sugarcane. (iv) (a) 1954—1955. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 26.07 tons/ac. (ii) (a) 2.27 tons/ac. (b) 2.85 tons/ac. (iii) T and V effects are highly significant. (iv) Av. yield of sugarcane in tons/ac.

	V ₁	V ₂	V ₃	V ₄	V ₅	V ₆	V ₇	V ₈	V ₉	Mean
T ₁	27.96	35.64	24.00	24.20	26.50	27.59	30.75	26.59	30.78	28.22
T ₂	24.86	29.55	22.80	18.96	20.39	25.82	24.62	22.60	25.67	23.92
Mean	26.41	32.59	23.40	21.58	23.45	26.70	27.69	24.59	28.23	26.07

S.E. of difference of two

1. T marginal means	= 0.54 tons/ac.
2. V marginal means	= 1.43 tons/ac.
3. V means at the same level of T	= 2.02 tons/ac.
4. T means at the same level of V	= 1.97 tons/ac.

Crop :- Sugarcane (Ratoon).**Ref :- U.P. 55(169).****Site :- Sugarcane Res. Stn., Shahjahanpur.****Type :- 'CV'.**

Object :—To study the effect of different timings of planting on different varieties of Sugarcane (ratoon crop).

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Sugarcane. (c) *Dhaincha* as G.M. (ii) (a) Loam. (b) Refer soil analysis, Shahjahanpur. (iii) Dates of ratooning : 4 to 28.2.1955 and 1 to 5.3.1955. (iv) (a) Dismantling from 11 to 29.3.1955. (b) Flat planting. (c) Ratoon crop. (d) and (e) N.A. (v) N.A. (vi) As per treatments. (vii) Irrigated. (viii) 2 hoeings with *kassi*, one mixing of manure by cultivator and one earthing. (ix) 52.11". (x) 7 to 15.12.1955.

2. TREATMENTS and 3. DESIGN :

Same as in expt. no. 54(185) on page 1243.

4. GENERAL :

(i) Growth good. Lodging occurred. (ii) Smut and leaf yellowing. (iii) Germination %, no. of tillers, millable cane, juice analysis and cane yield. (iv) (a) 1954—1955. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 23.59 tons/ac. (ii) (a) 1.42 tons/ac. (b) 3.02 tons/ac. (iii) V effect alone is highly significant. (iv) Av. yield of sugarcane in tons/ac.

	V ₁	V ₂	V ₃	V ₄	V ₅	V ₆	V ₇	V ₈	V ₉	Mean
T ₁	17.06	22.67	19.58	27.58	30.18	16.99	24.12	22.32	31.08	23.51
T ₂	19.43	23.06	19.02	24.40	29.23	20.87	21.84	22.64	32.50	23.67
Mean	18.24	22.87	19.30	25.99	29.72	18.93	22.98	22.48	31.79	23.59

S.E. of difference of two

1. T marginal means	= 0.33 tons/ac.
2. V marginal means	= 1.51 tons/ac.
3. V means at the same level of T	= 2.04 tons/ac.
4. T means at the same level of V	= 2.14 tons/ac.

Crop :- Sugarcane.**Ref :- U.P. 55(168).****Site :- Sugarcane Res. Stn., Shahjahanpur.****Type :- 'CV'.**

Object :—To study the effect of different times of planting on different varieties of Sugarcane.

BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) (a) Loam. (b) Refer soil analysis, Shahjahanpur. (iii) 21, 22.10.1954, 4 and 5.2.1955. (iv) (a) 4 ploughings, 2 plankings and trench making. (b) Flat planting. (c) 64 (3 budded) setts/row. (d) and (e) N.A. (v) *Dhaincha* turned in on 4.9.1954. (vi) As per treatments. (vii) Irrigated. (viii) 11 hoeings with *kassi*, 3 with cultivators and 1 earthing. (ix) 59.88". (x) 7 to 15.12.1955, 25 to 29.2.1956 and 8 to 17.3.1956.

2. TREATMENTS :

Main-plot treatments :

2 times of planting : T_1 =Autumn (October) and T_2 =Spring planting (February).

Sub-plot treatments :

10 varieties of sugarcane : V_1 =CO.S. 245(mid season), V_2 =CO.S. 321 (early), V_3 =CO.S. 430 (mid season), V_4 =CO.S. 443 (mid season), V_5 =CO.S. 510 (early), V_6 =CO.S. 514 (mid season), V_7 =CO. 453 (mid late), V_8 =CO. 617 (mid season), V_9 =CO. 622 (early) and V_{10} =CO.K. 30 (mid season).

3. DESIGN :

(i) Split-plot. (ii) (a) 2 main-plots/replication ; 10 sub-plots/main-plot. (b) $128' \times 180'$. (iii) 4. (iv) (a) $64' \times 18'$. (b) $58' \times 12'$. (v) $3' \times 3'$. (vi) Yes.

4. GENERAL :

(i) Good. (ii) N.A. (iii) Germination %, no. of shoots, millable cane, juice analysis and yield of sugarcane. (iv) (a) 1955—contd. (b) No. (c) Nil. (v) (a) and (b) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 23.81 tons/ac. (ii) (a) 3.76 tons/ac. (b) 2.90 tons/ac. (iii) Only V effect is highly significant. (iv) Av. yield of sugarcane in tons/ac.

	V_1	V_2	V_3	V_4	V_5	V_6	V_7	V_8	V_9	V_{10}	Mean
T_1	17.34	22.44	25.56	26.27	25.76	26.37	32.07	25.45	19.27	24.89	24.54
T_2	17.56	21.96	26.90	22.26	27.53	24.92	28.80	22.00	16.11	22.69	23.07
Mean	17.45	22.20	26.23	24.26	26.65	25.65	30.43	23.73	17.69	23.79	23.81

S.E. of difference of two

- | | |
|-----------------------------------|-----------------|
| 1. T marginal means | = 0.84 tons/ac. |
| 2. V marginal means | = 1.45 tons/ac. |
| 3. V means at the same level of T | = 2.05 tons/ac. |
| 4. T means at the same level of V | = 2.12 tons/ac. |

Crop :- Sugarcane (Ratoon).

Ref :- U.P. 56(144).

Site :- Sugarcane Res. Stn., Shahjahanpur.

Type :- 'CV'.

Object :—To study the effect of different timings of planting on different varieties of Sugarcane (ratoon crop).

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Sugarcane. (c) *Dhaincha* as G.M. (ii) (a) Loam. (b) Refer soil analysis, Shahjahanpur. (iii) Dates of ratooning : 7.12.1955 to 17.3.1956. (iv) (a) 9 dismantling of ridges by *kassi*. (b) Flat planting. (c) Ratoon crop. (d) and (e) N.A. (v) 60 lb./ac. of N as Urea and 60 lb./ac. of N as G N C. (vi) As per treatments. (vii) Irrigated. (viii) 1 hoeing with *kassi* and 4 with cultivator, 1 earthing and taking out dry leaves. (ix) $49.37''$. (x) 13.12.1956 to 21.12.1956.

2. TREATMENTS and 3. DESIGN :

Same as in expt. no. 55(168) on page 1244.

4. GENERAL :

(i) Growth good. Spring planted plants were partially lodged. (ii) Smut attack and leaf yellowing. (iii) Shoot, germination %, millable cane, juice analysis and sugarcane yield. (iv) (a) 1955—contd. (b) No. Nil. (v) (a) and (b) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 22.82 tons/ac. (ii) (a) 3.36 tons/ac. (b) 2.21 tons/ac. (iii) Only V effect is highly significant. (iv) Av. yield of sugarcane in tons/ac.

	V ₁	V ₂	V ₃	V ₄	V ₅	V ₆	V ₇	V ₈	V ₉	V ₁₀	Mean
T ₁	19.69	22.00	26.35	23.97	24.90	23.18	25.10	19.96	22.26	20.10	22.75
T ₂	18.79	23.08	24.80	22.83	24.17	24.86	26.37	20.88	21.98	21.11	22.89
Mean	19.24	22.54	25.57	23.40	24.54	24.02	25.73	20.42	22.12	20.61	22.82

S.E. of difference of two

1. T marginal means = 0.75 tons/ac.
2. V marginal means = 1.11 tons/ae.
3. V means at the same level of T = 1.56 tons/ac.
4. T means at the same level of V = 1.66 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 56(143).

Site :- Sugarcane Res. Stn., Shahjahanpur.

Type :- 'CV'.

Object :- To study the effect of different times of planting on different varieties of Sugarcane.

BASAL CONDITIONS :

(i) (a) N.A. (b) *Dhaincha*. (c) Nil. (ii) (a) Loam. (b) Refer soil ana ysis, Shahjahanpur. (iii) 29, 30.10.1955, 24 and 25.2.1956. (iv) (a) 17 ploughings and 13 plankings. (b) Flat planting. (c) 60 (3 budded) setts/row. (d) and (e) N.A. (v) *Dhaincha* as G.M.+G.N.C.+A/S. (vi) As per treatments. (vii) Irrigated. (viii) 17 hoeings, 3 earthings and 1 binding. (x) 53.92". (x) 3.3.1957 to 16.4.1957 and 4.12.1956 to 7.12.1956.

TREATMENTS :

Main-plot treatments :

2 times of planting : T₁=Autumn (October) and T₂=Spring planting (February).

Sub-plot treatments :

9 varieties of sugarcane : V₁=CO.S. 245 (mid season), V₂=CO.S. 321 (early), V₃=CO.S. 443 (mid season), V₄=CO.S. 510 (early), V₅=CO.S. 514 (mid season), V₆=CO.S. 416 (early), V₇=CO. 421 (mid season), V₈=CO. 453 (mid late) and V₉=CO. K. 30 (mid season).

3. DESIGN :

(i) Split-plot. (ii) (a) 2 main-plots/replication ; 9 sub-plots/main-plot. (b) 180'×72'. (iii) 5. (iv) (a) 60'×18'. (b) 54'×12'. (v) 3'×3'. (vi) Yes.

4. GENERAL :

(i) Growth good. Crop lodged in October. (ii) Yellowing of leaves, pyrilla incidence heavy. Rot cases in autumn plantings. (iii) Sugarcane yield, juice analysis, germination %, no. of tillers, shoot and millable cane. (iv) (a) 1956—contd. (b) No. (c) Nil. (v) (a) and (o) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 26.16 tons/ac. (ii) (a) 6.13 tons/ac. (b) 3.82 tons/ac. (iii) Only V effect is significant. (iv) Av. yield of sugarcane in tons/ac.

	V ₁	V ₂	V ₃	V ₄	V ₅	V ₆	V ₇	V ₈	V ₉	Mean
T ₁	22.46	25.60	28.52	31.30	32.02	24.77	20.91	31.70	29.38	27.41
T ₂	19.21	26.67	25.20	27.93	28.52	13.46	20.67	33.27	29.35	24.92
Mean	20.84	26.13	26.86	29.61	30.27	19.12	20.79	32.48	29.37	26.15

S.E. of difference of two

1. T marginal means	= 1.44 tons/ac.
2. V marginal means	= 1.91 tons/ac.
3. V means at the same level of T	= 2.70 tons/ac.
4. T means at the same level of V	= 2.93 tons/ac.

Crop :- Sugarcane (Ratoon).

Ref :- U.P. 57(200).

Site :- Sugarcane Res. Stn., Shahjahanpur.

Type :- 'CV'.

Object :—To study the effect of different times of planting on different varieties of Sugarcane (ratoon crop).

1. BASAL CONDITIONS :

(i) (a) Plant cane—Ratoon. (b) Plant cane. (c) *Dhaincha* as G.M.+G.N.C.+A/S. (ii) (a) Loam. (b) Refer soil analysis, Shahjahanpur. (iii) Ratooning on 3.3.1957 to 16.4.1957 and 4.12.1956 to 7.12.1956. (iv) (a) Dismantling of ridges. (b) Flat planting. (c) Ratoon crop. (d) and (e) N.A. (v) 60 lb./ac. of N as A/S+G.N.C. (vi) As per treatments. (vii) Irrigated. (viii) 4 hoeings, 1 earthing and 1 binding of canes. (ix) N.A. (x) 20 to 22.12.1957.

2. TREATMENTS :

Same as in expt. no. 56(143) on page 1246.

3. DESIGN :

(i) Split-plot. (ii) (a) 2 main-plots/replication ; 9 sub-plots/main-plot. (b) 182'×108'. (iii) 4. (iv) (a) 60'×18'. (b) 54'×12'. (v) 3'×3'. (vi) Yes.

4. GENERAL :

(i) Good growth. Lodging in August and September. (ii) No. (iii) Germination %, no. of tillers, juice analysis, millable cane and sugarcane yield. (iv) (a) 1956—contd. (b) No. (c) Nil. (v) (a) and (b) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 18.78 tons/ac. (ii) (a) 5.76 tons/ac. (b) 2.97 tons/ac. (iii) V effect and interaction V×T are highly significant. (iv) Av. yield of sugarcane in tons/ac.

	V ₁	V ₂	V ₃	V ₄	V ₅	V ₆	V ₇	V ₈	V ₉	Mean
T ₁	15.05	19.38	20.43	16.53	21.25	19.41	8.97	21.44	19.52	18.00
T ₂	16.81	21.37	17.25	17.70	21.45	21.19	19.11	20.51	20.68	19.56
Mean	15.93	20.38	18.84	17.11	21.35	20.30	14.04	20.97	20.10	18.78

S.E. of difference of two

1. T marginal means	= 1.36 tons/ac.
2. V marginal means	= 1.45 tons/ac.
3. V means at the same level of T	= 2.06 tons/ac.
4. T means at the same level of V	= 2.37 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 57(199).

Site :- Sugarcane Res. Stn., Shahjahanpur.

Type :- 'CV'.

Object :—To study the effect of different times of planting on different varieties of Sugarcane.

1. BASAL CONDITIONS:

(i) (a) *Sanai*—Sugarcane. (b) *Sanai*. (c) Nil. (ii) (a) Loam. (b) Refer soil analysis, Shahjahanpur. (iii) As per treatments. (iv) (a) 18 ploughings and 18 plankings. (b) Flat planting. (c) 67 (3 budged sets/row. (d) 3' between rows. (e) N.A. (v) G.M. of *sanai* at 40 lb./ac. of N+40 lb./ac. of N as G.N.C. at planting+40 lb./ac. of N at the completion of germination of the spring planted crop. (vi) As per treatments. (vii) Irrigated. (viii) 6 hoeings by *kassi* and 12 by cultivator. (ix) 38.13%. (x) 14.10.1957, 6.2.1958 and 10.3.1958.

2. TREATMENTS:

Main-plot treatments:

2 times of planting: T₁=Autumn (October) and T₂=Spring (February).

Sub-plot treatments:

10 varieties of sugarcane: V₁=CO.S. 321 (early), V₂=CO.S. 416 (early), V₃=CO.S. 443 (mid season), V₄=CO.S. 510 (early), V₅=CO.S. 514 (mid season), V₆=CO.S. 526 (mid season), V₇=CO. 421 (mid season), V₈=CO. 453 (mid late), V₉=CO. 846 (mid season) and V₁₀=CO. 859 (early).

3. DESIGN:

(i) Split-plot. (ii) (a) 2 main-plots/replication; 10 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) 67' × 15'. (b) 61' × 9'. (v) 3' × 3'. (vi) Yes.

4. GENERAL:

(i) Good growth. (ii) Shoot and root borer attack. Chlorodane at 15 lb./ac. applied in furrows at planting. (iii) Germination %, no. of tillers, shoots, juice analysis, millable cane and sugarcane yield. (iv) (a) 1957—contd. (b) No. (c) Nil. (v) (a) and (b) N.A. (vi) and (vii) Nil.

5. RESULTS:

(i) 20.06 tons/ac. (ii) (a) 7.58 tons/ac. (b) 3.22 tons/ac. (iii) T effect is significant. V effect and interaction T × V are highly significant. (iv) Av. yield of sugarcane in tons/ac.

	V ₁	V ₂	V ₃	V ₄	V ₅	V ₆	V ₇	V ₈	V ₉	V ₁₀	Mean
T ₁	27.51	25.28	24.37	24.39	23.44	15.30	20.57	24.79	23.97	18.25	22.79
T ₂	17.78	7.61	21.26	23.12	14.92	16.47	16.83	23.74	17.16	14.37	17.33
Mean	22.64	16.45	22.81	23.76	19.18	15.88	18.70	24.26	20.57	16.31	20.05

S.E. of difference of two

1. T marginal means	= 1.69 tons/ac.
2. V marginal means	= 1.61 tons/ac.
3. V means at the same level of T	= 2.28 tons/ac.
4. T means at the same level of V	= 2.75 tons/ac.

Crop :- Sugarcane (Ratoon).

Ref :- U.P. 58(170).

Site :- Sugarcane Res. Stn., Shahjahanpur.

Type :- 'CV'.

Object :- To study the effect of different times of planting on different varieties of Sugarcane (ratoon crop)

ASAL CONDITIONS:

(i) N.A. (b) Sugarcane. (c) N.A. (ii) (a) Light loam. (b) Refer soil analysis, Shahjahanpur. (iii) Rooting on 14.10.1957 and 16.2.1958 to 25.3.1958. (v) (a) Nil. (b) Flat planting. (c) Ratoon crop. (d) Rows 3' apart. (e) N.A. (v) 60 lb./ac. of N as A/S+G N.C. (50:50 N basis). (vi) As per treatments. (vii) Irrigated. (viii) 2 hoeings by *kassi*, 3 to 5 hoeings by cultivator and one earthing. (ix) N.A. (x) 16 and 17.12.1958.

TREATMENTS and 3. DESIGN:

Same as in expt. no. 57(199) on page 1247

4. GENERAL :

(i) Some lodging occurred in August, 1958 due to heavy rains. (ii) Smut observed. (iii) No. of tillers, millable cane, yield of sugarcane and juice analysis. (iv) (a) 1957—contd. (b) No. (c) Nil. (v) (a) and (b) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 21.20 tons/ac. (ii) (a) 3.26 tons/ac. (b) 2.53 tons/ac. (iii) V effect is highly significant. Interaction T × V is significant. (iv) Av. yield of sugarcane in tons/ac.

	V ₁	V ₂	V ₃	V ₄	V ₅	V ₆	V ₇	V ₈	V ₉	V ₁₀	Mean
T ₁	20.06	23.44	20.26	20.15	25.03	18.80	19.64	22.59	21.33	15.48	20.72
T ₂	19.64	19.22	25.63	22.68	22.04	21.79	19.58	24.21	23.77	18.13	21.67
Mean	19.85	21.33	22.94	21.42	23.54	20.30	19.61	23.60	22.55	16.81	21.20

S.E. of difference of two

1. T marginal means = 0.73 tons/ac.
2. V marginal means = 1.26 tons/ac.
3. V means at the same level of T = 1.79 tons/ac.
4. T means at the same level of V = 1.85 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 58(172).

Site :- Sugarcane Res. Stn., Shahjahanpur.

Type :- 'CV'.

Object :—To study the effect of different times of planting on different varieties of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) *Sanai*. (c) Nil. (ii) (a) Light loam. (b) Refer soil analysis, Shahjahanpur. (iii) 14, 15.10.1957 and 17, 18.2.1958. (iv) (a) 1 *palewa*, 4 to 5 ploughings and 4 to 5 plankings. (b) Flat planting. (c) 65 setts (3 budded)/row. (d) 6 rows 3' apart. (e) N.A. (v) *Sanai* as G.M. at 40 lb./ac. of N, Chlordane at 5 lb./ac. G.N.C. at 40 lb./ac. of N applied in furrows at planting and A/S at 40 lb./ac. of N. (vi) As per treatments. (vii) Irrigated. (viii) Hoeings and earthings. (ix) N.A. (x) For T₁: 25 and 31.10.1958, 6 and 8.11.1958 and for T₂: 5, 7.2.1959.

2. TREATMENTS :

Main-plot treatments :

2 times of planting : T₁=Autumn and T₂=Spring planting.

Sub-plot treatments :

9 varieties of sugarcane : V₁=CO.S. 321 (early), V₂=CO.S. 510 (early), V₃=CO.S. 514 (medium), V₄=CO.S. 526 (medium), V₅=CO.S. 541 (early), V₆=CO. 421 (medium), V₇=CO. 453 (medium), V₈=CO. 846 (mid season) and V₉=CO. 859 (early).

3. DESIGN :

(i) Split-plot. (ii) (a) 2 main-plots/replication and 9 sub-plots/main-plot. (b) 162' × 135'. (iii) 4. (iv) (a) 64' × 18'. (b) 58' × 12'. (v) 3' × 3'. (vi) Yes.

4. GENERAL :

(i) Partly lodged in October, 1958. Growth was very good. (ii) Smut, rogued. Spring planted treatments affected by Albino in July, 1958. Experiment was free from disease and pest in November, 1958. (iii) Germination %, no. of tillers, millable cane, juice analysis and yield of sugarcane. (iv) (a) and (b) No. (c) Nil. (v) (a) and (b) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 23.78 tons/ac. (ii) (a) 2.30 tons/ac. (b) 2.08 tons/ac. (iii) None of the effects is significant. (iv) Av. yield of sugarcane in tons/ac.

	V ₁	V ₂	V ₃	V ₄	V ₅	V ₆	V ₇	V ₈	V ₉	Mean
T ₁	22.47	20.81	25.15	21.68	23.88	24.01	27.06	22.66	22.01	23.41
T ₂	23.58	22.59	25.15	23.23	21.64	25.23	28.67	23.01	23.22	24.15
Mean	23.03	21.70	26.15	22.45	22.76	24.62	27.87	22.83	22.62	23.78

S.E. of difference of two

1. T marginal means = 0.54 tons/ac.
2. V marginal means = 1.04 tons/ac.
3. V means at the same level of T = 1.47 tons/ac.
4. T means at the same level of V = 1.49 tons/ac.

Crop :- Sugarcane (Ratoon).

Ref. :- U.P. 59(182).

Site :- Sugarcane Res. Stn., Shahjahanpur.

Type :- 'CV'.

Object :- To study the effect of different times of planting on different varieties of Sugarcane (ratoon crop).

BASAL CONDITIONS :

(i) (a) N.A. (b) Sugarcane. (c) 15 lb./ac. of Chlordane applied in furrows at planting. (ii) (a) Light loam. (b) Refer soil analysis, Shahjahanpur. (iii) ratooning on 25.3.1958, 6 to 7, 8.11.1958, 5.2.1959 and 5 to 7.3.1959. (iv) (a) Nil. (b) Flat planting. (c) Ratoon crop. (d) Rows 3' apart. (e) N.A. (v) A/S at 60 lb./ac. of N top dressed twice. (vi) As per treatments. (vii) Irrigated. (viii) Hoeings and earthing. (ix) 39.7%. (x) 17, 18, 26 and 28.12.1959.

TREATMENTS and 3. DESIGN :

Same as in expt. no. 58(172) on page 1249.

GENERAL :

(i) Good growth. Lodging in September and October due to rains and winds. (ii) Smut from April to June—Roughing done. (iii) No. of tillers, millable canes, juice analysis and yield of sugarcane. (iv) (a) and (b) No. (c) Nil. (v) (a) and (b) N.A. (vi) and (vii) Nil.

RESULTS :

(i) 19.27 tons/ac. (ii) (a) 2.30 tons/ac. (b) 2.73 tons/ac. (iii) V effect is highly significant. (iv) Av. yield of sugarcane in tons/ac.

	V ₁	V ₂	V ₃	V ₄	V ₅	V ₆	V ₇	V ₈	V ₉	Mean
T ₁	16.80	18.45	18.62	20.95	18.84	19.17	20.95	19.53	16.85	18.91
T ₂	16.80	20.00	24.61	18.19	17.49	20.19	22.14	21.54	15.79	19.64
Mean	16.80	19.23	21.61	19.57	18.17	19.68	21.54	20.54	16.32	19.27

S.E. of difference of two

1. T marginal means = 0.54 tons/ac.
2. V marginal means = 1.37 tons/ac.
3. V means at the same level of T = 1.93 tons/ac.
4. T means at the same level of V = 1.90 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 59(178).

Site :- Sugarcane Res. Stn., Shahjahanpur.

Type :- 'CV'.

Object :- To study the effect of different times of planting on different varieties of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) *Dhaincha*. (c) Nil. (ii) (a) Light loam. (b) Refer soil analysis, Shahjahanpur. (iii) 26, 27.10.1958 and 5.2.1959. (iv) (a) 14 ploughings and 13 plankings. (b) Flat planting. (c) 85 setts (3 budded)/row. (d) Rows 3' apart. (e) N.A. (v) *Dhaincha* as G.M. at 50 lb./ac. of N, top dressing with A/C at 40 lb./ac. of N at 1st irrigation, 30 lb./ac. of N at 2nd irrigation and Chlordane applied at planting in furrows. (vi) As per treatments. (vii) Irrigated. (viii) 12 hoeings and 1 earthing. (ix) 39.72". (x) 5, 6, 7, 9, 23, 24.11.1959 and 11, 13, 15.2.1960.

2. TREATMENTS :

Main-plot treatments :

2 times of planting : T₁=Autumn and T₂=Spring planting.

Sub-plot treatments :

10 varieties of sugarcane : V₁=CO.S. 321 (early), V₂=CO.S. 510 (early), V₃=CO.S. 526 (medium), V₄=CO.S. 541 (early), V₅=CO.S. 551 (medium), V₆=CO. 846 (mid season), V₇=CO. 859 (early), V₈=CO. 1046 (medium), V₉=CO. 1081 (medium) and V₁₀=BO. 17 (mid-late).

3. DESIGN :

(i) Split-plot. (ii) (a) 2 main-plots/replication and 10 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) 84'×18'. (b) 78'×12'. (v) 3'×3'. (vi) Yes.

4. GENERAL :

(i) Lodging in September, 1959 due to heavy rains and wind. (ii) Few plants affected by shoot borer. Attack of *Pyrilla* and Albino disease also noticed. (iii) Germination %, no. of tillers, millable cane, juice analysis and yield of sugarcane. (iv) (a) and (b) No. (c) Nil. (v) (a) and (b) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 17.68 tons/ac. (ii) (a) 2.45 tons/ac. (b) 3.14 tons/ac. (iii) V effect is highly significant. (iv) Av. yield of sugarcane in tons/ac.

	V ₁	V ₂	V ₃	V ₄	V ₅	V ₆	V ₇	V ₈	V ₉	V ₁₀	Mean
T ₁	19.07	22.42	17.75	15.09	18.17	18.38	17.45	16.87	16.22	16.36	17.78
T ₂	19.98	21.19	14.34	17.00	16.94	16.52	18.48	13.68	20.50	17.26	17.59
Mean	19.53	21.80	16.05	16.04	17.56	17.45	17.96	15.28	18.36	16.81	17.68

S.E. of difference of two

1. T marginal means = 0.54 tons/ac.
2. V marginal means = 1.57 tons/ac.
3. V means at the same level of T = 2.22 tons/ac.
4. T means at the same level of V = 2.18 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 54(250).

Zone :- Haldwani (Nainital, c.f.).

Type :- 'CV'.

Object :- To study the effect of time of harvesting of plant cane for proper ratooning and yield of ratoon crop.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Plant cane. (c) N.A. (ii) Loam. (iii) N.A. (iv) As per treatments (improved). (v) (a) to (c) N.A. (d) Rows 3' apart. (e) N.A. (vi) As per treatments. (vii) Irrigated. (viii) and (ix) N.A. (x) 9.12.1954.

2. TREATMENTS :

Main-plot treatments :

3 dates of harvesting of plant cane : H₁=Mid-January, H₂=Mid-February and H₃=Mid-March.

Sub-plot treatments :

2 varieties of plant cane : V₁=CO.S. 510 and V₂=CO. 453.

3. DESIGN :

(i) and (ii) Split-plot with 6 replications. (iii) (a) N.A. (b) 64'×21'. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) No. of tillers, millable canes, yield of ratoon sugarcane and juice analysis. (iv) (a) and (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 15.91 tons/ac. (ii) (a) 2.78 tons/ac. (b) 3.87 tons/ac. (iii) H effect is significant. V effect is highly significant. (iv) Av. yield of sugarcane in tons/ac.

	H ₁	H ₂	H ₃	Mean
V ₁	18.90	24.06	20.30	21.09
V ₂	9.48	11.39	11.35	10.74
Mean	14.19	17.72	15.82	15.91

S.E. of difference of two

1. H marginal means = 1.13 tons/ac.
2. V marginal means = 1.29 tons/ac.
3. V means at the same level of H = 2.23 tons/ac.
4. H means at the same level of V = 1.94 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 54(81).

Site :- Sugarcane Res. Sub-Stn., Kunraghat.

Type :- 'CM'.

Object :- To study the effect of method of planting, method of harvesting plant crop and manuring of ratoon Sugarcane crop.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Sugarcane. (c) G.N.C. at 10 srs./row and A/S at 4 srs./ac. (ii) (a) Sandy loam. (b) Refer soil analysis, Kunraghat. (iii) Plant cane on 14 to 16.2.1953 and harvest of plant cane on 23.1.1954 to 10.2.1954. (iv) (a) N.A. (b) As per treatments. (c) 1 (3 budded) sett/ft. (d) 3' between rows. (e) N.A. (v) As per treatments. (vi) CO. 453 (late). (vii) Irrigated. (viii) 3 earthings. (ix) N.A. (x) 18 to 24.12.1954.

2. TREATMENTS :**Main-plot treatments :**

All combinations of (1) and (2)

- (1) 2 methods of harvesting of plant cane : M₁=At ground level and M₂=At ridge level.
- (2) 3 methods of planting : P₁=Flat planting and P₂=Trench planting.

Sub-plot treatments :

4 levels of manures : S₀=Control, S₁=120 lb./ac. of N applied to ratoon soon after harvesting of plant cane, S₂=120 lb./ac. of N applied to ratoon at commencement of rains and S₃=120 lb./ac. of N in 2 doses $\frac{1}{2}$ as in S₁ and $\frac{1}{2}$ as in S₂.

3. DESIGN :

(i) Split-plot. (ii) (a) 4 main-plots/replication ; 4 sub-plots/main-plot. (b) N.A. (iii) 3. (iv) (a) 85'×24'. (b) 79'×18'. (v) 3'×3'. (vi) Yes.

4. GENERAL :

(i) Normal and no lodging. (ii) N.A. (iii) Germination %, millable cane, no. of tillers and sugarcane yield. (iv) (a) 1952-1954. (b) No. (c) Nil. (v) (a) Muzaffarnagar and Gorakhpur. (b) Nil. (vi) and (vii) Nil.

5. RESULTS :

(i) 19.00 tons/ac. (ii) (a) 3.03 tons/ac. (b) 2.31 tons/ac. (iii) Main effect of S alone is highly significant. (iv) Av. yield of sugarcane in tons/ac.

	S ₀	S ₁	S ₂	S ₃	Mean	M ₁	M ₂
P ₁	14.77	21.08	19.90	19.18	18.88	17.83	19.93
P ₂	17.17	19.95	19.30	20.08	19.12	19.77	18.28
Mean	15.97	20.81	19.60	19.63	19.00	18.90	19.10
M ₁	15.38	21.25	19.23	19.75			
M ₂	16.56	20.38	19.97	19.51			

S.E. of difference of two

1. P or M marginal means = 0.87 tons/ac.
 2. S marginal means = 0.94 tons/ac.
 3. S means at the same level of P or M = 1.33 tons/ac.
 4. P or M means at the same level of S = 1.45 tons/ac.
- S.E. of body of P×M table = 0.87 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 57(59).

Site :- Sugarcane Res. Sub-Stn., Muzaffarnagar.

Type :- 'CM'.

Object :- To study the effect of manures and source of setts on the yield of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) G.M.—Wheat—Cotton—Sugarcane. (b) Cotton. (c) N.A. (ii) (a) Loam. (b) Refer soil analysis, Muzaffarnagar. (iii) 1.4.1957. (iv) (a) 5 ploughings, 5 plankings and 1 roller application. (b) Flat planting (c) 38 (3 budded) setts/row. (d) Rows 3' apart. (e) N.A. (v) Nil. (vi) CO.S. 245 (medium). (vii) Irrigated. (viii) 5 hoeings, 1 weeding, 1 earthing and 1 digging. (ix) 41.39%. (x) 31.12.1957.

2. TREATMENTS :

Main-plot treatment :

2 sources of seed : S₁=Healthy seed from farm and S₂=Healthy seed purchased.

Sub-plot treatments :

5 levels of manures : M₁=60 lb./ac. of N as F.Y.M. (control), M₂=Seived M.C. at 120 lb./ac. of N 15 to 30 days before planting, M₃=120 lb./ac. of N as M.C.+20 srs./ac. of A/S +Chlordane at 15 lb./ac. dusted in furrows at planting, M₄=120 lb./ac. of N as M.C.+20 srs./ac. of A/S+15 lb./ac. of N as Gammexane dusted in furrows at planting and M₅=20 srs./ac. of A/S+15 lb./ac. of Chlordane dusted in furrows at planting+120 lb./ac. of N as A/S at 1st irrigation.

3. DESIGN :

(i) Split-plot. (ii) (a) 2 main-plots/replication ; 5 sub-plots/main-plot. (b) N.A. (iii) 3. (iv) (a) and (b) 36'×15'. (v) Nil. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of sugarcane and juice analysis. (iv) (a) 1957—1958. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 17.60 tons/ac. (ii) (a) 2.35 tons/ac. (b) 1.69 tons/ac. (iii) Main effect of M is highly significant and main effect of S is significant. (iv) Av. yield of sugarcane in tons/ac.

	M ₁	M ₂	M ₃	M ₄	M ₅	Mean
S ₁	15.05	13.34	14.25	16.44	16.63	15.14
S ₂	17.82	17.02	19.42	21.83	24.21	20.06
Mean	16.44	15.18	16.84	19.14	20.42	17.60

S.E. of difference of two

1. S marginal means	= 0.86 tons/ac.
2. M marginal means	= 0.97 tons/ac.
3. M means at the same level of S	= 1.38 tons/ac.
4. S means at the same level of M	= 1.50 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 58(59).

Site :- Sugarcane Res. Sub-Stn., Muzaffarnagar.

Type :- 'CM'.

Object :- To study the effect of manures and source of setts on the yield of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) G.M.—Wheat—Cotton—Sugarcane. (b) Cotton. (c) N.A. (ii) (a) Loam. (b) Refer soil analysis, Muzaffarnagar. (iii) 20.2.1958. (iv) (a) 9 ploughings, 5 plankings and 2 roller applications. (b) Flat planting. (c) 38 (3 budded) setts/row. (d) Rows 3' apart. (e) N.A. (v) Nil. (vi) CO.S. 245 (medium). (vii) Irrigated. (viii) 7 hoeings and 2 earthings. (ix) 48.85". (x) 20.11.1958 to 7.2.1959.

2. TREATMENTS to 4. GENERAL :

Same as in expt. no. 57(59) on page 1253.

5. RESULTS :

(i) 24.17 tons/ac. (ii) (a) 4.50 tons/ac. (b) 3.34 tons/ac. (iii) None of the effects is significant. (iv) Av. yield of sugarcane in tons/ac.

	M ₁	M ₂	M ₃	M ₄	M ₅	Mean
S ₁	24.13	23.94	23.79	32.53	27.39	26.36
S ₂	23.96	22.83	21.64	21.98	19.54	21.99
Mean	24.04	23.38	22.72	27.26	23.46	24.17

S.E. of difference of two

1. S marginal means	= 1.64 tons/ac.
2. M marginal means	= 1.93 tons/ac.
3. M means at the same level of S	= 2.72 tons/ac.
4. S means at the same level of M	= 2.94 tons/ac.

Crop :- Sugarcane (Ratoon).

Ref :- U.P. 54(44).

Site :- Sugarcane Res. Sub-Stn., Muzaffarnagar.

Type :- 'CM'.

Object :- To study the effect of method of planting, method of harvesting plant cane and manuring of ratoon Sugarcane crop.

1. BASAL CONDITIONS :

(i) (a) G.M.—Wheat—*Sanai* or *Moong*—Sugarcane—Ratoon. (b) Plant sugarcane crop. (c) Compost at 100 lb./ac. of N+A/S at 25 lb./ac. of N+Castor cake at 20 lb./ac. of N. (ii) (a) Light loam. (b) Refer soil analysis, Muzaffarnagar. (iii) 23.2.1954 to 4.3.1954. (iv) (a) Ploughing. (b) As per treatments. (c) N.A. (d) 3' between rows. (e) N.A. (v) Nil. (vi) CO.S. 245. (vii) Irrigated. (viii) 6 hoeings and 1 earthing. (ix) 32.07". (x) 25.11.1954 to 8.12.1954.

2. TREATMENTS :

Same as in expt. no. 54(81) on page 1252.

Manure applied as A/S and G.N.C. on 50 : 50 N basis.

3. DESIGN :

(i) Split-plot. (ii) (a) 4 main-plots/replication ; 4 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) 85'×21'. (b) 79'×15'. (v) 3'×3'. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Incidence of rust. (iii) Germination %, no. of tillers, millable cane countings and yield of sugarcane. (iv) (a) 1952—1954. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 23.86 tons/ac. (ii) (a) 3.05 tons/ac. (b) 1.81 tons/ac. (iii) Main effect of S alone is highly significant. (iv) Av. yield of sugarcane in tons/ac.

	S ₀	S ₁	S ₂	S ₃	Mean	M ₁	M ₂
P ₁	16.04	25.74	26.20	25.94	23.48	22.92	24.04
P ₂	16.98	26.75	26.16	27.10	24.25	24.29	24.20
Mean	16.51	26.24	26.18	26.52	23.86	23.60	24.12
M ₁	16.10	25.76	26.07	26.48			
M ₂	16.91	26.73	26.29	26.56			

S.E. of difference of two

1. P or M marginal means	= 0.76 tons/ac.
2. S marginal means	= 0.64 tons/ac.
3. S means at the same level of P or M	= 0.90 tons/ac.
4. P or M means at the same level of S	= 1.09 tons/ac.
S.E. of body of P×M table	= 0.76 tons/ac.

Crop :- Sugarcane (Ratoon).

Ref :- U.P. 54(43).

Site :- Sugarcane Res. Stn., Shahjahanpur.

Type :- 'CV'.

Object :- To study the effect of method of planting, method of harvesting plant cane and manuring of ratoon Sugarcane crop.

1. BASAL CONDITIONS :

(i) (a) G.M.—Wheat—*Sanai*—Sugarcane (Plant cane)—Sugarcane (Ratoon). (b) Plant sugarcane. (c) *Sanai* as G.M. (ii) (a) Loam. (b) Refer soil analysis, Muzaffarnagar. (iii) 13.2.1954. (iv) (a) N.A. (b) As per treatments. (c) 1 (3 budded) sett/foot. (d) 3' between rows. (e) N.A. (v) Nil. (vi) CO.453 (mid-late). (vii) Irrigated. (viii) 4 hoeings and 1 earthing. (ix) 39.32". (x) 14 to 17.12.1954.

2. TREATMENTS :

Same as in expt. no. 54(81) on page 1252.

N in the form of A/S and oil cake in the ratio 50 : 50.

3. DESIGN :

(i) Split-plot. (ii) (a) 4 main-plots/replication ; 4 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) 84'×18'. (b) 78'×12'. (v) 3'×3'. (vi) Yes.

4. GENERAL :

(i) Normal. Partial lodging in the beginning of October, 1954. (ii) No. (iii) No. of tillers millable cane, and yield of sugarcane. (iv) (a) 1952—1954. (b) No. (c) Nil. (v) (a) Muzaffarnagar and Gorakhpur. (b) Nil. (vi) and (vii) Nil.

5. RESULTS :

(i) 23.20 tons/ac. (ii) (a) 4.62 tons/ac. (b) 2.24 tons/ac. (iii) Only S effects are highly significant. (iv) Av. yield of sugarcane in tons/ac.

	S ₀	S ₁	S ₂	S ₃	Mean	M ₁	M ₂
P ₁	17.09	24.10	24.46	24.37	22.50	22.59	22.42
P ₂	17.05	25.86	27.87	24.79	23.89	23.39	24.40
Mean	17.07	24.98	26.16	24.58	23.20	22.99	23.41
M ₁	17.34	24.21	25.64	24.77			
M ₂	16.80	25.75	26.69	24.39			

S.E. of difference of two

1. P or M marginal means	= 1.15 tons/ac.
2. S marginal means	= 0.79 tons/ac.
3. S means at the same level of P or M	= 1.12 tons/ac.
4. P or M means at the same level of S	= 1.51 tons/ac.
S.E. of body of P × M table	= 1.15 tons/ac.

Crop :- Sugarcane (*Adsali*).

Ref :- U.P. 57(165).

Site :- Sugarcane Res. Stn., Shahjahanpur.

Type :- 'CM'.

Object :—To study the effect of spacing, seed rate and manuring on Sugarcane planted at different times.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Fallow. (c) Nil. (ii) (a) Light loam. (b) Refer soil analysis, Shahjahanpur. (iii) T₁ on 4, 5.8.1957, T₂ on 30.9.1957 and 1.10.1957. (iv) (a) 4 ploughings, 4 plankings and 1 harrowing. (b) Flat planting. (c) and (d) As per treatments. (e) N.A. (v) Nil. (vi) CO.S. 514 (medium). (vii) Irrigatvd. (viii) 16 to 20 hoeings, 2 earthings and binding of canes. (ix) 82.70%. (x) 21, 22, 26.12.1958 and 7, 9.3.1959.

2. TREATMENTS :

Main-plot treatments :

All combinations of (1) and (2)

(1) 2 times of planting : T₁=*Adsali* (July) and T₂=Autumn.

(2) 2 levels of A/S+G.N.C. in 1 : 1 N basis : M₁=Normal (120 lb./ac. of N) and M₂=Heavy (240 lb./ac. of N).

Sub-plot treatments :

All combinations of (1) and (2)

(1) 2 spacings between rows : R₁=3' and R₂=4'.

(2) 2 seed rates : S₁=30,000 and S₂=45,000 buds/ac.

M₁ applied $\frac{1}{2}$ at 1st irrigation (4.12.1957) and $\frac{1}{2}$ at tillering (11.4.1958). M₂ applied in 3 equal doses at 1st irrigation (4.12.1957.), at tillering (11.4.1958.) and at earthing time (11.7.1958).

3. DESIGN :

(i) Split-plot. (ii) (a) 4 main-plots/replication ; 4 sub-plots/main-plot. (b) 102' × 162'. (iii) 4. (iv) (a) 38' × 24'. (b) 32' × 12'. (v) 3' × 3'. (vi) Yes.

4. GENERAL :

(i) Lodging in some plots in October 1958 due to heavy rains and wind. Growth was very good. (ii) Smut, borer, and albino disease in May, 1958. Roguing done. Free from disease in July, 1958 except albino. (iii) Germination %, no. of tillers and yield of sugarcane. (iv) (a) 1957--1959. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 29.49 tons/ac. (ii) (a) 6.72 tons/ac. (b) 4.80 tons/ac. (iii) Only M effect is significant. (iv) Av. yield of sugarcane in tons/ac.

	M ₁	M ₂	R ₁	R ₂	S ₁	S ₂	Mean
T ₁	28.69	32.88	30.94	30.63	30.64	30.93	30.78
T ₂	25.96	30.42	29.24	27.14	27.12	29.26	28.19
Mean	27.32	31.65	30.09	28.88	28.88	30.09	29.49
S ₁	27.07	30.69	29.41	28.35			
S ₂	27.58	32.61	30.76	29.42			
R ₁	28.52	31.65					
R ₂	26.13	31.64					

S.E. of difference of two

1. T or M marginal means = 1.68 tons/ac.
2. R or S marginal means = 1.20 tons/ac.
3. R or S means at the same level of T or M = 1.07 tons/ac.
4. T or M means at the same level of R or S = 2.06 tons/ac.
- S.E. of body of T × M table = 1.68 tons/ac.
- S.E. of body of R × S table = 1.20 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 56(129).

Site :- Sugarcane Res. Stn., Shahjahanpur.

Type :- 'CM'.

Object :—To study the effect of seed rates and N on the yield of Sugarcane.

1. BASAL CONDITIONS :

- (i) (a) N.A. (b) Fallow. (c) Nil. (ii) (a) Light loam. (b) Refer soil analysis, Shahjahanpur. (iii) 22.2.1956.
 (iv) (a) N.A. (b) Flat planting. (c) 1 (3 budded) sett/foot. (d) Rows 3' apart. (e) N.A. (v) Nil. (vi) CO. 453 (mid-late). (vii) Irrigated. (viii) 3 hoeings and 1 earthing. (ix) 50.78". (x) 6.1.1957.

2. TREATMENTS :

All combinations of (1) and (2)

- (1) 3 seed rates : R₁=25,000, R₂=45,000 and R₃=65,000 buds/ac.
 (2) 3 levels of N : N₀=0, N₁=100 and N₂=200 lb./ac.

3. DESIGN :

- (i) Fact. in R.B.D. (ii) (a) 9. (b) N.A. (iii) 4. (iv) (a) and (b) 40' × 24'. (v) Nil. (vi) Yes.

4. GENERAL :

- (i) and (ii) Nil. (iii) Sugarcane yield. (iv) (a) 1956—1958. (b) No. (c) Nil. (v) to (vii) N.A.

5. RESULTS :

- (i) 25.88 tons/ac. (ii) 2.06 tons/ac. (iii) Main effects of R and N are highly significant. (iv) Av. yield of sugarcane in tons/ac.

	N ₀	N ₁	N ₂	Mean
R ₁	20.18	25.53	26.99	24.23
R ₂	22.00	28.15	28.84	26.33
R ₃	24.02	28.94	28.26	27.07
Mean	22.07	27.54	28.03	25.88

- S.E. of any marginal mean = 0.59 tons/ac.
 S.E. of body of table = 1.03 tons/ac.

Crop :- Sugarcane.**Ref :- U.P. 57(157).****Site :- Sugarcane Res. Stn., Shahjahanpur.****Type :- 'CM'.**

Object :—To study the effect of seed rates and N on the yield of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) (a) Light loam. (b) Refer soil analysis, Shahjahanpur. (iii) 11.2.1957. (iv) (a) N.A. (b) Flat planting. (c) As per treatments. (d) Rows 3' apart. (e) N.A. (vi) CO. 453 (mid-late). (vii) and (viii) N.A. (ix) 34.24". (x) N.A.

2. TREATMENTS to 4. GENERAL :

Same as in expt. no 56(129) on page 1257.

Manures applied in a single dose at first irrigation.

5. RESULTS :

(i) 22.73 tons/ac. (ii) 2.21 tons/ac. (iii) Main effects of R and N are highly significant. (iv) Av. yield of sugarcane in tons/ac.

	N ₀	N ₁	N ₂	Mean
R ₁	16.37	20.86	20.99	19.41
R ₂	19.99	26.84	24.17	23.67
R ₃	22.52	24.86	27.98	25.12
Mean	19.63	24.19	24.38	22.73

S.E. of any marginal mean = 0.64 tons/ac.

S.E. of body of table = 1.10 tons/ac.

Crop :- Sugarcane.**Ref :- U.P. 58(161).****Site :- Sugarcane Res. Stn., Shahjahanpur.****Type :- 'CM'.**

Object :—To study the effect of seed rates and N on the yield of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Fallow. (c) Nil. (ii) (a) Light loam. (b) Refer soil analysis, Shahjahanpur. (iii) 10.2.1958. (iv) (a) N.A. (b) Flat planting. (c) As per treatments. (d) Rows 3' apart. (e) N.A. (v) Nil. (vi) CO. 453 (mid-late). (vii) Irrigated. (viii) 1 blind hoeing, 4 hoeings and 1 earthing. (ix) 57.28". (x) 11.3.1959.

2. TREATMENTS to 4. GENERAL :

Same as in expt. no. 56(129) on page 1257.

5. RESULTS :

(i) 26.17 tons/ac. (ii) 2.64 tons/ac. (iii) Main effects of R and N are highly significant. (iv) Av. yield of sugarcane in tons/ac.

	N ₀	N ₁	N ₂	Mean
R ₁	22.10	23.33	24.49	23.31
R ₂	22.25	28.21	30.61	27.02
R ₃	23.78	30.46	30.26	28.17
Mean	22.71	27.33	28.45	26.17

S.E. of any marginal mean	= 0.76 tons/ac.
S.E. of body of table	= 1.32 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 54(166).

Site :- Sugarcane Res. Stn., Shahjahanpur.

Type :- 'CM'.

Object :-To study the effect of time of planting and spraying of chemicals on the yield of Sugarcane.

1. BASAL CONDITIONS:

(i) (a) to (c) N.A. (ii) (a) Light loam. (b) Refer soil analysis, Shahjahanpur. (iii) As per treatments. (iv) (a) N.A. (b) Flat planting. (c) 1 (3 budded) sett/foot. (d) Rows 3' apart. (e) N.A. (v) *Sanai* as G.M. at 40 lb./ac. of N and A/S at 60 lb./ac. of N. (vi) CO. 453 (mid-late). (vii) Irrigated. (viii) 7 hoeings and 1 earthing. (ix) 42.59%. (x) 21.12.1954.

2. TREATMENTS :

Main-plot treatments :

2 times of planting : T₁=Autumn (10.10.1953) and T₂=Spring (2.3.1954).

Sub-plot treatments :

4 spraying treatments : S₀=Control (water spray), S₁=A/N, S₂=Sodium hydrogen phosphate and S₃= Ammo. Phos.

Concentration of the solutions was 200 ppm. Sprayings done on 26.4.1954, 31.5.1954, 23.8.1954 and 7.9.1954.

3. DESIGN :

(i) Split-plot. (ii) (a) 2 main-plots/replication ; 4 sub-plots/main-plot. (b) N.A. (iii) 3. (iv) (a) and (b) 43'×27'. (v) Nil. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (ii) Sugarcane yield. (iv) (a) 1952—1955. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 28.63 tons/ac. (ii) (a) 1.62 tons/ac. (b) 2.48 tons/ac. (iii) None of the effects is significant. (iv) Av. yield of sugarcane in tons/ac.

	S ₀	S ₁	S ₂	S ₃	Mean
T ₁	28.12	28.98	28.99	30.43	29.13
T ₂	27.18	27.83	29.33	28.23	28.14
Mean	27.65	28.40	29.16	29.33	28.63

S.E. of difference of two

1. T marginal means	= 0.66 tons/ac.
2. S marginal means	= 1.43 tons/ac.
3. S means at the same level of T	= 2.02 tons/ac.
4. T means at the same level of S	= 1.87 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 55(73).

Site :- Sugarcane Res. Stn., Shahjahanpur.

Type :- 'CM'.

Object :-To study the effect of time of planting and spraying of chemicals on the yield of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) Sugarcane—*Sanai*—Sugarcane. (b) *Sanai*. (c) Nil. (ii) (a) Loam. (b) Refer soil analysis, Shahjahanpur. (iii) As per treatments. (iv) (a) N.A. (b) Flat planting. (c) (3 budded) sett/foot. (d) Rows 3' apart. (e) N.A. (v) *Sanai* as G.M.+A/S at 60 lb./ac. of N. (vi) CO. 453 (late). (vii) Irrigated. (viii) 8 hoeings. (ix) 53.55%. (x) 24.12.1955.

2. TREATMENTS :

All combinations of (1) and (2)

(1) 2 seasons of planting : S_1 =Autumn (18.10.1954) and S_2 =Spring (8.2.1955).

(2) 4 chemicals sprayed on leaves : C_1 =Control (water), C_2 =A/N, C_3 =Sodium Phosphate and C_4 = Ammo. Phos.

3. DESIGN :

(i) Fact. in R.B.D. (ii) (a) 8. (b) N.A. (iii) 3. (iv) (a) $46' \times 30'$. (b) $40' \times 24'$. (v) $3' \times 3'$. (vi) Yes.

4. GENERAL :

(i) Normal. (ii) N.A. (iii) Germination %, no. of tillers, juice quality and yield of sugarcane. (iv) (a) 1953—contd. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 25.34 tons/ac. (ii) 3.08 tons/ac. (iii) Only S effect is significant. (iv) Av. yield of sugarcane in tons/ac.

	C_1	C_2	C_3	C_4	Mean
S_1	26.92	30.57	25.07	25.48	27.01
S_2	24.08	23.33	24.53	22.71	23.66
Mean	25.50	26.95	24.80	24.10	25.34

S.E. of S marginal mean = 0.89 tons/ac.

S.E. of C marginal mean = 1.26 tons/ac.

S.E. of body of table = 1.78 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 54(179).

Site :- Sugarcane Res. Stn., Shahjahanpur.

Type :- 'C'.

Object :- To study the effect of placement of A/S at different levels to Sugarcane planted under different spacings between rows.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) (a) Light loam. (b) Refer soil analysis, Shahjahanpur. (iii) 5 and 6.2.1954. (iv) (a) 11 ploughings and 11 plankings. (b) Flat planting. (c) 50 (3 budded) setts/row. (d) As per treatments. (e) N.A. (v) N.A. (vi) CO.K. 30 (medium). (vii) Irrigated. (viii) 8 hoeings and 9 pickings of grass. (ix) 40.87". (x) 25 2.1955 to 17.3.1955.

2. TREATMENTS :

Main-plot treatments :

All combinations of (1) and (2)

(1) 2 methods of placement of manures : H_1 =Broadcast and H_2 =In furrows along the rows.

(2) 3 levels of N as A/S : N_1 =40, N_2 =80 and N_3 =120 lb./ac.

Sub-plot treatments :

3 spacings between rows : S_1 =2', S_2 =3' and S_3 =4'.

3. DESIGN :

(i) Split-plot. (ii) (a) 6 main-plots/replication ; 3 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) $47' \times 18'$. (b) $41' \times 12'$. (v) $3' \times 3'$. (vi) Yes.

4. GENERAL :

(i) Badly lodged due to abnormally heavy rains during the last fortnight of September. Subsequently damaged by rats which resulted in serious drying up of the crop. (ii) Nil. (iii) Sugar cane yield. (iv) (a) and (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 17.78 tons/ac. (ii) (a) 2.06 tons/ac. (b) 2.59 tons/ac. (iii) N effect is significant. Others are not significant. (iv) Av. yield of sugarcane in tons/ac.

	M ₁	M ₂	Mean	S ₁	S ₂	S ₃
N ₁	18.37	19.78	19.07	18.33	19.98	18.91
N ₂	17.06	17.79	17.42	18.19	16.17	17.90
N ₃	16.87	16.83	16.85	16.09	16.96	17.50
Mean	17.43	18.13	17.78	17.54	17.70	18.10
S ₁	16.59	18.48				
S ₂	17.94	17.47				
S ₃	17.77	18.44				

S.E. of difference of two

- | | | | |
|-----------------------------------|-----------------|-----------------------------------|-----------------|
| 1. N marginal means | = 0.59 tons/ac. | 5. M means at the same level of S | = 1.21 tons/ac. |
| 2. M marginal means | = 0.49 tons/ac. | 6. S means at the same level of N | = 1.30 tons/ac. |
| 3. S marginal means | = 0.75 tons/ac. | 7. N means at the same level of S | = 0.99 tons/ac. |
| 4. S means at the same level of M | = 1.06 tons/ac. | S.E. of body of M × N table | = 0.59 tons/ac. |

Crop :- Sugarcane.

Ref :- U.P. 57(162).

Site :- Sugarcane Res. Stn., Shahjahanpur.

Type :- 'CM'.

Object :- To study the effect of manuring and cultural practices on Sugarcane yield.

1. BASAL CONDITIONS :

(i) (a) *Lobia*—Sugarcane. (b) *Lobia*. (c) N.A. (ii) (a) Loam. (b) Refer soil analysis, Shahjahanpur. (iii) 12 and 13.3.1957. (iv) (a) 9 ploughings and 9 plankings. (b) Flat planting. (c) N.A. (d) 7 rows/plot. (e) N.A. (v) *Lobia* as G.M.+Blood meal at 60 lb./ac. of N. (vi) CO.S. 510 (early). (vii) Irrigated. (viii) 13 hoeings. (ix) 35.16". (x) 24.2.1958., 10 to 14.3.1958.

2. TREATMENTS :

Main-plot treatments :

2 levels of manuring : M₁=Heavy (40 lb./ac. of N) and M₂=Normal manuring (20 lb./ac. of N).

Sub-plot treatments :

4 cultural operations : C₀=Control, C₁=Earthing alone on 31.7.1957 and 1.8.1957, C₂=Binding alone on 31.8.1957 and 5.9.1957 and C₃=Earthing and binding both.

3. DESIGN :

(i) Split-plot. (ii) (a) 2 main-plots/replication, 4 sub-plots/main-plot. (b) 102' × 84'. (iii) 4. (iv) (a) 50' × 21'. (b) 44' × 15'. (v) 3' × 3'. (vi) Yes.

4. GENERAL :

(i) Good. Lodging in September and October, 1957. (ii) Stem-borer attack. (iii) Germination %, no. of tillers, millable cane, shoot and sugarcane yield. (iv) (a) 1957—1958. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 22.77 tons/ac. (ii) (a) 0.73 tons/ac. (b) 1.92 tons/ac. (iii) None of the effects is significant. (iv) Av. yield of sugarcane in tons/ac.

	C ₀	C ₁	C ₂	C ₃	Mean
M ₁	23.24	23.52	21.34	22.68	22.70
M ₂	22.41	22.17	22.15	24.66	22.85
Mean	22.82	22.84	21.74	23.67	22.77

S.E. of difference of two

1. M marginal means	=	0.26 tons/ac.
2. C marginal means	=	0.96 tons/ac.
3. C means at the same level of M	=	1.36 tons/ac.
4. M means at the same level of C	=	1.20 tons/ac.

Crop :- Sugarcane.**Ref :- U.P. 54(180).****Site :- Sugarcane Res. Stn., Shahjahanpur.****Type :- 'CM'.**

Object :--To study the effect of inter-cropping of gram on Sugarcane yield.

1. BASAL CONDITIONS:

(i) (a) to (c) N.A. (ii) (a) Loam. (b) Refer soil analysis, Shahjahanpur. (iii) 3 and 4.10.1954, 2.2.1954 and 9.4.1954. (iv) (a) 13 ploughings. (b) Flat planting. (c) N.A. (d) 3' for sugarcane and 9" for gram. (e) N.A. (v) G.N.C. at 20 lb./ac. of N and G.N.C. and A/S at 100 lb./ac. of N. (vi) CO.S. 510 (early). (vii) Irrigated. (viii) 13 ploughings, 8 hoeings by *kassi*, 1 by cultivator and 2 earthings. (ix) 44.03". (x) 27.1.1955 to 3.2.1955.

2. TREATMENTS :

5 inter-cropping treatments: T₁=Sugarcane (Autumn sowing)+Gram, T₂=Sugarcane (Autumn sowing)+Gram with Super at 100 lb./ac. of P₂O₅, T₃=Sugarcane (Autumn sowing), T₄=Gram followed by sugarcane and T₅=Sugarcane (Spring sowing).

3. DESIGN :

(i) R.B.D. (ii) (a) 5. (b) 105'×52'. (iii) 4. (iv) (a) 52'×21'. (b) 46'×15'. (v) 3'×3'. (vi) Yes.

4. GENERAL :

(i) Good. (ii) N.A. (iii) Germination %, no. of tillers, millable cane and yield of sugarcane. (iv) (a) to (c) No. (v) to (vii) Nil.

5. RESULTS :

(i) 25.61 tons/ac. (ii) 1.50 tons/ac. (iii) Treatment differences are highly significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	T ₁	T ₂	T ₃	T ₄	T ₅
Av. yield	28.77	28.23	23.80	22.77	24.48

S.E./mean = 0.75 tons/ac.

Crop :- Sugarcane.**Ref :- U.P. 59(168).****Site :- Sugarcane Res. Sub-Stn., Kunraghat.****Type :- 'I'.**

Object :--To study the effect of irrigations on the yield of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) (a) Sandy loam. (b) Refer soil analysis, Kunraghat. (iii) 28.2.1959. (iv) (a) and (b) N.A. (c) 32 setts (3 budded)/row. (d) Rows 3' apart. (e) N.A. (v) 49 lb./ac. of N as fish meal and 70 lb./ac. of N as A/S. (vi) B.O. 17 (medium-late). (vii) As per treatments. (viii) 6 hoeings by *kassi* and 1 earthing. (ix) 39.53". (x) 20 and 21.12.1959.

2. TREATMENTS :

3 levels of irrigation : I₁=4, I₂=8 and I₃=12 irrigations.

3. DESIGN :

(i) R.B.D. (ii) (a) 3. (b) N.A. (iii) 2. (iv) (a) and (b) 30'×24'. (v) Nil. (vi) Yes.

GENERAL :

(i) (a) to (c) N.A. (ii) N.A. (iii) Germination %, no. of tillers, millable cane and yield of sugarcane. (iv) (a) to (c) (v) to (vii) Nil.

5. RESULTS:

(i) 15.42 tons/ac. (ii) 1.78 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	I ₁	I ₂	I ₃
Av. yield	15.62	12.96	17.68

S.E./mean = 1.26 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 59(169).

Site :- Sugarcane Res. Sub-Stn., Kunraghat.

Type :- 'IV'.

Object :—To find out the drought resistant varieties of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) (a) Sandy loam. (b) Refer soil analysis, Kunraghat. (iii) 5.2.1959. (iv) (a) 2 ploughings and 2 plankings. (b) Trench planting. (c) 57 (3 budded) setts/row. (d) Rows 3' apart. (e) 1 sett/foot. (v) G.M. at 40 lb./ac. of N, F.Y.M. at 40 lb./ac. of N as basal dressing, neem cake at 12 lb./ac. of N, A/S at 8 lb./ac. of N at planting and A/S at 20 lb./ac. of N as top dressing. (vi) As per treatments. (vii) Irrigated. (viii) 12 hoeings by *kassi* and 3 earthings. (ix) 39.60". (x) 19.10.1959 to 22.12.1959.

2. TREATMENTS :

Main-plot treatments :

3 levels of irrigation : I₁=2, I₂=4 and I₃=6 irrigations.

Sub-plot treatments :

6 varieties of sugarcane : V₁=CO.S. 416 (early), V₂=CO. 524 (medium), V₃=CO.S. 510 (early), V₄=B.O. 17 (medium-late), V₅=CO. 974 (early) and V₆=CO. 845 (medium).

3. DESIGN :

(i) Split-plot. (ii) (a) 3 main-plots/replication and 6 sub-plots/main-plot. (b) N.A. (iii) 3. (iv) (a) and (b) 55' × 12'. (v) N.A. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Germination %, no. of tillers, height, millable cane and yield of sugarcane. (iv) (a) to (c) No. (v) to (vii) Nil.

5. RESULTS :

(i) 16.66 tons/ac. (ii) (a) 8.57 tons/ac. (b) 2.53 tons/ac. (iii) Main effect of V alone is highly significant. (iv) Av. yield of sugarcane in tons/ac.

	V ₁	V ₂	V ₃	V ₄	V ₅	V ₆	Mean
I ₁	9.70	11.03	12.93	15.66	16.12	10.99	12.74
I ₂	13.33	15.33	15.72	19.50	19.92	21.32	17.52
I ₃	13.76	18.16	16.65	26.20	21.84	21.78	19.73
Mean	12.26	14.84	15.10	20.45	19.29	18.03	16.66

S.E. of difference of two

1. I marginal means = 2.86 tons/ac.
2. V marginal means = 1.19 tons/ac.
3. V means at the same level of I = 2.06 tons/ac.
4. I means at the same level of V = 3.42 tons/ac.

Crop :- Sugarcane.**Ref :- U.P. 54(360).****Site :- Sugarcane Res. Sub-Stn., Muzaffarnagar.****Type :- 'IV'.**

Object :— To study the effect of different levels of irrigation on Sugarcane varieties.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) *Metha*. (c) Nil. (ii) (a) Sandy loam. (b) Refer soil analysis, Muzaffarnagar. (iii) 26.3.1954. (iv) (a) 4 ploughings, 2 roller applications and 3 plankings. (b) Flat planting. (c) 52 (3 budded) setts/row. (d) Rows 3' apart. (e) N.A. (v) 40 lb./ac. of N as *Metha* G.M., 30 lb./ac. of N as G.N.C. and 50 lb./ac. of N as A/S. (vi) As per treatments. (vii) Irrigated. (viii) 11 hoeings and 1 earthing. (ix) 28.72". (x) N.A.

2. TREATMENTS :**Main-plot treatments :**

2 levels of irrigation : I_1 =Sub-normal : 2 pre-monsoon+2 post-monsoon irrigations and I_2 =Normal : 4 pre-monsoon+2 post-monsoon irrigations.

Sub-plot treatments :

7 varieties of sugarcane : V_1 =CO. 312 (medium late), V_2 =CO. 650 (medium), V_3 =CO.S. 443 (medium), V_4 =CO.S. 470, V_5 =CO.S. 477, V_6 =CO.S. 515 (medium), and V_7 =S. 181/51.

3. DESIGN :

(i) Split-plot. (ii) (a) 2 main-plots/replication ; 7 sub-plots/main-plot. (b) N.A. (iii) 2. (iv) (a) and (b) 50'×12'. (v) Nil. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Germination %, no. of tillers, millable canes and yield of sugarcane. (iv) (a) and (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 29.98 tons/ac. (ii) (a) 6.00 tons/ac. (b) 3.98 tons/ac. (iii) Main effect of V alone is highly significant. (iv) Av. yield of sugarcane in tons/ac.

	V_1	V_2	V_3	V_4	V_5	V_6	V_7	Mean
I_1	24.18	27.58	24.71	26.38	28.75	38.60	24.04	27.75
I_2	25.78	27.75	26.60	33.88	34.38	43.51	33.58	32.21
Mean	24.98	27.66	25.66	30.13	31.56	41.06	28.81	29.98

S.E. of difference of two

- | | |
|-----------------------------------|-----------------|
| 1. I marginal means | = 2.27 tons/ac. |
| 2. V marginal means | = 2.81 tons/ac. |
| 3. V means at the same level of I | = 3.98 tons/ac. |
| 4. I means at the same level of V | = 4.33 tons/ac. |

Crop :- Sugarcane.**Ref :- U.P. 56(463).****Site :- Sugarcane Res. Sub-Stn., Muzaffarnagar.****Type :- 'IV'.**

Object :— To study the effect of different levels of irrigation on Sugarcane varieties.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) *Chari*. (c) Nil. (ii) (a) Sandy loam. (b) Refer soil analysis, Muzaffarnagar. (iii) 21.3.1956. (iv) (a) 6 ploughings, levelling, 1 application of roller and 2 plankings. (b) Flat planting. (c) 32 (3 budded) setts/row. (d) Rows 3' apart. (e) N.A. (v) 80 lb./ac. of N as compost and 60 lb./ac. of N as G.N.C. (vi) As per treatments. (vii) Irrigated. (viii) 3 hoeings, 2 diggings and 1 earthing. (ix) 71.21". (x) 21 and 22.12.1956 and 6 2.1957.

2. TREATMENTS :

Main-plot treatments :

2 levels of irrigation : I_1 =Sub normal : 2 pre-monsoon+2 post monsoon irrigations and I_2 =Normal : 4 pre-monsoon+2 post monsoon irrigations.

Sub-plot treatments :

5 varieties of sugarcane : V_1 =CO. 321 (early), V_2 =CO. 951 (medium), V_3 =CO. 994 (early), V_4 =CO.S. 515 (medium) and V_5 =CO.S. 536.

3. DESIGN :

(i) Split-plot. (ii) (a) 2 main-plots/replication ; 5 sub-plots/main-plot. (b) N.A. (iii) 2. (iv) (a) and (b) 30'×9'. (v) Nil. (vi) Yes.

4. GENERAL :

(i) N.A. (ii) Attack of top borer. Attacked plants taken out. (iii) Germination %, no. of tillers, millable canes and yield of sugarcane. (iv) (a) to (c) No. (v) to (vii) Nil.

5. RESULTS :

(i) 24.19 tons/ac. (ii) (a) 5.35 tons/ac. (b) 3.19 tons/ac. (iii) Main effect of V alone is highly significant. (iv) Av. yield of sugarcane in tons/ac.

	V_1	V_2	V_3	V_4	V_5	Mean
I_1	23.14	21.78	23.35	33.72	18.40	24.08
I_2	20.93	29.72	23.94	29.87	17.07	24.30
Mean	22.03	25.75	23.64	31.80	17.74	24.19

S.E. of difference of two

- | | |
|-----------------------------------|-----------------|
| 1. I marginal means | = 2.39 tons/ac. |
| 2. V marginal means | = 2.26 tons/ac. |
| 3. V means at the same level of I | = 3.19 tons/ac. |
| 4. I means at the same level of V | = 3.72 tons/ac. |

Crop :- Sugarcane.

Ref :- U.P. 57(56).

Site :- Sugarcane Res. Sub-Stn., Muzaffarnagar.

Type :- 'IV'.

Object :— To study the effect of different levels of irrigation on different varieties of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) *Guar*. (c) Nil. (ii) (a) Loam. (b) Refer soil analysis, Muzaffarnagar. (iii) 20.2.1957. (iv) (a) 7 ploughings and 5 plankings. (b) Flat planting. (c) 42 (3 budded) setts/row. (d) Rows 3' apart. (e) N.A. (v) 60 lb./ac. of N as G.N.C. and 60 lb./ac. of N as A/S. (vi) As per treatments. (vii) Irrigated. (viii) 11 hoeings, 1 harrowing and 1 earthing. (ix) 42.79%. (x) 1 and 2.1.1958.

2. TREATMENTS :

Main-plot treatments :

2 levels of irrigation : I_1 =Normal : 4 pre-monsoon irrigations and I_2 =Sub normal : 2 pre-monsoon irrigations.

Sub-plot treatments :

6 varieties of sugarcane : V_1 =CO. 312 (medium late), V_2 =CO. 951 (medium), V_3 =CO. 975 (medium) V_4 =CO. 994 (early), V_5 =CO.S. 515 (medium) and V_6 =CO.S. 532 (early).

3. DESIGN :

(i) Split-plot. (ii) (a) 2 main-plots/replication ; 6 sub-plots/main-plot. (b) N.A. (iii) 3. (iv) (a) and (b) 40'×15'. (v) Nil. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of sugarcane. (iv) (a) 1957—contd. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 22.50 tons/ac. (ii) (a) 2.38 tons/ac. (b) 2.00 tons/ac. (iii) V effect is highly significant. (iv) Av. yield of sugarcane in tons/ac.

	V ₁	V ₂	V ₃	V ₄	V ₅	V ₆	Mean
I ₁	17.82	21.51	25.22	27.81	25.83	19.82	23.00
I ₂	16.50	20.45	27.18	24.19	24.51	19.14	22.00
Mean	17.16	20.98	26.20	26.00	25.17	19.48	22.50

S.E. of difference of two

1. I marginal means = 0.79 tons/ac.
2. V marginal means = 1.19 tons/ac.
3. V means at the same level of I = 1.68 tons/ac.
4. I means at the same level of V = 1.73 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 58(55).

Site :- Sugarcane Res. Sub-Stn., Muzaffarnagar.

Type :- 'IV'.

Object :- To study the effect of different levels of irrigation on different varieties of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) G.M.—Wheat—Cotton—Sugarcane. (b) Cotton. (c) N.A. (ii) (a) Loam. (b) Refer soil analysis, Muzaffarnagar. (iii) 25.2.1958. (iv) (a) 4 ploughings, 1 digging and 1 planking. (b) Flat planting. (c) 32 (3-budded) setts/row. (d) Rows 3' apart. (e) N.A. (v) G.N.C. at 60 lb./ac. of N+A/S at 60 lb./ac. of N (vi) As per treatments. (vii) Irrigated. (viii) 5 plankings, 3 hoeings by *kassī*, 6 hoeings, 4 diggings and 1 earthing. (ix) 44.20". (x) 22.11.1958.

2. TREATMENTS :

Main-plot treatments :

2 levels of irrigation : I₁=Sub normal : 2 pre-monsoon irrigations ; and I₂=Normal : 4 pre-monsoon irrigations.

Sub-plot treatments :

6 varieties of sugarcane : V₁=CO. 312 (medium-late), V₂=CO. 951 (medium), V₃=CO. 969 (medium-late) V₄=CO. 975 (medium), V₅=CO.S. 515 (medium) and V₆=CO.S. 532 (early).

3. DESIGN :

(i) Split-plot. (ii) (a) 2 main-plots/replication ; 6 sub-plots/main-plot. (b) N.A. (iii) 3. (iv) (a) and (b) 30'×15'. (v) Nil. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Juice analysis and yield of sugarcane. (iv) (a) to (c) No. (v) to (vii) Nil.

5. RESULTS :

(i) 25.52 tons/ac. (ii) (a) 4.31 tons/ac. (b) 1.86 tons/ac. (iii) V effect is highly significant. Interaction I×V is significant. (iv) Av. yield of sugarcane in tons/ac.

	V ₁	V ₂	V ₃	V ₄	V ₅	V ₆	Mean
I ₁	22.56	27.25	30.53	26.06	28.54	22.44	26.23
I ₂	22.06	22.22	26.89	29.59	28.51	19.60	24.81
Mean	22.31	24.74	28.71	27.82	28.52	21.02	25.52

S.E. of difference of two

1. I marginal means	= 1.44 tons/ac.
2. V marginal means	= 1.07 tons/ac.
3. V means at the same level of I	= 1.51 tons/ac.
4. I means at the same level of V	= 2.00 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 59(58).

Site :- Sugarcane Res. Sub-Stn., Muzaffarnagar.

Type :- 'IV'.

Object :-To study the effect of different levels of irrigation on different varieties of Sugarcane.

1. **BASAL CONDITIONS :**

(i) (a) Wheat—Cotton—Sugarcane. (b) Cotton. (c) N.A. (ii) (a) Loam. (b) Refer soil analysis, Muzaffarnagar. (iii) 11.3.1959. (iv) (a) 11 ploughings, 1 hoeing, 5 plankings and 1 roller application. (b) Flat planting. (c) 42 (3 budded) setts/row. (d) Rows 3' apart. (e) N.A. (v) G.N.C. at 50 lb./ac. of N+A/S at 50 lb./ac. of N. (vi) As per treatments. (vii) Irrigated. (viii) 6 blind hoeings, 4 hoeings, 3 diggings and 2 earthings. (ix) 29.26". (x) 24 and 25.12.1959.

2. **TREATMENTS :****Main-plot treatments :**

2 levels of irrigation : I_1 =Normal (4 irrigations) and I_2 =Sub normal (2 irrigations).

Sub-plot treatments :

6 varieties of sugarcane : V_1 =CO. 321 (medium-late), V_2 =CO. 969 (medium-late), V_3 =CO. 975 (medium), V_4 =CO. 1007 (medium-early), V_5 =CO. 1038 (medium) and V_6 =CO.S. 515 (medium).

3. **DESIGN :**

(i) Split-plot. (ii) (a) 2 main-plots/replication ; 6 sub-plots/main-plot. (b) N.A. (iii) 3. (iv) (a) and (b) 15' x 40'. (v) N.A. (vi) Yes.

4. **GENERAL :**

(i) and (ii) N.A. (iii) Germination %, no. of tillers, yield of sugarcane and juice analysis. (iv) (a) to (c) No. (v) to (vii) Nil.

5. **RESULTS :**

(i) 20.05 tons/ac. (ii) (a) 5.91 tons/ac. (b) 2.85 tons/ac. (iii) Main effect of V alone is highly significant. (iv) Av. yield of sugarcane in tons/ac.

	V_1	V_2	V_3	V_4	V_5	V_6	Mean
I_1	17.45	24.56	19.48	20.49	16.30	21.98	20.04
I_2	18.83	23.26	18.48	20.37	16.12	23.29	20.06
Mean	18.14	23.91	18.98	20.43	16.21	22.64	20.05

S.E. of difference of two

1. I marginal means	= 1.97 tons/ac.
2. V marginal means	= 1.65 tons/ac.
3. V means at the same level of I	= 2.33 tons/ac.
4. I means at the same level of V	= 2.90 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 54(168).

Site :- Sugarcane Res. Stn., Shahjahanpur.

Type :- 'IV'.

Object :-To study the effect of different levels of irrigation on different varieties of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) Wheat—Fallow—G.M.—Sugarcane. (b) *Sanai*. (c) Nil. (ii) (a) Light loam. (b) Refer soil analysis, Shahjahanpur. (iii) 10.2.1954. (iv) (a) N.A. (b) Flat planting. (c) 1 (3 budded) sett/foot. (d) Rows 3' apart. (e) N.A. (v) A/S at 60 lb./ac. of N and *sanai* as G.M. at about 40 lb./ac. of N. (vi) As per treatments. (vii) Irrigated. (viii) 3 hoeings and 1 earthing. (ix) 40.76". (x) 21.2.1955.

2. TREATMENTS :

Main-plot treatments :

2 levels of irrigation : I_1 =Sub normal : 1 pre-monsoon irrigation and I_2 =Normal : 5 pre-monsoon irrigations.

Sub-plot treatments :

6 varieties of sugarcane : V_1 =CO. 454 (mid-late), V_2 =CO. 617 (medium), V_3 =CO.S. 510 (early), V_4 =CO. 622 (early), V_5 =CO.S. 321 (early) and V_6 =CO.S. 443 (medium).

3. DESIGN:

(i) Split-plot. (ii) (a) 2 main-plots/replication ; 6 sub-plots/main-plot. (b) N.A. (iii) 3. (iv) (a) and (b) 40' × 27'. (v) Nil. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Sugarcane yield. (iv) (a) 1953—1954. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 22.29 tons/ac. (ii) (a) 1.58 tons/ac. (b) 1.68 tons/ac. (iii) Main effects of I and V are highly significant. (iv) Av. yield of sugarcane in tons/ac.

	V_1	V_2	V_3	V_4	V_5	V_6	Mean
I_1	21.71	18.32	20.70	15.14	19.45	19.48	19.13
I_2	28.82	23.70	26.89	20.26	25.99	27.02	25.45
Mean	25.26	21.01	23.79	17.70	22.72	23.25	22.29

S.E. of difference of two

1. I marginal means = 0.53 tons/ac.
2. V marginal means = 0.97 tons/ac.
3. V means at the same level of I = 1.37 tons/ac.
4. I means at the same levels of V = 1.36 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 55(155).

Site :- Sugarcane Res. Stn., Shahjahanpur.

Type :- 'IV'.

Object :- To study the effect of different levels of irrigation on different varieties of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) *Sanai*. (c) Nil. (ii) (a) Light loam. (b) Refer soil analysis, Shahjahanpur. (iii) 19.2.1955. (iv) (a) N.A. (b) Flat planting. (c) 1 (3 budded) sett/foot. (d) Rows 3' apart. (e) N.A. (v) *Sanai* as G.M.+A/S at 60 lb./ac. of N. (vi) As per treatments. (vii) Irrigated. (viii) 4 hoeings and 1 earthing. (ix) 53.67". (x) 13.2.1956.

2. TREATMENTS :

Main-plot treatments :

2 levels of irrigation : I_1 =Subnormal : 2 pre-monsoon irrigations and I_2 =Normal : 5 pre-monsoon irrigations.

Sub-plot treatments :

6 varieties of sugarcane : V_1 =CO. 453 (mid-late), V_2 =CO.S. 514 (medium), V_3 =CO.S. 519 (medium), V_4 =CO.S. 510 (early), V_5 =CO.S. 416 (early) and V_6 =CO.S. 470 (medium).

3. DESIGN :

(i) Split-plot. (ii) (a) 2 main-plots/replication ; 6 sub-plots/main-plot. (b) N.A. (iii) 3. (iv) (a) and (b) 40' × 24'. (v) Nil. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Sugarcane yield. (iv) (a) 1955—1957. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 20.47 tons/ac. (ii) (a) 3.98 tons/ac. (b) 2.86 tons/ac. (iii) I effect is significant. V effect is highly significant. (iv) Av. yield of sugarcane in tons/ac.

	V ₁	V ₂	V ₃	V ₄	V ₅	V ₆	Mean
I ₁	23.77	19.29	14.33	23.45	10.32	13.39	17.42
I ₂	27.18	28.27	24.22	28.28	14.75	18.44	23.52
Mean	25.47	23.78	19.28	25.86	12.54	15.92	20.47

S.E. of difference of two

1. I marginal means = 1.33 tons/ac.
2. V marginal means = 1.65 tons/ac.
3. V means at the same level of I = 2.33 tons/ac.
4. I means at the same level of V = 2.51 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 56(127).

Site :- Sugarcane Res. Stn., Shahjahanpur.

Type :- 'IV'.

Object :- To study the effect of different levels of irrigation on different varieties of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) Wheat—Fallow—G.M.—Sugarcane. (b) *Sanai*. (c) Nil. (ii) (a) Light loam. (b) Refer soil analysis, Shahjahanpur. (iii) 16.2.1956. (iv) (a) N.A. (b) Flat planting. (c) 1 (3 budded) sett/foot. (d) Rows 3' apart. (e) N.A. (v) *Sanai* as G.M.+A/S at 60 lb./ac. of N. (vi) As per treatments. (vii) Irrigated. (viii) 5 hoeings and 1 earthing. (ix) 50.78". (x) 20 and 21.2.1957.

2. TREATMENTS to 4. GENERAL :

Same as in expt. no. 55(155) on page 1268.

5. RESULTS :

(i) 25.26 tons/ac. (ii) (a) 2.24 tons/ac. (iii) 1.65 tons/ac. (iii) Main effects of I and V are highly significant. (iv) Av. yield of sugarcane in tons/ac.

	V ₁	V ₂	V ₃	V ₄	V ₅	V ₆	Mean
I ₁	28.42	27.76	21.07	26.90	13.05	20.92	23.02
I ₂	32.77	33.69	24.25	31.48	15.27	27.58	27.51
Mean	30.59	30.72	22.66	29.19	14.16	24.25	25.26

S.E. of difference of two

1. I marginal means = 0.75 tons/ac.
2. V marginal means = 0.95 tons/ac.
3. V means at the same level of I = 1.34 tons/ac.
4. I means at the same level of V = 1.44 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 57(161).

Site :- Sugarcane Res. Stn., Shahjahanpur.

Type :- 'IV'.

Object :—To study the effect of different levels of irrigation on different varieties of Sugarcane.

1. BASAL CONDITIONS:

(i) (a) to (c) N.A. (ii) (a) Sandy loam. (b) Refer soil analysis, Shahjahanpur. (iii) 22.2.1957. (iv) (a) N.A. (b) Flat planting. (c) 1 (3 budded) sett/foot. (d) Rows 3' apart. (e) N.A. (v) G.M. +60 lb./ac. of N as A/S. (vi) As per treatments. (vii) Irrigated. (viii) N.A. (ix) 86.96". (x) N.A.

2. TREATMENTS to 4. GENERAL :

Same as in expt. no. 55(155) on page 1268.

5. RESULTS :

(i) 18.63 tons/ac. (ii) (a) 2.41 tons/ac. (b) 2.17 tons/ac. (iii) I effect is significant and V effect is highly significant. (iv) Av. yield of sugarcane in tons/ac.

	V ₁	V ₂	V ₃	V ₄	V ₅	V ₆	Mean ₁
I ₁	20.87	18.98	13.59	21.62	18.58	10.68	15.72
I ₂	27.69	25.22	19.00	26.15	13.47	17.77	21.55
Mean	24.28	22.10	16.30	23.88	11.02	14.22	18.63

S.E. of difference of two

- | | |
|-----------------------------------|-----------------|
| 1. I marginal means | = 0.80 tons/ac. |
| 2. V marginal means | = 1.25 tons/ac. |
| 3. V means at the same level of I | = 1.77 tons/ac. |
| 4. I means at the same level of V | = 1.80 tons/ac. |

Crop :- Sugarcane.

Ref :- U.P. 58(162).

Site :- Sugarcane Res. Stn., Shahjahanpur.

Type :- 'IV'.

Object :—To study the effect of different levels of irrigation on different varieties of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) *Dhaincha*. (c) N.A. (ii) (a) Loam. (b) Refer soil analysis, Shahjahanpur. (iii) 26.2.1958. (iv) (a) N.A. (b) Flat planting. (c) 1 (3 budded) sett/foot. (d) Rows 3' apart. (e) N.A. (v) Castor cake at 40 lb./ac. of N+A/S at 60 lb./ac. of N. (vi) As per treatments. (vii) Irrigated. (viii) 6 hoeings and 1 earthing. (ix) 56.61". (x) 20.2.1959.

2. TREATMENTS :

Main-plot treatments :

2 levels of irrigation : I₁=Sub normal : 2 pre-monsoon irrigations and I₂=Normal : 5 pre-monsoon irrigations.

Sub-plot treatments :

6 varieties of sugarcane : V₁=CO. 453 (mid-late), V₂=B.O. 17 (mid-late), V₃=CO. 859 (early), V₄=CO.S. 526 (medium), V₅=CO. 560 and V₆=CO.S. 541 (early).

3. DESIGN :

(i) Split-plot. (ii) (a) 2 main-plots/replication ; 6 sub-plots/main-plot. (b) N.A. (iii) 3. (iv) (a) and (b) 40' x 24'. (v) Nil. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Sugarcane yield. (iv) (a) 1958—1961. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

- (i) 18.25 tons/ac. (ii) (a) 1.55 tons/ac. (b) 2.07 tons/ac. (iii) Main effects of I and V are highly significant.
 (iv) Av. yield of sugarcane in tons/ac.

	V ₁	V ₂	V ₃	V ₄	V ₅	V ₆	Mean
I ₁	17.73	16.35	11.18	15.37	11.14	12.28	14.01
I ₂	27.63	21.28	22.08	23.68	19.25	21.09	22.50
Mean	22.68	18.82	16.63	19.52	15.20	16.68	18.25

S.E. of difference of two

1. I marginal means = 0.52 tons/ac.
2. V marginal means = 1.20 tons/ac.
3. V means at the same level of I = 1.69 tons/ac.
4. I means at the same level of V = 1.63 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 59(204).

Site :- Sugarcane Res. Stn., Shahjahanpur.

Type :- 'IV'.

Object :—To study the effect of different levels of irrigation on different varieties of Sugarcane.

1. BASAL CONDITIONS :

- (i) (a) to (c) N.A. (ii) (a) Loam. (b) Refer soil analysis, Shahjahanpur. (iii) 3.3.1959. (iv) (a) to (e) N.A.
 (v) A/S at 100 lb./ac. of N top dressed. (vi) As per treatments. (vii) Irrigated. (viii) 8 hoeings, 1 earthing
 and 1 binding. (ix) 24.62". (x) 19.2.1960.

2. TREATMENTS :

Same as in expt. no. 58(162) on page 1270.

3. DESIGN :

- (i) Split-plot. (ii) (a) 2 main-plots/replication and 6 sub-plots/main-plot. (b) N.A. (iii) 3. (iv) (a) N.A.
 (b) 40' × 27'. (v) N.A. (vi) 3 es.

4. GENERAL :

Same as in expt. no. 58(162) on page 1270.

5. RESULTS :

- (i) 22.05 tons/ac. (ii) (a) 1.89 tons/ac. (b) 2.62 tons/ac. (iii) V effect is highly significant. I effect is
 significant. (iv) Av. yield of sugarcane in tons/ac.

	V ₁	V ₂	V ₃	V ₄	V ₅	V ₆	Mean
I ₁	25.04	20.72	18.00	23.04	15.56	20.97	20.56
I ₂	30.67	21.43	22.82	24.71	17.57	24.03	23.54
Mean	27.86	21.08	20.41	23.88	16.56	22.50	22.05

S E. of difference of two

1. I marginal means = 0.63 tons/ac.
2. V marginal means = 1.51 tons/ac.
3. V means at the same level of I = 2.14 tons/ac.
4. I means at the same level of V = 2.05 tons/ac.

Crop :- Sugarcane.**Ref :- U.P. 59(212).****Site :- Sugarcane Res. Stn., Shahjahanpur.****Type :- 'IV'.**

Object :—To study the effect of different levels of irrigation on different varieties of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) (a) Loam. (b) Refer soil analysis, Shahjahanpur. (iii) 15.2.1959. (iv) to (vi) N.A. (vii) Irrigated. (viii) N.A. (ix) 24.68". (x) 22.1.1960.

2. TREATMENTS :**Main-plot treatments :**2 levels of irrigation : I_1 =Normal : 5 pre-monsoon irrigations and I_2 =Water logged : 15 irrigations in all.**Sub-plot treatments :**3 varieties of sugarcane : V_1 =CO. 313, V_2 =CO.S. 416 and V_3 =CO.S. 510.**3. DESIGN :**

(i) Split-plot. (ii) (a) 2 main-plots/replication and 3 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 38.5' x 24'. (v) N.A. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of sugarcane. (iv) (a) to (c) N.A. (v) to (vii) Nil.

5. RESULTS :

(i) 21.24 tons/ac. (ii) (a) 5.54 tons/ac. (b) 2.16 tons/ac. (iii) Only V effect is highly significant. (iv) Av. yield of sugarcane in tons/ac.

	V_1	V_2	V_3	Mean
I_1	21.15	14.45	23.55	19.72
I_2	21.59	18.76	27.96	22.77
Mean	21.37	16.60	25.76	21.24

S.E. of difference of two

- | | |
|-----------------------------------|-----------------|
| 1. I marginal means | = 2.26 tons/ac. |
| 2. V marginal means | = 1.08 tons/ac. |
| 3. V means at the same level of I | = 1.53 tons/ac. |
| 4. I means at the same level of V | = 2.58 tons/ac. |

Crop :- Sugarcane.**Ref :- U.P. 56(23).****Site :- Sugarcane Res. Sub-Stn., Kunraghat.****Type :- 'IM'.**

Object :—To study the effect of irrigation alone and in combinations with different levels of N.

1. BASAL CONDITIONS :(i) (a) G.M.—Wheat—Fallow—Sugarcane. (b) Wheat. (c) G.M.+10 lb./ac. of N as A/S top dressed. (ii) (a) Sandy loam. (b) Refer soil analysis, Kunraghat. (iii) 11 at 12.2.1956. (iv) (a) 3 ploughings with *desi* plough. (b) Trench planting. (c) 40 to 60 mds./ac. (d) Rows 3' apart. (e) N.A. (v) Nil. (vi) CO.S. 443 (mid-seasoned cane). (vii) As per treatments. (viii) 6 hoeings and earthings in August, 1956. (ix) 80.95". (x) 27.3.1957 to 24.4.1957.**2. TREATMENTS :****Main-plot treatments :**3 levels of irrigation : $I_1=4$, $I_2=8$ and $I_3=12$ irrigations.**Sub-plot treatments :**4 levels of N : $N_0=0$, $N_1=100$, $N_2=200$ and $N_3=300$ lb./ac.

N applied as A/S and G.N.C. on equal N basis.

3. DESIGN :

(i) Split-plot. (ii) (a) 3 main-plots/replication ; 4 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) 58' × 18'.
(b) 50' × 12'. (v) 3' × 3'. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Nil. (iii) Germination %, no. of tillers, millable canes, juice quality and yield of sugarcane.
(iv) (a) 1956—1958. (b) No. (c) Nil. (v) (a) and (b) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 16.73 tons/ac. (ii) (a) 2.53 tons/ac. (b) 2.77 tons/ac. (iii) None of the effects is significant. (iv) Av. yield of sugarcane in tons/ac.

	N ₀	N ₁	N ₂	N ₃	Mean
I ₁	14.73	14.53	16.15	17.49	15.72
I ₂	17.35	15.89	16.69	16.35	16.82
I ₃	16.60	17.77	15.82	20.42	17.65
Mean	16.23	16.40	16.22	18.09	16.73

S.E. of difference of two

- | | |
|-----------------------------------|-----------------|
| 1. I marginal means | = 0.89 tons/ac. |
| 2. N marginal means | = 1.13 tons/ac. |
| 3. N means at the same level of I | = 1.96 tons/ac. |
| 4. I means at the same level of N | = 1.92 tons/ac. |

Crop :- Sugarcane.

Ref :- U.P. 57(153).

Site :- Sugarcane Res. Sub-Stn., Kunraghat.

Type :- 'IM'.

Object :-To study the effect of irrigation alone and in combinations with different levels of N.

1. BASAL CONDITIONS :

(i) (a) *Chari—Berseem—Chari—Sugarcane*. (b) *Chari*. (c) Nil. (ii) (a) Sandy loam. (b) Refer soil analysis, Kunraghat. (iii) 18.2.1957. (iv) (a) 1 ploughing by *desi* plough, and 1 ploughing by other implements. (b) Trench planting. (c) 60 (3 budded) setts/row. (d) Rows 3' apart. (e) N.A. (v) N.A. (vi) CO.S. 443 (medium). (vii) As per treatments. (viii) 1 earthing and binding of canes, 8 hoeings by *kassi* to all plots, 2 extra hoeings by *kassi* in I₁ plot, 3 extra hoeings by *kassi* in I₃ plots, 4 extra hoeings by *kassi* in I₂ plots. (ix) 44.10°. (x) 20.2.1958 to 16.3.1958.

2. TREATMENTS :

Same as in expt. no. 56(23) on page 1272.

3. DESIGN :

(i) Split-plot. (ii) (a) 3 main-plots/replication ; 4 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) and (b) 56' × 15'. (v) Nil. (vi) Yes.

4. GENERAL :

(i) Satisfactory. (ii) N.A. (iii) Germination %, no. of tillers, height, millable cane and yield of sugarcane. (iv) (a) 1956—1958. (b) No. (c) Nil. (v) (a) and (b) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 26.18 tons/ac. (ii) (a) 5.62 tons/ac. (b) 3.03 tons/ac. (iii) Main effect of I is significant. N effect is highly significant. Interaction I × N is not significant. (iv) Av. yield of sugarcane in tons/ac.

	N ₀	N ₁	N ₂	N ₃	Mean
I ₁	18.97	21.75	24.55	22.65	21.98
I ₂	23.43	25.91	29.82	24.97	26.03
I ₃	29.19	32.54	31.79	28.63	30.54
Mean	23.86	26.73	28.72	25.42	26.18

S.E. of difference of two

1. I marginal means = 1.99 tons/ac.
2. N marginal means = 1.24 tons/ac.
3. N means at the same level of I = 2.14 tons/ac.
4. I means at the same level of N = 2.72 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 58(151).

Site :- Sugarcane Res. Sub-Stn., Kunraghat.

Type :- 'IM'.

Object :—To study the effect of irrigation alone and in combinations with different levels of N.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Cowpea. (c) Nil. (ii) (a) Sandy loam. (b) Refer soil analysis, Kunraghat. (iii) 7.2.1958.
(iv) (a) 1 ploughing by Victory plough. (b) Trench planting. (c) 55 (3 budded) setts/row. (d) Rows 3' apart. (e) N.A. (v) N.A. (vi) C.O.S. 443 (medium). (vii) As per treatments. (viii) 9 hoeings by *kassi* and 1 earthing. (ix) 41.11". (x) 4.2.1959 to 9.3.1959.

2. TREATMENTS :

Same as in expt. no. 56(23) on page 1272.

3. DESIGN :

(i) Split-plot. (ii) (a) 3 main-plots/replication ; 4 sub-plots/main-plot. (b) N.A. (iii) 3. (iv) (a) 55' × 18'. (b) 49' × 12'. (v) 3' × 3'. (vi) Yes.

4. GENERAL :

(i) Good growth. (ii) N.A. (iii) Germination %, no. of tillers, millable canes, height, yield of cane, and juice analysis. (iv) (a) 1956–1958. (b) No. (c) Nil. (v) (a) and (b) N.A. (vi) Nil. (vii) Experiment was actually laid with 4 replications. Analysis done with 3 replications. No reason given.

5. RESULTS :

(i) 21.52 tons/ac. (ii) (a) 4.30 tons/ac. (b) 2.59 tons/ac. (iii) Main effect of I and N are highly significant. (iv) Av. yield of sugarcane in tons/ac.

	N ₀	N ₁	N ₂	N ₃	Mean
I ₁	13.45	16.76	17.80	18.71	16.68
I ₂	16.85	19.44	24.83	21.75	20.72
I ₃	20.75	28.96	30.84	28.03	27.15
Mean	17.02	21.72	24.49	22.85	21.52

S.E. of difference of two

1. I marginal means = 1.75 tons/ac.
2. N marginal means = 1.22 tons/ac.
3. N means at the same level of I = 2.11 tons/ac.
4. I means at the same level of N = 2.53 tons/ac.

Crop :- Sugarcane.**Ref :- U.P. 54(46).****Site :- Sugarcane Res. Stn., Muzaffarnagar.****Type :- 'IM'.****Object :-**To assess the response of Sugarcane under heavy manuring and irrigation conditions.**1. BASAL CONDITIONS :**

(i) (a) G.M.—Wheat—Cotton—Sugarcane. (b) Cotton. (c) Nil. (ii) (a) Light loam. (b) Refer soil analysis, Muzaffarnagar. (iii) 13.3.1954. (iv) (a) 12 preparatory ploughings. (b) Flat planting. (c) 60 mds./ac. of seed cane and 42,000 buds/ac. (d) Rows 3' apart. (e) N.A. (v) Nil. (vi) CO.S. 321 (early). (vii) As per treatments. (viii) 4 hoeings before 1st irrigation. After wards according to irrigation treatments, one or two hoeings after each irrigation. Earthing up in early August. (ix) 36.19". (x) 21.12.1954 to 22.3.1955.

2. TREATMENTS :**Main-plot treatments :**

3 levels of irrigation : I_1 =Sub normal i.e. 2 pre-monsoon and 2 post monsoon irrigations, I_2 =Normal i.e. 4 pre-monsoon and 2 post monsoon irrigations and I_3 =Above normal i.e. 6 pre-monsoon and 2 post monsoon irrigations.

Sub-plot treatments :

3 levels of N : $N_0=0$, $N_1=100$ and $N_2=200$ lb./ac.

N as A/S and G.N.C. on 50 : 50 N basis applied in the 3rd week of May.

3. DESIGN :

(i) Split-plot. (ii) (a) 3 main-plots/replication ; 3 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) 55' × 27'. (b) 49' × 21'. (v) 3' around. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Nil. (iii) Germination %, no. of tillers, millable cane, countings and yield of sugarcane. (iv) (a) 1952—1954. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 24.59 tons/ac. (ii) (a) 4.90 tons/ac. (b) 1.40 tons/ac. (iii) Only N effect is highly significant. (iv) Av. yield of sugarcane in tons/ac.

	N_0	N_1	N_2	Mean
I_1	15.04	23.44	26.45	21.64
I_2	19.71	27.46	31.15	26.11
I_3	18.39	29.88	29.80	26.02
Mean	17.71	26.93	29.13	24.59

S.E. of difference of two

1. I marginal means = 2.00 tons/ac.
2. N marginal means = 0.57 tons/ac.
3. N means at the same level of I = 0.99 tons/ac.
4. I means at the same level of N = 2.16 tons/ac.

Crop :- Sugarcane.**Ref :- U.P. 56(139).****Site :- Sugarcane Res. Stn., Shahjahanpur.****Type :- 'IM'.****Object :-**To study the effect of optimum doses of irrigation and manure for first year ratoon.**1. BASAL CONDITIONS :**

(i) (a) *Santai*—Plant cane—Ratoon cane. (b) Plant cane. (c) N.A. (ii) (a) Light loam. (b) Refer soil analysis, Shahjahanpur. (iii) 18 to 23.2.1956. (iv) (a) Dismantling of ridges. (b) Flat planting. (c) to (e) N.A. (v) Nil. (vi) CO.S. 510 (early). (vii) As per treatments. (viii) 11 hoeings with *kassi* and 1 earthing. (ix) 47.81". (x) 17 to 21.12.1956.

2. TREATMENTS :

Main-plot treatments :

3 levels of irrigation : $I_1=2$, $I_2=4$ and $I_3=6$ irrigations during pre-monsoon period.

Sub-plot treatments :

6 levels of N : $N_0=0$, $N_1=40$, $N_2=80$, $N_3=120$, $N_4=160$ and $N_5=200$ lb./ac. of N.
Manuring by G.N.C. on 14, 15.3.1956 and A/S and G.N.C. on 26.5.1956.

3. DESIGN :

(i) Split-plot. (ii) (a) 3 main-plots/replication ; 6 sub-plots/main-plot. (b) $126' \times 162'$. (iii) 4. (iv) (a) $40' \times 27'$. (b) $34' \times 21'$. (v) $3' \times 3'$. (vi) Yes.

4. GENERAL:

(i) Good growth, lodged in October. (ii) Rat and smut trouble. (iii) No. of tillers, millable cane yield and juice analysis. (iv) (a) 1956—1958. (b) No. (c) Nil. (v) (a) and (b) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 22.38 tons/ac. (ii) (a) 1.88 tons/ac. (b) 3.39 tons/ac. (iii) Main effects of I and N alone are highly significant. (iv) Av. yield of sugarcane in tons/ac.

	N_0	N_1	N_2	N_3	N_4	N_5	Mean
I_1	13.95	17.51	21.44	21.25	20.59	23.13	19.65
I_2	24.75	19.25	25.39	24.40	27.10	27.47	23.06
I_3	17.17	23.43	22.06	27.82	27.51	28.60	24.43
Mean	15.29	20.06	22.96	24.49	25.07	26.40	22.38

S.E. of difference of two

1. I marginal means = 0.54 tons/ac.
2. N marginal means = 1.38 tons/ac.
3. N means at the same level of I = 2.40 tons/ac.
4. I means at the same level of N = 2.25 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 57(171).

Site :- Sugarcane Res. Stn., Shahjahanpur.

Type :- 'IM'.

Object :- To study the effect of optimum doses of irrigation and manure for first year ratoon.

1. BASAL CONDITIONS :

(i) (a) Sugarcane—*Sanai*—Sugarcane. (b) *Sanai*. (c) Nil. (ii) (a) Light loam. (b) Refer soil analysis, Shahjahanpur. (iii) 20, 28.2.1957, 12 to 14.3.1957. (iv) (a) Dismantling of ridges. (b) to (e) N.A. (v) G.M. with *sanai* +25 lb./ac. of N as F.Y.M.+35 lb./ac. of N as G.N.C.+20 lb./ac. of N as A/S before rains. (vi) CO.S. 510 (early). (vii) As per treatments. (viii) 19 hoeings with cultivator. (ix) 34.24%. (x) 24 and 26.12.1957.

2. TREATMENTS :

Same as in expt. no. 56(139) on page 1275.

3. DESIGN :

(i) Split-plot. (ii) (a) 3 main-plots/replication ; 6 sub-plots/main-plot. (b) $165' \times 126'$. (iii) 4. (iv) (a) $53' \times 21'$. (b) $47' \times 15'$. (v) $3' \times 3'$. (vi) Yes.

4. GENERAL :

(i) Good growth. (ii) Root and stem borer, and top borer. (iii) Germination %, no. of shoots, no. of tillers, millable canes and juice analysis. (iv) (a) 1956—1958. (b) No. (c) Nil. (v) (a) and (b) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 19.66 tons/ac. (ii) (a) 2.21 tons/ac. (b) 1.63 tons/ac. (iii) Main effects of I and N alone are highly significant. (iv) Av. yield of sugarcane in tons/ac.

	N ₀	N ₁	N ₂	N ₃	N ₄	N ₅	Mean
I ₁	11.92	15.87	17.49	19.38	19.99	19.79	17.41
I ₂	14.26	16.95	21.38	20.02	23.43	21.49	19.59
I ₄	13.67	19.46	22.92	23.70	25.48	26.58	21.97
Mean	13.28	17.43	20.60	21.03	22.97	22.62	19.66

S.E. of difference of two

1. I marginal means = 0.64 tons/ac.
2. N marginal means = 0.67 tons/ac.
3. N means at the same level of I = 1.15 tons/ac.
4. I means at the same level of N = 1.23 tons/ac.

Crop :- Sugarcane.**Ref :- U.P. 58(183).****Site :- Sugarcane Res. Stn., Shahjahanpur.****Type :- 'IM'.**

Object :—To study the effect of optimum doses of irrigation and manure for first year ratoon.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Sugarcane—Plant cane (planted on 4, 5.2.1957). (c) N.A. (ii) (a) Light loam. (b) Refer soil analysis, Shahjahanpur. (iii) 17 and 23.2.1958. (iv) (a) and (b) N.A. (c) 53 (3 budded) setts/row. (d) 7 rows 3' apart. (e) N.A. (v) Nil. (vi) CO.S. 510 (early). (vii) As per treatments. (viii) 4 hoeings by *kassi*, 3—5 hoeings by cultivator and 1 earthing. (ix) 55.14%. (x) 12, 13.12.1958 and 12.3.1959.

2. TREATMENTS :

Same as in expt. no. 56(139) on page 1275.

Manuring on 11.3.1958 to 17.5.1958. N as A/S and G.N.C. (50 : 50 N basis).

3. DESIGN :

(i) Split-plot. (ii) (a) 3 main-plots/replication ; 6 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) 53' × 21'. (b) 47' × 15'. (v) 3 × 3'. (vi) Yes.

4. GENERAL :

(i) Lodging in October, 1958 due to heavy rains and wind. Very good condition of the crop. (ii) Incidence of smut and top borer in June, 1958. Smutted plants rogued. (iii) No. of tillers, millable cane and yield of sugarcane. (iv) (a) 1956—1958. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 19.24 tons/ac. (ii) (a) 5.37 tons./ac. (b) 1.75 tons/ac. (iii) Only N effect is highly significant. (iv) Av. yield of sugarcane in tons/ac.

	N ₀	N ₁	N ₂	N ₃	N ₄	N ₅	Mean
I ₁	17.53	17.32	18.20	20.04	20.31	20.54	18.99
I ₂	15.39	18.10	17.11	19.49	18.51	21.04	18.27
I ₃	17.56	20.68	20.40	21.26	21.86	20.94	20.45
Mean	16.83	18.70	18.57	20.26	20.23	20.84	19.24

S.E. of difference of two

1. I marginal means = 1.55 tons/ac.
2. N marginal means = 0.71 tons/ac.
3. N means at the same level of I = 1.23 tons/ac.
4. I means at the same level of N = 1.92 tons/ac.

Crop :- Sugarcane.**Ref :- U.P. 56(299).****Zone :- Bareilly (Bareilly, c.f.).****Type :- 'IM'.**

Object :—To study the effect of N and irrigation on the yield of Sugarcane.

1. BASAL CONDITIONS :

(i) to (iii) N.A. (iv) Improved. (v) to (ix) N.A. (x) 12.3.1957.

2. TREATMENTS :

All combinations of (1) and (2)

(1) 3 levels of N : $N_1=80$, $N_2=120$ and $N_3=160$ lb./ac.(2) 2 levels of irrigations : $I_1=3$ and $I_2=5$ irrigations.**3. DESIGN :**(i) and (ii) 2 replications in R.B.D. (iii) (a) and (b) $72' \times 15'$. (iv) Yes.**4. GENERAL :**

(i) Excessive lodging. (ii) N.A. (iii) Germination %, no. of tillers and yield of sugarcane. (iv) (a) 1956—1957. (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 15.35 tons/ac. (ii) 3.20 tons/ac. (iii) None of the effects is significant. (iv) Av. yield of sugarcane in tons/ac.

	N_1	N_2	N_3	Mean
I_1	16.96	13.95	13.46	14.79
I_2	15.04	16.89	15.82	15.92
Mean	16.00	15.42	14.64	15.35

S.E. of I marginal means = 1.31 tons/ac.

S.E. of N marginal means = 1.90 tons/ac.

S.E. of body of table = 2.26 tons/ac.

Crop :- Sugarcane.**Ref :- U.P. 57(203).****Zone :- Bareilly (Bareilly, c.f.).****Type :- 'IM'.**

Object :—To study the effect of N and levels of irrigations on the yield of Sugarcane.

1. BASAL CONDITIONS :

(i) to (iii) N.A. (iv) CO.S. 510. (v) (a) to (e) N.A. (vi) 8 and 9.3.1957. (vii) As per treatments. (viii) to (x) N.A.

2. TREATMENTS :

Same as in expt. no. 56(299) above.

3. DESIGN :(i) and (ii) Fact in R.B.D. with 4 replications. (iii) (a) and (b) $73' \times 24'$. (iv) Yes.**4. GENERAL :**

(i) and (ii) N.A. (iii) Yield of sugarcane. (iv) (a) 1956—1957. (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 17.09 tons/ac. (ii) 1.68 tons/ac. (iii) Main effect of N alone is highly significant. (iv) Av. yield of sugarcane in tons/ac.

	N ₁	N ₂	N ₃	Mean
I ₁	15.62	15.25	15.19	15.35
I ₂	19.72	19.04	17.71	18.82
Mean	17.67	17.14	16.45	17.09

S.E. of I marginal mean = 0.48 tons/ac.
 S.E. of N marginal mean = 0.59 tons/ac.
 S.E. of body of table = 0.84 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 55(254).

Zone :- Aira (Kheri, c.f.).

Type :- 'IM'.

Object :- To study the effect of N and irrigations on the yield of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Loam. (iii) N.A. (iv) Improved. (v) and (vi) N.A. (vii) As per treatments. (viii) to (x) N.A.

2. TREATMENTS :

Same as in expt. no. 56(299) on page 1278.

3. DESIGN :

(i) and (ii) Fact. in R.B.D. with 4 replications. (iii) (a) N.A. (b) 67' × 18'. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Germination %, no. of tillers, millable cane and yield of sugarcane. (iv) (a) and (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 16.70 tons/ac. (ii) 2.53 tons/ac. (iii) None of the effects is significant. (iv) Av. yield of sugarcane in tons/ac.

	N ₁	N ₂	N ₃	Mean
I ₁	20.29	16.46	16.34	17.70
I ₂	16.13	15.72	15.28	15.71
Mean	18.21	16.09	15.81	16.70

S.E. of N marginal mean = 0.89 tons/ac.
 S.E. of I marginal mean = 0.73 tons/ac.
 S.E. of body of table = 1.26 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 55(252).

Zone :- Golagokarannath (Kheri, c.f.).

Type :- 'IM'.

Object :- To study the effect of N and irrigations on the yield of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Heavy loam. (iii) N.A. (iv) Improved. (v) and (vi) N.A. (vii) As per treatments. (viii) and (ix) N.A. (x) 19 to 23.3.1956.

2. TREATMENTS :

All combinations of (1) and (2)

(1) 3 levels of N : $N_1=80$, $N_2=120$ and $N_3=160$ lb./ac. of N.(2) 2 levels of irrigation : $I_1=3$ and $I_2=5$ irrigations.**3. DESIGN :**(i) and (ii) Fact. in R.B.D. with 4 replications. (iii) (a) N.A. (b) $67' \times 18'$. (iv) Yes.**4. GENERAL :**

(i) and (ii) N.A. (iii) Germination %, no. of tillers, millable cane and sugarcane yield. (iv) (a) 1955—1957.

(b) N.A. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 29.16 tons/ac. (ii) 2.48 tons/ac. (iii) N effect alone is significant. (iv) Av. yield of sugarcane in tons/ac.

	N_1	N_2	N_3	Mean
I_1	28.03	30.60	27.12	28.58
I_2	26.54	31.18	31.51	29.74
Mean	27.28	30.89	29.32	29.16

S.E. of N marginal mean = 0.88 tons/ac.

S.E. of I marginal mean = 0.72 tons/ac.

S.E. of body of table = 1.24 tons/ac.

Crop :- Sugarcane.**Ref :- U.P. 56(300).****Zone :- Golagokarannath (Kheri, c.f.).****Type :- 'IM'.****Object :-**To study the effect of N and irrigations on the yield of Sugarcane.**1. BASAL CONDITIONS :**(i) (a) N.A. (b) *Sana* for G.M. (c) G.N.C. at 8 mds./ac. and B.M. at 2 mds./ac. (ii) Loam soil. (iii) G.M. (iv) CO.S. 510 (improved). (v) (a) N.A. (b) Flat planting by tractor. (c) 1560 buds per plot. (d) Rows 3' apart. (e) N.A. (vi) 4.11.1956. (vii) As per treatments. (viii) and (ix) N.A. (x) 6 and 7.2.1957.**2. TREATMENTS :**

Same as in expt. no. 55(252) on page 1279.

3. DESIGN :(i) and (ii) Fact. in R.B.D. with 4 replications. (iii) (a) $60' \times 24'$. (b) $54' \times 18'$. (iv) Yes.**4. GENERAL :**

(i) Excessive lodging. (ii) N.A. (iii) Germination %, no. of tillers, millable cane and yield of sugarcane. (iv) (a) 1955—1957. (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 35.12 tons/ac. (ii) 1.45 tons/ac. (iii) None of the effects is significant. (iv) Av. yield of sugarcane in tons/ac.

	N_1	N_2	N_3	Mean
I_1	34.88	36.42	35.60	35.63
I_2	35.29	33.65	34.88	34.61
Mean	35.08	35.04	35.24	35.12

S.E. of N marginal mean	= 0.51 tons/ac.
S.E. of I marginal mean	= 0.42 tons/ac.
S.E. of body of table	= 0.72 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 57(193).

Zone :- Golagokarannath (Kheri, c.f.).

Type :- 'IM'.

Object :- To study the effect of different doses of N in combination with different levels of irrigation.

1. BASAL CONDITIONS :

(i) and (ii) N.A. (iii) Loam. (iv) to (vi) N.A. (vii) As per treatments. (viii) to (x) N.A.

2. TREATMENTS :

Same as in expt. no. 55(252) on page 1279.

3. DESIGN :

(i) and (ii) Fact. in R.B.D. with 4 replications. (iii) (a) N.A. (b) 67' x 15'. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of sugarcane. (iv) (a) 1955—1957. (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 21.00 tons/ac. (ii) 1.96 tons/ac. (iii) Only N effect is highly significant. (iv) Av. yield of sugarcane in tons/ac.

	N ₁	N ₂	N ₃	Mean
I ₁	17.89	21.44	23.30	20.88
I ₂	19.55	20.73	23.09	21.12
Mean	18.72	21.08	23.20	21.00

S.E. of N marginal mean	= 0.69 tons/ac.
S.E. of I marginal mean	= 0.57 tons/ac.
S.E. of body of table	= 0.98 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 55(253).

Zone :- Bilari (Moradabad, c.f.).

Type :- 'IM'.

Object :- To study the effect of different doses of N in combination with different levels of irrigation.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) *Urd* and *Jowar*. (c) N.A. (ii) Loam. (iii) Cowdung at 6.25 mds./ac. (iv) CO.S. 245 (improved). (v) (a) 6 ploughings by tractor and 1 harrowing by disc harrow. (b) Flat planting. (c) 1752 buds/plot. (d) Rows 3' apart. (e) N.A. (vi) 5.3.1955. (vii) As per treatments. (viii) 4 hoeings. (ix) and (x) N.A.

2. TREATMENTS :

Same as in expt. no. 55(252) on page 1279.

3. DESIGN :

(i) and (ii) Fact. in R.B.D. with 4 replications. (iii) (a) 73' x 24'. (b) 67' x 18'. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Millable cane, no. of tillers, yield of cane and juice analysis. (iv) (a) and (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 37.26 tons/ac. (ii) 1.55 tons/ac. (iii) All effects are highly significant. (iv) Av. yield of sugarcane in tons/ac.

	N ₁	N ₂	N ₃	Mean
I ₁	29.52	34.00	36.82	33.45
I ₂	31.30	40.05	51.87	41.07
Mean	30.41	37.02	44.34	37.26

S.E. of N marginal mean = 0.55 tons/ac.

S.E. of I marginal mean = 0.45 tons/ac.

S.E. of body of table = 0.78 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 57(211).

Zone :- Ramhat Amroha (Moradabad, c.f.).

Type :- 'IM'.

Object :— To study the effect of different doses of N in combination with different levels of irrigation.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Pea for G.M. (c) N.A. (ii) Sandy loam. (iii) G.M. (pea). (iv) CO.S. 321. (v) (a) to (e) N.A. (vi) 26.2.1957. (vii) As per treatments. (viii) and (ix) N.A. (x) 23.12.1957 to 5.1.1958.

2. TREATMENTS :

Same as in expt. no. 55(252) on page 1279.

3. DESIGN :

(i) and (ii) Fact. in R.B.D. with 6 replications. (iii) (a) 72'×24'. (b) 67'×18'. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of sugarcane. (iv) (a) N.A. (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 31.99 tons/ac. (ii) 1.62 tons/ac. (iii) Only main effect of N is highly significant. (iv) Av. yield of sugarcane in tons/ac.

	N ₁	N ₂	N ₃	Mean
I ₁	28.57	32.72	34.30	31.86
I ₂	27.71	33.53	35.11	32.12
Mean	28.14	33.12	34.70	31.99

S.E. of I marginal mean = 0.38 tons/ac.

S.E. of N marginal mean = 0.47 tons/ac.

S.E. of body of table = 0.66 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 54(127).

Site :- Sugarcane Res. Sub-Stn., Muzaffarnagar.

Type :- 'IMV'.

Object :- To study the effect of irrigation and fertilizers on different varieties of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) G.M.—Wheat—Cotton—Sugarcane. (b) Cotton. (c) Nil. (ii) (a) Loam. (b) Refer soil analysis, Muzaffarnagar. (iii) 16.3.1954. (iv) (a) 5 ploughings with *desi* plough, 4 plankings and roller. (b) Flat planting. (c) 37 (3 budded) setts/row. (d) Row to row 3'. (e) N.A. (v) Nil. (vi) As per treatments. (vii) Irrigated. (viii) 5 hoeings with *kassi*, 2 hoeings with cultivator, 3 hoeings with spade and 1 earthing. (ix) 28.72". (x) 5.3.1955.

2. TREATMENTS :

Main-plot treatments :

2 irrigational treatments : I_1 =Subnormal irrigations (2 pre-monsoon+2 post-monsoon) and I_2 =Normal irrigations (4 pre-monsoon+2 post-monsoon).

Sub-plot treatments :

3 manuring treatments : S_1 =60 lb./ac. of N as F.Y.M., S_2 =120 lb./ac. of N as A/S and G.N.C. in 1 : 1 ratio and S_3 =180 lb./ac. of N as A/S and G.N.C. in 1 : 1 ratio.

Sub-sub-plot treatments :

4 varieties of sugarcane : V_1 =CO.S. 312, V_2 =CO.S. 245, V_3 =CO.S. 321 and V_4 =CO.S. 469.

3. DESIGN :

(i) Split-plot. (ii) (a) 2 main-plots/replication ; 3 sub-plots/main-plot and 4 sub-sub-plots/sub-plot. (b) 76'×184'. (iii) 2. (iv) (a) 35'×15'. (b) 29'×9'. (v) 3'×3'. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Sugarcane yield. (iv) (a) and (b) No. (c) Nil. (v) and (vi) Nil. (vii) Originally expt. was laid out with 3 replications. Due to shortage of seed material, CO.469 was replaced by CO.S. 470 in one replication. Yield of that replication was not recorded and hence for analysis purposes only two replications have been taken.

5. RESULTS :

(i) 25.57 tons/ac. (ii) (a) 4.74 tons/ac. (b) 6.92 tons/ac. (c) 17.83 tons/ac. (iii) None of the effects is significant. (iv) Av. yield of sugarcane in tons/ac.

	S_1	S_2	S_3	Mean	V_1	V_2	V_3	V_4
I_1	24.44	23.97	25.16	24.52	24.95	26.81	26.08	20.24
I_2	21.41	27.97	30.49	26.62	25.25	30.62	26.56	24.05
Mean	22.92	25.97	27.82	25.57	25.10	28.72	26.32	22.14
V_1	21.78	26.13	27.39					
V_2	23.85	29.06	33.24					
V_3	24.03	27.19	27.73					
V_4	22.04	21.47	22.93					

S.E. of difference of two

- | | | | |
|-----------------------------------|-----------------|-----------------------------------|------------------|
| 1. I marginal means | = 1.37 tons/ac. | 6. V means at the same level of I | = 10.29 tons/ac. |
| 2. S marginal means | = 2.45 tons/ac. | 7. I means at the same level of V | = 9.02 tons/ac. |
| 3. V marginal means | = 7.28 tons/ac. | 8. V means at the same level of S | = 12.60 tons/ac. |
| 4. S means at the same level of I | = 3.46 tons/ac. | 9. S means at the same level of V | = 11.19 tons/ac. |
| 5. I means at the same level of S | = 3.14 tons/ac. | | |

Crop :- Sugarcane.

Ref :- U.P. 55(99).

Site :- Sugarcane Res. Sub-Stn., Muzaffarnagar.

Type :- 'IMV'.

Object :- To study the effect of irrigation and fertilizers on different varieties of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) *Guar* for seed. (c) Nil. (ii) (a) Loam. (b) Refer soil analysis, Muzaffarnagar. (iii) 15.3.1955. (iv) (a) 3 ploughings by *desi* plough, 12 ploughings by Victory plough, 1 ploughing by K. No. 12 plough, hoeing corners, application of roller once and 6 plankings. (b) Flat planting. (c) 35 (3 budded) setts/row. (d) Rows 3' apart. (e) N.A. (v) Nil. (vi) As per treatments. (vii) Irrigated. (viii) 3 hoeings by *kassi*, one hoeing by spade, 1 hoeing by cultivator and 2 earthings. (ix) 48.72". (x) N.A.

2. TREATMENTS :

Main-plot treatments :

2 levels of irrigation : I_1 =Subnormal irrigations (2 pre-monsoon+2 post-monsoon) and I_2 =Normal irrigations (4 pre-monsoon+2 post-monsoon).

Sub-plot treatments :

2 levels of N : N_1 =100 and N_2 =200 lb./ac.

Sub-sub-plot treatments :

4 varieties : V_1 =CO. 312 (medium-late), V_2 =CO. 945, V_3 =CO.S. 321 (early) and V_4 =CO.S. 469 (medium-early).

N_1 =50 lb./ac. of N as compost and 50 lb./ac. of N as G.N.C. and N_2 = N_1 +100 lb./ac. of N as mixture of A/S and G.N.C. $\frac{1}{2}$ applied on 14.5.1955 and $\frac{1}{2}$ on 1.6.1955.

3. DESIGN :

(i) Split-plot. (ii) (a) 2 main-plots/replication, 2 sub-plots/main-plot and 4 sub-sub-plots/sub-plot. (b) N.A. (iii) 3. (iv) (a) and (b) 33' x 6'. (v) Nil. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of sugarcane, no. of tillers, millable canes and germination %. (iv) (a) and (b) No. (c) Nil. (v) (a) and (b) Nil. (vi) N.A. (vii) The yield data of this experiment is very erratic.

5. RESULTS :

(i) 33.71 tons/ac. (ii) (a) 24.94 tons/ac. (b) 19.67 tons/ac. (c) 10.96 tons/ac. (iii) V effect is highly significant and interaction $N \times V$ is significant. (iv) Av. yield of sugarcane in tons/ac.

	N_1	N_2	Mean	V_1	V_2	V_3	V_4
I_1	33.45	32.24	32.85	21.35	43.98	36.94	29.13
I_2	31.20	37.97	34.58	33.74	40.95	35.93	27.71
Mean	32.32	35.10	33.71	27.54	42.46	36.44	28.42
V_1	21.11	33.98					
V_2	49.70	35.22					
V_3	31.15	41.72					
V_4	27.34	29.50					

S.E. of difference of two

- | | | | |
|-----------------------------------|-----------------|--|-----------------|
| 1. I marginal means | = 7.20 tons/ac. | 5. I means at the same level of N | = 9.17 tons/ac. |
| 2. N marginal means | = 5.68 tons/ac. | 6. V means at the same level of I or N | = 6.33 tons/ac. |
| 3. V marginal means | = 4.47 tons/ac. | 7. I means at the same level of V | = 9.05 tons/ac. |
| 4. N means at the same level of I | = 8.03 tons/ac. | 8. N means at the same level of V | = 7.89 tons/ac. |

Crop :- Sugarcane.

Ref :- U.P. 55(68).

Site :- Sugarcane Res. Sub-Stn., Muzaffarnagar.

Type :- 'IMV'.

Object:—To find out the effect of late planting in relation to varietal, manurial and irrigational treatments on the yield of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) G.M.—Wheat—Cotton—Sugarcane. (b) Cotton. (c) Nil. (ii) (a) Loam. (b) Refer soil analysis, Muzaffarnagar. (iii) 2.4.1955 (normal planting time is 15th February to 15th March). (iv) (a) N.A. (b) Sown flat. (c) 42,000 buds/ac. (d) Rows 3' apart. (e) N.A. (v) Nil. (vi) As per treatments. (vii) Irrigated. (viii) Hoeing, weeding and earthing. (ix) 52.11". (x) 23, 24.1.1956.

2. TREATMENTS :

Main-plot treatments :

All combinations of (1) and (2)

(1) 2 levels of irrigation : $I_1=2$ and $I_2=4$ irrigations.

(2) 2 levels of N : $N_1=75$ and $N_2=150$ lb./ac.

Sub-plot treatments :

7 varieties of sugarcane : $V_1=CO. 312$, $V_2=CO. 758$, $V_3=CO. 957$, $V_4=CO.S. 245$, $V_5=CO.S. 468$, $V_6=CO.S. 515$ and $V_7=CO.S. 536$.

N applied as A/S and G.N.C. in 1 : 1 ratio.

3. DESIGN :

(i) Split-plot. (ii) (a) 4 main-plots/replication ; 7 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) and (b) 1/88.54 ac. (v) Nil. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Nil. (iii) Germination %, no. of tillers, millable cane countings and yield of sugarcane. (iv) (a) 1955—1957. (b) No. (c) Nil. (v) (a) and (b) No. (vi) and (vii) Nil.

5. RESULTS :

(i) 19.58 tons/ac. (ii) (a) 4.73 tons/ac. (b) 3.09 tons/ac. (iii) Only V effect is highly significant. (iv) Av. yield of sugarcane in tons/ac.

	V_1	V_2	V_3	V_4	V_5	V_6	V_7	Mean	N_1	N_2
I_1	14.41	23.26	20.38	18.71	16.53	23.83	17.67	19.26	18.67	19.84
I_2	16.49	22.44	21.54	19.65	18.54	22.80	17.86	19.90	19.16	20.65
Mean	15.45	22.85	20.96	19.18	17.54	23.32	17.76	19.58	18.92	20.24
N_1	15.51	22.22	20.91	17.62	17.35	21.61	17.21			
N_2	15.39	23.49	21.02	20.74	17.72	25.02	18.32			

S.E. of difference of two

1. I or N marginal means	= 0.89 tons/ac.
2. V marginal means	= 1.09 tons/ac.
3. V means at the same level of I or N	= 1.54 tons/ac.
4. I or N means at the same level of V	= 1.68 tons/ac.
S.E. of body of $I \times N$ table	= 0.89 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 56(14).

Site :- Sugarcane Res. Sub-Stn., Muzaffarnagar.

Type :- 'IMV'.

Object :—To find out the effect of late planting in relation to varietal, manurial and irrigational treatments on the yield of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) G.M.—Wheat—Cotton—Sugarcane. (b) Cotton. (c) Nil. (ii) (a) Loam. (b) Refer soil analysis, Muzaffarnagar. (iii) 2.4.1956. (iv) (a) 7 preparatory ploughings. (b) Sown flat. (c) 1 sett (3 budded)/foot. (d) 3' between rows. (e) N.A. (v) Nil. (vi) As per treatments. (vii) Irrigated. (viii) Hoings, weeding and earthing. (ix) 70.54". (x) 22.12.1956.

2. TREATMENTS :

Main-plot treatments :

All combinations of (1) and (2)

(1) 2 levels of irrigation : $I_1=2$ and $I_2=4$ irrigations.(2) 2 levels of N : $N_1=75$ and $N_2=150$ lb./ac.

Sub-plot treatments :

7 varieties : $V_1=CO. 312$, $V_2=CO. 951$, $V_3=CO. 957$, $V_4=CO.S. 245$, $V_5=CO. 515$, $V_6=CO.S. 519$ and $V_7=CO.S. 536$.

N applied as A/S and G.N.C. in 1 : 1 ratio.

3. DESIGN :

(i) Split-plot. (ii) (a) 4 main-plots/replication ; 7 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) and (b) 1/86.4 ac. (v) Nil. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Nil. (iii) Germination %, no. of tillers, millable cane countings and yield of sugarcane. (iv) (a) 1955—1957. (b) No. (c) Nil. (v) (a) and (b) No. (vi) Nil. (vii) One replication was not taken into consideration as it was damaged by rats.

5. RESULTS :

(i) 17.17 tons/ac. (ii) (a) 3.78 tons/ac. (b) 3.47 tons/ac. (iii) V effect is highly significant and I effect is significant. (iv) Av. yield of sugarcane in tons/ac.

	V_1	V_2	V_3	V_4	V_5	V_6	V_7	Mean	N_1	N_2
I_1	11.40	17.90	15.74	15.32	24.71	11.62	15.00	15.96	14.51	17.40
I_2	12.52	23.23	18.44	14.47	27.02	15.34	17.67	18.38	18.12	18.65
Mean	11.96	20.56	17.09	14.90	25.86	13.48	16.34	17.17	16.32	18.02
N_1	12.01	20.06	15.26	13.98	23.81	12.79	16.32			
N_2	11.92	21.08	18.91	15.81	27.92	14.17	16.35			

S.E. of difference of two

- | | |
|--|-----------------|
| 1. I or N marginal means | = 0.82 tons/ac. |
| 2. V marginal means | = 1.42 tons/ac. |
| 3. V means at the same level of I or N | = 2.00 tons/ac. |
| 4. I or N means at the same level of V | = 2.03 tons/ac. |
| S.E. of body of $I \times N$ table | = 0.82 tons/ac. |

Crop :- Sugarcane.

Ref :- U.P. 57(57).

Site :- Sugarcane Res. Sub-Stn., Muzaffarnagar.

Type :- 'IMV'.

Object :—To find out the effect of late planting in relation to varietal, manurial and irrigational treatments on the yield of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) G.M.—Wheat—Cotton—Sugarcane. (b) Cotton. (c) N.A. (ii) (a) Loam. (b) Refer soil analysis, Muzaffarnagar. (iii) 5, 6.4.1957. (iv) (a) 6 ploughings by *desi* plough, 3 plankings and roller+planking once. (b) Flat planting. (c) 44 (3 budded) setts/row. (d) Rows 3' apart. (e) N.A. (v) Nil. (vi) As per treatments. (vii) Irrigated. (viii) 1 hoeing by lever harrow, 5 hoeings by *kassi*, making of *berhas* once, 1 hoeing by cultivator, two diggings of sugarcane in I_2N_1 , I_2N_2 and weeding once. (ix) 41.46". (x) 3 and 4.1.1958.

2. TREATMENTS :

Main-plot treatments :

All combinations of (1) and (2)

(1) 2 levels of irrigation : $I_1=2$ and $I_2=4$ irrigations.(2) 2 levels of N : $N_1=75$ and $N_2=150$ lb./ac.

Sub-plot treatments :

7 varieties : V_1 =CO. 312, V_2 =CO. 957, V_3 =CO. 975, V_4 =CO. 994, V_5 =CO.S. 245, V_6 =CO.S. 515 and V_7 =CO.S. 546.

Manures applied in the form of A/S and G.N.C. at 1 : 1 ratio.

3. DESIGN :

(i) Split-plot. (ii) (a) 4 main-plots/replication ; 7 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) and (b) 42' x 12'. (v) Nil. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of sugarcane and juice analysis. (iv) (a) 1955-1957. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 11.48 tons/ac. (ii) (a) 4.48 tons/ac. (b) 2.28 tons/ac. (iii) V effect is highly significant and I effect is significant. (iv) Av. yield of sugarcane in tons/ac.

	V_1	V_2	V_3	V_4	V_5	V_6	V_7	Mean	N_1	N_2
I_1	9.71	7.08	7.97	16.17	9.36	13.42	9.89	10.51	10.93	10.09
I_2	11.21	9.58	10.12	18.77	10.82	15.96	10.68	12.45	12.40	12.48
Mean	10.46	8.33	9.04	17.47	10.09	14.69	10.28	11.48	11.67	11.29
N_1	10.77	9.02	8.84	17.60	9.83	15.22	10.40			
N_2	10.15	7.64	9.24	17.34	10.35	14.16	10.16			

S.E. of difference of two

1. I or N marginal means	= 0.85 tons/ac.
2. V marginal means	= 0.80 tons/ac.
3. V means at the same level of I or N	= 1.14 tons/ac.
4. I or N means at the same level of V	= 1.35 tons/ac.
S.E. of body of $I \times N$ table	= 0.85 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 56(125).

Site :- Sugarcane Res. Stn., Shahjahanpur.

Type :- 'IC'.

Object :-To study the effect of covering the field with cane leaf trash or paddy husk at two levels of irrigations on Sugarcane yield.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) *Sanai*. (c) Nil. (ii) (a) Light loam. (b) Refer soil analysis, Shahjahanpur. (iii) 17.2.1956. (iv) (a) N.A. (b) Flat planting. (c) 1 sett (3 budded)/foot. (d) Rows 3' apart. (e) N.A. (v) *Sanai* as G.M. at 40 lb./ac. of N and A/S at 60 lb./ac. of N. (vi) CO. 453 (mid-late). (vii) Irrigated. (viii) As per treatments. Binding of lodged cane. (ix) 50.78%. (x) 1 and 2.2.1957.

2. TREATMENTS :**Main-plot treatments :**

2 levels of pre-monsoon : irrigation I_1 =Deficient (2 irrigations) and I_2 =Normal (5 irrigations).

Sub-plot treatments :

4 cultural treatments : T_0 =Control (normal hoeing and earthing), T_1 =Trash not covered and normal earthing, T_2 =Trash covered, no hoeing and no earthing and T_3 =Paddy husk covered, no hoeing and no earthing.

Trash and paddy husk applied on 27.4.1956.

3. DESIGN :

(i) Split-plot. (ii) (a) 2 main-plots/replication ; 4 sub-plots/main-plot. (b) N.A. (iii) 3. (iv) (a) and (b) 40' x 24'. (v) Nil. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Sugarcane yield. (iv) (a) 1956—1958. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 28.81 tons/ac. (ii) (a) 2.11 tons/ac. (b) 2.99 tons/ac. (iii) Only T effect is highly significant. (iv) Av. yield of sugarcane in tons/ac.

	T ₀	T ₁	T ₂	T ₃	Mean
I ₁	25.82	21.66	30.90	30.06	27.11
I ₂	31.84	21.11	33.88	35.23	30.52
Mean	28.83	21.38	32.39	32.64	28.81

S.E. of difference of two

1. I marginal means = 0.86 tons/ac.
2. T marginal means = 1.73 tons/ac.
3. T means at the same level of I = 2.44 tons/ac.
4. I means at the same level of T = 2.28 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 57(148).

Site :- Sugarcane Res. Stn., Shahjahanpur.

Type :- 'IC'.

Object :—To study the effect of covering the field with cane leaf trash or paddy husk at two levels of irrigation on Sugarcane yield.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) *Sanai*. (c) Nil. (ii) (a) Light loam. (b) Refer soil analysis, Shahjahanpur. (iii) 19.2.1957. (iv) (a) N.A. (b) Flat planting. (c) 1 (3 budded) sett/foot. (d) Rows 3' apart. (e) N.A. (v) *Sanai* as G.M.+A/S at 60 lb./ac. of N. (vi) CO.453 (mid-late). (vii) Irrigated. (viii) As per treatments. (ix) 35.07". (x) N.A.

2. TREATMENTS to 4. GENERAL :

Same as in expt. no. 56(125) on page 1287.

5. RESULTS :

(i) 25.81 tons/ac. (ii) (a) 4.54 tons/ac. (b) 2.62 tons/ac. (iii) Only T effect is highly significant. (iv) Av. yield of sugarcane in tons/ac.

	T ₀	T ₁	T ₂	T ₃	Mean
I ₁	22.83	18.49	26.60	24.93	23.21
I ₂	29.26	22.96	31.41	29.95	28.40
Mean	26.05	20.73	29.00	27.44	25.81

S.E. of difference of two

1. I marginal means = 1.85 tons/ac.
2. T marginal means = 1.51 tons/ac.
3. T means at the same level of I = 2.14 tons/ac.
4. I means at the same level of T = 2.62 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 58(157).

Site :- Sugarcane Res. Stn., Shahjahanpur.

Type :- 'IC'.

Object :—To study the effect of covering the field with cane leaf trash or paddy husk at two levels of irrigation on the yield of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) *Dhaincha*. (c) Nil. (ii) (a) Light loam. (b) Refer soil analysis, Shahjahanpur. (iii) 11.2.1958. (iv) (a) N.A. (b) Flat planting. (c) 1 sett (3 budded)/foot. (d) Rows 3' apart. (e) N.A. (v) 40 lb./ac. of N as castor cake+60 lb./ac. of N as A/S. (vi) CO. 453 (mid-late). (vii) Irrigated. (viii) 6 hoeings. (ix) 57.28". (x) 10.3.1959.

2. TREATMENTS : to 4. GENERAL :

Same as in expt. no. 56(125) on page 1287.

The plots were covered evenly with dried cane leaves and paddy husk at the rate of 150 mds./ac. and 750 mds./ac. respectively on 25.4.1958.

5. RESULTS :

(i) 13.64 tons/ac. (ii) (a) 4.02 tons/ac. (b) 2.42 tons/ac. (iii) Only T effect and I×T interaction are highly significant. (iv) Av. yield of sugarcane in tons/ac.

	T ₀	T ₁	T ₂	T ₃	Mean
I ₁	13.11	3.67	18.94	10.91	11.66
I ₂	20.77	2.43	18.77	20.50	15.62
Mean	16.94	3.05	18.86	15.70	13.64

S.E. of difference of two

1. I marginal means = 1.64 tons/ac.
2. T marginal means = 1.39 tons/ac.
3. T means at the same level of I = 1.97 tons/ac.
4. I means at the same level of T = 2.37 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 58(155).

Site :- Sugarcane Res. Stn., Shahjahanpur.

Type :- 'IC'.

Object :—To study the effect of covering the fields with trash along with earthing on the yield of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) *Lobia*. (c) N.A. (ii) Light loam. (b) Refer soil analysis, Shahjahanpur. (iii) 13.2.1958. (iv) (a) N.A. (b) Flat planting. (c) 1 sett (3 budded)/foot. (d) Rows 3' apart. (e) N.A. (v) 100 lb./ac. of N as A/S. (vi) CO. 453 (mid-late). (vii) Irrigated. (viii) 5 hoeings and binding of cane. (ix) 55.14". (x) 18.12.1958.

2. TREATMENTS :

All combinations of (1) and (2)

(1) 2 levels of irrigation : I₁=Subnormal (2 pre-monsoon irrigations) and I₂=Normal (5 pre-monsoon irrigations).

(2) 2 post sowing operations : T₁=Normal hoeing and earthing and T₂=Trash covering, earthing but no hoeing.

Covering with leaf trash on 8.4.1958.

3. DESIGN :

(i) Fact. in R.B.D. (ii) (a) 4. (b) N.A. (iii) 3. (iv) (a) and (b) 35'×21'. (v) Nil. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Sugarcane yield. (iv) (a) and (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 28.65 tons/ac. (ii) 4.03 tons/ac. (iii) Only I effect is highly significant. (iv) Av. yield of sugarcane in tons/ac.

	T ₁	T ₂	Mean
I ₁	21.13	24.56	22.84
I ₂	35.63	33.29	34.46
Mean	28.38	28.92	28.65

S.E. of any marginal mean = 1.64 tons/ac.
S.E. of body of table = 2.33 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 59(211).

Site :- Sugarcane Res. Stn., Shahjahanpur.

Type :- 'IC'.

Object :-To study the effect of covering the field with cane leaf trash along with earthing at two levels of irrigation on the yield of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) (a) Loam. (b) Refer soil analysis, Shahjahanpur. (iii) 14.2.1959. (iv) (a) to (e) N.A. (v) F.Y.M. and A/S applied. (vi) CO.S. 510 (early). (vii) Irrigated. (viii) 4 hoeings, 1 weeding, 1 earthing and 1 binding. (ix) 29.11". (x) 18.3.1960.

2. TREATMENTS :

Main-plot treatments :

2 levels of irrigation : I₁=Deficient (2 irrigations) and I₂=Normal (5 irrigations).

Sub-plot treatments :

3 methods of ploughing : M₁=Normal hoeing and earthing, M₂=Uncovered, no hoeing but earthing and M₃=No hoeing, trash covered and earthing.

3. DESIGN :

(i) Split-plot. (ii) (a) 2 main-plots/replications ; 3 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 47' x 24'. (v) N.A. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Sugarcane yield. (iv) (a) 1959—1960. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 24.96 tons/ac. (ii) (a) 1.99 tons/ac. (b) 1.87 tons/ac. (iii) Only M effect is highly significant. (iv) Av. yield of sugarcane in tons/ac.

	M ₁	M ₂	M ₃	Mean
I ₁	24.04	21.82	25.31	23.72
I ₂	28.07	22.72	27.79	26.19
Mean	26.06	22.27	26.55	24.96

S.E. of difference of two

1. I marginal means = 1.00 tons/ac.
2. M marginal means = 0.76 tons/ac.
3. M means at the same level of I = 1.32 tons/ac.
4. I means at the same level of M = 1.35 tons/ac.

Crop :- Sugarcane (Ratoon).**Ref :- U.P. 55(96).****Site :- Sugarcane Res. Sub-Stn., Muzaffarnagar.****Type :- 'IMC'.**

Object :- To find out the cultural, irrigational and manurial requirements of ratoon Sugarcane crop.

1. BASAL CONDITIONS :

(i) (a) Paddy—*Berseem*—Paddy—Sugarcane. (b) Plant cane. (c) 80 lb./ac. of N as compost+60 lb./ac. of N as G.N.C. + 150 lb./ac. of N as A/S. (ii) (a) Loam. (b) Refer soil analysis, Muzaffarnagar. (iii) N.A. (iv) (a) N.A. (b) Flat planting. (c) N.A. (d) Row to row 3'. (e) N.A. (v) Nil. (vi) CO. 453 (late). (vii) Irrigated. (viii) Hoeing, weeding and earthing. (ix) 52.11". (x) 10 and 11.12.1955.

2. TREATMENTS :**Main-plot treatments :**

2 trash treatments: M_0 =No burning of trash after harvest of plant cane and M_1 =Burning of trash after harvest of plant cane.

Sub-plot treatments :

4 cultural treatments: S_1 =Complete dismantling of ridges+2 irrigations+60 lb./ac. of N as F.Y.M., S_2 =Complete dismantling of ridges+4 irrigations+120 lb./ac. of N as mixture, S_3 =No dismantling of ridges+2 irrigations+60 lb./ac. of N as F.Y.M., and S_4 =No dismantling of ridges+4 irrigations+120 lb./ac. of N as A/S and +G.N.C. in 1:1 ratio mixture.

Burning of trash on 27.2.1955 and dismantling of ridges by spade on 2 and 3.3.1955. F.Y.M. at 60 lb./ac. of N applied on 24.3.1955 and A/S on 4.6.1955.

3. DESIGN :

(i) Split-plot. (ii) (a) 2 main-plots/replication; 4 sub-plots/main-plot. (b) 57'×156'. (iii) 4. (iv) (a) 57'×18'. (b) 51'×12'. (v) 3'×3'. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Nil. (iii) No. of tillers, millable cane counting, juice analysis and sugarcane yield. (iv) (a) 1955—1958 (not conducted in 1957). (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 18.44 tons/ac. (ii) (a) 3.20 tons/ac. (b) 2.22 tons/ac. (iii) Only S effect is highly significant. (iv) Av. yield of sugarcane in tons/ac.

	S_1	S_2	S_3	S_4	Mean
M_0	15.29	21.36	16.76	18.90	18.08
M_1	18.56	20.62	15.08	20.98	18.81
Mean	16.92	20.99	15.92	19.94	18.44

S.E. of difference of two

- | | |
|-----------------------------------|-----------------|
| 1. M marginal means | = 1.13 tons/ac. |
| 2. S marginal means | = 1.11 tons/ac. |
| 3. S means at the same level of M | = 1.57 tons/ac. |
| 4. M means at the same level of S | = 1.77 tons/ac. |

Crop :- Sugarcane (Ratoon).**Ref :- U.P. 56(42).****Site :- Sugarcane Res. Sub-Stn., Muzaffarnagar.****Type :- 'IMC'.**

Object :- To find out the cultural, irrigational and manurial requirements of ratoon Sugarcane crop.

1. BASAL CONDITIONS :

(i) (a) G.M.—Wheat—Cotton—Sugarcane—Ratoon. (b) Plant cane. (c) 300 lb./ac. of N. (ii) (a) Loam. (b) Refer soil analysis, Muzaffarnagar. (iii) 25.2.1956 to 25.3.1956. (iv) (a) to (c) N.A. (d) Rows 3' apart. (e) N.A. (v) Nil. (vi) CO.S. 545 (medium). (vii) Irrigated. (viii) Hoeing by spade. (ix) 70.23". (x) 21.11.1956.

2. TREATMENTS to 4. GENERAL :

Same as in expt. no. 55 (96) on page 1291.

Burning of trash on 13.4.1956, dismantling of ridges on 19.4.1956. In treatment S₄, N is applied as mixture of Urea and G.N.C. in 1 : 1 ratio.

5. RESULTS :

(i) 9.61 tons/ac. (ii) (a) 2.06 tons/ac. (b) 2.26 tons/ac. (iii) None of the effects is significant. (iv) Av. yield of sugarcane in tons/ac.

	S ₁	S ₂	S ₃	S ₄	Mean
M ₀	8.67	9.24	10.48	12.03	10.10
M ₁	9.42	8.69	9.99	8.34	9.11
Mean	9.04	8.96	10.24	10.18	9.61

S.E. of difference of two

1. M marginal means = 0.73 tons/ac.
2. S marginal means = 1.13 tons/ac.
3. S means at the same level of M = 1.60 tons/ac.
4. M means at the same level of S = 1.56 tons/ac.

Crop :- Sugarcane (Ratoon).

Ref :- U.P. 58(49).

Site :- Sugarcane Res. Sub-Stn., Muzaffarnagar.

Type :- 'IMC'.

Object:—To find out the cultural, irrigational and manurial requirements of ratoon Sugarcane crop.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Plant cane. (c) N.A. (ii) (a) Loam. (b) Refer soil analysis, Muzaffarnagar. (iii) 9.2.1958 to 28.2.1958. (iv) (a) to (c) N.A. (d) Rows 3' apart. (e) N.A. (v) Nil. (vi) CO. 453 (late). (vii) Irrigated. (viii) 1 weeding and diggings. (ix) 44.20". (x) 13.11.1958 to 16.11.1958.

2. TREATMENTS to 4. GENERAL :

Same as in expt. no. 55 (96) on page 1291.

Burning of trash on 12.3.1958. In treatment S₄, N is applied as mixture of A/S and G.N.C. on equal N basis.

5. RESULTS :

(i) 16.41 tons/ac. (ii) (a) 1.47 tons/ac. (b) 3.77 tons/ac. (iii) None of the effects is significant. (iv) Av. yield of sugarcane in tons/ac.

	S ₁	S ₂	S ₃	S ₄	Mean
M ₀	14.92	16.45	17.49	16.35	16.30
M ₁	14.92	14.88	16.18	20.07	16.51
Mean	14.92	15.66	16.84	18.21	16.41

S.E. of difference of two

1. M marginal means = 0.52 tons/ac.
2. S marginal means = 1.89 tons/ac.
3. S means at the same level of M = 2.67 tons/ac.
4. M means at the same level of S = 2.37 tons/ac.

Crop :- Sugarcane.**Ref :- U.P. 54(42).****Site :- Sugarcane Res. Stn., Shahjahanpur.****Type :- 'IMC'.**

Object:—To find out the optimum requirements of N and irrigation for autumn and spring planted Sugarcane.

1. BASAL CONDITIONS :

(i) (a) G.M.—Wheat—*Sanai*—Sugarcane. (b) Wheat. (c) G.M. (ii) (a) Loam. (b) Refer soil analysis, Shahjahanpur. (iii) 6.10.1953 and 15.2.1954. (iv) (a) N.A. (b) Flat planting. (c) 1 (3 budded) sett/foot. (d) Rows 3' apart. (e) N.A. (v) 60 lb./ac. of N as G.M. of *sanai*. (vi) CO.S. 510. (vii) Irrigated. (viii) 1 to 2 hoeings after each irrigation and earthing up during rains. (ix) 44.14". (x) 28.2.1955 and onwards.

2. TREATMENTS :**Main-plot treatments :**

All combinations of (1) and (2)

(1) 2 times of planting : T₁ = Autumn and T₂ = Spring planting.(2) 3 irrigation levels : I₁ = 20, I₂ = 15, and I₃ = 10 days interval during pre-monsoon.**Sub-plot treatments :**3 levels of N as A/S : N₁ = 60, N₂ = 100 and N₃ = 140 lb./ac.**3. DESIGN :**

(i) Split plot. (ii) (a) 6 main-plots/replication ; 3 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) 67' × 18'. (b) 61' × 12'. (v) 3' × 3'. (vi) Yes

4. GENERAL :

(i) Normal. T₁ plots lodged partially (particularly N₃ plots during Sept.-Oct.). (ii) No. (iii) Germination %, no. of tillers, millable canes and yield of sugarcane. (iv) (a) 1954—contd. (b) No. (c) Nil (v) to (vii) Nil.

5. RESULTS :

(i) 28.86 tons/ac. (ii) (a) 2.49 tons/ac. (b) 2.74 tons/ac. (iii) Main effects of T, I and interaction T × N are highly significant. (iv) Av. yield of sugarcane in tons/ac.

	N ₁	N ₂	N ₃	Mean	T ₁	T ₂
I ₁	26.14	26.36	28.23	26.91	27.65	26.17
I ₂	28.99	29.63	30.78	29.80	30.08	29.52
I ₃	28.28	31.21	30.10	29.86	31.56	28.16
Mean	27.80	29.07	29.70	28.86	29.76	27.95
T ₁	27.14	30.47	31.68			
T ₂	28.46	27.66	27.72			

S.E. of difference of two

- | | | | |
|-----------------------------------|-----------------|-----------------------------------|-----------------|
| 1. T marginal means | = 0.59 tons/ac. | 5. T means at the same level of N | = 1.08 tons/ac. |
| 2. I marginal means | = 0.72 tons/ac. | 6. N means at the same level of I | = 1.37 tons/ac. |
| 3. N marginal means | = 0.79 tons/ac. | 7. I means at the same level of N | = 1.33 tons/ac. |
| 4. N means at the same level of T | = 1.12 tons/ac. | S.E. of body of T × I table | = 0.72 tons/ac. |

Crop :- Sugarcane.**Ref :- U.P. 55(72).****Site :- Sugarcane Res. Stn. Shahjahanpur.****Type :- 'IMC'.**

Object:— To find out the optimum requirements of irrigation and N for autumn and spring planted Sugarcane.

1. BASAL CONDITIONS :

(i) (a) Sugarcane—G.M. (*Sanai*)—Sugarcane. (b) *Sanai*. (c) Nil. (ii) (a) Loam. (b) Refer soil analysis, Shahjahanpur. (iii) 13, 14.10.1954 17 and 18.2.1955. (iv) (a) N.A. (b) Flat planting. (c) 1 (3 budded) sett/foot. (d) Rows 3½' apart. (e) N.A. (v) *Sanai* sown with the break of rains and turned in after about 60 days growth. (vi) CO.S. 510 (medium). (vii) Irrigated. (viii) 1 earthing. (ix) 53.55". (x) 28.1.1956, 7.2.1956, 24 to 29.2.1956 and 1 to 3.3.1956

2. TREATMENTS :

Same as in expt. no. 54(42) on page 1293.

3. DESIGN :

(i) Split-plot. (ii) 6 main-plots/replication ; 3 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) 84' × 18'. (b) 78' × 12'. (v) 3' × 3'. (vi) Yes.

4. GENERAL :

(i) Good. Some plots lodged in September. (ii) N.A. (iii) Germination %, no. of tillers, periodical juice quality and yield of sugarcane. (iv) (a) 1954—contd. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 30.18 tons/ac. (ii) (a) 2.66 tons/ac. (b) 1.24 tons/ac. (iii) Main effects of T, N and interaction T × N are highly significant. (iv) Av. yield of sugarcane in tons/ac.

	N ₁	N ₂	N ₃	Mean	T ₁	T ₂
I ₁	28.73	30.06	30.70	29.83	30.41	29.24
I ₂	28.31	30.86	30.55	29.91	31.45	28.37
I ₃	30.58	31.22	30.61	30.80	32.26	29.35
Mean	29.21	30.71	30.62	30.18	31.37	28.59
T ₁	30.92	30.94	32.26			
T ₂	27.49	30.49	28.98			

S.E. of difference of two

- | | | | |
|-----------------------------------|-----------------|-----------------------------------|------------------|
| 1. T marginal means | = 0.63 tons/ac. | 5. N means at the same level of I | = 0.62 tons/ac. |
| 2. I marginal means | = 0.77 tons/ac. | 6. T means at the same level of N | = 0.75 tons/ac. |
| 3. N marginal means | = 0.36 tons/ac. | 7. I means at the same level of N | = 0.92 tons/ac. |
| 4. N means at the same level of T | = 0.50 tons/ac. | S.E. of body of T × I table | = 0.77 tons/a c. |

Crop :- Sugarcane.

Ref :- U.P. 56(18).

Site :- Sugarcane Res. Stn., Shahjahanpur.

Type :- 'IMC'.

Object :- To study the effect of N, time of planting and irrigation on the yield of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) Sugarcane—G.M. (*sanai*)—Sugarcane. (b) *Sanai*. (c) Nil. (ii) (a) Loam. (b) Refer soil analysis, Shahjahanpur. (iii) 23, 24.10.1955 and 26.2.1956. (iv) (a) 7 preparatory ploughings. (b) Flat planting. (c) 1 (3 budded) sett/foot. (d) Rows 3½' apart. (e) N.A. (v) *Sanai* sown with the break of rains and turned in after about 60 days growth. (vi) CO.S. 510 (medium). (vii) Irrigated. (viii) 2 earthings. (ix) 49.37". (x) 27 to 30.12.1956 and 25 to 30.4.1957.

2. TREATMENTS :

Main-plot treatments :

All combinations of (1) and (2)

(1) 2 times of planting : T₁=Autumn and T₂=Spring planting.

(2) 3 intervals of irrigation : I₁=20, I₂=15 and I₃=10 days.

Sub-plot treatments :3 levels of N as A/S : $N_1=60$, $N_2=100$ and $N_3=160$ lb./ac.**3. DESIGN :**

(i) Split-plot. (ii) (a) 6 main-plots/replication ; 3 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) 1/46.53 ac. (b) 1/51.1 ac. (v) One row on either side and 3' space at each end of plot. (vi) Yes.

4. GENERAL :

(i) Good growth. Lodging in some of the plots. (ii) No. (iii) Germination %, no. of tillers and yield of sugarcane. (iv) (a) 1954—contd. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 32.16 tons/ac. (ii) (a) 3.47 tons/ac. (b) 1.87 tons/ac. (iii) T effect is highly significant. N and I effects are significant. (iv) Av. yield of sugarcane in tons/ac.

	N_1	N_2	N_3	Mean	T_1	T_2
I_1	30.91	32.08	31.72	31.56	34.07	29.06
I_2	29.70	32.25	31.31	31.09	32.47	29.71
I_3	33.18	34.55	33.74	33.82	36.57	31.08
Mean	31.26	32.96	32.26	32.16	34.37	29.95
T_1	33.19	35.73	34.18			
T_2	29.34	30.18	30.33			

S.E. of difference of two

- | | | | |
|-----------------------------------|-----------------|-----------------------------------|-----------------|
| 1. T marginal means | = 0.82 tons/ac. | 5. T means at the same level of N | = 1.03 tons/ac. |
| 2. I marginal means | = 1.00 tons/ac. | 6. N means at the same level of I | = 0.94 tons/ac. |
| 3. N marginal means | = 0.54 tons/ac. | 7. I means at the same level of N | = 0.87 tons/ac. |
| 4. N means at the same level of T | = 0.76 tons/ac. | S.E. of body of T×I table | = 1.00 tons/ac. |

Crop :- Sugarcane.**Ref :- U.P. 58(171).****Site :- Sugarcane Res. Stn., Shahjahanpur.****Type :- 'IMC'.****Object :-** To study the effect of irrigations, manuring and cultural operations against lodging of Sugarcane.**1. BASAL CONDITIONS :**(i) (a) N.A. (b) *Lobia*. (c) Nil. (ii) (a) Light loam. (b) Refer soil analysis, Shahjahanpur. (iii) 24.1.1958. (iv) (a) 3 ploughings by *desi* plough and 6 plankings. (b) Flat planting. (c) 80 (3 budded) setts/row. (d) Rows 3' apart. (e) N.A. (v) Chlordane at 20 lb./ac. of N in furrows at planting time. (vi) C.O.S. 510 (early). (vii) Irrigated. (viii) Hoeings. (ix) 57.87%. (x) 2, 10, 12, 13, 14 and 21.3.1959.**2. TREATMENTS :****Main-plot treatments :**2 levels of irrigation and manure : M_1 =Normal (100 lb./ac. of N and 3 irrigations) and M_2 =Heavy (200 lb./ac. of N and 5 irrigations).**Sub-plot treatments :**4 cultural operations : C_0 =Control (no operation), C_1 =Earthing alone, C_2 =Binding alone and C_3 =Earthing and binding.

N applied as A/S and G.N.C. on equal N basis.

3. DESIGN :

(i) Split-plot. (ii) (a) 2 main-plots/replication ; 4 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) 80'×21'. (b) 74'×15'. (v) 3'×3'. (vi) Yes.

4. GENERAL :

(i) No lodging, good growth. (ii) Mild attack of shoot borer in April and May, 1958. (iii) Germination %, no. of tillers, millable cane, yield of sugarcane and juice analysis. (iv) (a) 1957—1958. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

- (i) 20.65 tons/ac. (ii) (a) 1.36 tons/ac. (b) 2.02 tons/ac. (iii) Main effect of M alone is highly significant.
 (iv) Av. yield of sugarcane in tons/ac.

	C ₀	C ₁	C ₂	C ₃	Mean
M ₁	18.21	18.70	19.85	18.79	18.89
M ₂	22.01	23.42	23.15	21.07	22.41
Mean	20.11	21.06	21.50	19.93	20.65

S.E. of difference of two

1. M marginal means = 0.48 tons/ac.
 2. C marginal means = 1.01 tons/ac.
 3. C means at the same level of M = 1.43 tons/ac.
 4. M means at the same level of C = 1.33 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 59(190).

Site :- Reg. Res. Stn., Varanasi.

Type :- 'IMC'.

Object :- To study the effect of method of planting, irrigation and N on the yield of Sugarcane.

1. BASAL CONDITIONS :

- (i) (a) N.A. (b) Pea. (c) N.A. (ii) (a) Loam. (b) Refer soil analysis, Varanasi. (iii) 21.3.1959. (iv) (a) 2 ploughings by *desi* plough and 1 planking. (b) Flat planting and trench planting. (c) 50 (3 budded) setts/row. (d) 3' between rows. (e) N.A. (v) As per treatments. (vi) CO.S. 524. (vii) Irrigated. (viii) 1 hoeing with *kassi*. (ix) and (x) N.A.

2. TREATMENTS :

Main-plot treatments :

2 methods of planting : M₁=Trench planting and M₂=Flat planting.

Sub-plot treatments :

All combinations of (1) and (2)

(1) 2 levels of pre-monsoon irrigations : I₁=3, and I₂=6 irrigations.(2) 2 levels of N ; N₁=100 and N₂=200 lb./ac.

Manures applied on 21.2.1959, 20.3.1959 and 14.4.1959.

3. DESIGN :

- (i) Split-plot. (ii) (a) 2 main-plots/replication ; 4 sub-plots/main-plot. (b) 95' × 72'. (iii) 4. (iv) (a) 45' × 18'.
 (b) 39' × 12'. (v) 3' × 3'. (vi) Yes.

4. GENERAL :

- (i) and (ii) N.A. (iii) Germination %, no. of shoots, millable cane, *gur* production, juice analysis and yield of sugarcane. (iv) (a) 1959—contd. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

- (i) 26.22 tons/ac. (ii) (a) 2.98 tons/ac. (b) 1.90 tons/ac. (iii) Main effects of I and N are highly significant.
 (iv) Av. yield of sugarcane in tons/ac.

	N ₁	N ₂	Mean	M ₁	M ₂
I ₁	22.80	26.87	24.84	26.02	23.66
I ₂	25.21	29.99	27.60	29.60	25.60
Mean	24.00	28.43	26.22	27.81	24.63
M ₁	25.13	30.48			
M ₂	22.88	26.38			

S.E. of difference of two

- | | | |
|--|---|---------------|
| 1. M marginal means | = | 1.05 tons/ac. |
| 2. I or N marginal means | = | 0.67 tons/ac. |
| 3. I or N means at the same level of M | = | 0.95 tons/ac. |
| 4. M means at the same level of I or N | = | 1.25 tons/ac. |

Crop :- Sugarcane.**Ref :- U.P. 58(78).****Zone :- Daurala (Dehra Dun, c.f.).****Type :- 'IMC'.**

Object :—To study the effect of different cultivation practices on Sugarcane (ratoon crop).

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Plant cane. (c) N.A. (ii) Sandy loam. (iii) Nil. (iv) CO.S. 321 (improved). (v) (a) Burning of trash. (b) to (c) N.A. (vi) 21.2.1958 to 6.3.1958. (vii) Irrigated. (viii) 4 hoeings by spade. (ix) N.A. (x) 12.12.1958.

2. TREATMENTS :

5 treatments : T_0 = Control (left as such till monsoon sets in), T_1 = Irrigated—cultivated and *guar* taken for fodder in between the row of ratoon, T_2 = Irrigated—cultivated and manured by A/S at 100 lb./ac. of N, T_3 = T_2 + trash with A/S to supply 20 lb./ac. of N spread in between rows for producing mulch, T_4 = T_3 + shoots harvested once by 15th April and T_5 = T_4 + spraying against *lygacid* bugs etc., by Endrin at 8 oz./ac.

A/S at 100 lb./ac. of N applied in two equal doses.

3. DESIGN :

(i) and (ii) 4 replications in R.B.D. (iii) (a) 73' × 24'. (b) 67' × 18'. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of sugarcane. (iv) (a) and (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 9.29 tons/ac. (ii) 2.67 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5
Av. yield	8.64	8.09	7.42	10.36	10.89	10.32

S.E./mean = 1.34 tons/ac.

Crop :- Sugarcane.**Ref :- U.P. 58(76).****Zone :- Doiwala (Dehra Dun, c.f.).****Type :- 'IMC'.**

Object :—To study the effect of different cultivation practices on Sugarcane (ratoon crop).

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Plant cane. (c) N.A. (ii) Sandy loam. (iii) Nil. (iv) CO.S. 527 (improved). (v) (a) Burning of trash and clearing. (b) to (c) N.A. (vi) 10 and 14.4.1958. (vii) Irrigated. (viii) 3 hoeings by spade, *desi* plough and *khurpi*. (ix) N.A. (x) 12 and 13.1.1959.

2. TREATMENTS :

Same as in expt. no. 58(78) above.

Manuring at 100 lb./ac. of N : $\frac{1}{2}$ on 27.4.1958 + $\frac{1}{2}$ in June. A/S at 20 lb./ac. of N with trash applied in treatment T_3 on 27.4.1958, spraying by Endrex on 31.5.1958 and sowing of *guar* on 29.4.1958.**3. DESIGN :**

(i) and (ii) 4 replications in R.B.D. (iii) (a) 71' × 21'. (b) 65' × 15'. (iv) Yes.

4. GENERAL :

(i) N.A. (ii) Roguing done on 29.4.1958. (iii) No. of tillers, germination %, juice analysis and yield of sugarcane. (iv) (a) and (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 20.39 tons/ac. (ii) 4.38 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄	T ₅
Av. yield	19.63	20.98	20.95	20.38	20.66	19.71

S.E./mean = 2.19 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 58(65).

Zone :- Maliana (Meerut, c.f.).

Type :- 'IMC'.

Object :—To study the effect of different cultivation practices on Sugarcane (ratoon crop).

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Plant cane. (c) N.A. (ii) Sandy loam. (iii) Nil. (iv) CO.S. 245 (improved). (v) (a) Burning of leaves on 25.3.1958. (b) and (c) N.A. (d) Rows 3' apart. (e) N.A. (vi) N.A. (vii) Irrigated. (viii) 5 hoeings by Watts plough, cultivator and spade. (ix) N.A. (x) 4.1.1959.

2. TREATMENTS :

Same as in expt. no. 58(78) on page 1297.

3. DESIGN :

(i) and (ii) 4 replications in R.B.D. (iii) (a) 63' × 27'. (b) 1/38.41 ac. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of sugarcane. (iv) (a) 1958—N.A. (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 16.67 tons/ac. (ii) 2.24 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄	T ₅
Av. yield	15.28	16.80	17.47	17.73	15.97	16.77

S.E./mean = 1.12 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 58(64).

Zone :- Modinagar (Meerut, c.f.).

Type :- 'IMC'.

Object :—To study the effect of different cultivation practices on Sugarcane (ratoon crop).

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Plant cane. (c) N.A. (ii) Sandy loam. (iii) Nil. (iv) CO.S. 321 (improved). (v) (a) Burning of leaves on 28.2.1958. (b) and (c) N.A. (d) Rows 3' apart. (e) N.A. (vi) N.A. (vii) Irrigated. (viii) and (ix) N.A. (x) 5 to 7.1.1959.

2. TREATMENTS :

Same as in expt. no. 58(78) on page 1297.

Manuring at 100 lb./ac. of N : $\frac{1}{2}$ at the time of dismantling of ridges + $\frac{1}{2}$ in June. A/S applied on 22.6.1958. Guar for fodder in treatment T₁ was sown in April—May.

3. DESIGN :

(i) and (ii) 4 replications in R.B.D. (iii) (a) 64' × 27'. (b) 64' × 21'. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of sugarcane. (iv) (a) and (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 16.10 tons/ac. (ii) 2.06 tons/ac. (iii) Treatment differences are significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄	T ₅
Av. yield	14.96	12.94	16.96	18.93	15.97	16.84

S.E./mean = 1.03 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 58(74).

Zone :- Mohiuddipur (Meerut, c.f.).

Type :- 'IMC'.

Object :- To study the effect of different cultivation practices on Sugarcane (ratoon crop).

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Plant cane. (c) N.A. (ii) Clay loam. (iii) Nil. (iv) CO.S. 321 (improved). (v) (a) Burning of leaves on 22.3.1958. (b) to (e) N.A. (vi) N.A. (vii) Irrigated. (viii) 1 hoeing by spade. (ix) N.A. (x) 11 to 13 1.1959.

2. TREATMENTS :

Same as in expt. no. 58(78) on page 1297.

3. DESIGN :

(i) and (ii) 4 replications in R.B.D. (iii) (a) 64' × 24'. (b) 64' × 18'. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Juice analysis and yield of sugarcane. (iv) (a) and (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 16.62 tons/ac. (ii) 2.30 tons/ac. (iii) Treatment differences are significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄	T ₅
Av. yield	15.52	16.81	14.86	19.62	14.56	18.36

S.E./mean = 1.15 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 58(77).

Zone :- Mowana kalan (Meerut, c.f.).

Type :- 'IMC'.

Object :- To study the effect of different cultivation practices on Sugarcane (ratoon crop).

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Plant cane. (c) N.A. (ii) N.A. (iii) Nil. (iv) CO.S. 515 (improved). (v) (a) to (e) N.A. (vi) 24 to 26.2.1958. (vii) Irrigated. (viii) 1 hoeing by spade, 3 hoeings by *desi* plough and cultivator. (ix) N.A. (x) 14 to 16.12.1958.

2. TREATMENTS :

Same as in expt. no. 58(78) on page 1297.

Manuring at 100 lb./ac. of N : $\frac{1}{2}$ on 11.4.1958 and $\frac{1}{2}$ on 2.7.1958, *guar* for fodder in treatment T₁ sown in April—May. A/S at 20 lb./ac. of N applied on 11.4.1958.

3. DESIGN :

(i) and (ii) 4 replications in R.B.D. (iii) (a) 73' × 24'. (b) 67' × 18'. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of sugarcane. (iv) (a) and (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 15.85 tons/ac. (ii) 2.35 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄	T ₅
Av. yield	12.87	15.03	16.95	16.66	16.12	17.49

S.E./mean = 1.18 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 58(66).

Zone :- Sakoti Tanda (Meerut, c.f.).

Type :- 'IMC'.

Object :—To study the effect of different cultivation practices on Sugarcane (ratoon crop).

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Plant cane. (c) N.A. (ii) Loam. (iii) Nil. (iv) CO.S. 515 (improved). (v) (a) to (c) N.A. (d) Rows 3' apart. (e) N.A. (vi) 16 to 22.2.1958. (vii) Irrigated. (viii) 1 hoeing by spade. (ix) N.A. (x) 15 to 17.12.1958.

2. TREATMENTS :

Same as in expt. no. 58(78) on page 1297.

100 lb./ac. of N as A/S applied on 3.4.1958. 20 lb./ac. of N applied on 4.4.1958. Guar at 20 srs./ac. sown on 2.4.1958.

3. DESIGN :

(i) and (ii) 4 replications in R.B.D. (iii) (a) 70' × 24'. (b) 64' × 18'. (iv) Yes.

4. GENERAL :

(i) and (b) N.A. (iii) Juice analysis and yield of sugarcane. (iv) (a) and (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 14.21 tons/ac. (ii) 1.89 tons/ac. (iii) Treatment differences are highly significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄	T ₅
Av. yield	9.46	9.59	18.18	17.26	13.36	17.41

S.E./mean = 0.94 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 58(79).

Zone :- Simbhaoli (Meerut, c.f.).

Type :- 'IMC'.

Object :—To study the effect of different cultivation practices on Sugarcane (ratoon crop).

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Plant cane. (c) N.A. (ii) N.A. (iii) Nil. (iv) CO.S. 245 (improved). (v) (a) Burning of trash on 20.3.1958. (b) to (e) N.A. (vi) 15.2.1958 to 15.3.1958. (vii) Irrigated. (viii) 4 hoeings by *desi* plough. (ix) N.A. (x) 3, 4.1.1959.

2. TREATMENTS :

Same as in expt. no. 58(78) on page 1297.

3. DESIGN :

(i) and (ii) 4 replications in R.B.D. (iii) (a) 105' x 13.5'. (b) 105' x 7.5'. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of sugarcane. (iv) (a) and (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 22.87 tons/ac. (ii) 3.26 tons/ac. (iii) Treatment differences are highly significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄	T ₅
Av. yield	20.42	17.38	24.77	29.35	22.51	22.80

S.E./mean = 1.63 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 58(68).

Zone :- Khatauli (Muzaffarnagar, c.f.).

Type :- 'IMC'.

Object :—To study the effect of different cultivation practices on Sugarcane (ratoon crop).

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Plant cane. (c) N.A. (ii) N.A. (iii) Nil. (iv) CO.S. 515 (improved). (v) (a) Burning of trash on 16.3.1958. (b) and (c) N.A. (d) Rows 3' apart. (e) N.A. (vi) 15.2.1958 to 15.3.1958. (vii) Irrigated. (viii) 8 hoeings by *desi* plough. (ix) N.A. (x) 5, 6.12.1958.

2. TREATMENTS :

Same as in expt. no. 58(78) on page 1297.
Manure at 100 lb./ac. of N as A/S on 4.4.1958.

3. DESIGN :

(i) and (ii) 4 replications in R.B.D. (iii) (a) 78' x 21'. (b) 72' x 15'. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Juice analysis and yield of sugarcane. (iv) (a) and (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 11.02 tons/ac. (ii) 1.88 tons/ac. (iii) Treatment differences are highly significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄	T ₅
Av. yield	7.09	6.09	14.76	16.79	10.61	10.79

S.E./mean = 0.94 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 58(69).

Zone :- Mansurpur (Muzaffarnagar, c.f.).

Type :- 'IMC'.

Object :—To study the effect of different cultivation practices on Sugarcane (ratoon crop).

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Plant cane. (c) N.A. (ii) Sandy loam. (iii) Nil. (iv) CO.S. 245 (improved). (v) (a) Burning of trash on 25.3.1958. (b) and (c) N.A. (d) Rows 3' apart. (e) N.A. (vi) 14.2.1958 to 25.3.1958. (vii) Irrigated. (viii) 5 hoeings by *desi* plough. (ix) N.A. (x) 28, 29.12.1958.

2. TREATMENTS :

Same as in expt. no. 58(78) on page 1297.
Manured by A/S at 100 lb./ac. of N on 2.4.1958 as top dressing.

3. DESIGN :

(i) and (ii) 4 replications in R.B.D. (iii) (a) 73' × 21'. (b) 67' × 15'. (iv) Yes.

4. GENERAL :

(i) N.A. (ii) Roguing on 8.5.1958. (iii) Juice analysis and yield of sugarcane. (iv) (a) and (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 17.91 tons/ac. (ii) 2.47 tons/ac. (iii) Treatment differences are highly significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄	T ₅
Av. yield	15.31	12.94	19.54	21.32	17.39	20.99

S.E./mean = 1.23 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 58(70).

Zone :- Rohana Kalan (Muza ffarnagar, c.f.).

Type :- 'IMC'.

Object :—To study the effect of different cultivation practices on Sugarcane (ratoon crop).

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Plant cane. (c) N.A. (ii) Loam. (iii) Nil. (iv) CO.S, 245 (improved). (v) (a) to (c) N.A. (d) Rows 3' apart. (e) N.A. (vi) 26.3.1958 to 6.4.1958. (vii) Irrigated. (viii) 4 hoeings by *desi* plough and spade. (ix) N.A. (x) 6, 7.1.1959.

2. TREATMENTS :

Same as in expt. no. 58(78) on page 1297.
Manured by A/S at 100 lb./ac. of N on 19.4.1958.

3. DESIGN :

(i) and (ii) 4 replications in R.B.D. (iii) (a) 50' × 24'. (b) 46' × 20'. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Juice analysis and yield of sugarcane. (iv) (a) and (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 25.33 tons/ac. (ii) 2.18 tons/ac. (iii) Treatment differences are highly significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄	T ₅
Av. yield	18.21	20.04	30.40	29.76	26.53	27.02

S.E./mean = 1.09 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 58(71).

Zone :- Shamli (Muzaffarnagar, c.f.).

Type :- 'IMC'.

Object :—To study the effect of different cultivation practices on Sugarcane (ratoon crop).

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Plant cane. (c) N.A. (ii) Loam. (iii) Nil. (iv) CO.S. 245 (improved). (v) (a) to (c) N.A. (b) Rows 3' apart. (e) N.A. (vi) 15.3.1958 to 30.3.1958. (vii) Irrigated. (viii) 6 hoeings by *desi* plough and spade. (ix) N.A. (x) 17 and 18.1.1959.

2. TREATMENTS :

Same as in expt. no. 58(78) on page 1297.

Manured by A/S at 100 lb./ac. of N on 19.4.1958. Manuring in treatment T₃ at 20 lb./ac. on 19.4.1958. Application of Endrex on 19.4.1958. *Guar* sown on 18 and 19.4.1958.

3. DESIGN :

(i) and (ii) 4 replications in R.B.D. (iii) (a) 80'×25'. (b) 80'×20'. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Juice analysis and yield of sugarcane. (iv) (a) 1958—N.A. (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 23.11 tons/ac. (ii) 3.12 tons/ac. (iii) Treatment differences are highly significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄	T ₅
Av. yield	18.94	17.75	25.70	27.87	25.14	23.25

S.E./mean = 1.56 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 58(72).

Zone :- Deoband (Saharanpur, c.f.).

Type :- 'IMC'.

Object :—To study the effect of different cultivation practices on Sugarcane (ratoon crop).

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Plant cane. (c) N.A. (ii) Loam. (iii) Nil. (iv) CO.S. 245 (improved). (v) (a) to (c) N.A. (d) Rows 3' apart. (e) N.A. (vi) 7.3.1958 to 14.3.1958. (vii) Irrigated. (viii) 4 hoeings by spade. (ix) N.A. (x) 15 and 16.1.1959.

2. TREATMENTS :

Same as in expt. no. 58(78) on page 1297.

3. DESIGN :

(i) and (ii) 4 replications in R.B.D. (iii) (a) 73'×24'. (b) 67'×18'. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Juice analysis and yield of sugarcane. (iv) (a) and (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 17.48 tons/ac. (ii) 0.94 tons/ac. (iii) Treatment differences are highly significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄	T ₅
Av. yield	14.11	12.11	19.75	21.26	18.61	19.02

S.E./mean = 0.47 tons/ac.

Crop :- Sugarcane.**Ref :- U.P. 58(67).****Zone :- Iqbalpur (Saharanpur, c.f.).****Type :- 'IMC'.**

Object :- To study the effect of different cultivation practices on Sugarcane (ratoon crop).

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Plant cane. (c) N.A. (ii) Light loam. (iii) Nil. (iv) CO.S. 245 (improved). (v) (a) to (c) N.A. (d) Rows 3' apart. (e) N.A. (vi) 2 to 10.3.1958. (vii) Irrigated. (viii) 1 hoeing by spade. (ix) N.A. (x) 1 and 2.1.1959.

2. TREATMENTS :

Same as in expt. no. 58(78) on page 1297.

3. DESIGN :

(i) and (ii) 4 replications in R.B.D. (iii) (a) 73'×24'. (b) 67'×18'. (iv) Yes.

4. GENERAL :

Same as in expt. no. 58(78) on page 1297.

5. RESULTS :

(i) 19.16 tons/ac. (ii) 2.47 tons/ac. (iii) Treatment differences are highly significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄	T ₅
Av. yield	17.80	14.26	25.76	24.84	16.15	16.16

S.E./mean = 1.23 tons/ac.

Crop :- Sugarcane.**Ref :- U.P. 58(73).****Zone :- Saharanpur (Saharanpur, c.f.).****Type :- 'IMC'.**

Object :- To study the effect of different cultivation practices on Sugarcane (ratoon crop).

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Plant cane. (c) N.A. (ii) Loam. (iii) Nil. (iv) N.A. (v) (a) to (c) N.A. (d) Rows 3' apart. (e) N.A. (vi) March, 1958. (vii) Irrigated. (viii) 3 hoeings by spade. (ix) N.A. (x) 27 and 28.12.1958.

2. TREATMENTS :

Same as in expt. no. 58(78) on page 1297.

3. DESIGN :

(i) and (ii) 4 replications in R.B.D. (iii) (a) 84'×21'. (b) 78'×15'. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Juice analysis and yield of sugarcane. (iv) (a) and (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 11.96 tons/ac. (ii) 1.80 tons/ac. (iii) Treatment differences are highly significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄	T ₅
Av. yield	9.38	8.68	14.52	14.49	12.44	12.23

S.E./mean = 0.90 tons/ac.

Crop :- Sugarcane.**Ref :- U.P. 54(362).****Site :- State Mechanised Farm, Babugarh.****Type :- 'D'.**

Object :— To study the effect of soil insecticides against termite attack on Sugarcane.

1. BASAL CONDITIONS :

(i) to (iii) N.A. (iv) (a) N.A. (b) Flat planting. (c) 83 (3 budded) setts/row. (d) 3' between rows. (e) N.A. (v) N.A. (vi) CO. 245 (medium). (vii) and (viii) N.A. (ix) 32.07". (x) N.A.

2. TREATMENTS :5 insecticidal treatments : T₀=Control, T₁=5% B.H.C. at 20 lb./ac., T₂=5% B.H.C. at 80 lb./ac., T₃=5% Chlordane at 10 lb./ac., T₄=5% Chlordane at 80 lb./ac. and T₅=46% Aldrin E.C. at 24 oz./ac. of actual Aldrin.

Insecticides applied in furrows at sowing time.

3. DESIGN :

(i) R.B.D. (ii) (a) 6. (b) 80.75' × 172'. (iii) 4. (iv) (a) and (b) 80.75' × 27'. (v) Nil. (vi) Yes.

4. GENERAL :

(i) N.A. (ii) As per treatments. (iii) Germination %, no. of tillers, millable cane, incidence of termite and sugarcane yield. (iv) (a) 1954—1956. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 38.31 degrees. (ii) 3.51 degrees. (iii) Treatment differences are not significant. (iv) Mean % germination in degrees.

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄	T ₅
Mean angle	37.70	36.30	37.59	42.46	37.86	37.96

* S.E./mean = 1.76 degrees.

Transformed back %	37.53	35.20	37.31	45.61	37.79	37.95
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Crop :- Sugarcane.**Ref :- U.P. 56(468).****Site :- State Mechanised Farm, Babugarh.****Type :- 'D'.**

Object :— To study the effect of insecticides against termite attack on Sugarcane.

1. BASAL CONDITIONS :(i) (a) N.A. (b) *Sanai*. (c) N.A. (ii) (a) and (b) N.A. (iii) 5 and 6.3.1956. (iv) (a) N.A. (b) Flat planting. (c) 82 (3 budded) setts/row. (d) 3' between rows. (e) N.A. (v) *Sanai* as G.M. (vi) CO.S. 245 (medium). (vii) and (viii) N.A. (ix) 70.07". (x) N.A.**2. TREATMENTS :**7 insecticidal treatments : T₀=Control, T₁=B.H.C. 5% dust at 20 lb./ac., T₂=B.H.C. 5% dust at 60 lb./ac., T₃=Chlordane 5% at 15 lb./ac., T₄=Chlordane 5% at 40 lb./ac. and T₅=Aldrin 2½% at 20 lb./ac. and T₆=Aldrin 2½% at 40 lb./ac.**3. DESIGN :**

(i) R.B.D. (ii) 6. (b) N.A. (iii) 4. (iv) (a) and (b) 80' × 27'. (v) Nil. (vi) Yes.

4. GENERAL :

(i) N.A. (ii) As per treatments. (iii) Germination %, no. of shoots and yield of sugarcane. (iv) (a) 1954—1956. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :**Sugarcane yield**

(i) 34.24 tons/ac. (ii) 2.80 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄	T ₅	T ₆
Av. yield	36.08	32.61	33.17	36.29	33.54	34.86	33.11

S.E./mean = 1.40 tons/ac.

% germination

(i) 42.69 degrees. (ii) 2.26 degrees. (iii) Treatment differences are not significant. (iv) Mean % germination in degrees.

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄	T ₅	T ₆
Mean angle	40.46	41.37	43.82	43.68	43.41	43.09	43.02

S.E./mean = 1.13 degrees.

Transformed back %	42.18	43.74	47.96	47.72	47.26	46.70	46.58
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Crop :- Sugarcane.

Ref :- U.P. 59(187).

Site :- Govt. Agri. Farm, Chharora.

Type :- 'D'.

Object :- To study the effect of diffeent chemicals on the yield of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) Cotton—Sugarcane. (b) Cotton. (c) N.A. (ii) (a) Sandy loam. (b) Refer soil analysis, Chharora. (iii) 16.3 1959. (iv) (a) N.A. (b) Flat planting. (c) 50 (3 budded) setts/row. (d) 3' between rows. (e) N.A. (v) 60 lb./ac. of N. (vi) CO.S. 321. (vii) Irrigated. (viii) 2 hoeings with cultivator. (ix) N.A. (x) 5.1.1960.

2. TREATMENTS :

7 chemical treatments : T₀=Control, T₁=Arctan 6% at $\frac{1}{2}$ lb. in 20 gallons of water, T₂=Arctan/Gamma at $\frac{1}{2}$ lb. in 10 gallons of water, T₃=B.H.C. 5% dust at 30 lb./ac., T₄=B.H.C./Gamma 20% E.C. at 5 lb. in 200 gallons of water, T₅=Chlordane dust 5% at 20 lb./ac. and T₆=Aldrin dust 5% at 15 lb./ac.

Chemicals applied on 25.2.1959 and 29.4.1959.

3. DESIGN :

(i) R.B.D. (ii) (a) 7. (b) 43' x 105'. (iii) 4. (iv) (a) 43' x 15'. (b) 37' x 9'. (v) 3' x 3'. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Germination %, no. of shoots, millable canes, gur production, juice analysis and sugarcane yield. (iv) (a) to (c) No. (v) to (vii) Nil.

5. RESULTS :

(i) 6.52 tons/ac. (ii) 0.77 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄	T ₅	T ₆
Av. yield	6.61	7.12	6.79	6.46	6.64	5.98	6.07

S.E./mean = 0.39 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 56(350).

Site :- Jute Exptl. and Demons. Farm, Gograghat.

Type :- 'D'.

Object :- To study the control measures against stalk borer attack on Sugarcane.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) (a) Sandy loam. (b) Refer soil analysis, Gograghat. (iii) February, 1956. (iv) and (v) N.A. (vi) CO.S. 443 (medium). (vii) Unirrigated. (viii) and (ix) N.A. (x) 9.2.1957.

2. TREATMENTS :

6 spraying treatments : T_0 =Control, T_1 =Endrin 0.05% (E.C.), T_2 =Dieldrin 0.05% (E.C.), T_3 =Gamma B.H.C. 0.05% (E.C.), M_4 =D.D.T. 0.25% (E.C.) and M_5 =Metasystox 0.05% (E.C.).

Spraying done on 7.8.1956, 19.9.1956 and 25.10.1956.

3. DESIGN :

(i) R.B.D. (ii) (a) 6. (b) N.A. (iii) 4. (iv) (a) and (b) $45' \times 36'$. (v) Nil. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of sugarcane and % incidence of stalk borer at harvest. (iv) (a) to (c) No. (v) to (vii) Nil.

5. RESULTS :

Stalk borer attack

(i) 32.85 degrees. (ii) 2.26 degrees. (iii) Treatment differences are highly significant. (iv) Mean % of stalk borer attack in degrees.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5
Mean angle	45.76	26.69	29.78	29.53	36.17	29.17

S.E./mean = 1.13 degrees.

Transformed back %	51.31	20.47	24.92	24.56	34.98	24.02
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Sugarcane yield

(i) 21.92 tons/ac. (ii) 2.63 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5
Av. yield	21.79	23.52	22.42	20.97	20.85	21.95

S.E./mean = 1.31 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 57(214).

Site :- Jute Exptl. and Demons. Farm, Gograhat.

Type :- 'D'.

Object :—To study the control measures against stalk borer attack on Sugarcane.

1. BASAL CONDITIONS :

(i) and (ii) N.A. (iii) 24.2.1957. (iv) (a) to (e) N.A. (v) N.A. (vi) CO.S. 443. (vii) Unirrigated. (viii) and (ix) N.A. (x) 9.1.1958.

2. TREATMENTS :

6 spraying treatments : T_0 =Control, T_1 =Endrin 0.05 % (E.C.), T_2 =Dieldrin 0.05 % (E.C.), T_3 =Gamma B.H.C. 0.05 % (E.C.), T_4 =DDT 0.25 % (E.C.) and T_5 =Folidol 0.05 % (E.C.).

Spraying done on 23.8.1957 and 27.9.1957.

3. DESIGN :

(i) R.B.D. (ii) (a) 6. (b) N.A. (iii) 4. (iv) (a) $66' \times 30'$. (b) N.A. (v) N.A. (vi) Yes.

4. GENERAL :

(i) N.A. (ii) Attack of shoot borer. (iii) % incidence before spray and at harvest. (iv) (a) to (c) of stalk borer (c) No. (v) to (vii) Nil.

5. RESULTS :

(i) 17.00 degrees. (ii) 1.85 degrees. (iii) Treatment differences are highly significant. (iv) Mean % of borer incidence in degrees.

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄	T ₅
Mean angle	24.00	10.51	11.94	18.26	19.16	18.16
S.E./mean = 0.92 degrees.						
Transformed back %	16.81	3.89	4.74	10.22	11.16	10.11

Crop :- Sugarcane.

Ref :- U.P. 58(327).

Site :- Jute Exptl. and Demons. Farm, Gograghat. Type :- 'D'.

Object :-To study the control measures against stalk borer attack on Sugarcane.

1. BASAL CONDITIONS :

(i) and (ii) N.A. (iii) January and February, 1958. (iv) and (v) N.A. (vi) CO. 617. (vii) Unirrigated. (viii) and (ix) N.A. (x) 11.2.1959.

2. TREATMENTS :

6 spraying treatments : T₀=Control (untreated), T₁=Endrin at 0.05 % (E.C.), T₂=Endrin at 0.1 % (E.C.), T₃=Dieldrin at 0.1 % (E.C.), T₄=Toxaphene at 0.5 % (E.C.) and T₅=D D.T. at 0.5 % (E.C.).

3. DESIGN :

(i) R.B.D. (ii) (a) 6. (b) N.A. (iii) 4. (iv) (a) 60' × 30'. (b) N.A. (v) N.A. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) % incidence of stalk borer at harvest. (iv) (a) to (c) No. (v) to (vii) Nil.

5. RESULTS :

(i) 17.30 degrees. (ii) 4.47 degrees. (iii) Treatment differences are significant. (iv) Mean % of stalk borer incidence in degrees.

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄	T ₅
Mean angle	21.98	15.74	10.98	19.16	22.62	13.34
S.E./mean = 2.24 degrees.						
Transformed back %	14.37	7.78	4.09	11.15	15.14	5.77

Crop :- Sugarcane.

Ref :- U.P. 59(367).

Site :- Jute Exptl. and Demons. Farm, Gograghat. Type :- 'D'.

Object :-To study the effect of chemicals to control tarai borer incidence in Sugarcane.

1. BASAL CONDITIONS :

(i) and (ii) N.A. (iii) 21.2.1959. (iv) and (v) N.A. (vi) 617. (vii) to (x) N.A.

2. TREATMENTS :

5 spraying treatments : T₀=Control. T₁=Endrin 0.1 % (E.C.), T₂=Dieldrin 0.1 % (E.C.), T₃=Toxaphene 0.5 % (E.C.) and T₄=DDT 0.5 % (E.C.).

3. DESIGN :

(i) R.B.D. (ii) (a) 5. (b) N.A. (iii) 4. (iv) (a) 66' × 33'. (b) 58' × 25'. (v) N.A. (vi) Yes.

4. GENERAL :

(i) N.A. (ii) Stem borer. (iii) % incidence of stem borer at harvest. (iv) (a) to (c) No. (v) to (vii) Nil.

5. RESULTS :

(i) 67.16 degrees. (ii) 9.98 degrees. (iii) Treatment differences are not significant. (iv) Mean % of stem borer incidence in degrees.

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄
Mean angle	69.62	59.12	70.78	66.81	69.48
S.E./mean = 4.99 degrees.					
Transformed back %	73.43	88.78	84.16	87.33	87.50

Crop :- Sugarcane.

Ref :- U.P. 54(273).

Site :- Jute Exptl. and Demons. Farm, Gograghat.

Type :- 'D'.

Object :-To study the effect of chemicals to control the incidence of chiloctrea auricilia in Sugarcane.

1. BASAL CONDITIONS :

(i) to (v) N.A. (vi) CO. 453. (vii) to (x) N.A.

2. TREATMENTS :

6 chemical treatments : T₀=Control, T₁=Chlordane[0.5 %, T₂=Toxaphene 0.5 %. T₃=Dieldrin 0.083 %, T₄=Endrin 0.083 % and T₅=DDT+B.H.C. 8.5 %.

3. DESIGN :

(i) R.B.D. (ii) (a) 6. (b) N.A. (iii) 4. (iv) (a) 44'×30'. (b) N.A. (v) N.A. (vi) Yes.

4. GENERAL :

(i) N.A. (ii) Attack of *chilocteria auricilia* (iii) N.A. (iv) (a) to (c) No. (v) to (vii) Nil.

5. RESULTS :

(i) 26.55 degrees. (ii) 4.28 degrees. (iii) Treatment differences are highly significant. (iv) Mean % of incidence in degrees.

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄	T ₅
Mean angle	26.55	21.83	24.96	19.96	23.80	22.86
S E./mean = 2.14 degrees.						
Transformed back %	51.55	14.19	18.13	12.04	16.63	15.44

Crop :- Sugarcane.

Ref :- U.P. 55(405).

Site :- Sugarcane Res. Sub-Stn., Kunraghat.

Type :- 'D'.

Object :-To study the effect of chemicals against borer incidence in Sugarcane.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) (a) Alluvial soil. (b) Refer soil analysis, Kunraghat. (iii) 1.3.1955. (iv) to (ix) N.A. (x) 19.1.1956.

2. TREATMENTS :

6 spraying treatments : T₀=Control, T₁=Toxaphene 25%, W.P. spraying, T₂=B.H.C.+D.D.T. 50% W.P. spraying 0.5%, T₃=Dieldrin 50%, W.P. spraying 0.1%, T₄=Endrin 19.5% E.C. spraying 0.1% and T₅=Ryania 95% W.P. spraying 1%.

3. DESIGN :

(i) R.B.D. (ii) (a) 6. (b) N.A. (iii) 4. (iv) (a) 57'×27'. (b) 51'×21'. (v) 3'×3'. (vi) Yes.

4. GENERAL :

(i) N.A. (ii) Termite and borer incidence. (iii) Yield and incidence of borer. (iv) to (vii) N.A.

5. RESULTS :

Sugarcane yield

(i) 16.10 tons/ac. (ii) 1.60 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄	T ₅
Av. yield	15.14	16.94	16.25	15.56	15.77	16.91

S.E./mean = 0.80 tons/ac.

% incidence of root borer

(i) 38.88 degrees. (ii) 5.40 degrees. (iii) Treatment differences are not significant. (iv) Mean % of borer incidence in degrees.

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄	T ₅
Mean angle	36.69	39.42	42.19	41.56	37.94	35.60

S.E./mean = 2.70 degrees.

Transformed back %	35.84	40.25	45.15	44.08	37.92	34.04
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% incidence of borer

(i) 62.12 degrees. (ii) 4.43 degrees. (iii) Treatment differences are not significant. (iv) Mean % of top borer incidence in degrees.

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄	T ₅
Mean angle	62.63	58.25	63.79	63.50	61.36	63.16

S.E./mean = 2.22 degrees.

Transformed back %	78.58	72.09	80.20	79.79	76.76	79.31
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% incidence of stem borer

(i) 3.56 degrees. (ii) 3.20 degrees. (iii) Treatment differences are not significant. (iv) Mean % of stem borer incidence in degrees.

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄	T ₅
Mean angle	3.27	0.00	1.22	5.41	5.50	2.42

S.E./mean = 1.60 degrees.

Transformed back %	0.83	0.50	0.95	1.38	1.41	0.68
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% incidence of termite

(i) 11.05 degrees. (ii) 6.01 degrees. (iii) Treatment differences are not significant. (iv) Mean % of termite incidence in degrees.

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄	T ₅
Mean angle	14.62	13.48	12.18	2.34	9.84	13.86

S.E./mean = 3.00 degrees.

Transformed back %	6.81	5.88	4.91	0.69	3.39	6.18
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Crop :- Sugarcane.

Ref :- U.P. 59(342).

Site :- Sugarcane Res. Sub-Stn., Kunraghat.

Type :- 'D'.

Object :- To study the control measures against termite and shoot borer on Sugarcane.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) (a) Sandy loam. (b) Refer soil analysis, Kunraghat. (iii) 20.2.1959. (iv) (a) and (b) N.A. (c) 93 setts/row. (d) and (e) N.A. (v) N.A. (vi) CO.S. 524. (vii) Irrigated. (viii) N.A. (ix) 39.60".

2. TREATMENTS :

4 levels of Gamma B.H.C. 20 % (E.C.) : $T_0=0$, $T_1=2.5$, $T_2=3.75$ and $T_3=5.0$ lb./ac. B.H.C.
Liquid sprayed in furrows before covering the setts.

3. DESIGN :

(i) R.B.D. (ii) (a) 4. (b) N.A. (iii) 5. (iv) (a) and (b) $15' \times 88'$. (v) N.A. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Sugarcane yield. (iv) (a) N.A. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 12.77 tons/ac. (ii) 3.15 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	T_0	T_1	T_2	T_3
Av. yield	13.68	11.99	12.71	12.71

S.E./mean = 1.41 tons/ac.

Percentage incidence of different borers and termite at harvest.

	Top borer	Stem borer	Root borer	Termite
T_0	34.0	16.1	39.3	2.4
T_1	21.4	8.8	40.1	0.0
T_2	25.3	8.7	32.8	0.9
T_3	27.8	6.8	35.6	0.2

Crop :- Sugarcane.

Ref :- U.P. 56(466).

Site :- Sugarcane Res. Sub-Strn., Muzaffarnagar.

Type :- 'D'.

Object :- To study the control measures for stem, root and top borer by use of modern insecticides.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Cotton. (c) N.A. (ii) (a) Sandy loam. (b) Refer soil analysis, Muzaffarnagar. (iii) 24.2.1956. (iv) (a) N.A. (b) Flat planting. (c) Rows 3' apart. (d) 82 (3 budded) setts/row. (e) N.A. (v) 120 lb./ac. of N as A/S. (vi) CO.S. 245 (medium). (vii) and (viii) N.A. (ix) 70.23". (x) 7 and 8.12.1956.

2. TREATMENTS :

6 spraying treatments : T_0 =Control, T_1 =Endrin 0.05 %, T_2 =Dieldrin 0.05 %, T_3 =Gamma B.H.C. 0.05 %, T_4 =DDT 0.25 %, and T_5 =Metasystox 0.05 %.
4 sprayings at monthly intervals.

3. DESIGN :

(i) R.B.D. (ii) (a) 6. (b) N.A. (iii) 4. (iv) (a) and (b) $80' \times 24'$. (v) Nil. (vi) Yes.

4. GENERAL :

(i) N.A. (ii) Root, stem and top borer attack. (iii) Incidence of borer attack and sugarcane yield. (iv) (a) to (c) No. (v) to (vii) Nil.

5. RESULTS :

Sugarcane yield

(i) 24.50 tons/ac. (ii) 1.61 tons/ac. (iii) Treatment differences are highly significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5
Av. yield	23.56	28.24	24.05	23.45	25.15	22.58

S.E./mean = 0.80 tons/ac.

% attack of stem borer

(i) 10.76 degrees. (ii) 5.63 degrees. (iii) Treatment differences are not significant. (iv) Mean % attack of stem borer in degrees.

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄	T ₅
Mean angle	9.60	8.63	15.64	11.82	8.34	10.55

S.E./mean = 2.82 degrees.

Transformed back %	2.74	7.70	4.65	2.59	3.82	3.25
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% attack of top borer

(i) 38.22 degrees. (ii) 5.12 degrees. (iii) Treatment differences are not significant. (iv) Mean % of top borer incidence in degrees.

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄	T ₅
Mean angle	38.26	35.67	40.05	39.04	36.45	39.86

S.E./mean = 2.56 degrees.

Transformed back %	34.16	41.49	39.77	35.45	41.17	38.47
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% attack of root borer

(i) 41.90 degrees. (ii) 5.12 degrees. (iii) Treatment differences are not significant. (iv) Mean % of root borer incidence in degrees.

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄	T ₅
Mean angle	41.18	36.40	43.91	43.36	45.51	41.05

S.E./mean = 2.55 degrees.

Transformed back %	43.42	35.27	48.12	47.17	50.87	43.20
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Crop :- Sugarcane.

Ref :- U.P. 57(501).

Site :- Sugarcane Res. Sub-Stn., Muzaffarnagar.

Type :- 'D'.

Object :--To study the control measures for stem, root and top borer by use of modern insecticides on Sugarcane.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Cotton. (c) N.A. (ii) (a) Sandy loam. (b) Refer soil analysis, Muzaffarnagar. (iii) 2.4.1957. (iv) (a) N.A. (b) Flat planting. (c) 74 (3 budded) setts/row. (d) Rows 3' apart. (e) N.A. (v) N.A. (vi) CO. 312 (medium late). (vii) and (viii) N.A. (ix) 41.39". (x) 18.12.1957.

2. TREATMENTS :

6 spraying treatments : T₀=Control, T₁=Endrin 0.05 % spray (19.5 % E.C.), T₂=Dieldrin 0.05 % spray (18 % E.C.), T₃=Gamma B.H.C. 0.05 % spray (20 % E.C.), T₄=DDT 0.025 % spray (25 % E.C.) and T₅=Folidol 0.05 % spray (46.7 % E.C.).

4 sprayings at monthly intervals.

3. DESIGN :

(i) R.B.D. (ii) (a) 6. (b) N.A. (iii) 4. (iv) (a) and (b) 72' x 30'. (v) Nil. (vi) Yes.

4. GENERAL :

(i) N.A. (ii) Under study. (iii) Borer incidence and sugarcane yield. (iv) (a) to (c) No. (v) to (vii) Nil.

5. RESULTS :

Sugarcane yield

(i) 18.82 tons/ac. (ii) 1.42 tons/ac. (iii) Treatment differences are highly significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄	T ₅
Av. yield	17.10	23.09	17.46	18.80	17.86	18.60

S.E./mean = 0.71 tons/ac.

% attack of top borer

(i) 39.10 degrees. (ii) 4.76 degrees. (iii) Treatment differences are not significant. (iv) Mean % of top borer incidence in degrees.

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄	T ₅
Mean angle	38.40	34.92	38.92	40.32	40.18	41.84

S.E./mean = 2.38 degrees.

Transformed back %	38.69	32.94	39.58	41.95	41.71	44.56
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% attack of stem borer

(i) 14.09 degrees. (ii) 4.89 degrees. (iii) Treatment differences are not significant. (iv) Mean % of stem borer incidence in degrees.

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄	T ₅
Mean angle	14.60	13.22	18.65	13.10	10.92	14.06

S.E./mean = 2.45 degrees.

Transformed back %	6.79	5.50	10.62	5.59	4.05	6.34
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% attack of root borer

(i) 28.11 degrees. (ii) 5.81 degrees. (iii) Treatment differences are not significant. (iv) Mean % of root borer incidence in degrees.

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄	T ₅
Mean angle	25.84	31.63	28.98	26.41	31.03	24.79

S.E./mean = 2.90 degrees.

Transformed back %	19.31	27.73	23.74	20.09	26.80	17.19
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Crop :- Sugarcane.

Ref :- U.P. 56(467).

Site :- Sugarcane Res. Sub-Stn., Muzaffarnagar.

Type :- 'D'.

Object :—To study the effect of mechanical control of shoot borer on Sugarcane.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) *Guar*. (c) Nil. (ii) (a) Sandy loam. (b) Refer soil analysis, Muzaffarnagar. (iii) 3.3.1956. (iv) (a) N.A. (b) Flat planting. (c) 74 (3 budded) setts/row. (d) Rows 3' apart. (e) N.A. (v) 120 lb./ac. of N. (vi) CO.S. 245 (medium). (vii) and (viii) N.A. (ix) 70.07%. (x) 20.12.1956.

2. TREATMENTS :

2 treatments : T₀=Control and T₁=Removal of attacked shoots.
Removal of attacked shoots on 26.4.1956 and 29.5.1956.

3. DESIGN :

(i) R.B.D. (ii) (a) 2. (b) N.A. (iii) 6. (iv) (a) and (b) 72'×30'. (v) Nil. (vi) Yes.

4. GENERAL :

(i) N.A. (ii) Borer attack. (iii) Borer incidence and sugarcane yield. (iv) (a) to (c) No. (v) to (vii) Nil.

5. RESULTS :

Sugarcane yield

(i) 19.41 tons/ac. (ii) 1.95 tons/ac. (iii) Treatment difference is not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	T ₀	T ₁
Av. yield	19.83	18.99

S.E./mean = 0.79 tons/ac.

% top borer dead hearts

(i) 16.82 degrees. (ii) 0.70 degrees. (iii) Treatment difference is not significant. (iv) Mean % of dead hearts in degrees.

Treatment	T ₀	T ₁
Mean angle	16.77	16.87
	S.E./mean = 0.28 degrees.	
Transformed back %	8.75	8.84

Crop :- Sugarcane.

Ref :- U.P. 58(482).

Site :- Sugarcane Res. Sub-Stn., Muzaffarnagar.

Type :- 'D'.

Object :-To study the effect of Gamma B.H.C. as soil insecticide in controlling termite and shoot borer on Sugarcane.

1. BASAL CONDITIONS :

(i) N.A. (ii) Cotton and *Metha*. (c) N.A. (ii) (a) Sandy loam. (b) Refer soil analysis, Muzaffarnagar. (iii) 27.2.1958. (iv) (a) N.A. (b) Flat planting. (c) 53 (3 budded) setts/row. (d) Rows 3' apart. (e) N.A. (v) N.A. (vi) CO.S. 321 (early). (vii) and (viii) N.A. (ix) 44.20". (x) 27 and 28.11.1958.

2. TREATMENTS :

4 levels of Gamma B.H.C. liquid at 20 % E.C. : T₀=0, T₁=2.5 T₂=3.75 and T₃=5.00 lb./ac.

3. DESIGN :

(i) R.B.D. (ii) (a) 4. (b) N.A. (iii) 5. (iv) (a) and (b) 51' x 42'. (v) Nil. (vi) Yes.

4. GENERAL :

(i) N.A. (ii) Attack of stem borer, shoot borer, root borer and top borer. (iii) Incidence of shoot borer and sugarcane yield. (iv) (a) 1958—1959. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

Sugarcane yield

(i) 16.03 tons/ac. (ii) 2.79 tons/ac. (iii) Treatment differences are significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	T ₀	T ₁	T ₂	T ₃
Av. yield	12.58	15.72	16.30	19.52

S.E./mean = 1.25 tons/ac.

% shoot borer

(i) 14.93 degrees. (ii) 1.91 degrees. (iii) Treatment differences are highly significant. (iv) Mean % of shoot borer infestation in degrees.

Treatment	T ₀	T ₁	T ₂	T ₃
Mean angle	21.82	15.36	12.43	10.12

S.E./mean = 0.85 degrees.

Transformed back %	14.17	7.45	5.08	3.56
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Crop :- Sugarcane.

Ref :- U.P. 59(81).

Site :- Sugarcane Res. Sub-Stn., Muzaffarnagar.

Type :- 'D'.

Object :-To study the effect of Gamma B.H.C. as soil insecticide in controlling termite and shoot borer on Sugarcane.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Cotton. (c) N.A. (ii) (a) Sandy loam. (b) Refer soil analysis, Muzaffarnagar. (iii) 25.2.1959. (iv) (a) N.A. (b) Flat planting. (c) N.A. (d) Rows 3' apart. (e) N.A. (v) N.A. (vi) CO.S. 321 (early). (vii) and (viii) N.A. (ix) 29.46". (x) 29 and 30.11.1959.

2. TREATMENTS to 4. GENERAL :

Same as in expt. no. 58(482) on page 1314.

5. RESULTS :

Sugarcane yield

(i) 20.10 tons/ac. (ii) 2.85 tons/ac. (iii) Treatment differences are significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	T ₀	T ₁	T ₂	T ₃
Av. yield	16.36	20.89	19.88	23.29

S.E./mean = 1.27 tons/ac.

% shoot borer infestation on 21 to 23.7.1959

(i) 16.20 degrees. (ii) 0.97 degrees. (iii) Treatment differences are highly significant. (iv) Mean % of shoot borer infestation in degrees.

Treatment	T ₀	T ₁	T ₂	T ₃
Mean angle	18.02	16.42	15.41	14.94

S.E./mean = 0.44 degrees.

Transformed back %	9.97	8.41	7.49	7.08
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% termite infestation on 24 and 25.11.1959

(i) 8.44 degrees. (ii) 5.47 degrees. (iii) Treatment differences are not significant. (iv) Mean % of termite infestation in degrees.

Treatment	T ₀	T ₁	T ₂	T ₃
Mean angle	11.06	7.08	8.07	7.54

S.E./mean = 2.44 degrees.

Transformed back %	4.14	2.00	2.45	2.20
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Crop :- Sugarcane.

Ref :- U.P. 58(481).

Site :- Sugarcane Res. Sub-Station, Muzaffarnagar.

Type :- 'D'.

Object :- To study the effect of hot water treatment on control of albino disease of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) (a) Sandy loam. (b) Refer soil analysis, Muzaffarnagar. (iii) 1.3.1958. (iv) (a) N.A. (b) Flat planting. (c) 28 (3 budded) setts/row. (d) Rows 3' apart. (e) N.A. (v) N.A. (vi) CO.S. 245 (medium). (vii) and (viii) N.A. (ix) 49.42%. (x) 11.3.1959.

2. TREATMENTS :

6 seed treatments : S₁=Seed from healthy cane of village Sujru, S₂=Seed from healthy cane of the farm, S₃=Seed from diseased cane of the farm untreated, S₄=Seed from diseased cane of the farm treated with water for ½ hour at 52°C, S₅=Seed from diseased cane of the farm treated with water for 1 hour at 52°C and S₆=Seed from diseased cane of the farm treated with water for 2 hours at 52°C.

3. DESIGN :

(i) R B.D. (ii) (a) 6. (b) N.A. (iii) 4. (iv) (a) and (b) 26' × 12'. (v) Nil. (vi) Yes.

4. GENERAL :

(i) N.A. (ii) Albino disease. (iii) Germination %, total no. of shoots and no. of albino affected shoots on 14.7.1958 and 12.8.1958. (iv) (a) 1958—1959. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

Germination %

(i) 32.22 degrees. (ii) 3.85 degrees. (iii) Treatment differences are not significant. (iv) Mean % of germination on 6.5.1958 in degrees.

Treatment	S ₁	S ₂	S ₃	S ₄	S ₅	S ₆
Mean angle	31.88	29.51	30.15	32.94	37.22	31.64
S.E./mean = 1.92 degrees.						
Transformed back %	28.12	24.53	25.48	29.77	36.71	27.73

% albino affected shoots on 14.7.1958

(i) 14.95 degrees. (ii) 3.62 degrees. (iii) Treatment differences are highly significant. (iv) Mean % of albino affected shoots on 14.7.1958 in degrees.

Treatment	S ₁	S ₂	S ₃	S ₄	S ₅	S ₆
Mean angle	4.38	15.39	30.03	32.02	7.90	0.00
S.E./mean = 1.81 degrees.						
Transformed back %	1.07	7.48	25.29	28.33	2.37	0.50

% albino affected shoots on 12.8.1958

(i) 17.26 degrees. (ii) 3.32 degrees. (iii) Treatment differences are highly significant. (iv) Mean % of albino affected shoots on 12.8.1958 in degrees.

Treatment	S ₁	S ₂	S ₃	S ₄	S ₅	S ₆
Mean angle	5.13	19.30	32.85	31.04	13.17	2.05
S.E./mean = 1.66 degrees.						
Transformed back %	1.29	11.31	29.64	26.82	5.64	0.63

Crop :- Sugarcane.

Ref :- U.P. 59(529).

Site :- Sugarcane Res. Sub-Stn., Muzaffarnagar.

Type :- 'D'.

Object :-To study the effect of hot water treatment on control of albino disease of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) (a) Sandy loam. (b) Refer soil analysis, Muzaffarnagar. (iii) 6.3.1959. (iv) (a) N.A. (b) Flat planting. (c) 20 (3 budded) setts/row. (d) Rows 3' apart. (e) N.A. (v) N.A. (vi) CO.S. 321 (early). (vii) and (viii) N.A. (ix) 31.13". (x) 2.3.1960.

2. TREATMENTS :

Same as in expt. no. 58(481) on page 1315.

3. DESIGN :

(i) R.B.D. (ii) (a) 6. (b) N.A. (iii) 3. (iv) (a) and (b) 20' x 12'. (v) Nil. (vi) Yes.

4. GENERAL :

(i) N.A. (ii) Albino disease. (iii) Germination %, no. of albino affected shoots and total no. of shoots. (iv) (a) 1958-1959. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 31.77 degrees. (ii) 2.75 degrees. (iii) Treatment differences are highly significant. (iv) Mean % of buds germinated in degrees.

Treatment	S ₁	S ₂	S ₃	S ₄	S ₅	S ₆
Mean angle	41.48	42.37	30.16	36.09	28.40	12.11
S.E./mean = 1.58 degrees.						
Transformed back %	43.93	45.47	25.49	34.85	22.90	4.86

Crop :- Sugarcane.

Ref :- U.P. 59(530).

Site :- Sugarcane Res. Sub-Stn., Muzaffarnagar.

Type :- 'D'.

Object :—To study the effect of trace elements along with hot water on control of albino disease of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) (a) Sandy loam. (b) Refer soil analysis, Muzaffarnagar. (iii) 6.3.1959. (iv) (a) N.A. (b) Flat planting. (c) 20 (3 budded) setts/row. (d) Rows 3' apart. (e) N.A. (v) N.A. (vi) CO.S. 245 (medium). (vii) and (viii) N.A. (ix) 31.13". (x) 2.3.1960.

2. TREATMENTS :

8 sources of seeds : S_1 =Healthy canes untreated, S_2 =Diseased canes untreated, S_3 =Diseased canes treated with water at 52°C for 1 hour, S_4 =Diseased canes treated with water at 52°C for 1 hour+ $MgCl_2$, S_5 =Diseased canes treated with water at 52°C for 1 hour+ $MnSO_4$, S_6 =Diseased canes treated with water at 52°C for 1 hour+ $MgCl_2$ + $MnSO_4$, S_7 =Diseased canes with $MgCl_2$ dipped in cold water for 1 hour and S_8 =Diseased canes with $MnSO_4$ dipped in cold water for 1 hour.

1 lb./ac. of chemical in 10 gallons of water. Hot water treatment was given along with chemical treatment.

3. DESIGN :

(i) R.B.D. (ii) (a) 8. (b) N.A. (iii) 2. (iv) (a) and (b) 20'×6'. (v) Nil. (vi) Yes.

4. GENERAL :

(i) N.A. (ii) Albino disease (iii) Germination and shoot percentages. (iv) (a) to (c) No. (v) to (vii) Nil.

5. RESULTS :

(i) 24.27 degrees. (ii) 6.25 degrees. (iii) Treatment differences are not significant. (iv) Mean % of buds germinated in degrees.

Treatment	S_1	S_2	S_3	S_4	S_5	S_6	S_7	S_8
Mean angle	38.98	21.27	24.10	29.72	22.04	13.28	22.66	22.10
S.E./mean = 4.42 degrees.								
Transformed back %	39.67	13.53	17.00	24.83	14.44	5.73	15.19	14.51

Crop :- Sugarcane.

Ref :- U.P. 58(467).

Site :- Sugarcane Res. Sub-Stn., Muzaffarnagar.

Type :- 'D'.

Object :—To study the effect of insecticides against borer attack on Sugarcane.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Cotton—*Mehta*. (c) N.A. (ii) (a) Sandy loam. (b) Refer soil analysis, Muzaffarnagar. (iii) 28.2.1958. (iv) (a) N.A. (b) Flat planting. (c) 92 (3 budded) setts/row. (d) Rows 3' apart. (e) N.A. (v) N.A. (vi) CO. 312 (medium late). (vii) and (viii) N.A. (ix) 46.49". (x) 2, 3 and 5.1.1959.

2. TREATMENTS :

9 spraying treatments : S_0 =Control (untreated), S_1 =Endrin—0.05% (20% E.C.), S_2 =Endrin—0.1% (20% E.C.), S_3 =Dieldrin—0.05% (18% E.C.), S_4 =Dieldrin—0.1% (18% E.C.), S_5 =Toxaphene—0.25% (25% E.C.), S_6 =Toxaphene—0.50% (25% E.C.), S_7 =DDT—0.25% (20% E.C.) and S_8 =DDT—0.50% (20% E.C.).

3. DESIGN :

(i) R.B.D. (ii) (a) 9. (b) N.A. (iii) 4. (iv) (a) and (b) 90'×18'. (v) Nil. (vi) Yes.

4. GENERAL :

(i) N.A. (ii) Borer attack. (iii) Germination %, incidence of borer and sugarcane yield. (iv) (a) 1958—1959. (b) and (c) No. (v) to (vii) Nil.

5. RESULTS :

Sugarcane yield

(i) 22.16 tons/ac. (ii) 2.69 tons/ac. (iii) Treatment differences are highly significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	S ₀	S ₁	S ₂	S ₃	S ₄	S ₅	S ₆	S ₇	S ₈
Av. yield	17.23	23.39	26.39	21.02	22.97	19.58	21.91	25.88	21.09

S.E./mean = 1.35 tons/ac.

% infestation of stem borer

(i) 7.19 degrees. (ii) 4.33 degrees. (iii) Treatment differences are not significant. (iv) Mean % of infestation of stem borer in degrees.

Treatment	S ₀	S ₁	S ₂	S ₃	S ₄	S ₅	S ₆	S ₇	S ₈
Mean angle	12.76	7.02	5.50	5.96	10.44	6.10	4.90	3.93	8.13

S.E./mean = 2.16 degrees.

Transformed back %	5.29	1.98	1.41	1.57	3.75	1.62	1.22	0.97	2.48
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% infestation of root borer

(i) 10.69 degrees. (ii) 4.71 degrees. (iii) Treatment differences are not significant. (iv) Mean % of infestation of root borer in degrees.

Treatment	S ₀	S ₁	S ₂	S ₃	S ₄	S ₅	S ₆	S ₇	S ₈
Mean angle	13.10	11.62	6.70	12.89	10.57	11.03	4.90	13.04	12.32

S.E./mean = 2.35 degrees.

Transformed back %	5.63	4.52	1.85	5.53	3.83	4.12	1.22	5.54	5.00
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% infestation of top borer

(i) 71.8 degrees. (ii) 7.04 degrees. (iii) Treatment differences are not significant. (iv) Mean % of infestation of top borer in degrees.

Treatment	S ₀	S ₁	S ₂	S ₃	S ₄	S ₅	S ₆	S ₇	S ₈
Mean angle	75.0	68.5	69.5	70.2	70.8	78.5	76.2	69.8	67.5

S.E./mean = 3.52 degrees.

Crop :- Sugarcane.

Ref :- U.P. 59(82).

Site :- Sugarcane Res. Sub-Stn., Muzaffarnagar.

Type :- 'D'.

Object :—To study the effect of chemical control of borers by use of modern insecticides on Sugarcane.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) *Lobia*. (c) Nil. (ii) (a) Sandy loam. (b) Refer soil analysis, Muzaffarnagar. (iii) 4.3.1959. (iv) (a) N.A. (b) Flat planting. (c) N.A. (d) Rows 3' apart. (e) N.A. (v) N.A. (vi) CO. 312 (medium late). (vii) and (viii) N.A. (ix) 29.46°. (x) N.A.

2. TREATMENTS :

Same as in expt. no. 58(467) on page 1317.

3. DESIGN :

(i) R.B.D. (ii) (a) 9. (b) N.A. (iii) 3. (iv) (a) and (b) 88' × 18'. (v) N.A. (vi) Yes.

4. GENERAL :

(i) N.A. (ii) Borer attack. (iii) Sugarcane yield. (iv) (a) 1958—1959. (b) No. (c) Nil. (v) to (vii) Nil.

RESULTS :

Sugarcane yield

(i) 29.40 tons/ac. (ii) 2.68 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	S ₀	S ₁	S ₂	S ₃	S ₄	S ₅	S ₆	S ₇	S ₈
Av. yield	25.27	30.10	31.86	28.03	29.82	29.28	29.39	32.16	28.66

S.E./mean = 1.55 tons/ac.

% shoot borer infestation on 9 and 10.7.1959.

(i) 9.51 degrees. (ii) 1.32 degrees. (iii) Treatment differences are not significant. (iv) Mean % shoot borer infestation in degrees.

Treatment	S ₀	S ₁	S ₂	S ₃	S ₄	S ₅	S ₆	S ₇	S ₈
Mean angle	10.64	7.98	8.82	11.22	10.75	9.57	9.20	8.67	8.73

S.E./mean = 0.76 degrees.

Transformed back %	3.88	2.41	2.83	4.25	3.95	3.23	3.03	2.75	2.79
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% root borer infestation on 6 to 8.12.1959.

(i) 21.67 degrees. (ii) 4.44 degrees. (iii) Treatment differences are significant. (iv) Mean % root borer infestation in degrees.

Treatment	S ₀	S ₁	S ₂	S ₃	S ₄	S ₅	S ₆	S ₇	S ₈
Mean angle	25.27	19.65	11.15	29.94	19.62	22.97	21.83	22.73	21.87

S.E./mean = 2.56 degrees.

Transformed back %	18.54	11.70	4.20	25.17	11.67	15.57	14.18	15.27	14.24
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% stem borer infestation on 6 to 8.12.1959.

(i) 11.00 degrees. (ii) 4.00 degrees. (iii) Treatment differences are significant. (iv) Mean % of stem borer infestation in degrees.

Treatment	S ₀	S ₁	S ₂	S ₃	S ₄	S ₅	S ₆	S ₇	S ₈
Mean angle	11.77	13.84	6.22	15.88	14.05	15.32	11.28	5.42	5.24

S.E./mean = 2.31 degrees.

Transformed back %	4.62	6.16	1.66	7.92	6.33	7.41	4.29	1.38	1.32
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% top borer infestation on 6 to 8.12.1959.

(i) 52.17 degrees. (ii) 6.17 degrees. (iii) Treatment differences are not significant. (iv) Mean % top borers infestation in degrees.

Treatment	S ₀	S ₁	S ₂	S ₃	S ₄	S ₅	S ₆	S ₇	S ₈
Mean angle	57.68	50.29	52.35	53.18	48.28	53.71	52.04	52.02	49.96

S.E./mean = 3.56 degrees.

Transformed back %	71.21	59.09	62.55	63.94	55.66	64.82	62.05	62.01	58.53
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Crop :- Sugarcane.

Ref :- U.P. 55(391).

Site :- Sugarcane Res. Sub-Stn., Muzaffarnagar.

Type :- 'D'.

Object :- To study the effect of insecticides against borer attack on Sugarcane.

I. BASAL CONDITIONS :

(i) (a) N.A. (b) Cotton. (c) N.A. (ii) (a) Sandy loam. (b) Refer soil analysis, Muzaffarnagar. (iii) 23.2.1955. (iv) (a) N.A. (b) Flat planting. (c) 93 (3 budded) setts/row. (d) Rows 3' apart. (e) N.A. (v) N.A. (vi) CO.S. 245 (medium). (vii) and (viii) N.A. (ix) 49.00". (x) N.A.

2. TREATMENTS :

6 insecticides for spray : T_0 =Control, T_1 =Toxaphene (0.25 % and 0.5 %), T_2 =B.H.C.+DDT (0.25 % and 0.5 %), T_3 =Dieldrin (0.05 % and 0.1 %), T_4 =Endrin (0.05 % and 0.1 %) and T_5 =Ryania (0.5 % and 1.0 %).

The figures in brackets are the concentrations for the 1st three and the next three sprays respectively. 1st three sprays given at 45, 60, 60 gallons/ac. on 14.5.1955, 13.6.1955 and 5.7.1955 respectively and the next three sprays given at 100 gallons/ac. each on 9.8.1955, 16.9.1955 and 22.11.1955. respectively.

3. DESIGN :

(i) R.B.D. (ii) (a) 6. (b) $91' \times 166.5'$. (iii) 4. (iv) (a) and (b) $91' \times 24'$. (v) Nil. (vi) Yes.

4. GENERAL :

(i) N.A. (ii) Borer attack. (iii) Borer incidence and sugarcane yield. (iv) (a) to (c) No. (v) to (vii) Nil.

5. RESULTS :

Sugarcane yield

(i) 18.72 tons/ac. (ii) 2.29 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5
Av. yield	19.67	17.69	16.80	19.49	20.08	18.58

S.E./mean = 1.14 tons/ac.

% top borer dead hearts

(i) 37.54 degrees. (ii) 2.57 degrees. (iii) Treatment differences are not significant. (iv) Mean % of top borer dead hearts in degrees.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5
Mean angle	38.15	36.13	39.70	39.99	35.15	36.12

S.E./mean = 1.29 degrees.

Transformed back %	38.19	34.92	40.89	41.39	33.32	34.90
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Crop :- Sugarcane.

Ref :- U.P. 54(367).

Site :- Sugarcane Res. Sub-Stn., Muzaffarnagar.

Type :- 'D'.

Object :- To study the effect of insecticides against borer attack on Sugarca ne.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Cotton. (c) N.A. (ii) (a) Loam. (b) Refer soil analysis, Muzaffarnagr. (iii) 10.3.1954. (iv) (a) N.A. (b) Flat planting. (c) 72 (3 budded) setts/row. (d) Rows 3' apart. (e) N.A. (v) N.A. (vi) CO.S. 245 (medium). (vii) to (ix) N.A. (x) 24 and 26.11.1954.

2. TREATMENTS :

6 spraying treatments : T_0 =Control, T_1 =Chlordane—0.5 %, T_2 =Toxaphene—0.66 %, T_3 =Dieldrin—0.083 %, T_4 =Endrin—0.083 % and T_5 =DDT and B.H.C. (1250)—0.5 %.

Spraying done at 45, 45 and 60 gallons/ac. on 15.4.1954, 4.5.1954 and 23.5.1954 respectively.

3. DESIGN :

(i) R.B.D. (ii) (a) 6. (b) N.A. (iii) 3. (iv) (a) and (b) $70' \times 18'$. (v) Nil. (vi) Yes.

4. GENERAL :

(i) N.A. (ii) Borer incidence. (ii) Germination %, borer incidence and sugarcane yield. (iv) (a) to (c) No. (v) to (vii) Nil.

5. RESULTS :

Sugarcane yield

(i) 29.51 tons/ac. (ii) 2.19 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄	T ₅
Av. yield	30.01	28.89	30.92	28.28	30.55	28.43

S.E./mean = 1.26 tons/ac.

% attack of root borer

(i) 37.93 degrees. (ii) 9.48 degrees. (iii) Treatment differences are not significant. (iv) Mean % of root borer infestation in degrees.

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄	T ₅
Mean angle	37.31	39.68	38.58	36.40	29.68	45.95

S.E./mean = 5.47 degrees.

Transformed back %	36.86	40.86	38.99	35.37	24.78	51.64
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% attack of termite

(i) 6.96 degrees. (ii) 6.95 degrees. (iii) Treatment differences are not significant. (iv) Mean % of termite incidence in degrees.

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄	T ₅
Mean angle	11.94	4.31	14.69	0.00	4.81	6.04

S.E./mean = 4.01 degrees.

Transformed back %	4.74	1.06	6.87	0.50	1.22	1.60
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% attack of top borer

(i) 33.25 degrees. (ii) 7.30 degrees. (iii) Treatment differences are not significant. (iv) Mean % of top borer incidence in degrees.

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄	T ₅
Mean angle	30.51	39.42	35.11	32.21	29.86	32.40

S.E./mean = 4.21 degrees.

Transformed back %	26.01	40.42	33.26	28.64	25.04	28.92
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% attack of stem borer

(i) 5.84 degrees. (ii) 4.66 degrees. (iii) Treatment differences are not significant. (iv) Mean % of stem borer incidence in degrees.

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄	T ₅
Mean angle	9.08	10.78	2.21	6.47	6.52	0.00

S.E./mean = 2.69 degrees.

Transformed back %	2.97	3.97	0.65	1.76	1.78	0.50
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Crop :- Sugarcane.

Ref :- U.P. 54(363)-

Site :- Sugarcane Res. Sub-Stn., Muzaffarnagar.

Type :- 'D'.

Object :- To study the effect of insecticides against borer attack on Sugarcane.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Cotton. (c) N.A. (ii) (a) Loam. (b) Refer soil analysis, Muzaffarnagar. (iii) 24.3.1954, (iv) (a) N.A. (b) Flat planting. (c) 72 (3 budded) setts/row. (d) Rows 3' apart. (e) N.A. (v) N.A. (vi) CO.S. 245 (medium). (vii) and (viii) N.A. (ix) 24.46". (x) 8 to 10.12.1954.

2. TREATMENTS to 4. GENERAL :

Same as in expt. no. 54(367) on page 1320.

9 sprayings done on different dates and concentrations.

5. RESULTS :

Sugarcane yield

(i) 28.68 tons/ac. (ii) 2.03 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄	T ₅
Av. yield	27.97	27.26	28.72	30.94	29.97	27.25

S.E./mean = 1.17 tons/ac.

% attack of stem borer

(i) 8.18 degrees. (ii) 4.10 degrees. (iii) Treatment differences are not significant. (iv) Mean % stem borer incidence in degrees.

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄	T ₅
Mean angle	12.25	8.49	8.41	5.51	0.00	6.25

S.E./mean = 2.36 degrees.

Transformed back %	4.95	2.64	2.62	1.41	0.50	1.68
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% attack of top borer

(i) 40.67 degrees. (ii) 6.26 degrees. (iii) Treatment differences are not significant. (iv) Mean % top borer incidence in degrees.

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄	T ₅
Mean angle	34.64	44.75	40.34	40.54	40.55	43.21

S.E./mean = 3.61 degrees.

Transformed back %	32.50	49.57	41.98	42.33	42.35	46.91
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% attack of root borer

(i) 39.20 degrees. (ii) 7.51 degrees. (iii) Treatment differences are not significant. (iv) Mean % root borer incidence in degrees.

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄	T ₅
Mean angle	34.06	44.93	41.87	35.18	32.53	46.60

S.E./mean = 4.34 degrees.

Transformed back %	31.56	49.88	44.60	33.37	29.13	52.75
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Crop :- Sugarcane.

Ref :- U.P. 58(56).

Site :- Sugarcane Res. Sub-Stn., Muzaffarnagar.

Type :- 'D'.

Object :- To study the effect of hot water treated setts on Sugarcane yield.

1. BASAL CONDITIONS :

(i) (a) G.M.—Wheat—Cotton—Sugarcane. (b) Cotton. (c) N.A. (ii) (a) Loam. (b) Refer soil analysis, Muzaffarnagar. (iii) 11.3.1958. (iv) (a) 8 ploughings and 2 plankings. (b) Flat planting. (c) 21, (3 budded) setts/rcw. (d) Rows 3' apart. (e) N.A. (v) G.N.C. and A/S at 70 lb./ac. of N each. (vi) CO. 312 (medium late). (vii) Irrigated. (viii) 6 hoeings and earthing. (ix) 49.22". (x) 9.3.1959.

2. TREATMENTS :

4 durations of treating setts : S₀=Control, S₁= $\frac{1}{2}$, S₂=1 and S₃=1 $\frac{1}{2}$ hours.
Setts treated in hot water at 52°C.

3. DESIGN :

(i) R.B.D. (ii) (a) 4. (b) N.A. (iii) 4. (iv) (a) and (b) 19'×12'. (v) Nil. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Juice analysis and yield of sugarcane. (iv) (a) to (c) No. (v) to (vii) Nil.

5. RESULTS :

(i) 28.93 tons/ac. (ii) 5.42 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	S ₀	S ₁	S ₂	S ₃
Av. yield	27.07	28.30	30.20	30.14

S.E./mean = 2.71 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 59(60).

Site :- Sugarcane Res. Sub-Stn., Muzaffarnagar.

Type :- 'D'.

Object :— To study the effect of different seed treatments on Sugarcane yield.

1. BASAL CONDITIONS :

(i) (a) Wheat—Cotton—Sugarcane. (b) Cotton. (c) N.A. (ii) (a) Loam. (b) Refer soil analysis, Muzaffarnagar. (iii) 6.3.1959. (iv) (a) 7 ploughings, 3 plankings and 1 roller application. (b) Flat planting. (c) 42 (3 budded) setts/row. (d) 3' between rows. (e) N.A. (v) Compost at 90 lb./ac. of N applied on 13.1.1959, 28.1.1959 and 6.2.1959, G.N.C. at 30 lb./ac. of N+A/S at 30 lb./ac. of N applied on 20.5.1959. (vi) CO. 312 (medium late). (vii) Irrigated. (viii) 5 hoeings, 4 diggings and 2 earthings. (ix) 31.89". (x) 25.2.1960 to 7.3.1960.

2. TREATMENTS :

8 seed treatments : T₀=Control untreated, T₁=1 year old setts treated with water for ½ hr. at 52° C, T₂=1 year old setts treated with water for 1 hr. at 52° C, T₃=1 year old setts treated with water for 1½ hr. at 52° C. T₄=New seed cane treated with water for ½ hour at 52° C, T₅=New seed cane treated with water 1 hour at 52° C, T₆=New seed cane treated with water 1½ hours at 52° C, T₇=Setts treated in Agallol (1 lb. in 20 gallons of water, in and out method) and T₈=Gamma B.H.C. treated setts at 3.75 lb. dissolved in 100 gallons.

3. DESIGN :

(i) R.B.D. (ii) (a) 9. (b) 40'×170'. (iii) 4. (iv) (a) and (b) 40'×18'. (v) Nil. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Germination %, no. of tillers and yield of sugarcane. (iv) (a) 1959—1960. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 24.05 tons/ac. (ii) 3.15 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄	T ₅	T ₆	T ₇	T ₈
Av. yield	26.19	22.88	25.84	25.67	24.07	24.85	19.63	24.81	22.52

S.E./mean = 1.57 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 57(58).

Site :- Sugarcane Res. Sub-Stn., Muzaffarnagar.

Type :- 'D'.

Object :—To study the effect of sprayings on albino disease of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Guar. (c) Nil. (ii) (a) Loam. (b) Refer soil analysis, Muzaffarnagar. (iii) 16.4.1957. (iv) (a) 2 applications of desi roller, 10 ploughings by desi plough, 2 hoeings of corners and 3 plankings. (b) Flat planting (c) 32 (3 budded) setts/row. (d) Row to row 3'. (e) N.A. (v) 60 lb./ac. of N as G.N.C.+60 lb./ac. of N as A/S. (vi) CO.S. 245 (medium). (vii) Irrigated. (viii) 7 hoeings. (ix) 40.46". (x) 6.12.1957.

2. TREATMENTS:

3 spraying treatments : S_0 =Control, S_1 =Single spraying as soon as first symptom of albino disease appears and S_2 =Two sprayings—second spraying done after the out-break of monsoon.

Sequestrene at 1 lb. in 64 gallons/ac. of water was used.

3. DESIGN :

(i) R.B.D. (ii) (a) 3. (b) N.A. (iii) 3. (iv) (a) and (b) $30' \times 12'$. (v) Nil. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of sugarcane. (iv) (a) 1957—1958. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 8.10 tons/ac. (ii) 1.51 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	S_0	S_1	S_2
Av. yield	6.72	8.96	8.62

S.E./mean = 0.87 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 58(58).

Site :- Sugarcane Res. Sub-Stn., Muzaffarnagar.

Type :- 'D'.

Object :—To study the effect of sprayings on Albino disease of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) G.M.—Wheat—Cotton—Sugarcane. (b) Cotton. (c) N.A. (ii) (a) Loam. (b) Refer soil analysis, Muzaffarnagar. (iii) 11.3.1958. (iv) (a) 8 ploughings, digging of corners and 1 planking. (b) Flat planting. (c) 27(3 budded) setts/row. (d) Rows 3' apart. (e) N.A. (v) 70 lb./ac. of N as G.N.C. + 70 lb./ac. of N as A/S. (vi) CO.S. 245 (medium). (vii) Irrigated. (viii) 2 blind hoeings, 2 diggings, 4 hoeings and 1 earthing. (ix) 43.98". (x) 6.12.1958.

2. TREATMENTS :

Same as in expt. no. 57(58) on page 1323.

3. DESIGN :

(i) R.B.D. (ii) (a) 3. (b) N.A. (iii) 3. (iv) (a) N.A. (b) $25' \times 12'$. (v) N.A. (vi) Yes.

4. GENERAL :

Same as in expt. no. 57(58) on page 1323.

5. RESULTS :

(i) 16.12 tons/ac. (ii) 1.44 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	S_0	S_1	S_2
Av. yield	16.82	17.18	14.37

S.E./mean = 0.83 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 59(57).

Site :- Sugarcane Res. Sub-Stn., Muzaffarnagar.

Type :- 'D'.

Object :—To study the effect of different insecticides on Sugarcane yield.

1. BASAL CONDITIONS :

(i) (a) Wheat—Cotton—Sugarcane. (b) Cotton. (c) N.A. (ii) (a) Loam. (b) Refer soil analysis Muzaffarnagar. (iii) 11.3.1959. (iv) (a) N.A. (b) Flat planting. (c) 32 (3 budded) setts/row. (d) Row, to row 3'. (e) N.A. (v) G.N.C. at 50 lb./ac. of N+A/S at 50 lb./ac. of N. (vi) CO. 312 (medium late). (vii) and (viii) N.A. (ix) 29.26". (x) 26.12 1959.

2. TREATMENTS :

7 sett treatments : T_0 =Control, T_1 =Abavit+hot water (52°C)+Gamma B.H.C. treated setts, T_2 =Abavit +hot water 52°C treated setts, T_3 =Gamma B.H.C.+hot water 52°C treated setts, T_4 =Hot water treated setts alone, T_5 =Gamma B.H.C. alone and T_6 =Abavit alone. Gamma B.H.C. at 3.75 lb. in 100 gallons/ac. of water and Abavit at 1 lb. in 20 gallons/ac. of water applied by in and out method.

3. DESIGN :

(i) R.B.D. (ii) (a) 7. (b) N.A. (iii) 2. (iv) (a) and (b) 30'×12'. (v) N.A. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Germination %, no. of tillers, yield of sugarcane and juice analysis. (iv) (a) to (c) N.A. (v) to (vii) Nil.

5. RESULTS :

(i) 25.54 tons/ac. (ii) 5.03 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5	T_6
Av. yield	23.00	30.67	21.07	25.78	28.40	22.69	27.14

S.E./mean = 3.56 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 57(367).

Site :- Tarai Sugarcane Res. Centre, Phoolbagh.

Type :- 'D'.

Object :-To study the effect of 2, 4—D sodium salt and trash cover on Sugarcane.

1. BASAL CONDITIONS :

(i) (a) No. (b) and (c) N.A. (ii) Clay loam. (b) Refer soil analysis, Phoolbagh. (iii) 1.3 1957. (iv) (a) 2 ploughings, 3 hoeings and 1 planking. (b) Planted in furrows between ridges. (c) 66 (3 budded) setts/row. (d) 3'×3'. (e) N.A. (v) 120 lb./ac. of N as A/S top dressed on 7.8.1957. (vi) CO.S. 245. (vii) Unirrigated. (viii) As per treatments. (ix) 55.79". (x) 12 and 13.3.1958.

2. TREATMENTS :

4 treatments : T_1 =Trash cover 4" to 6" thick to be provided soon after germination. Earthing at proper time., T_2 =Normal cultivation with proper hoeings and weedings. Earthing at proper time., T_3 =No hoeings and weedings but earthing at proper time and T_4 =2, 4—D sodium salt. Pre-emergence sprays, 4 days and 20 days after planting of cane, 1 hoeing in early May and spray of 2, 4—D sodium salt after hoeing. Earthing at proper time.

2.5 lb. of 2, 4—D sodium salt was used dissolved in 100 gallons of water per acre for each spray.

3. DESIGN :

(i) R.B.D. (ii) (a) 4. (b) N.A. (iii) 6. (iv) (a) 64'×21'. (b) 58'×15'. (v) 3'×3'. (vi) Yes.

4. GENERAL :

(i) Good growth. (ii) Top borers and grass hoppers in all plots. (iii) Germination %, tiller counts, millable cane, yield of sugarcane and weed counts. (iv) (a) 1957—1958. (b) No. (c) Nil. (v) (a) and (b) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 27.85 tons/ac. (ii) 1.89 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	T ₁	T ₂	T ₃	T ₄
Av. yield	29.31	27.11	27.08	27.90

S.E./mean = 0.77 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 58(333).

Site :- Tarai Sugarcane Res. Centre, Phoolbagh.

Type :- 'D'.

Object :-To study the effect of 2, 4-D sodium salt and trash cover on Sugarcane.

1. BASAL CONDITIONS :

(i) (a) No. (b) *Lahi*. (c) N.A. (ii) (a) Clay loam. (b) Refer soil analysis, Phoolbagh. (iii) 3.3.1958. (iv) (a) 1 ploughing and 3 harrowings. (b) In furrows between ridges. (c) 66 (3 budded) setts/row. (d) 3' x 3'. (e) N.A. (v) 120 lb./ac. of N as A/S top dressed on 8.7.1958 and G.N.C. applied on 1.3.1958. (vi) CO.S. 245. (vii) Unirrigated. (viii) As per treatments. (ix) 65.20". (x) 14 and 15.3.1959.

2. TREATMENTS to 4. GENERAL :

Same as in expt. no. 57(367) on page 1325.

5. RESULTS :

(i) 21.79 tons/ac. (ii) 3.55 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	T ₁	T ₂	T ₃	T ₄
Av. yield	21.83	23.39	20.98	20.95

S.E./mean = 1.45 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 58(215).

Site :- Govt. Farm, Pratapgarh.

Type :- 'D'.

Object :-To study the effect of insecticides on the percentage germination of Sugarcane.

1. BASAL CONDITIONS :

(i) and (ii) N.A. (iii) 24.2.1958. (iv) and (v) N.A. (vi) CO.S. 510. (vii) to (ix) N.A. (x) 16.1.1959.

2. TREATMENTS :

9 chemical treatments: T₀=Control, T₁=B.H.C. 5 % dust at 20 lb./ac., T₂=B.H.C. 5 % dust at 60 lb./ac., T₃=Chlordane 5 % dust at 15 lb./ac., T₄=Chlordane 5% dust at 45 lb./ac., T₅=Aldrin 5 % dust at 10 lb./ac., T₆=Aldrin 5 % dust at 30 lb./ac., T₇=Heptachlore 3 % dust at 17 lb./ac. and T₈=Heptachlore 3 % dust at 51 lb./ac.

Treatments applied in the soil at the time of planting.

3. DESIGN :

(i) R.B.D. (ii) (a) 9. (b) N.A. (iii) 3. (iv) (a) 43' x 27'. (b) N.A. (v) N.A. (vi) Yes.

4. GENERAL :

(i) N.A. (ii) Termite attack. (iii) Germination %. (iv) (a) and (b) No. (c) Nil. (v) (a) and (b) No. (vi) and (vii) Nil.

5. RESULTS :

(i) 48.41 degrees. (ii) 5.98 degrees. (iii) Treatment differences are not significant. (iv) Mean % of germination in degrees.

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄	T ₅	T ₆	T ₇	T ₈
Mean angle	41.52	48.11	50.70	50.73	48.40	44.33	47.74	51.47	52.71
S.E./mean = 3.45 degrees.									
Transformed back %	50.00	55.36	59.78	59.83	55.86	48.86	54.83	61.31	63.17

Crop :- Sugarcane.

Ref :- U.P. 59(450).

Site :- Reg. Res. Stn., Rudrapur.

Type :- 'D'.

Object :-To test the utility of trash cover and 2, 4-D Sodium salt in suppressing the growth of weeds and there by giving good crop stand.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) (a) Clay loam. (b) Refer soil analysis, Rudrapur. (iii) 16.3.1959. (iv) (a) 8 ploughings. (b) Behind the plough in furrows. (c) 64 setts/row. (d) Rows 3' apart. (e) N.A. (v) 60 lb./ac. of N as G.N.C. (vi) CO S. 245. (vii) Irrigated. (viii) Blind hoeing on 2.4.1959 (except in plots of treatment T₂) and hoeing on 4.5.1959 and 21.5.1959. (ix) N.A. (x) 7.2.1960.

2. TREATMENTS :

4 treatments : T₁=Trash cover 4" to 6" thick given soon after germination and no hoeing after germination, T₂=2, 4-D Sodium salt, pre-emergence spray at 2 lb./ac. of acid equivalent (dissolved in 100 gallons of water) per acre and no hoeing after germination, T₃=Normal cultivation and T₄=Control—No hoeing and weeding after germination.

Trash cover spread on 7.4.1959 and spraying done on 29.3.1959 and 28.4.1959.

3. DESIGN :

(i) R.B.D. (ii) (a) 4. (b) 64' x 93'. (iii) 6. (iv) (a) 21' x 64'. (b) 15' x 58'. (v) 3' x 3'. (vi) Yes.

4. GENERAL :

(i) Poor. All the plots were infested with 'Narkul' especially plots with treatment T₄. (ii) Nil. (iii) No. of weeds and their weight per plot, stand, no. of tillers, height of cane, yield of sugarcane and juice analysis. (iv) (a) and (b) No. (c) Nil. (v) (a) and (b) No. (vi) and (vii) Nil.

5. RESULTS :

(i) 7.55 tons/ac. (ii) 4.54 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	T ₁	T ₂	T ₃	T ₄
Av. yield	9.00	6.82	8.88	5.50

S.E./mean = 1.86 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 59(478).

Site :- Reg. Res. Stn., Rudrapur.

Type :- 'D'.

Object :-To test the effect of different insecticides in controlling tarai borer on Sugarcane.

1. BASAL CONDITIONS :

(i) (a) No. (b) and (c) Nil. (ii) (a) Clayey loam soil. (b) Refer soil analysis, Rudrapur. (iii) 15.3.1959. (iv) (a) 8 ploughings. (b) Behind the plough in furrows. (c) 64 setts/row of 64'. (d) Rows 3' apart. (e) N.A. (v) 60 lb./ac. of N as G.N.C. (vi) CO.S. 527. (vii) Irrigated. (viii) 1 blind hoeing on 2.4.1959 and other hoeings on 4, 5.5.1959. (ix) N.A. (x) 7.2.1960.

2. TREATMENTS :

5 spraying treatments : S₀=Control, S₁=Endrin emulsion—0.1%, S₂=Dieldrin emulsion—0.1%, S₃=Toxaphene emulsion—0.5% and S₄=D.D.T. emulsion—0.5%.

Spraying done at 100 gallons/ac. on 12.8.1959, 21.9.1959 and 31.10.1959 respectively.

3. DESIGN :

(i) R.B.D. (ii) (a) 5. (b) 64'×132'. (iii) 4. (iv) (a) 24'×61'. (b) 18'×58'. (v) 3'×3'. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Borer attack. (iii) Germination %, no. of tillers, borer incidence before and after spraying. Height of cane, yield of cane and juice analysis. (iv) (a) and (b) No. (c) Nil. (v) and (vi) Nil. (vii) *Narkul* weed infestation was found in all the plots.

5. RESULTS :

Sugarcane yield

(i) 15.64 tons/ac. (ii) 3.98 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	S ₀	S ₁	S ₂	S ₃	S ₄
Av. yield	13.97	15.40	16.65	19.42	12.74

S.E./mean = 1.99 tons/ac.

% incidence of top borer

(i) 12.25 degrees. (ii) 2.75 degrees. (iii) Treatment differences are not significant. (iv) Mean % of incidence of top borer in degrees.

Treatment	S ₀	S ₁	S ₂	S ₃	S ₄
Mean angle	13.97	13.34	12.68	11.82	9.44

S.E./mean = 1.37 degrees.

Transformed back % incidence	S ₀	S ₁	S ₂	S ₃	S ₄
	6.26	5.77	5.27	4.66	3.16

% incidence of shoot borer

(i) 5.97 degrees. (ii) 4.20 degrees. (iii) Treatment differences are not significant. (iv) Mean % of incidence of shoot borer in degrees.

Treatment	S ₀	S ₁	S ₂	S ₃	S ₄
Mean angle	7.29	6.47	4.20	5.64	6.26

S.E./mean = 2.09 degrees.

Transformed back % incidence	S ₀	S ₁	S ₂	S ₃	S ₄
	2.09	1.76	1.03	1.46	1.68

Crop :- Sugarcane.

Ref :- U.P. 55(308).

Site :- Sugarcane Res. Stn., Shahjahanpur.

Type :- 'D'.

Object :- To study the effect of different insecticides for control of top borer incidence in Sugarcane.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) (a) Loamy soil. (b) Refer soil analysis, Shahjahanpur. (iii) 3.3.1955. (iv) and (v) N.A. (vi) CO. 421 (medium). (vii) Irrigated. (viii) Interculture operation after every irrigation. (ix) 53.56". (x) 27.1.1956 to 8.2.1956.

2. TREATMENTS :

6 spraying treatments : T₀=Control (untreated), T₁=Toxaphene 0.25 % W.P., T₂=B.H.C.+DDT 0.25% W.P., T₃=Dieldrin 0.05% W.P., T₄=Endrin 0.05% E.C. and T₅=Ryania 0.05% W.P.

3 sprayings of 60, 100 and 100 gallons/ac. of fluid on 1.8.1955, 22.9.1955 and 3.11.1955 respectively.

3. DESIGN :

(i) R.B.D. (ii) (a) 6. (b) N.A. (iii) 4. (iv) (a) and (b) 85'×24'. (v) Nil. (vi) Yes.

4. GENERAL :

(i) Normal. (ii) Borer attack. (iii) Incidence of top borer before and after spray and yield data. (iv) (a) and (b) No. (c) Nil. (v) and (vi) N.A. (vii) Nil.

5. RESULTS :

% incidence of top borer

(i) 34.04 degrees. (ii) 2.56 degrees. (iii) Treatment differences are highly significant. (iv) Mean % of incidence of top borer in degrees.

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Treatment	T ₀	T ₁	T ₂	T ₃	T ₄	T ₅
Mean angle	50.08	44.32	41.77	38.85	37.32	45.89
S.E./mean = 1.28 degrees.						
Transformed back % incidence	58.73	48.83	44.44	39.46	36.88	51.53

Cane yield

(i) 12.54 tons/ac. (ii) 1.49 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄	T ₅
Av. yield	12.90	12.22	11.04	13.78	12.10	13.20

S.E./mean = 0.74 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 59(366).

Site :- Sugarcane Res. Stn., Shahjahanpur.

Type :- 'D'.

Object :-To study the efficacy of various soil insecticides against Sugarcane termite.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) (a) Sandy loam. (b) Refer soil analysis, Shahjahanpur. (iii) 11.11.1959. (iv) (a) to (c) N.A. (d) Rows at 3' distance. (e) Nil. (v) N.A. (vi) CO.S. 510. (vii) to (ix) N.A. (x) No harvest-feeler experiment.

2. TREATMENTS :

4 spraying treatments : S₀=Control (untreated), S₁=Gamma B.H.C. 2% (E.C.) at 1 lb./ac. of pure gamma, S₂=Heptachlor 20 % (E.C.) at 3 lb./ac. and S₃=Chlordane 75% (E.C.) at 5 lb./ac.

3. DESIGN :

(i) R.B.D. (ii) (a) 4. (b) N.A. (iii) 4. (iv) (a) and (b) 8' x 9'. (v) Nil. (vii) Yes.

4. GENERAL :

(i) N.A. (ii) As under study. (iii) Germination % and % of termite attack to sugarcane eye buds. (iv) (a) and (b) No. (c) Nil. (v) (a) and (b) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 22.02 degrees. (ii) 10.28 degrees. (iii) Treatment differences are not significant. (iv) Mean % of termite attack in degrees.

Treatment	S ₀	S ₁	S ₂	S ₃
Mean angle	23.09	16.26	30.59	18.14
S.E./mean = 5.14 degrees.				
Transformed back %	15.73	8.26	26.14	10.09

Crop :- Sugarcane.

Ref :- U.P. 54(270).

Site :- Sugarcane Res. Stn., Shahjahanpur.

Type :- 'D'.

Object :-To test the relative efficiency of different weedicides with regard to the weeds occurring in Sugarcane fields.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) (a) Loam. (b) Refer soil analysis, Shahjahanpur. (iii) 28.2.1954. (iv) (a) N.A. (b) Flat planting. (c) 25 (3 budded) setts/row. (d) Rows 3' apart. (e) N.A. (v) 100 lb./ac. of N as A/S. (vi) CO. 453 (mid-late). (vii) Irrigated. (viii) 1 hoeing by *kassi* and as per treatments. (ix) 43.43%. (x) 5 and 6.1.1955.

2. TREATMENTS :

All combinations of (1) and (2)+2 selective treatments

(1) Sprays of 4 weedicides : $W_1=2, 4-D$ sodium salt monohydrate, $W_2=Dicotox$, $W_3=Fernoxone$ and $W_4=Pittsburgh$ amine weed killer.

(2) 2 concentrations of weedicides : $C_1=0.1\%$ acid equivalent aqueous sprays and $C_2=0.2\%$ acid equivalent aqueous sprays.

2 selective treatments : $S_1=Normal$ cultivation and $S_2=No$ hoeing and weedings.

Spraying done at 100 gallons/ac. on 20.5.1954. Treatment W_4 could not be used as it was not available and hence it is identical with treatment S_2 .

3. DESIGN :

(i) R.B.D. (ii) (a) 10. (b) N.A. (iii) 3. (iv) (a) and (b) 25' x 18'. (v) Nil. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Germination %, no. of tillers, mortality % of weeds and yield of sugarcane. (iv) (a) 1951-1954. (b) No. (c) Nil. (v) (a) and (b) N.A. (vi) Nil. (vii) Yield of selective treatment S_2 is based on 9 observations.

5. RESULTS :

(i) 28.71 tons/ac. (ii) 2.73 tons/ac. (iii) S_1 vs. S_2 effect is highly significant. Selective treatments vs. others effect is significant. (iv) Av. yield of sugarcane in tons/ac.

$$S_1 = 34.85 \text{ tons/ac. and } S_2 = 28.42 \text{ tons/ac.}$$

	W_1	W_2	W_3	Mean
C_1	31.20	27.44	24.62	27.75
C_2	27.08	28.15	28.54	27.92
Mean	29.14	27.80	26.58	27.84

S.E. of W marginal mean	= 1.12 tons/ac.
S.E. of C marginal mean	= 0.91 tons/ac.
S.E. of body of table or S_1 mean	= 1.58 tons/ac.
S.E. of S_2 mean	= 0.91 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 59(365).

Site :- Sugarcane Res. Stn., Shahjahanpur.

Type :- 'D'.

Object :- To study the efficacy of Gamma B.H.C. by different methods of its application in the soil against Sugarcane termite.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) (a) Loamy soil. (b) Refer soil analysis, Shahjahanpur. (iii) 10.11.1959. (iv) (a) and (b) N.A. (c) 18 (3 budded) setts/plot. (d) 3' between rows. (e) N.A. (v) N.A. (vi) CO.S. 510. (vii) Irrigated. (viii) and (ix) N.A. (x) No harvest due to small size of plots.

2. TREATMENTS :

4 methods of application of Gamma B.H.C. : $S_0=Control$ (untreated), $S_1=Gamma$ B.H.C. at 1 lb./ac. of pure gamma isomer applied by pouring over cane setts, $S_2=Gamma$ B.H.C. at 1 lb./ac. of pure gamma isomer applied by dipping cane setts in 0.1% solution and $S_3=Gamma$ B.H.C. at 1 lb./ac. of pure gamma isomer applied by soaking of cane setts in 0.1 % solution.

3. DESIGN :

(i) R.B.D. (ii) (a) 4. (b) N.A. (iii) 4. (iv) (a) and (b) 6'×9'. (v) Nil. (vi) Yes.

4. GENERAL :

(i) N.A. (ii) As under study. (iii) Germination %, % of termite attack to sugarcane eye buds. (iv) (a) and (b) No. (c) Nil. (v) (a) and (b) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 11.32 degrees. (ii) 8.91 degrees. (iii) Treatment differences are highly significant. (iv) Mean % attack of termite in degrees.

Treatment	S ₀	S ₁	S ₂	S ₃
Mean angle	32.62	9.24	0.00	3.42
S.E./mean = 4.46 degrees.				
Transformed back %	29.30	3.05	0.50	0.86

Crop :- Sugarcane.**Ref :- U.P. 58(366).****Site :- Sugarcane Res. Stn., Shahjahanpur.****Type :- 'D'.****Object :-**To study the effect of seed material on the incidence of the albino disease.**1. BASAL CONDITIONS :**

(i) (a) No. (b) and (c) N.A. (ii) (a) Light loam. (b) Refer soil analysis, Shahjahanpur. (iii) 30.10.1958. (iv) (a) and (b) N.A. (c) 20 (3 budded) setts/row. (d) 3' between rows. (e) N.A. (v) N.A. (vi) CO. S. 514. (vii) Irrigated. (viii) N.A. (ix) 56.56%. (x) N.A.

2. TREATMENTS :3 types of treatments : S₁=Healthy seed, S₂=Apparently healthy seed and S₃=Diseased seed. Transmission of albino disease through seed cane.**3. DESIGN :**

(i) R.B.D. (ii) (a) 3. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 20'×12'. (v) and (vii) N.A.

4. GENERAL :(i) and (ii) N.A. (iii) Percentage of infection. (iv) (a) 1958—contd. (b) N.A. (c) Nil. (v) (a) and (b) N.A. (vi) Nil. (vii) There was no infection in treatment S₁. Hence it has been excluded from the analysis.**5. RESULTS :**

(i) 51.98 degrees. (ii) 6.92 degrees. (iii) Treatment differences are highly significant. (iv) Av. incidence in degrees.

Treatment	S ₁	S ₂	S ₃
Mean angle	Nil	17.19	86.77
S.E./mean = 3.46 degrees.			
% incidence	Nil	9.14	99.18

Crop :- Sugarcane.**Ref :- U.P. 59(395).****Site :- Sugarcane Res. Stn., Shahjahanpur.****Type :- 'D'.****Object :-** To study the effect of seed material on incidence of albino disease and yield of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) (a) Light loam. (b) Refer soil analysis, Shahjahanpur. (iii) February, 1959. (iv) (a) and (b) N.A. (c) 20 (3 budded) setts/row. (d) 3' between rows. (e) N.A. (v) N.A. (vi) CO.S. 514. (vii) Irrigated. (viii) N.A. (ix) 24.68". (x) 27.4.1960.

2. TREATMENTS :

Same as in expt. no. 58(366) on page 1331.

3. DESIGN :

(i) R.B.D. (ii) (a) 3. (b) N.A. (iii) 2. (iv) (a) N.A. (b) 20' × 12'. (v) and (vi) N.A.

4. GENERAL :

(i) and (ii) N.A. (iii) Sugarcane yield. (iv) (a) 1958—contd. (b) N.A. (c) Nil. (v) (a) and (b) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 10.86 tons/ac. (ii) 5.98 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	S ₁	S ₂	S ₃
Av. yield	13.83	11.42	7.33

S.E./mean = 4.23 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 54(280).

Site :- Sugarcane Res. Stn., Shahjahanpur.

Type :- 'D'.

Object :— To study the effect of setts treated with fungicides against external infection of red rot under field conditions.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) (a) Light loam. (b) Refer soil analysis, Shahjahanpur. (iii) 11.3.1954. (iv) and (v) N.A. (vi) CO. 622 and CO.S. 430. (vii) Irrigated. (viii) N.A. (ix) 38.46". (x) 1st week of Feb., 1955.

2. TREATMENTS :

5 methods of treating the setts : S₁=Before planting, setts were dipped in Aretan (1 lb. to 20 gallons of water) for 10 minutes, S₂=Before planting, setts were dipped in cuprolyt (5 lb./ac. to 100 gallons of water) for 10 minutes, S₃=Before planting, setts were dipped in perenox (15 lb. to 100 gallons of water) for 10 minutes, S₄=Before planting, setts were dipped in Mercuric chloride (1 gm. to 1000 gallons of water) for 10 minutes and S₅=Before planting, setts were dipped in water for 10 minutes.

Method of infection : Red rot affected canes chopped in small bits were applied in furrows at sowing time.

3. DESIGN :

(i) R.B.D. (ii) (a) 5 (for each variety). (b) N.A. (iii) 2. (iv) (a) N.A. (b) 20' × 15'. (v) and (vi) N.A.

4. GENERAL :

(i) and (ii) N.A. (iii) Percentage of diseased clumps. (iv) (a) 1955—1956 (treatments changed). (b) N.A. (c) Nil. (v) (a) and (b) N.A. (vi) Nil. (vii) This experiment was conducted on 5 varieties, out of which diseased clumps were observed on two varieties only. The varieties on which disease observed was nil or negligible are (1) CO. 453, (2) CO. 331 and (3) CO.S. 443.

5. RESULTS :

Variety CO. 622

(i) 38.56 degrees. (ii) 13.86 degrees. (iii) Treatment differences are not significant. (iv) Mean % of diseased clumps in degrees.

Treatment	S ₁	S ₂	S ₃	S ₄	S ₅
Mean angle	47.04	25.68	40.71	35.12	44.24
S.E./mean = 9.80 degrees.					
% diseased clumps	53.56	19.08	42.62	33.27	48.68

Variety CO.S. 430

(i) 72.98 degrees. (ii) 16.70 degrees. (iii) Treatment differences are not significant. (iv) % Mean of diseased clumps in degrees.

Treatment	S ₁	S ₂	S ₃	S ₄	S ₅
Mean angle	72.99	61.45	65.47	90.00	75.00
S.E./mean = 11.81 degrees.					
Percentage of diseased clumps	91.03	76.89	82.43	99.50	92.87

Crop :- Sugarcane.

Ref :- U.P. 54(279).

Site :- Sugarcane Res. Stn., Shahjahanpur.

Type :- 'D'.

Object :— To study the effect of setts treated with fungicides against external infection of red rot under field conditions.

1. BASAL CONDITIONS:

(i) (a) to (c) N.A. (ii) (a) Light loam. (b) Refer soil analysis, Shahjahanpur. (iii) 11.3.1954. (iv) and (v) N.A. (vi) CO.S. 430. (vii) Irrigated. (viii) N.A. (ix) 38.46". (x) 1st week of Feb., 1955.

2. TREATMENTS and 3. DESIGN :

Same as in expt. no. 54(280) on page 1332.

4. GENERAL :

(i) and (ii) N.A. (iii) Percentage of diseased clumps. (iv) (a) 1954—contd. (b) No. (c) Nil. (v) (a) and (b) N.A. (vi) Nil. (vii) This expt. was conducted on 5 varieties out of which diseased clumps were observed on one variety (CO.S. 430) only. The varieties on which disease was observed to be nil or negligible are (1) CO 453, (2) CO. 622, (3) CO. 331 and (4) CO.S. 443.

5. RESULTS :

(i) 24.56 degrees. (ii) 16.21 degrees. (iii) Treatment differences are not significant. (iv) Mean % of diseased clumps in degrees.

Treatment	S ₁	S ₂	S ₃	S ₄	S ₅
Mean angle	Nil	29.91	35.78	32.22	24.89
S.E./mean = 11.46 degrees.					
Percentage of diseased clumps	0.50	25.12	34.34	38.65	18.03

Crop :- Sugarcane.

Ref :- U.P. 55(327).

Site :- Sugarcane Res. Stn., Shahjahanpur.

Type :- 'D'.

Object :— To study the effect of dipping setts in some mercurial compounds on germination of Sugarcane crop.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) (a) Light loam. (b) Refer soil analysis, Shahjahanpur. (iii) 26.2.1955. (iv) (a) and (b) N.A. (c) 25 (3 budded) setts/row. (d) 3' between rows. (e) N.A. (v) N.A. (vi) CO.S. 443. (vii) Irrigated. (viii) N.A. (ix) 53.56". (x) 1st week of Feb., 1956.

2. TREATMENTS :

4 fungicidal treatments : S_0 =Control, S_1 =Aretan (0.5% solution) 1 lb. in 20 gallons of water for 10 minutes, S_2 =Agallol (0.5% solution) 1 lb. in 20 gallons of water for 10 minutes and S_3 =Mercuric chloride (0.1% solution) 1 gm. in 1000 gallons of water for 10 minutes.

Before planting, the setts were treated by the above fungicides.

3. DESIGN :

(i) R.B.D. (ii) (a) 4. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 20'×6'. (v) and (vi) N.A.

4. GENERAL :

(i) and (ii) N.A. (iii) Germination % and yield of sugarcane. (iv) (a) N.A.—1955 (treatments changed). (b) N.A. (c) Nil. (v) (a) and (b) N.A. (vi) Nil. (vii) Plot wise germination % is N.A.

5. RESULTS :

(i) 28.63 tons/ac. (ii) 5.70 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	S_0	S_1	S_2	S_3
Av. yield	25.34	31.00	30.78	27.39

S.E./mean = 2.85 tons/ac.

Treatment	Germination %				G.M.
	S_0	S_1	S_2	S_3	
Germination %	26.8	26.8	34.8	28.7	29.3

Crop :- Sugarcane.

Ref :- U.P. 59(376).

Site :- Sugarcane Res. Stn., Shahjahanpur.

Type :- 'D'.

Object :—To study the comparative test of soil insecticides in the liquid form in high doses against termite and shoot borer.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) (a) Loamy soil. (b) Refer soil analysis, Shahjahanpur. (iii) 10 and 11.3.1959. (iv) and (v) N.A. (vi) CO.S. 510. (vii) Irrigated. (viii) to (x) N.A.

2. TREATMENTS:

5 spraying treatments : T_0 =Control (untreated), T_1 =Gamma B.H.C. 20% (E.C.) at 1 lb./ac. applied at planting, T_2 =Chlordane 75 % (E.C.) at 5 lb./ac. applied at planting, T_3 =Aldrin 30 % (E.C.) at 3 lb./ac. applied at planting and T_4 =Gamma B.H.C. 20 % (E.C.) at 1 lb./ac. applied at germination.

3. DESIGN :

(i) R.B.D. (ii) (a) 5. (b) N.A. (iii) 3. (iv) (a) and (b) 60'×24'. (v) Nil. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) % shoot borer and % termite attack. (iv) and (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 12.01 degrees. (ii) 1.50 degrees. (iii) Treatment differences are highly significant. (iv) Mean % of shoot borer in degrees.

Treatment	T_0	T_1	T_2	T_3	T_4
Mean angle	17.30	7.78	15.71	13.08	6.20

S.E./mean = 0.87 degrees.

Percentage shoot borer	9.24	2.31	7.76	5.57	1.66
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Crop :- Sugarcane.**Ref :- U.P. 58(167).****Site :- Sugarcane Res. Stn., Shahjahanpur.****Type :- 'D'.**

Object :—To study the effect of different insecticides on germination and yield of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) *Lobia*. (c) Nil. (ii) (a) Light loam. (b) Refer soil analysis, Shahjahanpur. (iii) 8.4.1958. (iv) (a) 2 ploughings by Victory plough, 4 ploughings by *desi* plough and 2 plankings. (b) Flat planting. (c) 40 (3 budded) setts/row. (d) 3' between rows. (e) N.A. (v) 50 lb./ac. of N as *lobia* G.M.+25 lb./ac. of N as G.N.C.+25 lb./ac. of N as A/S. (vi) CO.S. 443 (mid-season). (vii) Irrigated. (viii) 2 hoeings by *kassi* and 21 earthing. (ix) 56.94". (x) 5.3.1959.

2. TREATMENTS :

4 application of insecticides : T₀=Control, T₁=Heptachlor dust (3 %) at 25 lb./ac. in furrows, T₂=Heptachlor emulsifiable concentrate at 5 pints liquid dissolved in 100 gallons/ac. of water in furrows and T₃=Chlordane (5 %) at 22.5 lb./ac. in furrows.

3. DESIGN :

(i) L. Sq. (ii) (a) 4. (b) N.A. (iii) 4. (iv) (a) 40'×15'. (b) 34'×9'. (v) 3'×3'. (vi) Yes.

4. GENERAL :

(i) Growth very good. (ii) Top shoot borer attack noticed in May, 1958. Expt. free from disease and pest in July, 1958. (iii) Germination %, no. of tillers, millable cane, yield of sugarcane and juice analysis. (iv) (a) 1958—1959. (b) No. (c) Nil. (v) (a) and (b) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 26.45 tons/ac. (ii) 2.02 tons/ac. (iii) Treatment differences are significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	T ₀	T ₁	T ₂	T ₃
Av. yield	23.79	29.06	28.01	24.94

S.E./mean = 1.01 tons/ac.

Crop :- Sugarcane.**Ref :- U.P. 59(176).****Site :- Sugarcane Res. Stn., Shahjahanpur.****Type :- 'D'.**

Object :—To study the effect of insecticides on Sugarcane germination.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) *Lobia* for seed. (c) Nil. (ii) (a) Light loam. (b) Refer soil analysis, Shahjahanpur. (iii) 3.3.1959. (iv) (a) 2 ploughings by Victory plough, 12 ploughings by *desi* plough, 11 plankings, 1 application of roller and 1 *palewa*. (b) Flat planting. (c) 85 (3 budded) setts/row. (d) Rows 3' apart. (e) N.A. (v) 10 lb./ac. of N through *lobia*. Top dressing with A/S at 70 lb./ac. of N at 1st irrigation on 2.5.1959 and 40 lb./ac. of N at 2nd irrigation on 11.6.1959. (vi) CO.S. 443 (mid-season). (vii) Irrigated. (viii) 1 weeding, 2 hoeings by *kassi*, 3 hoeings by cultivator and 1 earthing. (ix) 24.62". (x) 20 and 22.2.1960.

2. TREATMENTS :

Same as in expt. no. 58(167) above.

3. DESIGN :

(i) R.B.D. (ii) (a) 4. (b) N.A. (iii) 4. (iv) (a) 84'×18'. (b) 79'×12'. (v) 2.5'×3.0'. (vi) Yes.

4. GENERAL :

(i) Partial lodging due to heavy winds and rains. (ii) A few plots in treatment T₃ attacked by borer in June, 1959. Pest and disease free by October, 1959. (iii) Germination %, no. of tillers, millable cane, yield of sugarcane and juice analysis. (iv) (a) 1958—1959. (b) No. (c) Nil. (v) (a) and (b) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 23.39 tons/ac. (ii) 0.82 tons/ac. (iii) Treatment differences are highly significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	T ₀	T ₁	T ₂	T ₃
Av. yield	22.96	24.34	25.26	20.98

S.E./mean = 0.41 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 56(123).

Site :- Sugarcane Res. Stn., Shahjahanpur.

Type :- 'D'.

Object :—To study the effect of soaking cane setts in hormone solutions before planting on the germination, yield and juice quality of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Fallow. (c) Nil. (ii) (a) Light loam. (b) Refer soil analysis, Shahjahanpur. (iii) 29.2.1956. (iv) (a) N.A. (b) Flat planting. (c) 1 (3 budded) sett/foot. (d) Rows 3' apart. (e) N.A. (v) 100 lb./ac. of N as A/S. (vi) CO.S. 453 (mid-late). (vii) Irrigated. (viii) 4 hoeings. (ix) 50.78". (x) 10.1.1957.

2. TREATMENTS :

3 soaking treatments of setts : S₁=Control (water), S₂= α -naphthalene acetic acid (50 p.p.m.) and S₃= β -Indolyl acetic acid (50 p.p.m.).

Seeds were soaked for 6 hours.

3. DESIGN :

(i) R.B.D. (ii) (a) 3. (b) N.A. (iii) 3. (iv) (a) and (b) 40' x 18'. (v) Nil. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Germination %, no. of shoots per plant, millable cane, mortality of shoot %, yield of sugarcane and wt. of 1000 millable cane. (iv) (a) and (b) No. (c) Nil. (v) (a) and (b) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 24.10 tons/ac. (ii) 1.13 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	S ₁	S ₂	S ₃
Av. yield	24.96	24.39	22.96

S.E./mean = 0.65 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 57(159).

Site :- Sugarcane Res. Stn., Shahjahanpur.

Type :- 'D'.

Object :—To study the effect of soaking cane setts in certain hormone solutions before planting on the germination, yield and juice quality of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) (a) Light loam. (b) Refer soil analysis, Shahjahanpur. (iii) 3.4.1957. (iv) (a) 1 *palewa*. (b) Flat planting. (c) 1 (3 budded) sett/foot. (d) Rows 3' apart. (e) N.A. (v) G.M. 60 lb./ac. of N as A/S. (vi) CO. 453 (mid-late). (vii) and (viii) N.A. (ix) 32.78". (x) N.A.

2. TREATMENTS :

4 seed soaking treatments : S₁=Control (water), S₂= α -Naphthalene acetic acid (50 p.p.m.), S₃= β -Indolyl acetic acid (50 p.p.m.) and S₄=2, 4-D (50 p.p.m.).

Seed soaked for 12 hours.

3. DESIGN :

(i) R.B.D. (ii) (a) 4. (b) N.A. (iii) 4. (iv) (a) and (b) 40' x 18'. (v) Nil. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Germination %, shoots per plant, millable cane, mortality of shoot percent, yield of cane and wt. of 1000 millable canes. (iv) (a) 1957-1961. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 10.44 tons/ac. (ii) 1.85 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	S ₁	S ₂	S ₃	S ₄
Av. yield	10.13	10.23	11.70	9.69

S.E./mean = 0.93 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 58(159).

Site :- Sugarcane Res. Stn., Shahjahanpur.

Type :- 'D'.

Object :—To study the effect of soaking cane setts in certain hormone solutions before planting on the germination, yield and juice quality of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) *Dhaincha* (G.M.). (c) Nil. (ii) (a) Light loam. (b) Refer soil analysis, Shahjahanpur. (iii) 28.2.1958. (iv) (a) 1 *palewa*. (b) Flat planting. (c) 1 sett (3 budded)/foot. (d) Rows 3' apart. (e) N.A. (v) *Dhaincha* (G.M.)+A/S at 60 lb./ac. of N. (vi) CO. 453 (mid-late). (vii) Irrigated. (viii) 3 hoeings and 1 earthing. (ix) 56.56". (x) 5.1.1959.

2. TREATMENTS to 4. GENERAL :

Same as in expt. no. 57(159) on page 1336.

5. RESULTS :

(i) 23.19 tons/ac. (ii) 2.54 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	S ₁	S ₂	S ₃	S ₄
Av. yield	24.75	23.72	22.87	21.42

S.E./mean = 1.27 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 59(207).

Site :- Sugarcane Res. Stn., Shahjahanpur.

Type :- 'D'.

Object :—To study the effect of soaking cane setts in certain hormone solutions before planting on the germination, yield and juice quality of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) (a) Loam. (b) Refer soil analysis, Shahjahanpur. (iii) 5.3.1959. (iv) and (v) N.A. (vi) CO. 453 (mid-late). (vii) Irrigated. (viii) 7 hoeings. (ix) 24.62". (x) 14.1.1960.

2. TREATMENTS to 4. GENERAL :

Same as in expt. no. 57(159) on page 1336.

5. RESULTS :

(i) 25.24 tons/ac. (ii) 5.80 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	S ₁	S ₂	S ₃	S ₄
Av. yield	27.89	26.74	26.56	19.75

S.E./mean = 2.90 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 58(156).

Site :- Sugarcane Res. Stn., Shahjahanpur.

Type :- 'D'.

Object :—To study the effect of different doses of Gamma B.H.C. on the growth, yield and juice quality of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) *Dhaincha* (G.M.). (c) Nil. (ii) (a) Light loam. (b) Refer soil analysis, Shahjahanpur. (iii) 12.2.1958. (iv) (a) 1 *palewa*. (b) Flat planting. (c) 1 sett (3 budded)/foot. (d) Rows 3' apart. (e) N.A. (v) *Dhaincha* (G.M.)+60 lb./ac. of N as A/S. (vi) CO. 453 (mid-late). (vii) Irrigated. (viii) 3 hoeings, 1 earthing and binding of canes. (ix) 56.56". (x) 5.1.1959.

2. TREATMENTS :

4 levels of Gamma B.H.C. 20 % : S₀=0, S₁=0.65, S₂=3.25 and S₃=6.5 lb./ac.

Gamma B.H.C. was applied in the form of solution as per treatments at the time of planting on the setts. Water used at 180 gallons/ac.

3. DESIGN :

(i) R.B.D. (ii) (a) 4. (b) N.A. (iii) 4. (iv) (a) and (b) 30' × 18'. (v) Nil. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Germination %, no. of tillers per plant, millable cane, yield of cane and juice analysis. (iv) (a) 1958—1961. (b) and (c) Nil. (v) and (vi) N.A. (vii) Nil.

5. RESULTS :

(i) 33.83 tons/ac. (ii) 2.46 tons/ac. (iii) Treatment differences are highly significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	S ₀	S ₁	S ₂	S ₃
Av. yield	27.63	32.41	39.42	35.86

S.E./mean = 1.23 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 59(205).

Site :- Sugarcane Res. Stn., Shahjahanpur.

Type :- 'D'.

Object :—To study the effect of different doses of Gamma B.H.C. on the growth, yield and juice quality of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) (a) Loam. (b) Refer soil analysis, Shahjahanpur. (iii) 16.2.1959. (iv) (a) to (c) N.A. (v) 100 lb./ac. of N as A/S top dressed. (vi) CO. 453 (mid-late). (vii) Irrigated. (viii) 1 earthing and 7 hoeings. (ix) 24.68". (x) 16.1.1960.

2. TREATMENTS :

4 levels of Gamma B H C. : T₀=0, T₁=0.13, T₂=0.65 and T₃=1.30 lb./ac.

3. DESIGN :

(i) R.B.D. (ii) (a) 4. (b) 40' × 72'. (iii) 4. (iv) (a) and (b) 40' × 18'. (v) Nil. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Millable cane, leaf area index and sugarcane yield. (iv) (a) 1958—1961. (b) No. (c) Nil. (v) (a) and (b) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 34.94 tons/ac. (ii) 1.84 tons/ac. (iii) Treatment differences are significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	T ₀	T ₁	T ₂	T ₃
Av. yield	33.36	33.99	34.93	37.48

S.E /mean = 0.52 tons/ac.

Crop : Sugarcane.

Ref :- U.P. 57(168).

Site :- Sugarcane Res. Stn., Shahjahanpur.

Type :- 'D'.

Object :—To study the effect of foliar and soil applications of 2, 4—D on the yield of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) (a) Light loam. (b) Refer soil analysis, Shahjahanpur. (iii) N.A. (iv) (a) N.A. (b) Flat planting. (c) 40 setts (3 budded)/row. (d) Rows 3' apart. (e) N.A. (v) 357 lb./ac. of A/S. (vi) CO. 453 (mid-late). (vii) Irrigated. (viii) 4 hoeings and 1 earthing. (ix) 35.07". (x) 17.2.1958.

2. TREATMENTS :

6 applications of 2, 4—D : T₀=Control (untreated), T₁=2 soil applications of 2, 4—D at 3 lb./ac. dissolved in 180 gallons of water, T₂=Pre-harvest foliar application of 2, 4—D sodium salt (fernoxone) at 1 lb./ac. dissolved in 100 gallons of water, T₃=Pre-harvest foliar application of 2, 4—D sodium salt (fernoxone) at 3 lb./ac. dissolved in 100 gallons of water, T₄=Pre-harvest foliar application of 2, 4—D sodium salt (fernoxone) at 1 ozs/ac. with 'Albolinum 2, at 8 ozs/ac. dissolved in 100 gallons of water and T₅=Pre-harvest foliar spray of water alone at 100 gallons/ac.

Another foliar application of 2, 4—D sodium salt at the doses mentioned under treatments were given to the respective plots of I and II replications only 2 months after the first application on 6.1.1958.

The soil applications of 2, 4—D were given in the form of amine salt at 3 lb./ac. acid equivalent, once at the time of interculture in May (on 17.5.1957) and once at the time of earthing up in August (on 17.8.1957). Foliar spray on 9 and 10.11.1957.

3. DESIGN :

(i) R.B.D. (ii) (a) 6. (b) N.A. (iii) 2 with 2nd foliar application and 2 without 2nd foliar application. (iv) (a) and (b) 35' x 24'. (v) Nil. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Germination %, no. of tillers juice analysis and yield of sugarcane. (iv) (a) 1957—1959. (b) No. (c) Nil. (v) (a) and (b) N.A. (vi) and (vii) Nil.

5. RESULTS :

(With 2nd foliar spray)

(i) 27.40 tons/ac. (ii) 1.74 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄	T ₅
Av. yield	28.31	24.24	27.69	28.12	28.19	27.86

S.E./mean = 1.23 tons/ac.

(Without 2nd foliar spray)

(i) 28.37 tons/ac. (ii) 1.65 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄	T ₅
Av. yield	28.36	27.00	29.03	30.00	30.07	25.76

S.E./mean = 1.16 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 58(175).

Site :- Sugarcane Res. Stn., Shahjahanpur.

Type :- 'D'.

Object :- To study the effect of foliar and soil applications of 2, 4-D on the yield of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) (a) Light loam. (b) Refer soil analysis, Shahjahanpur. (iii) 19.2.1958. (iv) (a) N.A. (b) Flat planting. (c) 45 setts (3 budded)/row. (d) Rows 3' apart. (e) N.A. (v) A/S at 275 lb./ac. on 29.4.1958. (vi) CO. 453 (mid-late). (vii) Irrigated. (viii) 7 hoeings by *kassi*. (ix) 57.28". (x) 6 and 7.3.1959.

2. TREATMENTS :

6 applications of 2, 4-D : T₀=Control, T₁=2 soil applications of 2, 4-D amine formulation (cornox D) at 3 lb./ac. acid equivalent dissolved in 100 gallons of water, T₂=Pre-harvest foliar application of 2, 4-D sodium salt (fernoxone) at 1 lb./ac. dissolved in 100 gallons of water, T₃=Pre-harvest foliar application of 2, 4-D sodium salt (fernoxone) at 3 lb./ac. dissolved in 100 gallons of water, T₄=Pre-harvest foliar applications of 2, 4-D sodium salt (fernoxone) at 1 oz/ac. with "Albclineum 2" at 8 oz/ac. dissolved in 100 gallons of water and T₅=Pre-harvest foliar application of water alone at 100 gallons./ac.

A second foliar spray of 2, 4-D sodium salt was given in the doses mentioned to replications I and II only, 1½ months after the first spray (on 5.1.1959).

The soil applications of 2, 4-D amine salt was given at the rate mentioned once at the time of interculture early in May (9.5.1958) and then at the earthing up time late in July (29.7.1958). 2, 4-D sodium salt foliar spray was applied in the doses mentioned in the middle of November. (18 and 19.11.1958).

3. DESIGN :

(i) R.B.D. (ii) (a) 6. (b) N.A. (iii) 2 with 2nd foliar application and 2 without 2nd foliar application (iv) (a) and (b) 40'×24'. (v) Nil. (vi) Yes.

4. GENERAL :

Same as in expt. no. 57(168) on page 1339.

5. RESULTS :

With 2nd foliar application

(i) 33.41 tons/ac. (ii) 2.99 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄	T ₅
Av. yield	34.09	31.63	32.96	33.75	33.00	35.00

S.E./mean = 2.11 tons/ac.

Without 2nd foliar application

(i) 34.75 tons/ac. (ii) 2.23 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄	T ₅
Av. yield	36.02	31.61	35.25	35.00	35.32	35.30

S.E./mean = 1.58 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 59(198).

Site :- Sugarcane Res. Stn., Shahjahanpur.

Type :- 'D'.

Object :- To study the effect of foliar and soil applications of 2, 4-D on the yield of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) (a) Light loam. (b) Refer soil analysis, Shahjahanpur. (iii) 20.2.1959. (iv) (a) N.A. (b) Flat planting. (c) 45 setts (3 budded)/row. (d) Rows 3' apart. (e) N.A. (v) 50 lb./ac. of N as A/S on 1.6.1959 and Chlorodane at 40 lb./ac. on 20.2.1959. (vi) CO.S. 443 (mid-season). (vii) Irrigated. (viii) 7 hoeings, 1 weeding and 1 earthing. (ix) 29.11. (x) 23.2.1959 and 3.3.1960.

2. TREATMENTS :

6 applications of 2, 4-D : T₀=Control (no spray), T₁=Soil applications of 2, 4-D, amine formulation at 3 lb./ac. acid equivalent, T₂=Pre-harvest foliar application of 2, 4-D sodium salt at 1 lb./ac., T₃=Pre-harvest foliar spray of 2, 4-D sodium salt at 3 lb./ac., T₄=Pre-harvest foliar application of 2, 4-D sodium salt at 1 ozs/ac with "Albolineum 2" at 8 ozs./ac. and T₅=Water spray alone (Pre-harvest foliar spray at 100 gallons/ac.).

The hormone 2, 4-D was once again applied as foliar spray in the doses mentioned only in replication I and II in the last week of December (23.12.1959).

Soil application of 2, 4-D amine salt was given once in the end of April (1.5.1959) and again at earthing up in July (27.7.1959). Pre-harvest foliar application of 2, 4-D sodium salt was made in the second week of November (9.11.1959). Quantity of water was used at 180 gallons/ac. 2, 4-D amine formulation used as cornox D (commercial name).

3. DESIGN :

Same as in expt. no. 58(175) on page 1340.

4. GENERAL :

(i) N.A. (ii) Shoot borer counting on 9.6.1959. (iii) Germination %, tiller countings, millable cane and yield of sugarcane. (iv) (a) 1957-1959. (b) No. (c) Nil. (v) (a) and (b) N.A. (vi) and (vii) Nil.

5. RESULTS :

With 2nd foliar application

(i) 28.11 tons/ac. (ii) 1.63 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄	T ₅
Av. yield	27.46	25.67	29.07	26.15	29.96	30.34

S.E./mean = 1.15 tons/ac.

Without 2nd foliar application

(i) 27.63 tons/ac. (ii) 2.90 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄	T ₅
Av. yield	25.09	28.73	27.86	27.44	29.42	27.25

S.E./mean = 2.05 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 57(167).

Site :- Sugarcane Res. Stn., Shahjahanpur.

Type :- 'D'.

Object :- To assess the utility of 2, 4-D pre-emergence treatments and Crag Herbicide I in suppressing the growth of weeds in Sugarcane.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) (a) Light loam. (b) Refer soil analysis, Shahjahanpur. (iii) 4.3.1957. (iv) (a) N.A. (b) Flat planting. (c) 40 setts (3 budded)/row. (d) Rows 3' apart. (e) N.A. (v) A/S at 457 lb./ac. on 7.5.1957. (vi) CO. 453 (mid-late). (vii) Irrigated. (viii) General hoeing and planking before germination on 10.3.1957. General hoeing on 27.4.1957 and as per treatments. (ix) 34.83". (x) 14 and 15.1.1958.

2. TREATMENTS :

T₁=2, 4-D sodium salt (fernoxone) - pre-emergence spray at 2 lb./ac. of the acid equivalent to be given once 4 to 7 days and then 20 days after planting. No hoeings and weedings but earthing at proper time, T₂="Crag Herbicide I" (containing 2, 4-dichlorophenoxy ethyle sulphate as its active ingredient) pre-emergence treatment at 2 lb./ac. 4 to 7 days after planting and if necessary once again at proper time. No hoeings and weedings but earthing at proper time, T₃="Crag Herbicide I" application as in (T₂) but at 4 lb./ac., T₄=Normal cultivation with proper hoeings and earthing and T₅=Only earthing at proper time.

Pre-emergence treatment of fernoxone and Crag Herbicide on 14.3.1957 'Crag Herbicide I' again sprayed in the doses mentioned on 17.5.1957 soon after giving one hoeing in the plots. Earthing on 10 and 11.8.1957. Hoeing in T₁ plots on 12.6.1957, T₂ and T₃ plots on 16.5.1957 and T₄ plots on 16.5.1957 and 8.6.1957.

3. DESIGN :

(i) R.B.D. (ii) (a) 5. (b) N.A. (iii) 4. (iv) (a) and (b) 35' x 24', (v) Nil. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Germination %, no. of tillers per plant, juice sampling, millable cane and yield of sugarcane. (iv) (a) 1957-1959. (b) No. (c) Nil. (v) to (vii) N.A.

5. RESULTS :

(i) 27.56 tons/ac. (ii) 3.05 tons/ac. (iii) Treatment differences are highly significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	T ₁	T ₂	T ₃	T ₄	T ₅
Av. yield	28.13	29.44	27.96	34.09	18.18

S.E./mean = 1.52 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 58(174).

Site :- Sugarcane Res. Stn., Shahjahanpur.

Type :- 'D'.

Object :- To assess the utility of 2, 4-D pre-emergence treatments and Crag Herbicide I in suppressing the growth of weeds in Sugarcane field.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) (a) Light loam. (b) Refer soil analysis, Shahjahanpur. (iii) 19.2.1958. (iv) (a) N.A. (b) Flat planting. (c) N.A. (d) Rows 3' apart. (e) N.A. (v) 50 lb./ac. of N as A/S. (vi) CO. 453 (mid-late). (vii) Irrigated. (viii) As per treatments. (ix) 57.28". (x) 6.3.1959.

2. TREATMENTS :

T₁=2, 4-D Sodium salt (fernoxone) - pre-emergence sprays at 2 lb./ac. acid equivalent 4 days and 20 days after planting. No hoeings and weedings except one hoeing at germination. Earthing at the proper time, T₂="Crag Herbicide I" - pre-emergence treatment 4 to 7 days after planting at 3 lb./ac. No hoeing and weedings except one hoeing at germination. Earthing at the proper time, 1 subsequent spraying at 3 lb./ac. may be given if necessary at proper time, T₃="Crag Herbicide I" - application as in T₂ but at 6 lb./ac., T₄=Normal cultivation with proper hoeings and weedings. Earthing at the proper time and T₅=Same as in T₄. No hoeings and weedings except one hoeing at germination. "Crag Herbicide I" contains 90% of 2, 4-D Dichlorophenoxy ethyl sulphate. Hoeings in treatment T₄ on 9.3.1958, 16.3.1958, 5.5.1958, 23.5.1958 and 10.6.1958. General hoeings on 4.4.1958 and 18.4.1958. Earthing on 5.8.1958.

Because of the ineffectiveness of 'Crag Herbicide I' as pre-emergence spray another application of the weedicide was given to only replications I and II of the expt. in the middle of April (on 18.4.1958).

3. DESIGN :

(i) R.B.D. (ii) (a) 5. (b) N.A. (iii) 2 with 2nd foliar application and 2 without 2nd foliar application. (iv) (a) and (b) 40' x 24'. (v) Nil. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Germination %, no. of tillers per plant, millable canes, population of weeds and yield of sugarcane (iv) (a) 1957—1959. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

With 2nd foliar application

(i) 23.91 tons/ac. (ii) 1.71 tons/ac. (iii) Treatment differences are highly significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	T ₁	T ₂	T ₃	T ₄	T ₅
Av. yield	21.50	18.86	19.75	34.36	25.07

S.E./mean = 1.21 tons/ac.

Without 2nd foliar application

(i) 26.28 tons/ac. (ii) 3.99 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	T ₁	T ₂	T ₃	T ₄	T ₅
Av. yield	21.00	23.19	22.65	36.88	27.69

S.E./mean = 2.82 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 59(199).

Site :- Sugarcane Res. Stn., Shahjahanpur.

Type :- 'D'.

Object :- To assess the utility of 2, 4-D pre-emergence treatments and 'Crag Herbicide I' in suppressing the growth of weeds in sugarcane fields.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) (a) Light loam. (b) Refer soil analysis, Shahjahanpur. (iii) 19.2.1959. (iv) (a) N.A. (b) Flat planting. (c) 45 (3 budded) setts/row. (d) Rows 3' apart. (e) N.A. (v) 50 lb./ac. of N as A/S and Chlordane at 40 lb./ac. on 19.2.1959. (vi) CO.S. 510 (early). (vii) Irrigated. (viii) As per treatments. (ix) 29 11". (x) 1.3.1960 and 2.3.1960.

2. TREATMENTS :

T₁=2, 4-D sodium salt—pre-emergence sprays at 2 lb./ac. of acid equivalent 4 days and 20 days after planting and if necessary one subsequent spray at proper time. No hoeings and weedings except 1 hoeing before germination. Earthing at proper time, T₂="Crag Herbicide I" pre-emergence sprays 4 to 7 days after planting at 2 lb./ac. No hoeings and weedings except one hoeing at germination. Earthing at proper time, T₃="Crag Herbicide I" application as in T₂ but at 4 lb./ac., T₄=Normal cultivation with proper hoeings and weedings. Earthing at proper time and T₅=Normal cultivation but no hoeings and weedings except one hoeing before germination. Earthing at proper time.

The weedicides were sprayed after dissolving in water at 100 gallons/ac. 2, 4-D pre-emergence spray was given on 26.2.1959 and 13.3.1959. Crag Herbicide was applied on 26.2.1959 and 16.6.1959. Hoeing in normal cultivation plots on 16.3.1959, 27.4.1959, 8.5.1959, 20.5.1959, 15.6.1959 and 2.7.1959.

Hoeing in all plots on 3.4.1959. Earthing on 30.7.1959.

3. DESIGN :

(i) R.B.D. (ii) (a) 5. (b) N.A. (iii) 4. (iv) (a) and (b) 40' × 24'. (v) Nil. (vi) Yes.

4. GENERAL :

(i) N.A. (ii) Shoot borer countings. (iii) Germination %, no. of tillers, height measurement, juice analysis millable cane counts and yield of sugarcane. (iv) (a) 1957—1959. (b) No. (c) Nil. (v) to (vii) N.A.

5. RESULTS :

(i) 20.77 tons/ac. (ii) 2.38 tons/ac. (iii) Treatment differences are highly significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	T ₁	T ₂	T ₃	T ₄	T ₅
Av. yield	20.86	19.82	18.50	26.37	18.31

S.E./mean = 1.19 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 56(124).

Site :- Sugarcane Res. Stn., Shahjahanpur.

Type :- 'D'.

Object :-To study the effect of spraying cane leaves with weak solutions of certain minor elements on the growth, yield and Juice quality of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) *Sanai*. (c) Nil. (ii) (a) Light loam. (b) Refer soil analysis, Shahjahanpur. (iii) 14.21.1956. (iv) (a) N.A. (b) Flat planting. (c) 1 (3 budded) sett/foot. (d) Rows 3' apart. (e) N.A. (v) *Sanai* (G.M.) + 60 lb./ac. of N as A/S. (vi) CO. 453 (mid-late). (vii) Irrigated. (viii) 6 hoeings, 1 earthing and binding of canes. (ix) 50.78%. (x) 8.2.1957.

2. TREATMENTS :

6 spraying treatments : T₁=Control (water spray), T₂=Mixture of ferrous sulphate 20 ppm and manganese sulphate 50 ppm, T₃=Molybdenum 1 ppm, T₄=Mixture of calcium chloride 100 ppm and boric acid 1 ppm, T₅=Mixture of magnesium sulphate 50 ppm and calcium chloride 150 ppm and T₆=Iodine 1 ppm.

Molybdenum applied as molybdic acid. Spraying on 30.7.1956, 4.8.1956 and 22.10.1956.

3. DESIGN :

(i) R.B.D. (ii) (a) 6. (b) N.A. (iii) 3. (iv) (a) and (b) 40'×18'. (v) Nil. (vi) Yes.

4. GENERAL :

(i) Canes lodged. (ii) N.A. (iii) Germination %, shoot per plant, millable canes, mortality of shoot %, yield of sugarcane, weight of 1000 millable canes, height of mother shoot, juice analysis, no. of green leaves per mother shoot and cane height. (iv) (a) 1953—1956. (b) Nil. (c) No. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 32.59 tons/ac. (ii) 3.26 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	T ₁	T ₂	T ₃	T ₄	T ₅	T ₆
Av. yield	30.17	32.17	31.81	32.98	34.44	33.95

S.E./mean = 1.88 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 59(186).

Site :- Reg. Res. Stn., Varanasi.

Type :- 'D'.

Object :-To study the effect of insecticides and fungicides on the yield of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) *Sanai*—Sugarcane. (b) *Sanai* for seed. (c) N.A. (i) (a) Loam. (b) Refer soil analysis, Varanasi. (iii) 22.3.1959. (iv) (a) 6 ploughings by *desi* plough and 1 by other implements. (b) Flat planting. (c) 50 (3 budded) setts/row. (d) 3' between rows. (e) N.A. (v) N.A. (vi) CO.S. 443. (vii) Irrigated. (viii) 1 hoeing with *kassi*. (ix) N.A. (x) 15.12.1959 onwards.

2. TREATMENTS :

7 spraying treatments : T_0 =Control (no chemical), T_1 =Aretan 6 % at $\frac{1}{2}$ lb. in 20 gallons of water, T_2 =Aretan/Gamma at $\frac{1}{2}$ lb. in 10 gallons of water, T_3 =B.H.C. 5 % dust at 30 lb./ac., T_4 =B.H.C./Gamma 20 % E.C. at 5 lb. in 200 gallons of water, T_5 =Chlordane dust 5 % at 20 lb./ac. and T_6 =Aldrin dust 5 % at 15 lb./ac.

Castor cake at 60 lb./ac. of N before *palewa* and A/S at 30 lb./ac. of N after 2nd irrigation. Manuring on 11.2.1959 and 17.4.1959.

3. DESIGN :

(i) R.B.D. (ii) (a) 7. (b) 40'×105'. (iii) 3. (iv) (a) 40'×15'. (b) 34'×9'. (v) 3'×3'. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Germination %, no. of shoots, millable cane, *gur* production, juice analysis and sugar-cane yield. (iv) (a) 1959—contd. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 29.25 tons/ac. (ii) 2.43 tons/ac. (iii) Treatment differences are highly significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5	T_6
Av. yield	18.91	16.38	23.14	19.52	18.00	25.45	20.35

S.E./mean = 1.40 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 54(272).

Zone :- (Bahraich, c.f.).

Type :- 'D'.

Object :- To study the effect of insecticides against stalk borer attack on Sugarcane.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) *Dhaincha*. (c) N.A. (ii) Sandy soil. (iii) Press mud and F.Y.M. at 25 C.L./ac.+G.M. by *dhaincha*+Super top dressed. (iv) CO.S. 443. (v) (a) to (e) N.A. (vi) November, 1954. (vii) Irrigated. (viii) and (ix) N.A. (x) 17.2.1956.

2. TREATMENTS :

6 spraying treatments : T_0 =Control (untreated), T_1 =Toxaphene 0.5 % W.P., T_2 =DDT+B.H.C. 0.5 % W.P., T_3 =Dieldrin 0.1 % W.P., T_4 =Endrin 0.1 % E.C. and T_5 =Ryania 0.1 % W.P.

3. DESIGN :

(i) and (ii) R.B.D. with 4 replications. (iii) (a) and (b) 64'×18'. (iv) Yes.

4. GENERAL :

(i) N.A. (ii) Attack of stalk borer. (iii) % incidence of stalk borer and yield of sugarcane. (iv) (a) 1954—1956. (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

% stalk borer incidence

(i) 48.50 degrees. (ii) 4.23 degrees. (iii) Treatment differences are highly significant. (iv) Mean % incidence of stalk borer in degrees.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5
Mean angle	60.31	58.77	40.49	41.50	32.73	57.21

S.E./mean = 2.12 degrees.

Transformed back %

	75.22	72.89	42.24	43.96	29.44	70.46
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Sugarcane yield

(i) 12.98 tons/ac. (ii) 2.96 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄	T ₅
Av. yield	11.44	10.64	10.89	17.09	14.38	13.44

S.E./mean = 1.48 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 54(262).

Zone :- Dhampur (Bijnor, c.f.).

Type :- 'D'.

Object :—To study the control measures against termite on Sugarcane.

1. BASAL CONDITIONS :

(i) to (iii) N.A. (iv) CO.S. 510. (v) (a) to (e) N.A. (vi) 17.10.1954. (vii) to (ix) N.A. (x) 9.2.1956.

2. TREATMENTS :

9 dust sprayings : T₀=Control (no spray), T₁=B.H.C. 5 % at 20 lb./ac., T₂=B.H.C. 5 % at 80 lb./ac., T₃=Chlordane 5 % at 10 lb./ac., T₄=Chlordane 5 % at 15 lb./ac., T₅=Chlordane 5 % at 40 lb./ac., T₆=Aldrin 1 % at 50 lb./ac., T₇=Aldrin 1 % at 100 lb./ac., and T₈=Aldrin 1 % at 150 lb./ac.

Treatments were applied at planting time.

3. DESIGN :

(i) and (ii) R.B.D. with 4 replications. (iii) (a) and (b) 55'×27'. (iv) Yes.

4. GENERAL :

(i) N.A. (ii) Attack of termite. (iii) Germination %. (iv) (a) 1954—N.A. (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 22.27 degrees. (ii) 0.61 degrees. (iii) Treatment differences are highly significant. (iv) Mean % of germination in degrees.

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄	T ₅	T ₆	T ₇	T ₈
Mean angle	20.61	22.53	21.09	23.65	23.42	23.83	22.90	21.44	21.00

S.E./mean = 0.31 degrees.

Crop :- Sugarcane.

Ref :- U.P. 58(329).

Zone :- Dhampur (Bijnor, c.f.).

Type :- 'D'.

Object :—To study the effect of Gamma B.H.C. liquid against termite and shoot borer attack on Sugarcane.

1. BASAL CONDITIONS :

(i) to (iii) N.A. (iv) CO.S. 510. (v) (a) to (e) N.A. (vi) 7 and 8.11.1958. (vii) to (x) N.A.

2. TREATMENTS :

5 levels of Gamma B.H.C. actual : T₀=0, T₁=0.75, T₂=1.00, T₃=1.25 and T₄=1.50 lb./ac.

3. DESIGN :

(i) and (ii) R.B.D. with 4 replications. (iii) (a) 90'×24'. (b) 90'×12'. (iv) Yes.

4. GENERAL :

(i) N.A. (ii) Attack of termite and shoot borer. (iii) Germination %, shoot borer attack and sugarcane yield. (iv) (a) 1958—1960. (b) No. (c) Nil. (v) N.A. (vi) Termite attack was for control only in 2 replications and in both the replications it was 6.7 %. (vii) Nil.

5. RESULTS :

% shoot borer incidence

(i) 8.37 degrees. (ii) 1.49 degrees. (iii) Treatment differences are highly significant. (iv) Mean % of shoot borer incidence in degrees.

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄
Mean angle	15.04	6.83	7.35	6.15	6.48

S.E./mean = 0.74 degrees.

Transformed back %	7	1.90	2.09	1.64	1.76
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Sugarcane yield

(i) 22.94 tons/ac. (ii) 3.80 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄
Av. yield	20.49	23.22	24.10	24.03	22.86

S.E./mean = 1.90 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 57(504).

Zone :- Dehra Dun (Dehra Dun, c.f.).

Type :- 'D'.

Object :- To study the effect of insecticides against *Bissetia* incidence in Sugarcane.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Paddy. (c) N.A. (ii) and (iii) N.A. (iv) CO.S. 245 (improved). (v) (a) N.A. (b) Flat planting. (c) N.A. (d) Rows 3' apart. (e) N.A. (vi) to (ix) N.A. (x) 27 and 28.1.1958.

2. TREATMENTS :

4 insecticidal sprays : T₀=Control (no spray), T₁=Endrin--E.C. 0.1 %, T₂=B.H.C.--E.C. 0.1 % and T₃=DDT--E.C. 0.25 %.

3. DESIGN :

(i) and (ii) R.B.D. with 5 replications. (iii) (a) and (b) 33' x 33'. (iv) Yes.

4. GENERAL :

(i) N.A. (ii) *Bissetia* and borer incidence. (iii) Count of shoots, *Bissetia* damaged canes, top bored canes and root damaged canes. (iv) (a) N.A. (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 16.72 degrees. (ii) 8.90 degrees. (iii) Treatment differences are not significant. (iv) Mean % of *Bissetia* damaged canes at harvest in degrees.

Treatment	T ₀	T ₁	T ₂	T ₃
Mean angle	16.48	11.47	22.20	16.74

S.E./mean = 3.98 degrees.

Transformed back %	8.47	4.41	14.64	8.72
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Crop :- Sugarcane.

Ref :- U.P. 56(469).

Zone :- Doiwala (Dehra Dun, c.f.).

Type :- 'D'.

Object :- To study the effect of mechanical control of Dehra Dun borer on Sugarcane.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Paddy. (c) N.A. (ii) and (iii) N.A. (iv) CO. 245 (improved). (v) (a) to (e) N.A. (vi) 3.4.1956. (vii) to (ix) N.A. (x) 11.2.1957.

2. TREATMENTS :

2 levels of cutting of affected shoots : T_0 =Control (no cutting) and T_1 =Cutting on 13.7.1956 and 5.9.1956.

3. DESIGN :

(i) and (ii) R.B.D. with 6 replications. (iii) (a) and (b) $60' \times 36'$. (iv) Yes.

4. GENERAL :

(i) N.A. (ii) Dehra Dun borer. (iii) Dehra Dun borer affected canes and total no. of tillers, % attack of top borer and Dehra Dun borer at harvest. (iv) (a) 1955—1956. (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 16.91 degrees. (ii) 4.82 degrees. (iii) Treatment difference is not significant. (iv) Mean % of *Bissetia* attack at harvest in degrees.

Treatment	T_0	T_1
Mean angle	17.26	16.56
S.E./mean = 1.97 degrees.		
Transformed back %	9.21	8.54

Crop :- Sugarcane.

Ref :- U.P. 55(392).

Zone :- Dehra Dun (Dehra Dun, c.f.).

Type :- 'D'.

Object :- To study the effect of insecticides against Dehra Dun borer on Sugarcane.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Paddy. (c) N.A. (ii) N.A. (iii) 500 mds./ac. of F.Y.M.+A/S. (iv) CO.S. 321 (improved). (v) (a) to (e) N.A. (vi) 14.3.1955. (vii) to (x) N.A.

2. TREATMENTS :

6 spraying treatments : T_0 =Control, T_1 =Toxaphene 25 % W.P. at 0.5 %, T_2 =DDT+B.H.C. 50 % W.P. at 0.5 %, T_3 =Dieldrin 50 % W.P. at 0.1 %, T_4 =Endrin 19.5 % E.C. at 0.1 % and T_5 =Ryania 95 % at 1.0 %.

3. DESIGN :

(i) and (ii) R.B.D. with 4 replications. (iii) (a) and (b) $80' \times 21'$. (iv) Yes.

4. GENERAL :

(i) N.A. (ii) Incidence of borer. (iii) Sugarcane yield and borer incidence. (iv) (a) to (c) No. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

sugarcane yield

(i) 24.87 tons/ac (ii) 2.68 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5
Av. yield	24.53	24.27	23.35	24.29	27.68	25.10

S.E./mean = 1.34 tons/ac.

% infestation after 1 month of the application of treatments

(i) 17.93 degrees. (ii) 1.85 degrees. (iii) Treatment differences are highly significant. (iv) Mean % of

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄	T ₅
Mean angle	21.00	17.43	17.33	19.83	13.46	18.55
S.E./mean = 0.92 degrees.						
Transformed back %	13.21	9.38	9.28	11.90	5.87	10.52

Crop :- Sugarcane.

Ref :- U.P. 55(393).

Zone :- Dehra Dun (Dehra Dun, c.f.).

Type :- 'D'.

Object :-To study the mechanical means of control for stem borer on Sugarcane.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Paddy. (c) N.A. (ii) N.A. (iii) F.Y.M. 275 mds. on 15.2.1955 and mixture 2 mds. 27 srs. on 20.3.1955. (iv) CO.S. 321 (improved). (v) (a) N.A. (b) Flat planting. (c) N.A. (d) 3' between rows. (e) N.A. (vi) 21.3.1955. (vii) to (x) N.A.

2. TREATMENTS :

2 levels of cutting : T₀=Control (no cutting) and T₁=Cutting of affected shoots.

3. DESIGN :

(i) and (ii) R.B.D. with 8 replications. (iii) (a) and (b) 100' × 15'. (iv) Yes.

4. GENERAL :

(i) N.A. (ii) Borer incidence. (iii) Counting of bored shoots and total no. of shoots before and after application of treatment. (iv) (a) to (c) No. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 14.68 degrees. (ii) 1.23 degrees. (iii) Treatment difference is highly significant. (iv) % bored dead hearts in degrees.

Treatment	T ₀	T ₁
Mean angle	17.32	11.84
S.E./mean = 0.43 degrees.		
Transformed back %	9.27	4.67

Crop :- Sugarcane.

Ref :- U.P. 56(473).

Zone :- Doiwala (Dehra Dun, c.f.).

Type :- 'D'.

Object :-To study the effect of insecticides to control Dehra Dun borer on Sugarcane.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Paddy. (c) N.A. (ii) and (iii) N.A. (iv) CO.S. 321 (improved). (v) (a) to (e) N.A. (vi) 8.3.1956. (vii) to (x) N.A.

2. TREATMENTS :

6 insecticides : T₀=Control (no spray), T₁=Endrin—19.5 % E.C. at 0.05 %, T₂=Dieldrin—25 % E.C. at 0.05 %, T₃=Gamma B.H.C. 20 % E.C. at 0.05 %, T₄=DDT—25% E.C. at 0.25 % and T₅=Metasystox 50 % E.C. at 0.05 %.

Sprays done on 11.7.1956 and 12.8.1956 each at 100 gallons/ac.

3. DESIGN :

(i) and (ii) R.B.D. with 4 replications. (iii) (a) and (b) 80' × 24'. (iv) Yes.

4. GENERAL :

(i) N.A. (ii) Borer incidence. (iii) No. of Dehra Dun borer affected shoots and total no. of tillers before and after 1st spraying only recorded. (iv) (a) to (c) No. (v) N.A. (vi) and (vii) Nil.

5: RESULTS :

(i) 12.67 degrees. (ii) 1.82 degrees. (iii) Treatment differences are not significant. (iv) Mean % of Dehra Dun bored shoots in degrees.

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄	T ₅
Mean angle	14.66	10.64	13.18	13.60	11.37	12.59
S.E./mean = 0.91 degrees.						
Transformed back %	6.85	3.88	5.65	5.97	4.35	5.20

Crop :- Sugarcane.

Ref :- U.P. 58(478).

Zone :- Dehra Dun (Dehra Dun, c.f.)

Type :- 'D'.

Object :-To study the effect of insecticides of different strengths in controlling Dehra Dun borer on Sugarcane.

1. BASAL CONDITIONS:

(i) (a) N.A. (b) Pea for G.M. (c) Nil. (ii) N.A. (iii) Pea as G.M. (iv) CO.S. 245 (improved). (v) to (x) N.A.

2. TREATMENTS :

9 spraying treatments : T₀=Control (untreated), T₁=Endrin E.C. 20% at 0.05%, T₂=Endrin E.C. 20% at 0.1%, T₃=Dieldrin E.C. 18% at 0.05%, T₄=Dieldrin E.C. 18% at 0.1%, T₅=Toxaphene 25% E.C. at 0.25%, T₆=Toxaphene 25% E.C. at 0.5%, T₇=DDT 20% E.C. at 0.25% and T₈=DDT 20% E.C. at 0.5%.

Spraying done on 12.7.1958 and 23.8.1958.

3. DESIGN :

i) and (ii) R.B.D. with 3 replications. (iii) (a) and (b) 63' x 21'. (iv) Yes.

4. GENERAL :

(i) N.A. (ii) Dehra Dun borer. (iii) Counting of total no. of shoots and diseased shoots. (iv) (a) 1958—1959. (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 4.44 degrees. (ii) 1.63 degrees. (iii) Treatment differences are highly significant. (iv) Mean % of infestation on 21 and 22.8.1958 in degrees.

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄	T ₅	T ₆	T ₇	T ₈
Mean angle	8.90	0.00	1.69	5.43	5.94	5.94	4.91	3.84	3.33
S.E./mean = 0.94 degrees.									
Transformed back%	2.86	0.50	0.59	1.39	1.56	1.56	1.22	0.94	0.83

Crop :- Sugarcane.

Ref :- U.P. 59(525).

Zone :- Dehra Dun (Dehra Dun, c.f.)

Type :- 'D'.

Object :-To study the effect of insecticides of different strengths in controlling Dehra Dun borer on Sugarcane.

1. BASAL CONDITIONS :

(i) to (iii) N.A. (iv) CO. 527 (improved). (v) (a) N.A. (b) Flat planting. (c) N.A. (d) Rows 3' apart. (e) N.A. (vi) 23.3.1959. (vii) to (ix) N.A. (x) 7.3.1960.

2. TREATMENTS :

Same as in expt. no. 58(478) above.

1st spraying on 15.7.1959 and 2nd spraying on 23.8.1959 done by Sapper-lot spraying machine.

3. DESIGN :

(i) and (ii) R.B.D. with 3 replications. (iii) (a) and (b) 54' × 18'. (iv) Yes.

4. GENERAL :

(i) N.A. (ii) Attack of top borer, Dehra Dun borer and *C. auricilia* Ddgn. (iii) Counting of shoots, counting of damaged shoots by borers, % infestation at harvest due to top borer, Dehra Dun borer and *C. auricilia* Ddgn. (iv) (a) 1958—1959. (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 13.90 degrees. (ii) 2.61 degrees. (iii) Treatment differences are highly significant. (iv) Mean % of infestation by Dehra Dun borer on 7.3.1960 in degrees.

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄	T ₅	T ₆	T ₇	T ₈
Mean angle	19.78	19.06	0.00	12.28	21.92	12.23	11.16	12.86	15.82
S.E./mean = 1.84 degrees.									
Transformed back %	11.78	10.98	0.50	4.73	14.29	4.70	3.94	5.17	7.69

Crop :- Sugarcane.

Ref :- U.P. 56(336).

Zone :- Padrauna (Deoria, c.f.).

Type :- 'D'.

Object :- To study the control measures against termites on Sugarcane.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) *Bhat* soil. (iii) N.A. (iv) CO.S. 109. (v) (a) to (e) N.A. (vi) 8 and 9.3.1956. (vii) Irrigated. (viii) to (x) N.A.

2. TREATMENTS :

7 spraying treatments : T₀=Control (untreated), T₁=B.H.C. 5% dust at 20 lb./ac. T₂=B.H.C. 5% dust at 60 lb./ac., T₃=Chlordane 5% dust at 15 lb./ac., T₄=Chlordane 5% dust at 40 lb./ac., T₅=Aldrin 2.5% dust at 20 lb./ac. and T₆=Aldrin 2.5% dust at 40 lb./ac.

3. DESIGN :

(i) and (ii) R.B.D. with 4 replications. (iii) (a) 69' × 21'. (b) 63' × 15'. (iv) Yes.

4. GENERAL :

(i) N.A. (ii) Termite attack. (iii) % of damaged shoots. (iv) (a) 1956—N.A. (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 22.08 degrees. (ii) 2.70 degrees. (iii) Treatment differences are highly significant. (iv) Mean % of damaged shoots in degrees.

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄	T ₅	T ₆
Mean angle	34.30	28.68	25.04	23.83	18.58	14.82	9.31
S.E./mean = 1.35 degrees.							
% of damaged shoots	31.93	23.30	18.23	16.65	10.55	6.97	3.09

Crop :- Sugarcane.

Ref :- U.P. 58(332).

Zone :- Tamkahi (Deoria, c.f.).

Type :- 'D'.

Object :- To study the control measures against termite on Sugarcane.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Loam. (iii) N.A. (iv) CO.S. 416. (v) (a) to (e) N.A. (vi) 27 and 28.2.1958. (vii) Irrigated. (viii) to (x) N.A.

2. TREATMENTS :

9 spraying treatments : T_0 =Control, T_1 =B.H.C. 5 % dust at 20 lb./ac., T_2 =B.H.C. 5 % dust at 60 lb./ac., T_3 =Chlordane 5 % dust at 15 lb./ac., T_4 =Chlordane 5 % dust at 45 lb./ac., T_5 =Aldrin 5 % dust at 10 lb./ac., T_6 =Aldrin 5 % dust at 30 lb./ac., T_7 =Heptachlor 3 % dust at 16.7 lb./ac. and T_8 =Heptachlor 3 % dust at 50.1 lb./ac.

3. DESIGN :

(i) R.B.D. with 3 replications. (iii) (a) and (b) 66'×33'. (iv) Yes.

4. GENERAL :

(i) N.A. (ii) Incidence of termite was not severe. (iii) Yield data and incidence of termite at harvest. (iv) (a) 1958—contd. (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 16.17 tons/ac. (ii) 2.74 tons/ac. (iii) Treatment differences are significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5	T_6	T_7	T_8
Av. yield	14.16	14.73	17.16	12.43	15.58	16.38	15.54	16.91	22.62

S.E./mean = 1.58 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 59(343).

Zone :- Tamkahi (Deoria, c.f.).

Type :- 'D'.

Object :- To study the control measures against termite on Sugarcane.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Loam. (iii) N.A. (iv) CO.S. 416. (v) (a) to (e) N.A. (vi) 12.3.1959. (vii) Irrigated. (viii) to (x) N.A.

2. TREATMENTS :

Same as in expt. no. 58(332) on page 1351.

3. DESIGN :

(i) and (ii) R.B.D. with 3 replications. (iii) (a) and (b) N.A. (iv) Yes.

4. GENERAL :

Same as in expt. no. 58(332) on page 1351.

5. RESULTS :

(i) 12.60 degrees. (ii) 9.93 degrees. (iii) Treatment differences are not significant. (iv) Mean % of incidence of disease in degrees.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5	T_6	T_7	T_8
Mean angle	18.53	14.66	11.46	15.93	—	2.42	—	—	—

S.E./mean = 5.73 degrees.

% incidence	10.50	6.85	4.38	7.94	—	0.67	—	—	—
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Crop :- Sugarcane.

Ref :- U.P. 54(271).

Zone :- Mohammadi (Kheri, c.f.).

Type :- 'D'.

Object :- To find out a suitable pesticide to control termite incidence on Sugarcane.

1. BASAL CONDITIONS :

(i) to (iii) N.A. (iv) B.O. 25. (v) (a) to (e) N.A. (vi) 12.10.1954. (vii) to (ix) N.A. (x) 3.2.1956.

2. TREATMENTS :

9 spraying treatments : T_0 =Control, T_1 =B.H.C. 5 % dust at 20 lb./ac., T_2 =B.H.C. 5 % dust at 80 lb./ac., T_3 =Chlordane 5 % dust at 10 lb./ac., T_4 =Chlordane 5 % dust at 15 lb./ac., T_5 =Chlordane 5 % dust at 40 lb./ac., T_6 =Aldrin 1 % dust at 50 lb./ac., T_7 =Aldrin 1 % dust at 100 lb./ac. and T_8 =Aldrin 1 % dust at 150 lb./ac.

3. DESIGN :

(i) and (ii) R.B.D. with 4 replications. (iii) (a) and (b) N.A. (iv) Yes.

4. GENERAL ;

(i) N.A. (ii) Attack of termites. (iii) Germination % and % of termite attack on cane eye buds. (iv) (a) 1954—1956. (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 7.79 degrees. (ii) 4.04 degrees. (iii) Treatment differences are highly significant. (iv) Mean % of incidence of disease in degrees.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5	T_6	T_7	T_8
Mean angle	26.72	6.08	5.10	7.57	4.60	6.62	3.07	8.28	2.08

S.E./mean = 2.02 degrees.

Transformed back %	T_0	T_1	T_2	T_3	T_4	T_5	T_6	T_7	T_8
	20.51	1.61	1.38	2.22	1.13	1.82	0.79	2.56	0.63

Crop :- Sugarcane.

Ref :- U.P. 56(301).

Zone :- Neoli (Etah, c.f.).

Type :- 'D'.

Object :- To study the effect of Agallol on germination and yield of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Sandy loam. (iii) N.A. (iv) CO.S. 443 (improved). (v) (a) to (e) N.A. (vi) 6.3.1956. (vii) Irrigated. (viii) and (ix) N.A. (x) 3 to 6.4.1957.

2. TREATMENTS :

5 soaking treatments : T_0 =Control, T_1 =In and out dip in Agallol solution, T_2 =Soaking for 10 minutes in Agallol solution, T_3 =Soaking for 20 minutes in Agallol solution, T_4 =In and out dip in water and T_5 =Soaking for 10 minutes in water.
0.5 % solution of Agallol was used.

3. DESIGN :

(i) and (ii) R.B.D. with 4 replications. (iii) (a) and (b) N.A. (iv) Yes.

4. GENERAL :

(i) and (b) N.A. (iii) Germination %, sugarcane yield and juice analysis. (iv) (a) to (c) No. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 24.52 tons/ac. (ii) 2.64 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5
Av. yield	21.31	25.79	25.46	26.12	25.05	23.36

S.E./mean = 1.32 tons/ac.

Crop :- Sugarcane.**Ref :- U.P. 59(195).****Zone :- Rasalpur (Etawah, c.f.).****Type :- 'D'.****Object :-**To study the effect of insecticides and fungicides on Sugarcane.**1. BASAL CONDITIONS :**

(i) (a) N.A. (b) Cotton. (c) N.A. (ii) Loam. (iii) 60 lb./ac. of N as F.Y.M. (iv) CO.S. 321. (v) (a) N.A. (b) Flat planting. (c) 55 (3 budded) setts/row. (d) Rows 3' apart. (e) N.A. (vi) 3.3.1959. (vii) Irrigated. (viii) and (ix) N.A. (x) 7 and 8.3.1960.

2. TREATMENTS :

7 spraying treatments : T_0 =Control (no chemical), T_1 =Aretan 6 % at $\frac{1}{2}$ lb./ac. in 20 gallons of water, T_2 =Aretan/Gamma at $\frac{1}{2}$ lb./ac. in 10 gallons of water, T_3 =B.H.C. 5 % dust at 30 lb./ac., T_4 =B.H.C./Gamma 20 % E.C. at 5 lb./ac. in 200 gallons of water, T_5 =Chlordane 5 % dust at 20 lb./ac. and T_6 =Aldrin dust 5 % at 15 lb./ac.

3. DESIGN :

(i) and (ii) R.B.D. with 4 replications. (iii) (a) 48' x 15'. (b) 42' x 9'. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Germination %, shoots, millable cane, *gur* production and yield of sugarcane. (iv) (a) to (c) No. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 6.39 tons/ac. (ii) 1.41 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5	T_6
Av. yield	5.00	5.99	6.14	7.61	6.32	7.72	5.94

S.E./mean = 0.70 tons/ac.

Crop :- Sugarcane.**Ref :- U.P. 54(264).****Zone :- Farendia (Gorakhpur, c.f.).****Type :- 'D'.****Object :-**To find out suitable pesticide to control termites on Sugarcane.**1. BASAL CONDITIONS :**

(i) to (iii) N.A. (iv) CO. 453. (v) (a) to (c) N.A. (vi) 17.3.1954. (vii) to (x) N.A.

2. TREATMENTS :

6 spraying treatments : T_0 =Control, T_1 =Gammexane 5 % dust at 20 lb./ac., T_2 =Gammexane 5 % dust at 80 lb./ac., T_3 =Chlordane 5 % dust at 10 lb./ac., T_4 =Chlordane 5 % dust at 80 lb./ac. and T_5 =Aldrin 4 % at 3 lb. 12 oz./ac. by weight of conc. liquid.

3. DESIGN :

(i) and (ii) R.B.D. with 3 replications. (iii) (a) N.A. (b) 60' x 24'. (iv) Yes.

4. GENERAL :

(i) N.A. (ii) As under study. (iii) % termite attack. (iv) (a) to (c) No. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 5.44 degrees. (ii) 1.45 degrees. (iii) Treatment differences are not significant. (iv) Mean % of termite attack in degrees.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5
Mean angle	7.32	4.91	4.93	5.37	5.73	4.37

S.E./mean = 0.84 degrees.

% incidence	2.10	1.22	1.23	1.37	1.49	1.07
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Crop :- Sugarcane.**Ref :- U.P. 55(309).****Zone :- Farenda (Gorakhpur, c.f.).****Type :- 'D'.**

Object :—To find out suitable pesticide to control termite on Sugarcane.

1. BASAL CONDITIONS :

(i) to (iii) N.A. (iv) CO.S. 416. (v) (a) to (e) N.A. (vi) 18.2.1955. (vii) to (x) N.A.

2. TREATMENTS :10 spraying treatments : T₀=Control, T₁=Gammexane D 0.25 % dust at 20 lb./ac., T₂=Gammexane D 0.25 % dust at 40 lb./ac., T₃=Gammexane D 0.25 % dust at 60 lb./ac., T₄=Chlordane 5 % dust at 10 lb./ac., T₅=Chlordane 5 % dust at 15 lb./ac., T₆=Chlordane 5 % dust at 40 lb./ac., T₇=Aldrin 5 % dust at 10 lb./ac., T₈=Aldrin 5 % dust at 20 lb./ac. and T₉=Aldrin 5 % dust at 30 lb./ac.**3. DESIGN :**

(i) and (ii) R.B.D. with 3 replications. (iii) (a) 56'×24'. (b) 50'×18'. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Incidence of termite. (iv) (a) to (c) No. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 15.23 degrees. (ii) 5.58 degrees. (iii) Treatment differences are not significant. (iv) Mean % of incidence of termite attack in degrees.

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄	T ₅	T ₆	T ₇	T ₈	T ₉
Mean angle	17.90	17.25	17.71	15.45	17.79	19.34	15.58	12.67	11.61	7.00
S.E./mean = 3.22 degrees.										
Transformed back %	9.86	9.20	9.66	7.53	9.74	11.37	7.65	5.26	4.51	1.96

Crop :- Sugarcane.**Ref :- U.P. 56(335).****Zone :- Farenda (Gorakhpur, c.f.).****Type :- 'D'.**

Object :— To study the control measures against termite on Sugarcane.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Sandy soil. (iii) N.A. (iv) CO.S. 416. (v) (a) to (e) N.A. (vi) 14.3.1956. (vii) Irrigated. (viii) to (x) N.A.

2. TREATMENTS :7 spraying treatments : T₀=Control, T₁=B.H.C. 5% at 20 lb./ac., T₂=B.H.C. 5% at 60 lb./ac., T₃=Chlordane 5% at 15 lb./ac., T₄=Chlordane 5% at 40 lb./ac., T₅=Aldrin 2.5% at 20 lb./ac. and T₆=Aldrin 2.5% at 40 lb./ac.**3. DESIGN :**

(i) and (ii) R. B.D. with 4 replications. (iii) (a) 84'×27'. (b) 74'×21'. (iv) Yes.

4. GENERAL :

(i) N.A. (ii) Negligible termite attack. (iii) Percentage incidence of termite at harvest. (iv) (a) to (c) No. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 4.28 degrees. (ii) 2.03 degrees. (iii) Treatment differences are highly significant. (iv) Mean % of incidence of termite in degrees.

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄	T ₅	T ₆
Mean angle	7.01	4.32	4.35	7.08	3.19	3.11	0.90
S.E./mean = 1.02 degrees.							
Transformed back %	1.97	1.06	1.07	2.00	0.81	0.79	0.52

Crop :- Sugarcane.**Ref :- U.P. 58(319).****Zone :- Kusmi (Gorakhpur, c.f.).****Type :- 'D'.****Object :-** To study the control measures against termite on Sugarcane.**1. BASAL CONDITIONS :**

(i) to (iii) N.A. (iv) B.O. 17. (v) (a) to (e) N.A. (vi) 6 and 7.2.1958. (vii) Irrigated. (viii) to (x) N.A.

2. TREATMENTS :5 spraying treatments : T_0 =Control, T_1 =Gamma B.H.C. 20% E.C. at 5 lb./ac., T_2 =Chlordane 75% E.C. at 6½ lb./ac., T_3 =Aldrin 30% E.C. at 10 lb./ac. and T_4 =Heptachlor 20% E.C. at 15 lb./ac.**3. DESIGN :**

(i) and (ii) R.B.D. with 4 replications. (iii) (a) and (b) 28' × 78'. (iv) Yes.

4. GENERAL :

(i) N.A. (ii) Nil. (iii) Yield of sugarcane. (iv) (a) to (c) No. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 32.08 tons/ac. (ii) 1.90 tons/ac. (iii) Treatment differences are significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	T_0	T_1	T_2	T_3	T_4
Av. yield	31.81	32.38	29.65	31.18	35.38

S.E./mean = 0.95 tons/ac.

Crop :- Sugarcane.**Ref :- U.P. 59(346).****Site :- Kusmi (Gorakhpur, c.f.).****Type :- 'D'.****Object :-** To study the control measures against top borer on Sugarcane.**1. BASAL CONDITIONS :**

(i) to (iii) N.A. (iv) B.O. 10. (v) (a) to (e) N.A. (vi) 22.2.1959. (vii) Irrigated. (viii) to (x) N.A.

2. TREATMENTS :9 spraying treatments : T_0 =Control, T_1 =Endrin emulsion 0.05%, T_2 =Endrin emulsion 0.1 %, T_3 =Dieldrin emulsion 0.05%, T_4 =Dieldrin emulsion 0.1% T_5 =Toxaphene emulsion 0.25%, T_6 =Toxaphene emulsion 0.5%, T_7 =DDT emulsion 0.25% and T_8 =DDT emulsion 0.5%.**3. DESIGN :**

(i) and (ii) R.B.D. with 3 replications. (iii) (a) and (b) N.A. (iv) Yes.

4. GENERAL :

(i) N.A. (ii) Top borer. (iii) Percentage incidence of top borer after 2nd spraying. (iv) (a) to (c) N.A. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 7.54 degrees. (ii) 1.96 degrees. (iii) Treatment differences are not significant. (iv) Mean % of incidence of top borer in degrees.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5	T_6	T_7	T_8
Mean angle	10.20	5.89	6.50	7.32	7.96	6.88	7.48	6.85	8.76

S.E./mean = 1.13 degrees.

Percentage incidence	3.61	1.54	1.77	2.11	2.40	1.92	2.18	1.91	2.80
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Crop :- Sugarcane.

Ref :- U.P. 59(345).

Site :- Kusmi (Gorakhpur, c.f.).

Type :- 'D'.

Object :- To study the control measures against termite and shoot borer on Sugarcane.

1. BASAL CONDITIONS :

(i) to (iii) N.A. (iv) B.O. 10. (v) (a) to (e) N.A. (vi) 31.10.1958 and 1.11.1958. (vii) Irrigated. (viii) to (x) N.A.

2. TREATMENTS :

5 levels of Gamma B.H.C. : $T_0=0$, $T_1=0.75$, $T_2=1.00$, $T_3=1.25$ and $T_4=1.50$ lb./ac.

3. DESIGN :

(i) and (ii) R.B.D. with 4 replications. (iii) (a) and (b) $28' \times 78'$. (iv) Yes.

4. GENERAL :

(i) N.A. (ii) Top borer, stem borers, root borer and termite. (iii) Yield of sugarcane and % incidence of different borer and termite at harvest time. (iv) (a) to (c) No. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 21.66 tons/ac. (ii) 3.28 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	T_0	T_1	T_2	T_3	T_4
Av. yield	20.38	22.62	23.94	20.20	21.17

S.E./mean = 1.64 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 59(344).

Zone :- Gorakhpur (Gorakhpur, c.f.).

Type :- 'D'.

Object :- To study the control measures against termite and shoot borer on Sugarcane.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Sandy loam. (iii) N.A. (iv) B.O. 10. (v) (a) and (b) N.A. (c) 50 setts/row. (d) and (e) N.A. (vi) 27 and 28.2.1959. (vii) Irrigated. (viii) to (x) N.A.

2. TREATMENTS :

5 spraying treatments : T_0 =Control, T_1 =Gamma B.H.C. 20 % E.C. at 5 lb./ac., T_2 =Chlordane 75 % E.C. at 6 lb./ac., T_3 =Aldrin 30 % E.C. at 10 lb./ac. and T_4 =Heptachlor 20 % E.C. at 15 lb./ac.

3. DESIGN :

(i) and (ii) R.B.D. with 4 replications. (iii) (a) $28' \times 45'$. (b) $24.5' \times 45'$. (iv) Yes.

4. GENERAL :

(i) N.A. (ii) Top borer, stem borer, root borer and termite. (iii) % incidence at harvest time and sugarcane yield. (iv) (a) to (c) No. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 20.80 tons/ac. (ii) 3.90 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	T_0	T_1	T_2	T_3	T_4
Av. yield	20.17	22.24	20.97	17.74	22.90

S.E./mean = 1.95 tons/ac.

Crop :- Sugarcane.**Ref :- U.P. 57(358).****Zone :- Gorakhpur (Gorakhpur, c.f.).****Type :- 'D'.**

Object :—To study the control measures against shoot borer and top borer on Sugarcane.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Sandy loam. (iii) N.A. (iv) CO.S. 443. (v) (a) to (e) N.A. (vi) 5.3.1957. (vii) Irrigated. (viii) to (x) N.A.

2. TREATMENTS :6 insecticidal sprays in 100 gallons/ac. : T_0 =Control (untreated), T_1 =Endrin 19.5 % E.C. of 0.05 % strength at 2.56 lb. T_2 =Dieldrin 18 % E.C. of 0.05 % strength at 2.8 lb. T_3 =Gamma B.H.C. 20 % E.C. of 0.05 % strength at 2.5 lb. T_4 =DDT 25 % E.C. of 0.25 % strength at 10 lb. and T_5 =Folidol 46.7 % E.C. of 0.05 % strength at 227.25 C.C.**3. DESIGN :**

(i) and (ii) R B.D. with 4 replications. (iii) (a) and (b) 58.5' × 28'. (iv) Yes.

4. GENERAL :

(i) N.A. (ii) Top borer incidence. (iii) Percentage incidence of top borer at the time of harvest. (iv) (a) to (c) No. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 30.69 degrees. (ii) 2.53 degrees. (iii) Treatment differences are not significant. (iv) Mean % of incidence of top borer in degrees.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5
Mean angle	31.57	29.82	29.48	29.78	33.58	29.94
S.E./mean = 1.26 degrees.						
% incidence	27.64	24.98	24.48	24.92	30.79	25.16

Crop :- Sugarcane.**Ref :- U.P. 55(315).****Zone :- Gorakhpur (Gorakhpur, c.f.).****Type :- 'D'.**

Object :—To find out suitable pesticide to control termite on Sugarcane.

1. BASAL CONDITIONS :

(i) to (iii) N.A. (iv) CO.S. 109. (v) (a) to (e) N.A. (vi) 12.4.1955. (vii) to (x) N.A.

2. TREATMENTS :10 insecticidal sprays : T_0 =Control, T_1 =Gammexane D 0.25 % at 20 lb./ac., T_2 =Gammexane D 0.25 % at 40 lb./ac., T_3 =Gammexane D 0.25 % at 60 lb./ac., T_4 =Chlordane 5 % at 10 lb./ac., T_5 =Chlordane 5 % at 15 lb./ac., T_6 =Chlordane 5 % at 40 lb./ac., T_7 =Aldrin 5 % at 10 lb./ac., T_8 =Aldrin 5 % at 20 lb./ac. and T_9 =Aldrin 5 % at 30 lb./ac.**3. DESIGN .**

(i) and (ii) R.B.D. with 4 replications. (iii) (a) 46' × 31.5'. (b) 40 × 24.5'. (iv) Yes.

4. GENERAL :

(i) N.A. (ii) Attack of termite. (iii) % termite attack and yield of sugarcane. (iv) (a) to (c) No. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :**% termite attack**

(i) 16.85 degrees. (ii) 6.23 degrees. (iii) Treatment differences are significant. (iv) Mean % of incidence of termite attack in degrees.

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄	T ₅	T ₆	T ₇	T ₈	T ₉
Mean angle	36.56	25.16	14.58	14.03	19.46	16.72	14.74	12.06	11.52	3.64

S.E./mean = 4.41 degrees.

Transformed back %	35.63	18.40	6.78	6.32	11.49	8.70	6.92	4.80	4.45	0.92
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Sugarcane yield

(i) 13.87 tons/ac. (ii) 1.66 tons/ac. (iii) Treatment differences are highly significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄	T ₅	T ₆	T ₇	T ₈	T ₉
Av. yield	2.43	10.77	12.59	14.90	10.82	18.03	18.42	13.29	17.98	19.44

S.E./mean = 1.17 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 58(331).

Zone :- Gorakhpur (Gorakhpur, c.f.).

Type :- 'D'.

Object :- To study the control measures against top borer on Sugarcane.

1. BASAL CONDITIONS :

(i) to (iii) N.A. (iv) CO S. 416. (v) (a) to (c) N.A. (vi) 11.2.1958. (vii) Irrigated. (viii) to (x) N.A.

2. TREATMENTS :

9 insecticidal sprays : T₀=Control, T₁=Endrin emulsion 0.05 %, T₂=Endrin emulsion 0.1 %, T₃=Dieldrin emulsion 0.05 %, T₄=Dieldrin emulsion 0.10 %, T₅=Toxaphene emulsion 0.25 %, T₆=Toxaphene emulsion 0.50 %, T₇=DDT emulsion 0.25 %, and T₈=DDT emulsion 0.5 %.

3. DESIGN :

(i) and (ii) R.B.D. with 3 replications. (iii) (a) 51'×42'. (b) N.A. (iv) Yes.

4. GENERAL :

(i) N.A. (ii) Slight top borer attack. (iii) Percentage incidence of top borer after 2nd spraying. (iv) (a) to (c) No. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 10.77 degrees. (ii) 1.09 degrees. (iii) Treatment differences are highly significant. (iv) Mean % of incidence of top borer in degrees.

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄	T ₅	T ₆	T ₇	T ₈
Mean angle	16.11	12.27	10.72	10.22	8.30	10.00	10.86	9.57	8.85

S.E./mean = 0.63 degrees.

Percentage incidence	8.12	4.96	3.93	3.62	2.56	3.48	4.01	3.23	2.85
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Crop :- Sugarcane.

Ref :- U.P. 55(301).

Zone :- Golagokarannath (Kheri, c.f.).

Type :- 'D'.

Object :- To study the effect of insecticidal spray on Sugarcane.

1. BASAL CONDITIONS :

(i) to (iii) N.A. (iv) B.O. 24. (v) (a) to (c) N.A. (vi) February, 1955. (vii) to (x) N.A.

2. TREATMENTS :

6 insecticidal sprayings : T₀=Control, T₁=Toxaphene 0.5 % (W.P.), T₂=B.H.C.+DDT 0.5 % (W.P.), T₃=Dieldrin 0.1 % (W.P.), T₄=Endrin 0.1 % (E.C.) and T₅=Ryania 1.0 % (W.P.).

Spraying on 10.5.1955 and 16.6.1955 at 30 and 45 gallons/ac. of fluid.

3. DESIGN:

(i) and (ii) R.B.D. (iii) (a) 52' x 28'. (b) N.A. (iv) Yes.

4. GENERAL:

(i) N.A. (ii) Attack of shoot borer. (iii) % incidence after 1st spray. (iv) (a) to (c) No. (v) N.A. (vi) and (vii) Nil.

5. RESULTS:

(i) 8.09 degrees. (ii) 2.26 degrees. (iii) Treatment differences are not significant. (iv) Mean % of incidence of shoot borer in degrees.

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄	T ₅
Mean angle	8.40	8.24	7.02	8.72	9.06	7.10
S.E./mean = 1.13 degrees.						
% incidence of shoot borer	2.62	2.64	1.98	2.78	2.96	2.01

Crop :- Sugarcane.

Ref :- U.P. 57(366).

Zone :- Golagokarannath (Kheri, c.f.).

Type :- ID¹.

Object :- To find out suitable pesticide to control termite on Sugarcane.

1. BASAL CONDITIONS:

(i) (a) N.A. (b) Dhaincha. (c) N.A. (ii) N.A. (iii) Press mud at 250 mds./ac. (iv) CO.S. 510. (v) (a) to (e) N.A. (vi) 3.2.1957. (vii) to (ix) N.A. (x) 30.12.1957.

2. TREATMENTS:

7 insecticidal sprayings : T₀=Control, T₁=B.H.C. 5 % dust at 20 lb./ac., T₂=B.H.C. 5 % dust at 50 lb./ac., T₃=Chlordane 5 % dust at 15 lb./ac., T₄=Chlordane 5 % dust at 40 lb./ac., T₅=Aldrin 5 % dust at 10 lb./ac. and T₆=Aldrin 5 % dust at 20 lb./ac.

3. DESIGN:

(i) and (ii) R.B.D. with 3 replications. (iii) (a) 84' x 27'. (b) N.A. (iv) Yes.

4. GENERAL:

(i) N.A. (ii) Termite attack. (iii) Germination %, % incidence of termite on cane eye buds and sugarcane yield. (iv) (a) to (c) No. (v) N.A. (vi) and (vii) Nil.

5. RESULTS:

(i) 9.25 degrees. (ii) 8.90 degrees. (iii) Treatment differences are highly significant. (iv) Mean % of termite attack in degrees.

Treatment	Termite attack						
	T ₀	T ₁	T ₂	T ₃	T ₄	T ₅	T ₆
Mean angle	43.64	9.63	5.12	1.71	4.65	0.00	0.00
S.E./mean = 5.40 degrees.							
Transformed back %	47.65	3.27	1.29	0.59	1.15	0.50	0.50

Sugarcane yield

(i) 5.22 tons/ac. (ii) 3.02 tons/ac. (iii) Treatment differences are significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄	T ₅	T ₆
Av. yield	0.18	5.55	4.69	1.30	10.82	5.60	8.39
S.E./mean = 1.75 tons/ac.							

Crop :- Sugarcane.

Ref :- U.P. 58(479).

Zone :- Meerut (Meerut, c.f.).

Type :- 'D'.

Object :—To study the effect of Gamma B.H.C. of different strengths as soil insecticide in controlling termite and shoot borer on Sugarcane.

1. BASAL CONDITIONS :

- (i) (a) N.A. (b) *Sanai* for G.M. (c) Nil. (ii) N.A. (iii) *Sanai* as G.M. (iv) CO.S. 321 (improved). (v) (a) N.A. (b) Flat planting. (c) N.A. (d) Rows 3' apart. (e) N.A. (vi) 3 and 4.3.1958, (vii) to (x) N.A.

2. TREATMENTS :

4 levels of Gamma B.H.C. in 8 gallons : $T_0=0$, $T_1=0.5$, $T_2=0.75$ and $T_3=1.0$ lb./ac.

3. DESIGN :

- (i) and (ii) R.B.D. with 6 replications. (iii) (a) and (b) $48' \times 44'$. (iv) Yes.

4. GENERAL :

- (i) N.A. (ii) Attack of shoot and top borers. (iii) Incidence of borer and sugarcane yield. (iv) (a) to (c) No (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

Shoot borer infestation

- (i) 13.56 degrees. (ii) 1.21 degrees. (iii) Treatment differences are highly significant. (iv) Mean % of shoot borer infestation on 23 and 24.6.1958 in degrees.

Treatment	T_0	T_1	T_2	T_3
Mean angle	21.80	12.33	11.64	8.47

S.E./mean = 0.49 degrees.

Transformed back %	T_0	T_1	T_2	T_3
	14.14	5.00	4.52	2.64

Sugarcane yield

- (i) 19.92 tons/ac. (ii) 2.01 tons/ac. (iii) Treatment differences are highly significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	T_0	T_1	T_2	T_3
Av. yield	17.23	20.63	20.03	21.81

S.E./mean = 0.82 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 58(477).

Zone :- Muzaffarnagar (Muzaffarnagar, c.f.).

Type :- 'D'.

Object :—To study the effect of insecticides in controlling the Lygacid bugs on Sugarcane.

1. BASAL CONDITIONS :

- (i) (a) N.A. (b) Plant cane. (c) N.A. (ii) and (iii) N.A. (iv) CO.S. 321 (ratoon). (v) (a) to (c) N.A. (d) Rows 3' apart. (e) N.A. (vi) to (x) N.A.

2. TREATMENTS :

9 insecticidal sprayings : T_0 =Control, T_1 =B.H.C., E.C. at 0.025 %, T_2 =B.H.C., E.C. at 0.050 %, T_3 =Endrin E.C. at 0.025 %, T_4 =Endrin E.C. at 0.05 %, T_5 =Folidol E.C. at 0.05 %, T_6 =Folidol E.C. at 0.10 %, T_7 =Malathion at 0.05 % and T_8 =Malathion at 0.100 %.

Spraying done on 24.4.1958.

3. DESIGN :

- (i) and (ii) R.B.D. with 3 replications. (iii) (a) and (b) $45' \times 24'$. (iv) Yes.

4. GENERAL:

(i) N.A. (ii) Lygacid bugs attack. (iii) Populations of lygacid before spraying, population of dead and living lygacid bugs 24, 23 and 72 hours after spraying. (iv) (a) 1958—contd. (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS:

(i) 54.96 degrees. (ii) 4.61 degrees. (iii) Treatment differences are highly significant. (iv) Mean % of mortality 72 hours after spraying on 27.4.1958 in degrees.

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄	T ₅	T ₆	T ₇	T ₈
Mean angle	12.29	73.13	76.61	82.32	88.53	40.20	46.41	35.27	39.86
S.E./mean = 2.66 degrees.									
Transformed back %	4.98	91.16	94.19	97.73	99.43	41.75	52.44	33.52	41.17

Crop :- Sugarcane.

Ref :- U.P. 59(526).

Zone :- Muzaffarnagar (Muzaffarnagar, c.f.).

Type :- 'D'.

Object :- To study the effect of insecticides in controlling the Lygacid bugs on Sugarcane (ratoon crop).

1. BASAL CONDITIONS:

(i) (a) N.A. (b) Plantcane. (c) N.A. (ii) and (iii) N.A. (iv) CO. 951. (v) (a) to (c) N.A. (d) Rows 3' apart. (e) N.A. (vi) to (x) N.A.

2. TREATMENTS to 4. GENERAL:

Same as in expt. no. 58(477) on page 1361.

Spraying at 50 gallons/ac. on 28.4.1959.

5. RESULTS:

(i) 66.36 degrees. (ii) 8.40 degrees. (iii) Treatment differences are highly significant. (iv) Mean % of mortality in degrees 72 hours after spraying.

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄	T ₅	T ₆	T ₇	T ₈
Mean angle	0.00	67.70	79.38	87.47	88.70	81.09	83.74	57.74	51.42
S.E./mean = 4.84 degrees.									
Transformed back %	0.50	85.24	96.14	99.30	99.45	97.12	98.32	71.29	61.01

Crop :- Sugarcane.

Ref :- U.P. 59(527).

Zone :- Muzaffarnagar (Muzaffarnagar, c.f.).

Type :- 'D'.

Object :- To study the effect of insecticides in controlling the Lygacid bugs on Sugarcane.

1. BASAL CONDITIONS:

(i) (a) N.A. (b) Plantcane. (c) N.A. (ii) and (iii) N.A. (iv) CO. 951 (ratoon crop). (v) (a) to (c) N.A. (d) Rows 3' apart. (e) N.A. (vi) to (ix) N.A. (x) 17 to 19.11.1959.

2. TREATMENTS:

Same as in expt. no. 58(477) on page 1361.

Spraying done on 26.6.1959.

3. DESIGN:

(i) and (ii) R.B.D. with 3 replications. (iii) (a) and (b) 45' x 21'. (iv) Yes.

4. GENERAL:

(i) N.A. (ii) Lygacid bug attack. (iii) Population of lygacid bugs before spraying, population of dead and living lygacid bugs 24, 48 and 72 hours after spraying. (iv) (a) 1959—N.A. (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 61.22 degrees. (ii) 11.98 degrees. (iii) Treatment differences are highly significant. (iv) Mean % of mortality 72 hours after spraying, 29.5.1959 in degrees.

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄	T ₅	T ₆	T ₇	T ₈
Mean angle	0.00	82.81	87.80	69.43	82.28	74.87	84.13	34.34	35.31
S.E./mean = 6.92 degrees.									
Transformed back %	0.50	97.95	99.35	87.28	97.72	92.76	98.46	32.00	33.58

Crop :- Sugarcane.

Ref :- U.P. 56(472).

Zone :- Muzaffarnagar (Muzaffarnagar, c.f.).

Type :- 'D'.

Object :- To study the effect of insecticides on Sugarcane (ratoon crop).

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Sugarcane. (c) N.A. (ii) and (iii) N.A. (iv) CO.S. 321 improved. (v) to (x) N.A.

2. TREATMENTS :

7 insecticidal sprayings : T₀=Control, T₁=Endrin at 0.05%, T₂=Dieldrin at 0.05%, T₃=B.H.C. at 0.05%
T₄=DDT at 0.25%, T₅=Metasystox % at 0.05 and T₆=Folidol at 0.05%.
Spraying done at 45 gallons/ac. on 25.5.1956.

3. DESIGN :

(i) and (ii) R.B.D. with 3 replications. (iii) (a) and (b) 33' x 15'. (iv) Yes.

4. GENERAL :

(i) N.A. (ii) Attack of bugs. (iii) Population of lygacid bugs (adults and nymphs) dead and living 48 and 72 hours after spraying. (iv) (a) to (c) No. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 41.32 degrees. (ii) 14.02 degrees. (iii) Treatment differences are significant. (iv) Mean % of mortality in degrees.

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄	T ₅	T ₆
Mean angle	0.00	34.07	42.97	42.69	42.39	45.51	40.29
S.E./mean = 8.09 degrees.							
Transformed back %	0.50	31.57	46.50	46.01	45.50	50.87	41.90

Crop :- Sugarcane.

Ref :- U.P. 56(471).

Zone :- Muzaffarnagar (Muzaffarnagar, c.f.).

Type :- 'D'.

Object :- To study the effect of insecticides to control Lygacid bugs on Sugarcane (ratoon crop).

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Plant cane. (c) N.A. (ii) and (iii) N.A. (iv) CO.S. 312 improved. (v) to (x) N.A.

2. TREATMENTS :

8 insecticidal sprayings : T₀=Control, T₁=Endrin emulsion at 0.05%, T₂=Endrin emulsion at 0.1%,
T₃=Gamma B.H.C. emulsion at 0.05%, T₄=Gamma B.H.C. emulsion at 0.01%,
T₅=DDT emulsion at 0.25%, T₆=DDT emulsion at 0.05% and T₇=Metasystox
at 0.05%.

Spraying on 9.6.1956 at 150 gallons/ac. with hand spray and a thorough wetting of the affected crop.

3. DESIGN :

(i) and (ii) R.B.D. with 4 replications. (iii) (a) and (b) 20' x 9'. (iv) Yes.

4. GENERAL :

(i) N.A. (ii) Lygacid bug attack. (iii) Population of bugs before spraying. Population of living and dead bugs after 48 hours of spray. (iv) (a) to (c) No. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 54.09 % mortality. (ii) 6.50 % mortality. (iii) Treatment differences are highly significant. (iv) Av. % mortality of bugs after 48 hours of spray.

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄	T ₅	T ₆	T ₇
Av. % mortality	1.31	98.28	98.85	86.08	92.39	19.05	19.23	17.55

S.E./mean = 3.76 %

Crop :- Sugarcane.

Ref :- U.P. 54(364).

Zone :- Kirana (Muzaffarnagar, c.f.).

Type :- 'D'.

Object :- To study the effect of insecticides against termite on Sugarcane.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) *Sanai and sarson*. (c) N.A. (ii) Clayey. (iii) N.A. (iv) CO.S. 245 (improved). (v) (a) N.A. (b) Flat planting. (c) 83 (3 budded) setts/row. (d) Rows 3' apart. (e) N.A. (vi) 27 and 28.3.1954. (vii) to (x) N.A.

2. TREATMENTS :

6 insecticidal sprayings : T₀=Control, T₁=5% B.H.C. dust at 20 lb./ac., T₂=5% B.H.C. dust at 80 lb./ac., T₃=5% Chlordane at 10 lb./ac., T₄=5% Chlordane at 80 lb./ac. and T₅=5% Aldrin at 30 lb./ac.

Treatments applied in furrows at sowing time.

3. DESIGN :

(i) and (ii) R B.D. with 3 replications. (iii) (a) and (b) 80.75' x 27'. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Germination count on 2.5.1954. (iv) (a) to (c) No. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 33.50 degrees. (ii) 2.20 degrees. (iii) Treatment differences are not significant. (iv) Mean % of germination in degrees.

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄	T ₅
Mean angle	32.63	33.18	32.79	35.67	36.04	30.70

S.E./mean = 1.27 degrees.

Transformed back %	29.28	30.15	29.54	34.16	34.77	26.31
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Crop :- Sugarcane.

Ref :- U.P. 56(470).

Zone :- Muzaffarnagar (Muzaffarnagar, c.f.).

Type :- 'D'.

Object :- To study the effect of mechanical control measures against Lygacid bugs on Sugarcane.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Plant cane of CO.S. 245. (c) N.A. (ii) and (iii) N.A. (iv) CO.S. 245 (ratoon improved). (v) to (x) N.A.

2. TREATMENTS :

4 dates of cutting of shoots : D_0 =Control (no cutting), D_1 =7.4.1956, D_2 =15.4.1956 and D_3 =24.4.1956.

3. DESIGN :

(i) R.B.D. with 5 replications. (iii) (a) and (b) 50'×27'. (iv) Yes.

4. GENERAL :

(i) N.A. (ii) Lygacid bug attack. (iii) 3 shoots were examined on 7.5.1956 from each plot and population of bugs noted. (iv) (a) to (c) No. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 2.68. (ii) 0.82. (iii) Treatment differences are highly significant. (iv) Av. value of $\sqrt{x+0.5}$ where x is the count of lygacid bugs.

Treatment	D_0	D_1	D_2	D_3
Av. value	7.11	1.72	0.88	0.99
S.E./mean = 0.37				
Transformed back x	50.05	2.46	0.27	0.48

Crop :- Sugarcane.

Ref :- U.P. 58(480).

Zone :- Mansurpur (Muzaffarnagar, c.f.).

Type :- 'D'.

Object :-To study the effect of cutting shoots on different dates in controlling Lygacid bugs on Sugarcane.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Ratoon of CO.S. 321. (c) N.A. (ii) and (iii) N.A. (iv) CO.S. 321 (ratoon crop). (v) (a) to (c) N.A. (d) 3' between rows. (e) N.A. (vi) to (ix) N.A. (x) 30.11.1958.

2. TREATMENTS :

3 dates of cutting of shoots : D_0 =Control (no cutting), D_1 =25.4.1958 and D_2 =11.5.1958.

3. DESIGN :

(i) and (ii) R.B.D. with 6 replications. (iii) (a) and (b) 60.5'×18'. (iv) Yes.

4. GENERAL :

(i) N.A. (ii) Incidence of lygacid bugs and top borers. (i'i) Population of lygacid bugs on 23.4.1958, 11.5.1958 and 7.6.1958. No. of top bored and total no. of shoots on 8.6.1958. No. of top bored canes and no. of millable canes on 3, 4.11.1958 and yield of sugarcane. (iv) (a) 1953—1959. (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

Population of bugs

(i) 5.94. (ii) 3.02. (iii) Treatment differences are highly significant. (iv) Av. value of $\sqrt{x+0.5}$ /plot where x is the population of lygacid bugs on 7.6.1958.

Treatment	D_0	D_1	D_2
Av. value	12.00	2.61	3.20

S.E./mean = 1.23 degrees.

Top borer infestation

(i) 21.75 degrees. (ii) 2.87 degrees. (iii) Treatment differences are significant. (iv) Mean % of infestation of top borer on 8.6.1958 in degrees.

Treatment	D_0	D_1	D_2
Mean angle	18.54	23.59	23.12

S.E./mean = 1.17

Transformed back % 10.51 16.35 15.76

Top bored canes

(i) 27.90 degrees. (ii) 2.39 degrees. (iii) Treatment differences are highly significant. (iv) Mean % of top-bored canes on 3 and 4.11.1958 in degrees.

Treatment	D ₀	D ₁	D ₂
Mean angle	23.74	29.40	30.55
S.E./mean = 0.98 degrees.			
Transformed back %	16.55	24.36	26.07

Sugarcane yield

(i) 15.02 tons/ac. (ii) 2.43 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	D ₀	D ₁	D ₂
Av. yield	16.37	14.51	14.18
S.E./mean = 0.99 tons/ac.			

Crop :- Sugarcane.

Ref :- U.P. 59(528).

Zone :- Mansurpur (Muzaffarnagar, c.f.).

Type :- 'D'.

Object :- To study the effect of cutting shoots at different dates in controlling Lygacid bugs on Sugarcane.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Plant cane of CO.S. 515. (c) N.A. (ii) and (iii) N.A. (iv) CO.S. 515 (ratoon). (v) (a) to (c) N.A. (d) Rows 3' apart. (e) N.A. (vi) to (ix) N.A. (x) 18 and 19.11.1959.

2. TREATMENTS :

3 dates of cutting of shoots : D₀=Control (no cutting), D₁=19.4.1959 and D₂=4.5.1959.

3. DESIGN :

(i) and (ii) R.B.D. with 6 replications. (iii) (a) and (b) 60.5' × 18'. (iv) Yes.

4. GENERAL :

(i) N.A. (ii) Incidence of lygacid bugs and top borers. (iii) Populations of lygacid bugs and nymphs before 1st and 2nd cuttings only. No. of shoots bored, no. of top bored and total no. of tillers on 17 to 19.6.1959. No. of top bored and total no. of tillers on 19 to 21.10.1959. Counts of roots, stem and top bored canes at harvest and yield of sugarcane. (iv) (a) 1958-1959. (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :**Top borer infestation on 19.6.1959**

(i) 3.33 degrees. (ii) 1.22 degrees. (iii) Treatment differences are not significant. (iv) Mean % of top borer infestation on 19.6.1959 in degrees.

Treatment	D ₀	D ₁	D ₂
Mean angle	2.19	4.02	3.78
S.E./mean = 0.50 degrees.			
Transformed back %	0.62	0.96	0.91

Top borer infestation on 19 to 21.10.1959

(i) 15.31 degrees. (ii) 1.04 degrees. (iii) Treatment differences are highly significant. (iv) Mean % of top borer infestation from 19 to 21.10.1959 in degrees.

Treatment	D ₀	D ₁	D ₂
Mean angle	10.54	15.69	10.54
S.E./mean = 0.42 degrees.			
Transformed back %	3.81	7.74	11.76

Sugarcane yield

(i) 13.06 tons/ac. (ii) 2.91 tons/ac. (iii) Treatment differences are highly significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	D ₀	D ₁	D ₂
Av. yield	17.95	10.95	10.27

S.E./mean = 1.19 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 58(347).

Zone :- Bilaspur (Rampur, c.f.).

Type :- 'D'.

Object :- To study the control measures against termite and shoot borer attack on Sugarcane.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Fallow. (c) N.A. (ii) Loam. (iii) N.A. (iv) CO.S. 245. (v) (a) to (e) N.A. (vi) 15 and 16.2.1958. (vii) to (ix) N.A. (x) January and February, 1959.

2. TREATMENTS :

5 insecticidal sprayings : T₀=Control, T₁=Gamma B.H.C. 20% (E.C.) at 5 lb./ac. T₂=Chlordane 75% (E.C.) at 6.6 lb./ac. T₃=Aldrin 30% (E.C.) at 10 lb./ac. and T₄=Heptachlor 20% (E.C.) at 15 lb./ac.

3. DESIGN :

(i) and (ii) R.B.D. with 4 replications. (iii) (a) 66' × 33'. (b) N.A. (iv) Yes.

4. GENERAL :

(i) N.A. (ii) Attack of termite and shoot borer. (iii) % germination, % incidence of termite to sugarcane eye buds and % shoot borer attack. (iv) (a) to (c) No. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 29.02 degrees. (ii) 9.32 degrees. (iii) Treatment differences are not significant. (iv) Mean % of shoot borer attack in degrees.

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄
Mean angle	41.85	19.61	30.91	28.30	24.42

S.E./mean = 4.66 degrees.

Transformed back %	44.57	11.66	26.62	22.74	17.42
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Crop :- Sugarcane.

Ref :- U.P. 56(329).

Zone :- Shahjahanpur (Shahjahanpur, c.f.).

Type :- 'D'.

Object :- To study the control measures against termite attack on Sugarcane.

1. BASAL CONDITIONS :

(i) to (iii) N.A. (iv) CO. 510. (v) (a) to (e) N.A. (vi) 15.3.1956. (vii) Irrigated. (viii) and (ix) N.A. (x) 29.1.1957.

2. TREATMENTS :

7 insecticidal dust sprayings : T₀=Control, T₁=B.H.C. 5% at 20 lb./ac., T₂=B.H.C. 5% at 60 lb./ac., T₃=Chlordane 5% at 15 lb./ac., T₄=Chlordane 5% at 40 lb./ac., T₅=Eldrin 2½% at 20 lb./ac. and T₆=Eldrin 2½% at 40 lb./ac.

3. DESIGN :

(i) and (ii) R.B.D. (iii) (a) 90' × 21'. (b) N.A. (iv) Yes.

4. GENERAL :

(i) and (ii) Yield of sugarcane and germination %. (vi) (a) to (c) No. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 42.50 degrees. (ii) 1.42 degrees. (iii) Treatment differences are not significant. (iv) Mean % of germination in degrees.

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄	T ₅	T ₆
Mean angle	40.13	43.04	43.25	43.31	42.56	42.99	42.22
S.E./mean = 0.71 degrees.							
Transformed back %	41.62	46.61	46.98	47.08	45.79	46.54	45.20

Crop :- Sugarcane.

Ref :- U.P. 57(357).

Zone :- Shahjahanpur (Shahjahanpur, c.f.).

Type :- 'D'.

Object :- To study the control measures against shoot borer attack on Sugarcane.

1. BASAL CONDITIONS :

(i) to (iii) N.A. (iv) CO.S. 514. (v) (a) to (e) N.A. (vi) 25 and 26.3.1957. (vii) to (ix) N.A. (x) 24.1.1958.

2. TREATMENTS :

6 insecticidal treatments : T₀=Control, T₁=Gamma B.H.C. 0.1 % (E.C.) spray, T₂=D.D.T. 0.25 % (E.C.) spray, T₃=Endrin 0.1 % (E.C.) spray, T₄=B.H.C. 5 % dust at 50 lb./ac. in soil and T₅=B.H.C.+D.D.T. (1250 gregys) 0.5 % (W.P.) spray.

3. DESIGN :

(i) and (ii) R.B.D. with 4 replications. (iii) (a) 60' x 30'. (b) N.A. (iv) Yes.

4. GENERAL :

(i) N.A. (ii) Attack of shoot borer. (iii) % incidence of shoot borer. (iv) (a) to (c) No. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 18.17 degrees. (ii) 2.78 degrees. (iii) Treatment differences are highly significant. (iv) Mean % of incidence of borer in degrees.

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄	T ₅
Mean angle	23.85	21.61	16.90	14.56	11.12	20.96
S.E./mean = 1.39 degrees.						
Transformed back %	16.69	13.92	8.87	6.76	4.18	13.17

Crop :- Sugarcane.

Ref :- U.P. 58(313).

Zone :- Shahjahanpur (Shahjahanpur, c.f.).

Type :- 'D'.

Object :- To study the control measures against borer attack on Sugarcane.

1. BASAL CONDITIONS :

(i) to (iii) N.A. (iv) CO. 527. (v) (a) to (e) N.A. (vi) 17.3.1958. (vii) to (x) N.A.

2. TREATMENTS :

9 insecticidal sprays : T₀=Control, T₁=Endrin emulsion 0.05 %, T₂=Endrin emulsion 0.1 %, T₃=Dieldrin emulsion 0.05 %, T₄=Dieldrin emulsion 0.1 %, T₅=Toxaphene emulsion 0.25 %, T₆=Toxaphene emulsion 0.5 %, T₇=D.D.T. emulsion 0.25 % and T₈=D.D.T. emulsion 0.5 %.

1st spraying done in the middle of April, 2nd spraying done in the middle of May (22.5.1958.)

3. DESIGN :

(i) and (ii) R.B.D. with 3 replications. (iii) (a) 60'×30'. (b) N.A. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) % shoot borer attack and sugarcane yield. (iv) and (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 18.50 tons/ac. (ii) 3.88 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄	T ₅	T ₆	T ₇	T ₈
Av. yield	10.95	19.48	18.69	17.71	18.93	23.49	21.81	16.41	19.08

S.E./mean = 2.24 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 54(276).

Zone :- Shahjahanpur (Shahjahanpur, c.f.).

Type :- 'D'.

Object :—To find out the suitable insecticide to control termite on Sugarcane.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Loamy. (iii) N.A. (iv) CO.S. 510. (v) to (x) N.A.

2. TREATMENTS :

9 insecticidal dustings : T₀=Control (no dusting), T₁=B.H.C. 5 % at 20 lb./ac., T₂=B.H.C. 5 % at 80 lb./ac., T₃=Chlordane 5 % at 10 lb./ac., T₄=Chlordane 5 % at 15 lb./ac., T₅=Chlordane 5 % at 40 lb./ac., T₆=Aldrin 1 % at 50 lb./ac., T₇=Aldrin 1 % at 100 lb./ac. and T₈=Aldrin 1 % at 150 lb./ac.

3. DESIGN :

(i) and (ii) R.B.D. with 4 replications. (iii) (a) and (b) 77'×21'. (iv) Yes.

4. GENERAL :

(i) Normal. (ii) N.A. (iii) Germination %, termite incidence after treatment and yield of cane. (iv) (a) 1954—1956. (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 10.87 degrees. (ii) 6.68 degrees. (iii) Treatment differences are highly significant. (iv) Mean % of germination in degrees.

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄	T ₅	T ₆	T ₇	T ₈
Mean angle	52.82	10.96	5.94	5.98	8.95	6.60	1.28	0.00	5.32

S.E./mean = 3.34 degrees.

Transformed back %	63.48	3.61	1.07	1.09	2.42	1.32	0.05	0.00	0.86
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Crop :- Sugarcane.

Ref :- U.P. 57(380).

Zone :- Shahjahanpur (Shahjahanpur, c.f.).

Type :- 'D'.

Object :—To study the control measures against termite and shoot borer attack on Sugarcane.

1. BASAL CONDITIONS :

(i) to (iii) N.A. (iv) CO. 527 (improved). (v) (a) to (e) N.A. (vi) 1.3.1957. (vii) Irrigated. (viii) and (ix) N.A. (x) 20.1.1958.

2. TREATMENTS :

7 insecticidal sprayings : T_0 =Control (2 plots), T_1 =B.H.C. 5 % dust at 20 lb./ac., T_2 =B.H.C. emulsion at 1.125 lb./ac. of actual Gamma, T_3 =Chlordane 5% dust at 20 lb./ac., T_4 =Chlordane emulsion 0.9 lb./ac. of actual Chlordane, T_5 =Aldrin 5 % dust at 20 lb./ac. and T_6 =Aldrin emulsion at 0.56 lb./ac. of actual Aldrin.

Insecticides applied at planting in lines in the soil.

3. DESIGN :

(i) and (ii) R.B.D. with 3 replications. (iii) (a) 80'×24'. (b) N.A. (iv) Yes.

4. GENERAL :

(i) N.A. (ii) Termite and shoot borer attack. (iii) % germination, % incidence of termite to cane eye buds, and % shoot borer attack. (iv) (a) to (c) No. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

Termite incidence

(i) 14.30 degrees. (ii) 5.63 degrees. (iii) Treatment differences are highly significant. (iv) Mean % of termite incidence in degrees.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5	T_6
Mean angle	47.25	6.90	10.34	0	2.10	0	0
	S.E./mean (excluding T_0) = 3.35 degrees.						
	S.E. of T_0 mean = 2.30 degrees.						
Percentage incidence	53.88	1.93	3.69	0.50	0.62	0.50	0.50

Shoot borer incidence

(i) 33.61 degrees. (ii) 2.30 degrees. (iii) Treatment differences are highly significant. (iv) Mean angle of shoot borer incidence in degrees.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5	T_6
Mean angle	37.27	32.82	10.64	39.14	38.40	35.46	37.91
	S.E./mean (excluding T_0) = 1.33 degrees.						
	S.E. of T_0 mean = 0.94 degrees.						
Transformed back %	36.79	29.59	3.88	39.95	38.69	33.81	37.87

Crop :- Sugarcane.

Ref :- U.P. 58(346).

Zone :- Shahjahanpur (Shahjahanpur, c.f.).

Type :- 'D'.

Object :- To study the control measures against termite of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) *Chari*. (c) N.A. (ii) N.A. (iii) 850 mds./ac. of F.Y.M. (iv) CO.S. 321. (v) (a) to (e) N.A. (vi) 12.3.1958. (vii) to (ix) N.A. (x) 13.1.1959.

2. TREATMENTS :

9 insecticidal sprays : T_0 =Control (untreated), T_1 =Gamma B.H.C. emulsion at 0.13 lb./ac., T_2 =Crude B.H.C. dust at 1 lb./ac. T_3 =Chlordane emulsion at 1 lb./ac., T_4 =Chlordane dust at 1 lb./ac., T_5 =Aldrin emulsion at 1 lb./ac. T_6 =Aldrin dust at 1 lb./ac., T_7 =Heptachlor emulsion at 1 lb./ac. and T_8 =Heptachlor dust at 1 lb./ac.

3. DESIGN :

(i) and (ii) R.B.D. with 3 replications. (iii) (a) 55'×30'. (b) N.A. (iv) Yes.

4. GENERAL :

(i) N.A. (ii) Attack of termite. (iii) % germination, % attack to cane eye buds. (iv) (a) 1958—N.A. (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 11.37 degrees. (ii) 6.39 degrees. (iii) Treatment differences are highly significant. (iv) Mean % of incidence of termite in degrees.

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄	T ₅	T ₆	T ₇	T ₈
Mean angle	41.60	5.58	20.20	9.26	8.82	2.64	5.18	1.59	7.43
S.E./mean = 3.69 degrees.									
Transformed back %	44.14	1.44	12.30	3.06	2.83	0.71	1.31	0.58	2.15

Crop :- Sugarcane.

Ref :- U.P. 58(330).

Zone :- Shahjahanpur (Shahjahanpur, c.f.).

Type :- 'D'.

Object :—To study the control measures against termite and shoot-borer attack on Sugarcane.

1. BASAL CONDITIONS :

(i) to (iii) N.A. (iv) CO.S. 321. (v) (a) to (e) N.A. (vi) 10.3.1958. (vii) to (x) N.A.

2. TREATMENTS :

4 levels of Gamma B.H.C. emulsion : T₀=0, T₁=0.5, T₂=0.75 and T₃=1.00 lb./ac.

3. DESIGN :

R.B.D. with 4 replications. (iii) (a) and (b) 55'×30'. (iv) Yes.

4. GENERAL :

(i) N.A. (ii) Termite and shoot borer attack. (iii) % termite attack, % shoot borer attack and yield of Sugarcane. (iv) (a) to (c) No. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

% termite attack

(i) 8.75 degrees. (ii) 5.16 degrees. (iii) Treatment differences are highly significant. (iv) Mean % of termite attack in degrees.

Treatment	T ₀	T ₁	T ₂	T ₃
Mean angle	22.58	9.58	2.84	0.00
S.E./mean = 2.58 degrees.				
Transformed back %	15.09	3.24	0.74	0.50

% shoot borer attack

(i) 18.23 degrees. (ii) 3.22 degrees. (iii) Treatment differences are highly significant. (iv) Mean % of shoot borer attack in degrees.

Treatment	T ₀	T ₁	T ₂	T ₃
Mean angle	26.24	20.98	15.04	10.65
S.E./mean = 1.61 degrees.				
Transformed back %	19.84	13.19	7.16	3.88

Sugarcane yield

(i) 16.28 tons/ac. (ii) 3.11 tons/ac. (iii) Treatment differences are significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	T ₀	T ₁	T ₂	T ₃
Av. yield	13.27	14.05	15.86	21.95
S.E./mean = 1.56 tons/ac.				

Crop :- Sugarcane.**Ref :- U.P. 58(328).****Zone :- Shahjahanpur (Shahjahanpur, c.f.).****Type :- 'D'.**

Object :—To study the effect of Gamma B.H.C. against termite and shoot borer on Sugarcane.

1. BASAL CONDITIONS :

(i) to (iii) N.A. (iv) CO.S. 416. (v) (a) to (e) N.A. (vi) 28 and 29.10.1958. (vii) to (ix) N.A. (x) 5.2.1960.

2. TREATMENTS :5 levels of Gamma B.H.C. : $T_0=0$, $T_1=0.75$, $T_2=1.00$, $T_3=1.25$ and $T_4=1.50$ lb./ac.**3. DESIGN :**(i) and (ii) R.B.D. with 4 replications. (iii) (a) $66' \times 33'$. (b) $66' \times 15'$. (iv) Yes.**4. GENERAL :**

(i) N.A. (ii) Attack of termite and shoot borer. (iii) % germination, % of shoot borer and yield of sugarcane. (iv) (a) 1958—1960. (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :**% shoot borer**

(i) 10.22 degrees. (ii) 1.59 degrees. (iii) Treatment differences are highly significant. (iv) Mean % of shoot borer incidence in degrees.

Treatment	T_0	T_1	T_2	T_3	T_4
Mean angle	14.85	9.78	9.04	8.56	8.85

S.E./mean = 0.79 degrees.

Transformed back %	T_0	T_1	T_2	T_3	T_4
	7.01	3.35	2.95	2.70	2.85

Sugarcane yield

(i) 21.31 tons/ac. (ii) 3.33 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	T_0	T_1	T_2	T_3	T_4
A	19.13	23.94	20.07	22.58	20.82

S.E./mean = 1.66 tons/ac.

Crop :- Sugarcane.**Ref :- U.P. 57(502).****Zone :- Saharanpur (Saharanpur, c.f.).****Type :- 'D'.**

Object :—To find out control measures for Dehra Dun borer by use of modern insecticides on Sugarcane.

1. BASAL CONDITIONS :(i) (a) N.A. (b) *Sanaï*. (c) Nil. (ii) N.A. (iii) *Sanaï* for G.M. (iv) CO.S. 245 (improved). (v) (a) N.A. (b) Flat planting. (c) N.A. (d) Rows 3' apart. (e) N.A. (vi) to (ix) N.A. (x) 3.2.1958.**2. TREATMENTS :**6 insecticidal sprays : T_0 =Control, T_1 =Endrin 0.05% (19.5% E.C.), T_2 =Dieldrin 0.05% (18% E.C.), T_3 =Gamma B.H.C. 0.05% (20% E.C.), T_4 =D.D.T. 0.25% (25% E.C.) and T_5 =Folidol 0.05% (46.7% E.C.).

1st application on 30.7.1957 and 2nd application on 27 and 28.8.1957.

3. DESIGN :(i) and (ii) R.B.D. with 4 replications. (iii) (a) and (b) $72.5' \times 24'$. (iv) Yes.**4. GENERAL :**(i) and (ii) N.A. (iii) No. of shoots, Dehra Dun borer dead hearts, top-borer, stem-borer and root borer. *Bissetia* damaged canes. (iv) (a) to (c) No. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 12.88 degrees. (ii) 6.25 degrees. (iii) Treatment differences are not significant. (iv) Mean % of bisectia damaged canes at harvest in degrees.

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄	T ₅
Mean angle	10.09	10.38	13.20	16.02	17.28	10.30
S.E./mean = 3.12 degrees,						
Transformed back %	3.49	3.71	5.67	8.04	9.23	9.66

Crop :- Sugarcane.

Ref :- U.P. 59(167).

Site :- Agri. Res. Sub-Stn., Kunraghat.

Type :- 'DV'.

Object :- To improve germination of cane-buds and thereby cane yield under late planting.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) *Lobia* for seed. (c) Nil. (ii) (a) Sandy loam. (b) Refer soil analysis, Kunraghat. (iii) 10, 11.4.1959, (iv) (a) 2 ploughings by *desi* plough, 3 plankings and 1 *palewa*. (b) Flat planting. (c) 57 (3 budded) setts/row. (d) Rows 3' apart. (e) N.A. (v) 100 lb./ac. of N as A/S. (vi) As per treatments. (vii) Irrigated. (viii) 5 hoeings by *kassi*, 1 earthing and binding of canes. (ix) 38.77". (x) 29.11.1959 to 4.2.1960.

2. TREATMENTS :

Main-plot treatments :

3 insecticides : C₀=Control, C₁=Gamma B.H.C. liquid 20% E.C. and C₂=Chlordane dust 5% at 20 lb./ac.

Sub-plot treatments :

All combinations of (1) and (2)

(1) 2 varieties : V₁=CO. 524 (early germinating) variety and V₂=CO.S. 443 (shy germinating variety).

(2) 2 sett treatments : T₁=Setts treated with Agllo 1520 and T₂=Setts not treated.

3. DESIGN :

(i) Split-plot. (ii) (a) 3 main-plots/replication and 4 sub-plots/main-plot. (b) N.A. (iii) 3. (iv) (a) 55' x 27'. (b) 49' x 21'. (v) 3' x 3'. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Germination %, no. of tillers, millable cane and yield of sugarcane juice analysis. (iv) (a) 1959-1961. (b) No. (c) Nil. (v) N.A. (vi) an4 (vii) Nil.

5. RESULTS

(i) 15.43 tons/ac. (ii) (a) 11.54 tons/ac. (b) 2.05 tons/ac. (iii) Only V effect is highly significant. (iv) Av. yield of sugarcane in tons/ac.

	C ₀	C ₁	C ₂	Mean	T ₁	T ₂
V ₁	11.49	16.59	14.10	14.06	14.70	13.42
V ₂	14.15	19.73	16.52	16.80	17.25	16.35
Mean	12.82	18.16	15.31	15.43	15.98	14.88
T ₁	14.93	17.82	15.19			
T ₂	10.71	18.50	15.44			

S.E. of difference of two

1. C marginal means = 4.71 tons/ac.
2. V or T marginal means = 0.68 tons/ac.
3. V or T means at the same level of C = 1.18 tons/ac.
4. C means at the same level of V or T = 4.78 tons/ac.

Crop :- Sugarcane.**Ref :- U.P. 55(95).****Site :- Sugarcane Res. Sub-Stn., Muzaffarnagar.****Type :- 'DV'.****Object :-**To study the effect of treating the setts with insecticides on different varieties of Sugarcane.**1. BASAL CONDITIONS :**

(i) (a) No. (b) *Guar*. (c) No. (ii) (a) Loam. (b) Refer soil analysis, Muzaffarnagar. (iii) 17 and 18.3.1955. (iv) (a) 4 applications of roller, 6 ploughings and 3 plankings. (b) Flat planting. (c) 35 (3 budded) setts/ac. (d) Row to row 3'. (e) N.A. (v) 60 lb./ac. of N as compost+50 lb./ac. of N as G.N.C.+30 lb./ac. of N as A/S. (vi) As per treatments. (vii) Irrigated. (viii) 2 plankings, 4 hoeings with *kassi*, 1 hoeing by cultivator, 1 hoeing of *kund* with spade and 2 earthings. (ix) 48.72". (x) 17.12.1955.

2. TREATMENTS :**Main-plot treatments :**2 varieties : $V_1=CO.S. 245$ and $V_2=CO.S. 443$.**Sub-plot treatments :**

14 sett treatments : S_0 =Control (normal sett), S_1 =Setts from topped cane, S_2 =Top setts only, S_3 =Top setts treated with Agallol, S_4 =Top setts treated with Abavit, S_5 =Top setts treated with Aretan, S_6 =Top setts treated with Chlorodane, S_7 =Top setts treated with A/S. S_8 =Base setts alone, S_9 =Base setts treated with Agallol, S_{10} =Base setts treated with abavit, S_{11} =Base setts treated with Aretan, S_{12} =Base setts treated with Chlorodane and S_{13} =Base setts treated with A/S.

3. DESIGN :

(i) Split-plot. (ii) (a) 2 main-plots/replication and 14 sub-plots/main-plot. (b) $33' \times 171'$. (iii) 3. (iv) (a) and (b) $33' \times 6'$. (v) No. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Sugarcane yield, germination %, no. of tillers and millable cane. (iv) (a) 1955—1956 (modified form), (b) No. (c) Nil. (v) (a) and (b) No. (vi) and (vii) Nil.

5. RESULTS :

(i) 27.66 tons/ac. (ii) (a) 2.24 tons/ac. (b) 4.05 tons/ac. (iii) Main effects of V and S are significant. Interaction $V \times S$ is highly significant. (iv) Av. yield of sugarcane in tons/ac.

	S_0	S_1	S_2	S_3	S_4	S_5	S_6	S_7	S_8	S_9	S_{10}	S_{11}	S_{12}	S_{13}	Mean
V_1	28.85	30.20	30.93	34.89	31.22	34.16	35.77	30.68	22.31	36.53	28.66	29.58	23.06	21.85	29.91
V_2	31.33	27.45	23.33	22.79	22.44	22.20	23.73	23.79	25.21	27.96	25.67	25.57	29.98	24.27	25.41
Mean	30.09	28.82	27.13	28.84	26.83	28.18	29.75	27.24	23.76	32.24	27.16	27.58	26.52	23.06	27.66

S.E. of difference of two

- | | |
|-----------------------------------|-----------------|
| 1. V marginal means | = 0.49 tons/ac. |
| 2. S marginal means | = 2.34 tons/ac. |
| 3. S means at the same level of V | = 3.31 tons/ac. |
| 4. V means at the same level of S | = 3.22 tons/ac. |

Crop :- Sugarcane.**Ref :- U.P. 55(283).****Site :- Sugarcane Res. Sub-Stn., Neoli.****Type :- 'DV'.****Object :-**To study the effect of treating the setts with different insecticides on the yield of Sugarcane.**1. BASAL CONDITIONS :**

(i) (a) Potato—Sugarcane. (b) Sweet potato. (c) N.A. (ii) (a) Sandy loam. (b) N.A. (iii) 22.3.1955. (iv) (a) 7 ploughings. (b) Flat planting. (c) 66 (3 budded) setts/row. (d) and (e) N.A. (v) Pea (G.M.). (vi) As under treatments. (vii) Irrigated. (viii) 6 hoeings. (ix) N.A. (x) 13.3.1956.

2. TREATMENTS :

All combinations of (1), (2) and (3)

(1) 2 varieties : V_1 =CO.S. 443 and V_2 =CO.S. 510.

(2) 3 seed treatments : S_1 =Water, S_2 =Agallol and S_3 =Aretan.

(3) 2 durations of dipping the seeds : D_1 =In and out dip only and D_2 =10 minutes..

3. DESIGN :

(i) Fact. in R.B.D. (ii) (a) 12. (b) $64' \times 180'$. (iii) 3. (iv) (a) $64' \times 15'$. (b) $58' \times 9'$. (v) $3' \times 3'$. (vi) Yes.

4. GENERAL :

(i) Lodging in 2nd week of Oct., 1955. (ii) No. (iii) Germination %, no. of tillers, millable cane, juice analysis and cane yield. (iv) (a) and (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 23.57 tons/ac. (ii) 5.45 tons/ac. (iii) Only V effect is highly significant. (iv) Av. yield of sugarcane in tons/ac.

	S_1	S_2	S_3	Mean	D_1	D_2
V_1	19.04	17.48	17.98	18.17	16.68	19.66
V_2	26.70	31.06	29.18	28.98	27.28	30.68
Mean	22.87	24.27	23.58	23.57	21.98	25.17
D_1	21.52	21.48	22.93			
D_2	24.22	27.06	24.23			

S.E. of S marginal means = 1.57 tons/ac.
 S.E. of D or V marginal means = 1.28 tons/ac.
 S.E. of body of V×S or D×S tables = 2.22 tons/ac.
 S.E. of body of D×V table = 1.82 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 59(56).

Site :- Sugarcane Res. Sub-Sta., Muzaffarnagar.

Type :- 'DC'.

Object :- To study the effect of planting Lobia and Gamma B.H.C. treatment on borer control.

1. BASAL CONDITIONS :

(i) (a) Wheat—Cotton—Sugarcane. (b) Cotton. (c) N.A. (ii) (a) Loam. (b) Refer soil analysis, Muzaffarnagar. (iii) 12.3.1959. (iv) (a) N.A. (b) Flat planting. (c) 71 (3 budded) setts/row. (d) Row to row 3'. (e) N.A. (v) 50 lb./ac. of N as G.N.C. and 50 lb./ac. of N as A/S. (vi) CO. 975 (medium). (vii) and (viii) N.A. (ix) 31.89°. (x) 26.2.1960 to 4.3.1960.

2. TREATMENTS :

T_0 =Control (no treatment), T_1 =Lobia in furrows along with cane planting to be feed to earth, T_2 =Lobia in furrows alone with cane planting to be G.M., T_3 =1 row of lobia in between two rows of cane at planting to be feed to cattle, T_4 =1 row of lobia in between two rows of cane at planting to be G.M., T_5 =Gamma B.H.C. applied in furrows at planting (3.75 lb./ac.) and T_6 =Gamma B.H.C. applied at planting and applied in June (both times at 3.75 lb./ac.).

3. DESIGN :

(i) R.B.D. (ii) (a) 7. (b) N.A. (iii) 4. (iv) (a) and (b) $69' \times 12'$. (v) Nil. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Germination %, no. of tillers, sugarcane yield and juice analysis. (iv) (a) and (b) No. (c) Nil. (v) to (vii) N.A.

5. RESULTS :

(i) 23.22 tons/ac. (ii) 2.29 tons/ac. (iii) Treatment differences are highly significant. (iv) Av. yield of sugarcane in tons/ac.

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄	T ₅	T ₆
Av. yield	20.77	23.17	21.81	22.33	21.26	25.51	27.68

S.E./mean = 1.14 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 56(53).

Site :- Sugarcane Res. Sub-Stn., Muzaffarnagar

Type :- 'DC'.

Object :- To study the effect of different insecticides and seed material on Sugarcane yield.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) *Guar* for fodder. (c) Nil. (ii) (a) Loam. (b) Refer soil analysis, Muzaffarnagar. (iii) 23.3.1956. (iv) (a) N.A. (b) Flant planting. (c) 29 (3 budded) setts/row. (d) Rows 3' apart. (e) N.A. (v) Compost at 140 lb./ac. of N+Urea at 20 lb./ac. of N. (vi) CO.S. 245 (medium). (vii) and (viii) N.A. (ix) 68.04". (x) 22.11.1956.

2. TREATMENTS ;

Main-plot treatments :

2 types of setts : T₁=Top setts and T₂=Base setts.

Sub-plot treatments :

7 chemicals : C₀=Control (normal setts), S₁=Aretan 3%. T₂=Aretan 6%, C₃=Aretan B.H.C., C₄=Agallol, C₅=Abavit and C₆=Chlordane.

Treatments C₀, C₁, C₂, C₃, C₄ and C₅ were used at 1 lb./ac in 20 gallons of water. Setts were dipped for 5 minutes. Treatment C₆ at 20 lb./ac. of dust was used in furrows on setts.

For T₁ only 2 setts from top were taken and for T₂ only one sett from bottom was taken from each sugarcane.

3. DESIGN :

(i) Split-plot. (ii) (a) 2 main-plots/replication and 7 sub-plots/main-plot. (b) 27' × 88'. (iii) 4. (iv) (a) and (b) 27' × 6'. (v) No. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of sugarcane. (iv) (a) and (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 12.98 tons/ac. (ii) (a) 2.14 tons/ac. (b) 2.79 tons/ac. (iii) Main effects of T and C are highly significant. (iv) Av. yield of sugarcane in tons/ac.

	C ₀	C ₁	C ₂	C ₃	C ₄	C ₅	C ₆	Mean
T ₁	11.75	14.84	14.35	19.95	12.59	14.72	16.03	14.89
T ₂	9.14	8.54	8.12	14.64	10.64	12.54	13.85	11.07
Mean	10.44	11.69	11.24	17.30	11.62	13.63	14.94	12.98

S.E. of difference of two

- | | |
|-----------------------------------|-----------------|
| 1. T marginal means | = 0.57 tons/ac. |
| 2. C marginal means | = 1.39 tons/ac. |
| 3. C means at the same level of T | = 1.97 tons/ac. |
| 4. T means at the same level of C | = 1.91 tons/ac. |

Crop :- Sugarcane.

Ref :- U.P. 56(54).

Site :- Tarai Sugarcane Res. Centre, Phoolbagh.

Type :- 'DC'.

Object :- To study the effect of planting Sugarcane in different months on its yield.

1. BASAL CONDITIONS :

(i) (a) No. (b) *Dhaincha*. (c) N.A. (ii) (a) Clay loam. (b) Refer soil analysis, Phoolbagh. (iii) As per treatments. (iv) (a) 2 ploughings and 1 harrowing. (b) In furrows between ridges. (c) 45,000 buds/ac. (d) Rows 3' apart. (e) N.A. (v) 120 lb./ac. of N as A/S top dressed. (vi) CO.S. 510. (vii) Unirrigated. (viii) 5 hoeings. (ix) 65.20°. (x) 22 and 23.3.1959.

2. TREATMENTS :

Main-plot treatments :

5 dates of planting : $D_1=15.10.1957$, $D_2=15.11.1957$, $D_3=15.12.1957$, $D_4=15.1.1958$ and $D_5=15.2.1958$.

Sub-plot treatments :

2 methods of treating setts : S_0 =Control and S_1 =Setts treated with 0.5 % solution of Aretan for half a minute and dusting of Chlordane in furrows at 15 lb./ac.

3. DESIGN :

(i) Split-plot. (ii) (a) 5 main-plots/replication ; 2 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) 64' x 18'. (b) 58' x 12'. (v) 3' x 3'. (vi) Yes.

4. GENERAL :

(i) Good growth. (ii) Nil. (iii) Germination %, no. of tillers and yield of sugarcane. (iv) (a) and (b) No. (c) Nil. (v) (a) and (b) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 25.75 tons/ac. (ii) (a) 3.88 tons/ac. (b) 3.00 tons/ac. (iii) None of the effects is significant. (iv) Av. yield of sugarcane in tons/ac.

	D_1	D_2	D_3	D_4	D_5	Mean
S_0	28.27	25.72	25.99	22.31	22.43	24.94
S_1	27.98	27.32	27.81	25.61	24.03	26.55
Mean	28.12	26.52	26.90	23.96	23.23	25.75

S.E. of difference of two

1. D marginal means = 1.94 tons/ac.
2. S marginal means = 0.95 tons/ac.
3. S means at the same level of D = 2.12 tons/ac.
4. D means at the same level of S = 2.45 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 59(372).

Site :- Tarai Sugarcane Res. Centre, Phoolbagh.

Type :- 'DC'.

Object :- To study the effect of different sett treatments of on Sugarcane planted in different seasons.

1. BASAL CONDITIONS :

(i) (a) No. (b) and (c) N.A. (ii) (a) Clay loam. (b) Refer soil analysis, Phoolbagh. (iii) As per treatments. (iv) (a) 1 ploughing and 1 harrowing (b) In furrows between ridges. (c) 66 (3 budded) setts/row. (d) Rows 3' apart. (e) N.A. (v) 120 lb./ac. of N as A/S. (vi) CO. 527. (vii) Unirrigated. (viii) 5 hoeings. (ix) 42.41°. (x) 10 and 11.1.1960.

2. TREATMENTS :

Main-plot treatments :

2 dates of planting : $D_1=16.10.1958$ (autumn) and $D_2=4.3.1959$ (spring).

Sub-plot treatments :

3 methods of treating setts : S_0 =Control, S_1 =Setts dipped in 0.5 % Aretan for half a minute before planting (23 grams of Aretan in 1 gallon of water) and S_2 =Spraying of 3½ lb./ac. of Gamma B.H.C. in furrows after putting the setts (27 c.c. of Gamma B.H.C. to be applied per gross plot in about 5 lb. of water).

3. DESIGN :

(i) Split-plot. (ii) (a) 2 main-plots/replication ; 3 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) 80' × 18'. (b) 74' × 12'. (v) 3' × 3'. (vi) Yes.

4. GENERAL :

(i) Good growth. Plots with Aretan dipped setts were quite impressive. Lodging in spring planting mild and in autumn planting a bit more. (ii) Nil. (iii) Germination %, no. of tillers and sugarcane yield. (iv) (a) 1959—contd. (b) No. (c) Nil. (v) (a) and (b) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 48.23 tons/ac. (ii) (a) 8.32 tons/ac. (b) 6.57 tons/ac. (iii) None of the effects is significant. (iv) Av. yield of sugarcane in tons/ac.

	S ₀	S ₁	S ₂	Mean
D ₁	51.93	52.15	51.31	51.80
D ₂	44.31	46.72	42.96	44.66
Mean	48.12	49.43	47.14	48.23

S.E. of difference of two

1. D marginal means	= 3.39 tons/ac.
2. S marginal means	= 3.28 tons/ac.
3. S means at the same level of D	= 4.64 tons/ac.
4. D means at the same level of S	= 5.09 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 56(140).

Site :- Sugarcane Res. Stn., Shahjahanpur.

Type :- 'DC'.

Object :- To study the effect of different sett treatments on Sugarcane planted on different dates.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) (a) Loam. (b) Refer soil analysis, Shahjahanpur. (iii) As per treatments. (iv) (a) 13 ploughings by *desi* plough, 1 by Victory plough and 2 by other implements. (b) Flat planting. (c) 50 (3 budded) setts/row. (d) and (e) N.A. (v) *Sanai* (G.M.). In addition 40 lb./ac. of N as Urea and 40 lb./ac. of N as G.N.C. applied in the second week of April. (vi) CO.S. 443 (mid season). (vii) Irrigated. (viii) 11 hoeings by *kassi*, 7 hoeings by cultivator, 2 earthings and 2 bindings. (ix) 57.97". (x) 13 to 19.2.1957.

2. TREATMENTS :**Main-plot treatments :**

5 dates of planting : D₁=22.10.1955, D₂=18.11.1955, D₃=20.12.1955, D₄=19.1.1956 and D₅=19.2.1956.

Sub-plot treatments :

3 methods of treating setts : P₀=Control, P₁=Aretan (1 lb. in 20 gallons of water, for 7 minutes) and P₂=Chlordane at 15 lb./ac.

3. DESIGN :

(i) Split-plot. (ii) (a) 5 main-plots/replication ; 3 sub-plots/main-plot. (b) 225' × 50'. (iii) 4. (iv) (a) 50' × 15'. (b) 44' × 9'. (v) 3' × 3'. (vi) Yes.

4. GENERAL :

(i) Good, rats damaged the crop and lodging on 28.9.1956 due to heavy rains. (ii) *Pyrrilla*, leaf yellowing in control plots. (iii) Sugarcane yield. (iv) (a) 1956—1957. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 25.53 tons/ac. (ii) (a) 5.56 tons/ac. (b) 2.04 tons/ac. (iii) Only P effect is highly significant. (iv) Av. yield of sugarcane in tons/ac.

	D ₁	D ₂	D ₃	D ₄	D ₅	Mean
P ₀	25.03	22.20	27.40	21.90	27.15	24.74
P ₁	25.23	21.54	26.95	23.44	26.85	24.80
P ₂	27.10	24.37	27.33	27.33	29.12	27.05
Mean	25.79	22.70	27.23	24.22	27.71	25.53

S.E. of difference of two.

1. D marginal means = 2.27 tons/ac.
2. P marginal means = 0.64 tons/ac.
3. P means at the same level of D = 1.44 tons/ac.
4. D means at the same level of P = 2.56 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 57(173).

Site :- Sugarcane Res. Stn., Shahjahanpur.

Type :- 'DC'.

Object :-To study the effect of different sett treatments on Sugarcane planted on different dates.

1. BASAL CONDITIONS :

(i) (a) *Sanai*—Sugarcane. (b) *Sanai*. (c) N.A. (ii) (a) Loam. (b) Refer soil analysis, Shahjahanpur. (iii) As per treatments (iv) (a) 15 ploughings by *desi* plough, 2 by Victory plough and 21 plankings. (b) Flat planting. (c) 45 (3 budded) setts/row. (d) and (e) N.A. (v) *Sanai* (G.M.)+80 lb./ac. of N as A/S and G.N.C. in 1 : 1 ratio. (vi) CO.S. 443 (mid season). (vii) Irrigated. (viii) 8 hoeings by *kassi*, 3 by cultivator, 1 earthing and 1 binding. (ix) 47.63". (x) 19 to 27.2.1958 and 14.3.1958 to 8.4.1958.

2. TREATMENTS :

Main-plot treatments :

6 dates of planting : D₁=23.10.1956, D₂=16.11.1956, D₃=20.12.1956, D₄=30.1.1957, D₅=19.2.1957 and D₆=22.3.1957.

Sub-plot treatments :

3 methods of treating setts : P₀=Control, P₁=Aretan (1 lb. in 20 gallons of water for 7 minutes) and P₂=Chlordane at 15 lb /ac.

3. DESIGN :

(i) Split-plot. (ii) (a) 6 main-plots/replication, 3 sub-plots/main-plot. (b) 162' × 90'. (iii) 4. (iv) (a) 45' × 18'. (b) 39' × 12'. (v) 3' × 3'. (vi) Yes.

4. GENERAL :

(i) Good. (ii) N.A. (iii) Germination %, no of tillers, shoots and sugarcane yield. (iv) (a) 1956—contd. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 25.13 tons/ac. (ii) (a) 2.53 tons/ac. (b) 3.00 tons/ac. (iii) None of the effects is significant. (iv) Av. yield of sugarcane in tons/ac.

	D ₁	D ₂	D ₃	D ₄	D ₅	D ₆	Mean
P ₀	23.12	21.48	26.22	25.62	23.66	25.41	24.25
P ₁	27.25	22.84	24.45	26.54	24.34	26.63	25.34
P ₂	26.69	29.02	22.89	26.05	25.43	24.70	25.80
Mean	25.69	24.45	24.52	26.07	24.48	25.58	25.13

S.E. of difference of two

1. D marginal means	= 1.03 tons/ac.
2. P marginal means	= 0.87 tons/ac.
3. P means at the same level of D	= 2.12 tons/ac.
4. D means at the same level of P	= 2.02 tons/ac.

Crop :- Sugarcane.**Ref :- U.P. 54(178).****Site :- Sugarcane Res. Stn., Shahjahanpur.****Type :- 'DC'.**

Object :—To find out the optimum number and best time of application of Fernoxone to Sugarcane field with a view to obtain good weed free crop stand.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) (a) Light loam. (b) Refer soil analysis, Shahjahanpur. (iii) 28.2.1954. (iv) (a) N.A. (b) Flat planting. (c) 25 (3 budded) setts/row. (d) Rows 3' apart. (e) N.A. (v) 100 lb./ac. of N as A/S. (vi) CO. 453 (mid-late). (vii) Irrigated. (viii) As per treatments. (ix) 38.46". (x) 5 and 6.1.1955.

2. TREATMENTS :

All combinations of (1) and (2) + one extra treatment

(1) 3 cultural practices : C₁=One hoeing before germination, C₂=One hoeing before germination + one hoeing in May and C₃=One hoeing before germination + one hoeing in May + earthing in August.

(2) 3 spraying treatments : S₁=Pre-emergence+April and June sprays, S₂=Pre-emergence and June sprays and S₃=April and June sprays.

Extra treatment : T=Normal cultivation.

0.2% Fernoxone (sodium salt of 2, 4—D) was sprayed.

3. DESIGN :

(i) R.B.D. (ii) (a) 10. (b) N.A. (iii) 3. (iv) (a) and (b) 25' × 18'. (v) Nil. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Germination %, no. of tillers per plant, infestation of weeds per unit area after pre-emergence treatment. Mortality percent of weeds in respect to May treatment and yield of cane. (iv) (a) 1953—1955. (b) No. (c) Nil. (v) (a) and (b) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 31.58 tons/ac. (ii) 2.44 tons/ac. (iii) Only C effect is significant. (iv) Av. yield of sugarcane in tons/ac.

$$T = 32.48 \text{ tons/ac.}$$

	S ₁	S ₂	S ₃	Mean
C ₁	30.76	32.28	30.56	31.20
C ₂	29.63	30.38	30.19	30.07
C ₃	30.46	34.26	34.78	33.17
Mean	30.28	32.31	31.84	31.48

S.E. of any marginal mean = 0.81 tons/ac.

S.E. of body of table or T mean = 1.41 tons/ac.

Crop :- Sugarcane.**Ref :- U.P. 55(306).****Site :- Sugarcane Res. Stn., Shahjahanpur.****Type :- 'DC'.**

Object :—To find out the optimum number and best time of application of Fernoxone to Sugarcane field with a view to obtain good weed free crop stand.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) (a) Loam. (b) Refer soil analysis, Shahjahanpur. (iii) 24 and 25.2.1955. (iv) N.A. (b) Flat planting. (c) 37 (3 budded) sets/row. (d) Rows 3' apart. (e) N.A. (v) N.A. (vi) CO. 453 (mid-late). (vii) Irrigated. (viii) As per treatments. (ix) 53.67". (x) 4 and 5.1.1956.

2. TREATMENTS :

All combinations of (1) and (2) + one extra treatment

(1) 3 cultural practices : C_1 = One hoeing before germination, C_2 = One hoeing before germination + one hoeing in May and C_3 = One hoeing before germination + one hoeing in May + earthing in May.

(2) 3 spraying treatments : S_1 = Pre-emergence + April and July sprays, S_2 = Pre-emergence + July sprays and S_3 = April and July sprays.

Extra treatment : T = Normal cultivation (control).

Fernoxone (sodium salt of 2, 4-D) was applied as spray. It was sprayed in 0.2 % acid equivalent aqueous solution (3.12 lb. of commercial "Fernoxone" dissolved in 100 gallons of water) at the rate of 100 gallons/ac.

3. DESIGN :

(i) R.B.D. (ii) (a) 10. (b) N.A. (iii) 3. (iv) (a) and (b) 18' x 35'. (v) Nil. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Germination %, infestation of weeds and yield of cane. (iv) (a) 1953—1955. (b) No. (c) Nil. (v) (a) and (b) N.A. (vi) Nil. (vii) Since April treatment of weedicide spray could not be given, hence S_1 is identical with S_2 .

5. RESULTS :

(i) 22.77 tons/ac. (ii) 3.44 tons/ac. (iii) C effect is highly significant and S effect is significant. (iv) Av. yield of sugarcane in tons/ac.

T = 19.66 tons/ac.

	C_1	C_2	C_3	Mean
$S_1 + S_2$	19.25	26.55	26.52	24.11
S_3	18.40	21.36	23.63	21.13
Mean	18.97	24.82	25.56	23.12

S.E. of C marginal mean	= 1.15 tons/ac.
S.E. of ($S_1 + S_2$) marginal mean	= 0.81 tons/ac.
S.E. of S_3 marginal mean	= 1.15 tons/ac.
S.E. of body of table in 1st row	= 1.40 tons/ac.
S.E. of body of table in 2nd row or T mean	= 1.99 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 55(164).

Site :- Sugarcane Res. Stn., Shahjahanpur.

Type :- 'DC'.

Object :- To study the effect of application of insecticides on the yield of Sugarcane planted on different dates.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) (a) Loam. (b) Refer soil analysis, Shahjahanpur. (iii) As per treatments. (iv) (a) 2 ploughings by Victory plough, 8 ploughings by desi plough and 1 by cultivator. (b) Flat planting. (c) 52 (3 budded) sets/row. (d) and (e) N.A. (v) 80 lb./ac. of N as G.N.C. and 20 lb./ac. of N as A/S applied in 3rd week of April and 2nd week of May respectively. (vi) CO.453 (mid-late). (vii) Irrigated. (viii) 9 plankings, 2 weedings, 1 earthing and 13 hoeings by kassi. (ix) 53.57". (x) 16.12.1955 onward.

2. TREATMENTS :

Main-plot treatments :

3 dates of planting : $D_1=21.12.1954$, $D_2=15.1.1955$ and $D_3=15.2.1955$.

Sub-plot treatments :

2 levels of insecticides : $I_0=0$ and $I_1=\text{Gammexane at } 20 \text{ lb./ac.}$

3. DESIGN :

(i) Split-plot. (ii) (a) 3 main-plots/replication ; 2 sub-plots/main-plot. (b) $90' \times 52'$. (iii) 3. (iv) (a) $52' \times 15'$. (b) $46' \times 9'$. (v) $3' \times 3'$. (vi) Yes.

4. GENERAL :

(i) Good. (ii) N.A. (iii) Yield of sugarcane. (iv) (a) and (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 31.93 tons/ac. (ii) (a) 1.28 tons/ac. (b) 0.77 tons/ac. (iii) Only I effect is highly significant. (iv) Av. yield of sugarcane in tons/ac.

	D_1	D_2	D_3	Mean
I_0	30.92	30.53	30.82	30.76
I_1	32.72	33.05	33.53	33.10
Mean	31.82	31.79	32.18	31.93

S.E. of difference of two

1. D marginal means = 0.74 tons/ac.
2. I marginal means = 0.36 tons/ac.
3. I means at the same level of D = 0.63 tons/ac.
4. D means at the same level of I = 0.87 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 58(180).

Site :- Sugarcane Res. Stn., Shahjahanpur.

Type :- 'DC'.

Object :—To study the effect of different sett treatments on the yield of Sugarcane planted on different dates.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) *Sanal*. (c) Nil. (ii) (a) Light loam. (b) Refer soil analysis, Shahjahanpur. (iii) As per treatments. (iv) (a) 1 ploughing by Victory plough, 1 by harrow, ploughing by *desi* plough (2 for D_1 , 3 for D_2 , 4 for D_3 , 8 for D_4 , 11 for D_5 , 13 for D_6 , 14 for D_7 and 16 for D_8 and 1 *palewa* for each planting month. (b) Flat planting. (c) 40 (3 budded) setts/row. (d) Rows 3' apart. (e) N.A. (v) 40 lb./ac. of N as *sanal* G.M. + mixture (A/S+G.N.C. 50 : 50 N basis) at 40 lb./ac. of N on 18.6.1958 and at 40 lb./ac. of N on 15 to 22.7.1958. (vi) C.O.S. 443 (mid season). (vii) Irrigated. (viii) 4 hoeings by *kassi* and 4 hoeings by cultivator. In addition 6 hoeings in D_1 , 6 in D_2 , 4 in D_3 , 2 in D_4 , 3 in D_5 and 2 in D_6 were done by *kassi*. (ix) 68.68". (x) 23.3.1959 to 2.4.1959.

2. TREATMENTS :

Main-plot treatments :

8 dates of planting : $D_1=27.9.1957$, $D_2=28$ and $29.10.1957$, $D_3=28.11.1957$, $D_4=27.12.1957$, $D_5=29.1.1958$, $D_6=27.2.1958$, $D_7=28.3.1958$ and $D_8=30.4.1958$.

Sub-plot treatments :

5 methods of treating setts : P_0 =Control (no pre-planting treatment), P_1 =Dipping of setts in 0.5 % solution of 3 per cent Aretan before planting, P_2 =Application of 5 % Chlordane dust at 15 lb./ac in furrows at planting time, $P_3=P_1+P_2$ and P_4 =Dipping of setts in 0.25 % solution of 6 % Aretan Gamma before planting.

Dipping in and out for $\frac{1}{2}$ minute.

3. DESIGN :

(i) Split-plot. (ii) (a) 8 main-plots/replication ; 5 sub-plots/main-plot. (b) N.A. (iii) 3. (iv) (a) 40' × 18'.
(b) 34' × 12'. (v) 3' × 3'. (vi) Yes.

4. GENERAL :

(i) Some plots of treatments D₅ and D₆ lodged in October due to heavy rains, good condition of crop.
(ii) Mild attack of borer in June 1958. Free from disease and pest in September 1958. (iii) Germination %, no. of tillers, millable cane and yield of sugarcane. (iv) (a) 1955—1959. (b) No. (c) Nil. (v) (a) and (b) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 22.65 tons/ac. (ii) (a) 2.74 tons/ac. (b) 2.35 tons/ac. (iii) All the effects are highly significant. (iv) Av. yield of sugarcane in tons/ac.

	D ₁	D ₂	D ₃	D ₄	D ₅	D ₆	D ₇	D ₈	Mean
P ₀	22.45	21.44	22.45	17.62	22.75	26.05	18.76	5.10	19.58
P ₁	19.32	24.54	24.87	25.00	25.00	30.17	25.75	20.00	24.33
P ₂	26.38	21.83	23.30	19.25	26.28	27.68	21.47	13.47	22.46
P ₃	25.26	24.05	25.69	24.45	26.51	28.63	25.26	15.52	24.42
P ₄	27.29	24.90	25.07	18.92	25.00	25.33	21.05	12.19	22.47
Mean	24.14	23.35	24.28	21.05	25.11	27.57	22.46	13.26	22.65

S.E. of difference of two

1. D marginal means = 1.00 tons/ac.
2. P marginal means = 0.68 tons/ac.
3. P means at the same level of D = 1.92 tons/ac.
4. D means at the same level of P = 1.99 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 59(181).

Site :- Sugarcane Res. Stn., Shahjahanpur.

Type :- 'DC'.

Object :—To study the effects of different dates of planting Sugarcane with sett treatments on the yield of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) *Dhaincha*. (c) Nil. (ii) (a) Light loam. (b) Refer soil analysis, Shahjahanpur. (iii) As per treatments. (iv) (a) 1 ploughing by victory plough, 3 ploughings by *desi* plough, 2 ploughings by cultivator and 1 or 2 additional ploughing for each planting treatment. (b) Flat planting. (c) 40 (3 budded) setts/row. (d) Rows 3' apart. (e) N.A. (v) *Dhaincha* (G.M.). (vi) CO.S. 443 (mid season). (vii) Irrigated. (viii) 1 hoeing, 1 blind hoeing and hoeings by *kassi*. (ix) 44.15". (x) 25.2.1960, 7 and 8.3.1960.

2. TREATMENTS :

Main-plot treatments :

8 dates of planting : D₁=30.9.1958, D₂=28.10.1958, D₃=29.11.1958, D₄=26.12.1958, D₅=28.1.1959, D₆=25.2.1959, D₇=28.3.1959 and D₈=29.4.1959.

Sub-plot treatments :

6 methods of treating setts : P₀=Control (no pre-planting treatment), P₁=Dipping of setts in 0.5 % solution of 3 % Aretan before planting, P₂=Application of 5 % Chlordane dust at 15 lb./ac. in furrows at planting time, P₃=P₁+P₂, P₄=Dipping of setts in 0.25 % solution of 6 % Aretan Gamma before planting and P₅=In and out dipping of setts in water.

Aretan Gamma contains 6 % mercury and 60 % Gamma B.H.C. Dipping in and out for ½ minute.

3. DESIGN :

(i) Split-plot. (ii) (a) 8 main-plots/replication ; 6 sub-plots/main-plot. (b) 150. ' × 170.5'. (iii) 3. (iv) (a) and (b) 40' × 12'. (v) Nil. (vi) Yes.

4. GENERAL :

(i) Good growth. (ii) Albino disease in Nov. and Dec., 1958 only. (iii) Germination %, no. of tillers, millable cane and yield of sugarcane. (iv) (a) 1955—1959. (b) No. (c) Nil. (v) (a) and (b) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 17.91 tons/ac. (ii) (a) 6.09 tons/ac. (b) 2.21 tons/ac. (iii) P effect and interaction D×P are highly significant. (iv) Av. yield of sugarcane in tons/ac.

	D ₁	D ₂	D ₃	D ₄	D ₅	D ₆	D ₇	D ₈	Mean
P ₀	18.00	11.70	15.97	19.06	16.22	20.20	13.06	11.47	15.71
P ₁	18.47	16.97	16.45	17.97	20.81	21.39	15.58	16.61	18.41
P ₂	18.81	16.53	18.72	17.39	15.97	17.47	15.56	16.33	17.10
P ₃	22.70	19.58	19.28	16.53	17.81	19.11	19.22	17.03	18.91
P ₄	23.45	19.50	21.89	19.11	21.78	22.28	22.14	18.97	21.14
P ₅	13.03	12.36	19.42	14.58	18.42	22.58	12.97	16.17	16.19
Mean	19.08	16.11	18.62	17.44	18.50	21.00	16.42	16.10	17.91

S.E. of difference of two

- | | |
|-----------------------------------|-----------------|
| 1. D marginal means | = 2.03 tons/ac. |
| 2. P marginal means | = 0.64 tons/ac. |
| 3. P means at the same level of D | = 1.80 tons/ac. |
| 4. D means at the same level of P | = 2.61 tons/ac. |

Crop :- Sugarcane.

Ref :- U.P. 55(63).

Site :- Sugarcane Res. Sub-Strn., Kunraghat.

Type :- 'DCP'.

Object :—To study the effect of irrigation and other cultural practices in improving the cane yield under late planting conditions.

1. BASAL CONDITIONS :

(i) (a) G.M.—Wheat=G.M.—Sugarcane. (b) *Dhaincha*. (c) Nil. (ii) (a) Sandy loam. (b) Refer soil analysis, Kunraghat. (iii) 3 to 6.4.1955. (iv) (a) 2 ploughings with *desi* plough and other implements. (b) Flat planting. (c) 55 (3 budded) setts in T₁ and 110 (3 budded) setts in T₂. (c) As per treatments. (e) N.A. (v) 60 lb./ac. of N as G.N.C.+20 lb./ac. of N as A/S+40 lb./ac. of N as Urea. (vi) CO.S. 443 (mid. late). (vii) Irrigated. (viii) 4 hoeings and 5 earthings. (ix) N.A. (x) 3 to 8.2.1956.

2. TREATMENTS :

Main-plot treatments :

All combinations of (1) and (2)

(1) 3 levels of irrigation : I₁=3, I₂=5 and I₃=7 irrigations.

(2) 2 spacings between plants : D₁=2½' and D₂=3'.

Sub-plot treatments :

All combinations of (1) and (2)

(1) 2 seed rates : T₁=Normal setting and T₂=Double setting.

(2) 2 sett treatments : S₁=Un-soaked setts and S₂=Setts soaked in 2 % phenol for 12 hours.

3. DESIGN :

(i) Split-plot. (ii) (a) 6 main-plots/replication; 4 sub-plots/main-plot. (b) N.A. (iii) 3. (iv) (a) and (b) 54'×15'. (v) Nil. (vi) Yes.

4. GENERAL :

(i) Normal and no lodging. (ii) Nil. (iii) Germination % no. of tillers, millable cane and yield of sugarcane. (iv) (a) 1952—contd. (b) No. (c) Nil. (v) (a) and (b) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 20.28 tons/ac. (ii) (a) 7.41 tons/ac. (b) 1.85 tons/ac. (iii) T effect is highly significant. Interaction T×I×D is significant. (iv) Av. yield of sugarcane in tons/ac.

	I ₁	I ₂	I ₃	S ₁	S ₂	T ₁	T ₂	Mean
D ₁	19.48	19.41	21.85	19.84	20.65	18.62	21.87	20.24
D ₂	18.72	22.16	20.08	20.62	20.02	18.62	22.02	20.32
Mean	19.10	20.78	20.96	20.23	20.34	18.62	21.94	20.28
T ₁	17.36	19.13	19.37	18.64	18.61			
T ₂	20.84	22.44	22.55	21.82	22.06			
S ₁	19.11	20.38	21.19					
S ₂	19.09	21.19	20.73					

S.E. of difference of two

1. I marginal means = 2.14 tons/ac.
2. D marginal means = 1.75 tons/ac.
3. T or S marginal means = 0.44 tons/ac.
4. T or S means at the same level of I = 0.76 tons/ac.
5. I means at the same level of T or S = 2.20 tons/ac.
6. T or S means at the same level of I = 0.62 tons/ac.
7. D means at the same level of T or S = 1.80 tons/ac.
- S.E. of body of D×I table = 2.14 tons/ac.
- S.E. of body of T×S table = 0.44 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 56(135).

Site :- Sugarcane Res. Sub-Stn., Kunraghat.

Type :- DCF.

Object :- To study the effect of irrigation and other cultural practices in improving the Sugarcane yield under late planting conditions.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) (a) Sandy loam. (b) Refer soil analysis, Kunraghat. (iii) 3 to 6.4.1956. (iv) (a) 6 ploughings by *desi* plough and 1 ploughing by victory plough. (b) Flat planting. (c) and (d) As per treatments. (e) N.A. (v) 8 srs. 4 chh./plot of G.N.C., 1 sr. 14 chh./plot of A/S on 30.5.1956, 7 srs. 8 chh./plot of G.N.C. and 1 sr. 2 chh./plot of Urea on 13 and 14.6.1956. (vi) [CO S. 443 (medium). (vii) Irrigated. (viii) 6 hoeings by *kassi*, 1 earthing and binding of canes. (ix) 81.53%. (x) 14 to 22.2.1957.

2. TREATMENTS :

Main-plot treatments :

All combinations of (1) and (2)

(1) 3 levels of irrigation : I₁=3, I₂=5 and I₃=7 irrigations.(2) 2 seed rates : R₁=Normal and R₂=Double setting.

Sub-plot treatments :

All combinations of (1) and (2)

(1) 2 spacings between plants : S₁=2½' and S₂=3'.(2) 2 sett treatments : T₁=Setts unsoaked and T₂=Setts soaked in 2% phenol.

3. DESIGN :

(i) Split plot. (ii) (a) 6 main-plots/replication ; 4 sub-plots/main-plot. (b) N.A. (iii) 3. (iv) (a) and (b) 56'×15'. (v) Nil. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Germination %, no. of tillers, millable cane and yield of sugarcane. (iv) (a) 1955-1957. (b) No. (c) Nil. (v) (a) and (b) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 17.12 tons/ac. (ii) (a) 4.93 tons/ac. (b) 1.84 tons/ac. (iii) T effect is highly significant. Interaction D×I×T is significant. (iv) Av. yield of sugarcane in tons/ac.

	I ₁	I ₂	I ₃	S ₁	S ₂	R ₁	R ₂	Mean
T ₁	16.74	17.61	19.68	18.41	17.61	18.81	17.21	18.01
T ₂	14.97	16.02	17.69	16.46	15.99	16.75	15.70	16.23
Mean	15.85	16.82	18.68	17.43	16.80	17.78	16.45	17.12
R ₁	15.65	17.96	19.73	18.09	17.47			
R ₂	16.06	15.67	17.63	16.78	16.13			
S ₁	16.03	16.74	19.53					
S ₂	15.68	16.90	17.83					

S.E. of difference of two

1. I marginal means = 1.42 tons/ac. 6. S or T means at the same level of R = 0.61 tons/ac.
 2. R marginal means = 1.16 tons/ac. 7. R means at the same level of S or T = 1.24 tons/ac.
 3. S or T marginal means = 0.43 tons/ac. S.E. of body of I × R table = 1.42 tons/ac.
 4. S or T means at the same level of I = 0.75 tons/ac. S.E. of body of T × S table = 0.43 tons/ac.
 5. I means at the same level of S or T = 0.52 tons/ac.

Crop :- Sugarcane.

Ref :- U.P. 57(166).

Site :- Sugarcane Res. Sub-Stn., Kunraghat.

Type :- 'DCI'.

Object :—To study the effect of irrigation and other cultural practices in improving the Sugarcane yield under late planting conditions.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) *Berseem* (fodder). (c) Nil. (ii) (a) Sandy loam. (b) Refer soil analysis, Kunraghat. (iii) 21 to 24.4.1957. (iv) (a) 2 ploughings by *desi* plough, 3 ploughings by Victory plough and 2 ploughings by other implements. (b) Flat planting. (c) and (d) As per treatments. (e) N.A. (v) 75 lb./ac. of N as press mud, 50 lb./ac. of N as castor cake, 20 lb./ac. of N as mixture, 40 lb./ac. of N as G.N.C. and 25 lb./ac. of N as A/C. (vi) CO.S. 443 (medium). (vii) Irrigated. (viii) 8 hoeings by *kassi*. (ix) 42.51". (x) 10 to 28.12.1957.

2. TREATMENTS :

Main-plot treatments :

All combinations of (1) and (2)

- (1) 3 levels of irrigation : I₁=3, I₂=5 and I₃=7 irrigations.
 (2) 2 spacings between plants : S₁=2½' and S₂=3'.

Sub-plot treatments :

All combinations of (1) and (2)

- (1) 2 seed rates : R₁=Normal and R₂=Double setting.
 (2) 2 sett treatments : T₁=Setts unsoaked and T₂=Setts soaked in 2 % phenol.

3. DESIGN :

Same as in expt. no. 56(135) on page 1385.

4. GENERAL :

(i) and (ii) N.A. (iii) Germination %, no. of tillers, millable canes, yield of sugarcane and juice analysis.
 (iv) (a) 1955—1957. (b) No. (c) Nil. (v) (a) and (b) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 12.75 tons/ac. (ii) (a) 3.96 tons/ac. (b) 2.63 tons/ac. (iii) Main effects of R and T are highly significant. Interaction D × T is significant. (iv) Av. yield of sugarcane in tons/ac.

	I ₁	I ₂	I ₃	T ₁	T ₂	S ₁	S ₂	Mean
R ₁	11.55	11.14	11.58	10.24	12.60	10.56	12.28	11.42
R ₂	13.31	14.64	14.30	12.31	15.86	13.89	14.28	14.08
Mean	12.43	12.69	12.94	11.27	14.23	12.23	13.28	12.75
S ₁	13.53	11.45	11.71	9.95	14.51			
S ₂	11.34	14.33	14.16	12.60	13.96			
T ₁	10.68	11.49	11.65					
T ₂	14.19	14.29	14.22					

S.E. of difference of two

1. I marginal means = 1.14 tons/ac.
 2. S marginal means = 0.93 tons/ac.
 3. R or T marginal means = 0.62 tons/ac.
 4. R or T means at the same level of I = 1.07 tons/ac.
 5. I means at the same level of R or T = 1.37 tons/ac.
 6. R or T means at the same level of S = 0.88 tons/ac.
 7. S means at the same level of R or T = 1.12 tons/ac.
- S.E. of body of I×S table = 1.14 tons/ac.
S.E. of body of R×T table = 0.62 tons/ac.

Crop :- Cotton (Kharif).

Ref :- U.P. 56(477).

Site :- Govt. Agri. Res. Farm, Belatal.

Type :- 'M'.

Object :- To study the effect of different sources of N on Cotton.

1. BASAL CONDITIONS :

- (i) (a) to (c) N.A. (ii) (a) *Kabar*. (b) Refer soil analysis, Belatal. (iii) 21.5.1956. (iv) (a) 2 *desi* ploughings. (b) Line sowing. (c) 16 lb./ac (d) 2' between rows. (e) N.A. (v) Nil. (vi) 35/l. (vii) Unirrigated. (viii) 1 thinning and 2 weedings. (ix) N.A. (x) 28.8.1956 to 10.10.1956.

2. TREATMENTS :

4 sources of 50 lb./ac. of N : S₀=Control, S₁=Compost, S₂=Castor cake and S₃=A/S.
Compost and castor cake applied before sowing. A/S applied 1½ months before sowing.

3. DESIGN :

- (i) R.B.D. (ii) (a) 4. (b) N.A. (iii) 6. (iv) (a) 78'×12'. (b) 72'×8'. (v) 3'×2'. (vi) Yes.

4. GENERAL :

- (i) Good. (ii) Nil. (iii) Plant stand and yield of *kapas*. (iv) (a) and (b) N.A. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

- (i) 150 lb./ac. (ii) 106.7 lb./ac. (iv) Treatment differences are significant. (iv) Av. yield of *kapas* in lb./ac.

Treatment	S ₀	S ₁	S ₂	S ₃
Av. yield	121	92	125	262

S.E./mean = 43.4 lb./ac.

Crop :- Cotton (Kharif).

Ref :- U.P. 58(485).

Site :- Govt. Cotton Res. Stn., Bulandshahr.

Type :- 'M'.

Object :- To study the effect of burning jowar stubbles on the yield of Cotton.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) (a) Sandy loam. (b) Refer soil analysis, Bulandshahr. (iii) 20.5.1958. (iv) (a) 4 ploughing. (b) Dibbling. (c) N.A. (d) $2' \times 1\frac{1}{2}'$. (e) 3 to 4. (v) 10 lb./ac. of N as F.Y.M. (vi) 35/1. (vii) Irrigated. (viii) 2 weedings and 2 hoeings. (ix) 62.87%. (x) 17.10.1959 and 6.11.1959.

2. TREATMENTS :

3 manurial treatments : T_0 =Control, T_1 =*Jowar* stubbles burnt in the plot and T_2 =*Jowar* stubble burnt outside and ash applied.

3. DESIGN :

(i) R.B.D. (ii) (a) 3. (b) N.A. (iii) 3. (iv) (a) N.A. (b) $22.5' \times 6'$. (v) N.A. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Nil. (iii) Plant stand and yield of *kapas*. (iv) (a) 1958—contd. (b) No. (c) Nil. (v) (a) Raya. (b) Nil. (vi) and (vii) Nil.

5. RESULTS :

(i) 1057 lb./ac. (ii) 137.1 lb./ac. (iii) Treatment differences are not significant. (iv) Av. yield of *kapas* in lb./ac.

Treatment	T_0	T_1	T_2
Av. yield	894	1255	1022

S.E./mean = 79.1 lb./ac.

Crop :- Cotton (Kharif).

Ref :- U.P. 59(537).

Site :- Govt. Cotton Res. Stn., Bulandshahr.

Type :- 'M'.

Object :- To study the effect of burning jowar stubbles on the yield of Cotton.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) (a) Sandy loam. (b) Refer soil analysis, Bulandshahr. (iii) 23.5.1959. (iv) (a) N.A. (b) Dibbling. (c) N.A. (d) $2' \times 1\frac{1}{2}'$. (e) 3 to 4. (v) 6 mds./ac. of *mahuwa* cake + 20 lb./ac. of N as A/S. (vi) 35/1. (vii) Irrigated. (viii) 1 hoeing and 2 weedings. (ix) 18.32%. (x) 12.9.1959 to 14.10.1959.

2. TREATMENTS :

Same as in expt. no. 58(485) on page 1387.

3. DESIGN :

(i) R.B.D. (ii) (a) 3. (b) $22\frac{1}{2}' \times 20'$. (iii) 8. (iv) (a) N.A. (b) $22.5' \times 6'$. (v) N.A. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Nil. (iii) Plant stand and yield of *kapas*. (iv) (a) 1958—contd. (b) No. (c) Nil. (v) (a) Raya. (b) Nil. (vi) and (vii) Nil.

5. RESULTS :

(i) 1012 lb./ac. (ii) 147.5 lb./ac. (iii) Treatment differences are not significant. (iv) Av. yield of *kapas* in lb./ac.

Treatment	T_0	T_1	T_2
Av. yield	1012	964	1059

S.E./mean = 52.2 lb./ac.

Crop :- Cotton (Kharif).

Ref :- U.P. 55(348).

Site :- Govt. Agri. Farm, Kalai.

Type :- 'M'.

Object :- To study the residual effect on Cotton of Super and B.M. applied as deep placement with and without N on Wheat.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Wheat. (c) As per treatments. (ii) (a) Loam. (b) Refer soil analysis, Kalai. (iii) and (iv) N.A. (v) Nil. (vi) to (x) N.A.

2. TREATMENTS :

All combinations of (1) and (2)

(1) 2 levels of N as A/S : $N_0=0$ and $N_1=30$ lb./ac.

(2) 5 levels of P_2O_5 : $P_0=0$, $P_1=60$ and $P_3=120$ lb./ac. as Super, $P_2=60$ and $P_4=120$ lb./ac. as B.M.

Treatments applied on 4 and 5.11.1954 to previous wheat crop.

3. DESIGN :

(i) Fact. in R.B.D. (ii) (a) 10. (b) N.A. (iii) 4. (iv) (a) and (b) $41' \times 26.56'$. (v) Nil. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of *kapas*. (iv) (a) and (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 717 lb./ac. (ii) 65.2 lb./ac. (iii) None of the effects is significant. (iv) Av. yield of *kapas* in lb./ac.

	P_0	P_1	P_2	P_3	P_4	Mean
N_0	717	719	704	695	723	711
N_1	741	674	730	729	740	723
Mean	729	696	717	712	731	717

S.E. of N marginal mean = 14.6 lb./ac.
 S.E. of P marginal mean = 23.0 lb./ac.
 S.E. of body of table = 32.6 lb./ac.

Crop :- Cotton (Kharif).

Ref :- U.P. 55(347).

Site :- Govt. Agri. Farm, Kalai.

Type :- 'M'.

Object :- To study the residual effect on Cotton of N, P and K applied to previous wheat crop.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Wheat. (c) As per treatments. (ii) (a) Loam. (b) Refer soil analysis, Kalai. (iii) and (iv) N.A. (v) Nil. (vi) to (x) N.A.

2. TREATMENTS :

All combinations of (1), (2) and (3)

(1) 2 levels of N as A/S : $N_0=0$ and $N_1=30$ lb./ac.

(2) 2 levels of P_2O_5 as Super : $P_0=0$ and $P_1=60$ lb./ac.

(3) 3 levels of K_2O as Pot. Chloride : $K_0=0$, $K_1=60$ and $K_2=120$ lb./ac.

Treatments applied to previous wheat crop.

3. DESIGN :

(i) 3×2^2 partially balanced confd. (ii) (a) 6 plots/block and 2 blocks/replication. (b) $41' \times 174'$. (iii) 4. (iv) (a) and (b) $41' \times 26.56'$. (v) Nil. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of *kapas*. (iv) (a) and (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 668 lb./ac. (ii) 95.6 lb./ac. (iii) Interaction $P \times K$ alone is significant. (iv) Av. yield of *kapas* in lb./ac.

	K ₀	K ₁	K ₂	Mean	P ₀	P ₁
N ₀	643	670	668	661	690	631
N ₁	640	687	698	675	698	652
Mean	642	679	683	668	694	642
P ₀	721	682	679			
P ₁	562	675	688			

S.E. of N or P marginal mean = 19.5 lb./ac.
 S.E. of K marginal mean = 23.9 lb./ac.
 S.E. of body of N×K or P×K table = 33.8 lb./ac.
 S.E. of body of N×P table = 27.6 lb./ac.

Crop :- Cotton.

Site :- Govt. Agri. Res. Farm, Kalianpur.

Ref :- U.P. 58(503).

Type :- 'M'.

Object :—To study the effect of different levels of N, P and K on the yield of Cotton.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Wheat. (c) Nil. (ii) (a) Loam soil. (b) Refer soil analysis, Kalianpur. (iii) 12.5.1958.
 (iv) (a) 3 hoeings with cultivator. (b) to (c) N.A. (v) Nil. (vi) 216 F (medium). (vii) Irrigated. (viii) 2
 weedings with *khurpi*. (ix) N.A. (x) 15.1.1959.

2. TREATMENTS :

All combinations of (1), (2) and (3)

- (1) 3 levels of N : N₀=0, N₁=30 and N₂=60 lb./ac.
 (2) 3 levels of P₂O₅ as Super : P₀=0, P₁=50 and P₂=100 lb./ac.
 (3) 3 levels of K₂O : K₀=0, K₁=50 and K₂=100 lb./ac.

3. DESIGN :

(i) 3³ confd. (ii) (a) 9 plots/block and 3 blocks/replication. (b) N.A. (iii) 4. (iv) (a) 40'×12'. (b) 34'×8'.
 (v) 3'×2'. (vi) Yes.

4. GENERAL :

(i) Normal. (ii) Spraying with DDT. (iii) Germination % and yield of *kapas*. (iv) (a) to (c) N.A. (v)
 (a) Meerut and Raya. (b) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 514 lb./ac. (ii) 138.4 lb./ac. (iii) Only N effect is highly significant. (iv) Av. yield of *kapas* in lb./ac.

	P ₀	P ₁	P ₂	Mean	K ₀	K ₁	K ₂
N ₀	387	342	366	365	360	343	391
N ₁	511	541	556	536	515	511	582
N ₂	661	590	674	642	654	640	631
Mean	520	491	532	514	510	498	535
K ₀	488	513	527				
K ₁	510	484	501				
K ₂	561	475	568				

S.E. of any marginal mean = 23.1 lb./ac.
S.E. of body of any table = 39.9 lb./ac.

Crop :- Cotton.

Ref :- U.P. 58(46).

Site :- Reg. Res. Stn., Meerut.

Type :- 'M'.

Object :- To study the effect of different levels of N, P and K on the yield of Cotton.

1. BASAL CONDITIONS:

(i) *Sanai*—Wheat—Cotton—Pea. (b) Wheat. (c) G.M. (*sanai*) (ii) (a) Silt loam. (b) Refer soil analysis, Meerut. (iii) 26.5.1958 (iv) (a) 2 ploughings. (b) Line sowing. (c) 16 lb./ac. (d) 2'×1.5'. (e) N.A. (v) Nil. (vi) 35/1. (vii) Irrigated. (viii) 1 thinning. (ix) 53.44%. (x) 8.10.1958 to 6.11.1958.

2. TREATMENTS :

All combinations of (1), (2) and (3)

(1) 3 levels of N as A/S : $N_0=0$, $N_1=30$ and $N_2=60$ lb./ac.

(2) 3 levels of P_2O_5 as Super : $P_0=0$, $P_1=50$ and $P_2=100$ lb./ac.

(3) 3 level of K_2O as Pot. Sul. : $K_0=0$, $K_1=50$ and $K_2=100$ lb./ac.

N applied after 2nd irrigation, P_2O_5 at sowing and K_2O two months after sowing.

3. DESIGN :

(i) 3³ confd. (ii) (a) 9 plots/block ; 3 blocks/replication. (b) 116'×40'. (iii) 4. (iv) (a) 40'×12'. (b) 34'×8'. (v) 3'×2'. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Nil. (iii) Germination % and yield of *kapas*. (iv) (a) 1958—1959. (b) No. (c) Nil. (v) (a) and (b) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 379 lb./ac. (ii) 104.0 lb./ac. (iii) Only main effect of N is highly significant. (iv) Av yield of *kapas* in lb./ac.

	P_0	P_1	P_2	Mean	K_0	K_1	K_2
N_0	345	327	315	329	347	272	367
N_1	400	335	380	372	404	368	342
N_2	466	411	429	435	450	447	409
Mean	404	358	375	379	401	363	373
K_0	407	406	389				
K_1	407	311	370				
K_2	397	356	365				

S.E. of any marginal mean = 17.3 lb./ac.
S.E. of body of any table = 30.0 lb./ac.

Crop :- Cotton (Kharif).

Ref :- U.P. 59(47).

Site :- Reg. Res. Stn., Meerut.

Type :- 'M'.

Object :- To study the effect of different levels of N, P and K on the yield of Cotton.

1. BASAL CONDITIONS :

(i) (a) *Sanai*—Wheat—Cotton. (b) Wheat. (c) G.M. (*sanai*). (ii) (a) Silt loam. (b) Refer soil analysis, Meerut. (iii) 6.6.1959. (iv) (a) 2 ploughings. (b) Dibbling. (c) N.A. (d) 2'×1.5'. (e) 3 to 4. (v) Nil. (vi) 35/1 (early). (vii) Irrigated. (viii) 4 weedings and 3 hosings. (ix) 19.45". (x) 7.10.1959 to 24.11.1959.

2. TREATMENTS :

All combinations of (1), (2) and (3)

(1) 3 levels of N as A/S : $N_0=0$, $N_1=30$ and $N_2=60$ lb./ac.

(2) 3 levels of P_2O_5 as Super : $P_0=0$, $P_1=50$ and $P_2=100$ lb./ac.

(3) 3 levels of K_2O as Mur. Pot. : $K_0=0$, $K_1=50$ and $K_2=100$ lb./ac.

N top dressed in two doses on 3.8.1959 and 31.8.1959. P_2O_5 and K_2O applied on 6.6.1959.

3. DESIGN :

(i) 3³ confd. (ii) (a) 9 plots/block and 3 blocks/replication. (b) 116'×40'. (iii) 4. (iv) (a) 40'×12'. (b) 34'×8'. (v) 3'×2'. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Attack of white ants. (iii) Germination %, plant stand and yield of *kapas*. (iv) (a) 1958—1959. (b) No. (c) Nil. (v) (a) and (b) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 628 lb./ac. (ii) 187.8 lb./ac. (iii) Only main effect of N is highly significant. (iv) Av. yield of *kapas* in lb./ac.

	P_0	P_1	P_2	Mean	K_0	K_1	K_2
N_0	602	447	498	516	517	491	538
N_1	646	590	749	662	639	651	695
N_2	752	723	644	706	776	679	665
Mean	667	587	630	628	644	607	633
K_0	742	560	630				
K_1	604	606	610				
K_2	654	595	650				

S.E. of any marginal mean = 31.3 lb./ac.
S.E. of body of any table = 54.2 lb./ac.

Crop :- Cotton (*Kharif*).

Ref :- U.P. 57(46).

Site :- Reg. Res. Stn., Meerut.

Type :- 'M'.

Object :- To study the effect of different times of application of N on the yield of Cotton.

1. BASAL CONDITIONS :

(i) (a) G.M.—Wheat—Cotton. (b) Wheat. (iii) G.M. (ii) (a) Silt loam. (b) Refer soil analysis, Meerut. (iii) 28.5.1957. (iv) (a) 2 ploughings. (b) Line sowing. (c) 16 srs./ac. (d) 2'×1.5'. (e) N.A. (v) Nil. (vi) 35/1 (early). (vii) Irrigated. (viii) 1 thinning. (ix) 43.29". (x) 28.9.1957 to 30.11.1957.

2. TREATMENTS :

Main-plot treatments :

3 times of application of N : $T_1=At$ sowing, $T_2=At$ flowering and $T_3=\frac{1}{2}$ dose at sowing and $\frac{1}{2}$ dose at flowering.

Sub-plot treatments :

3 levels of N as A/S : $N_0=0$, $N_1=30$ and $N_2=60$ lb./ac.

3. DESIGN :

(i) Split-plot. (ii) (a) 3 main-plots/replication; 3 sub-plots/main-plot. (b) 118' × 78'. (iii) 4. (iv) (a) 78' × 12'. (b) 72' × 8'. (v) 3' × 2'. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Nil. (iii) Plant stand and yield of *kapas*. (iv) (a) and (b) No. (c) Nil. (v) (a) and (b) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 1120 lb./ac. (ii) (a) 129.7 lb./ac. (b) 230.3 lb./ac. (iii) None of the effects is significant. (iv) Av. yield of *kapas* in lb./ac.

$$N_0 = 1008 \text{ lb./ac.}$$

	T ₁	T ₂	T ₃	Mean
N ₁	1052	1113	1146	1104
N ₂	1295	1184	1269	1249
Mean	1174	1148	1208	1177

S.E. of difference of two

1. T marginal means = 64.8 lb./ac.
2. N marginal means = 94.0 lb./ac.
3. N means at the same level of T = 162.8 lb./ac.
4. T means at the same level of N = 132.1 lb./ac.

Crop :- Cotton (*Kharif*).

Ref :- U.P. 57(47).

Site :- Reg. Res. Sta., Meerut.

Type :- 'M'.

Object :- To study the effect of F.Y.M. and different methods of cultivation on the yield of Cotton.

1. BASAL CONDITIONS :

(i) (a) G.M.—Wheat—Cotton—Pea. (b) Wheat. (c) G.M. (iii) Silt loam. (b) Refer soil analysis, Merrut. (iii) 25.5.1957. (iv) (a) 3 ploughings. (b) and (c) As per treatments. (d) 2' × 2'. (e) As per treatments. (v) 1 md./ac. of A/S at irrigation + 1 md./ac. of A/S at flowering. (vi) 216 F (early). (vii) Irrigated. (viii) 1 thinning and 2 weedings. (ix) 43.29'. (x) 8.10.1957 to 3.12.1957.

2. TREATMENTS :

All combinations of (1) and (2)

(1) 3 levels of F.Y.M. : F₀=0, F₁=2½ and F₂=5 mds./ac.

(2) 2 methods of cultivation : M₁=Sowing behind the plough with 10 srs./ac. of seed rate and 1 seedling per hole and M₂=Dibbling at 4 seeds/hole with 4 srs./ac. of seed rate.

3. DESIGN :

(i) Fact. in R.B.D. (ii) (a) 6. (b) 34' × 183'. (iii) 3. (iv) (a) 34' × 28'. (b) 30' × 24'. (v) 2' × 2'. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Leaf roller attack. Hand picking of rolled leaves. (iii) Plant stand and yield of *kapas*. (iv) (a) and (b) No. (c) Nil. (v) (a) and (b) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 543 lb./ac. (ii) 39.7 lb./ac. (iii) Only F effect is highly significant. (iv) Av. yield of *kapas* in lb./ac.

	F ₀	F ₁	F ₂	Mean
M ₁	516	547	603	555
M ₂	467	559	566	531
Mean	491	553	584	543

S.E. of F marginal mean = 16.2 lb./ac.
 S.E. of M marginal mean = 13.2 lb./ac.
 S.E. of body of table = 22.9 lb./ac.

Crop :- Cotton (Kharif).

Ref :- U.P. 57(38).

Site :- Reg. Res. Stn., Meerut.

Type :- 'M'.

Object :- To study the effect of F.Y.M. and different methods of cultivation on the yield of Cotton.

1. BASAL CONDITIONS :

(i) (a) G.M.—Wheat—Cotton—Pea. (b) Wheat. (c) G.M. (ii) (a) Silt loam. (b) Refer soil analysis, Meerut. (iii) 10.5.1957. (iv) (a) 3 ploughings. (b) and (c) As per treatments. (d) 2'×2'. (e) As per treatments. (v) 1 md./ac. of A/S at irrigation+1 md./ac. of A/S at flowering. (vi) 320 F (early). (vii) Irrigated. (viii) Weeding on 24 and 26.7.1957, 20.8.1957 and thinning on 20.7.1957. (ix) 43.29%. (x) 8.10.1959 to 3.12.1957.

2. TREATMENTS to 4. GENERAL :

Same as in expt. no. 57(47) on page 1393.

5. RESULTS :

(i) 479 lb./ac. (ii) 51.0 lb./ac. (iii) Main effect of M is highly significant and F effect is significant. (iv) Av. yield of kapas in lb./ac.

	F ₀	F ₁	F ₂	Mean
M ₁	338	403	432	391
M ₂	499	598	606	568
Mean	419	598	519	479

S.E. of M marginal mean = 17.0 lb./ac.
 S.E. of F marginal mean = 20.8 lb./ac.
 S.E. of body of table = 29.4 lb./ac.

Crop :- Cotton (Kharif).

Ref :- U.P. 58(377).

Site :- Govt. Cotton Res. Sub-Stn., Raya.

Type :- 'M'.

Object :- To study the effect of burning Jowar stubbles on the yield of Cotton.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Wheat. (c) N.A. (ii) (a) Sandy loam. (b) Refer soil analysis, Raya. (iii) 25.5.1958. (iv) (a) 2 ploughings. (b) Sown behind the plough. (c) 16 lb./ac. (d) 2'×1½'. (e) N.A. (v) 10 lb./ac. of N as G.N.C. (vi) 216 F (early). (vii) Irrigated. (viii) 1 harrowing, 1 thinning, 2 weedings, 1 cultivator and 1 hoeing. (ix) 47.87%. (x) 16.10.1958 to 24.11.1958.

2. TREATMENTS :

3 methods of application of *Jowar* stubbles : M_0 =Control (no application), M_1 =Burnt inside the plot at 160 lb./plot and M_2 =Burnt outside the plot and ash applied at 160 lb./plot.

3. DESIGN :

(i) R.B.D. (ii) (a) 3. (b) 20'×20'. (iii) 4. (iv) (a) N.A. (b) 20'×6'. (v) N.A. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Nil. (iii) Plant stand and yield of *kapas*. (iv) (a) 1958—contd. (b) No. (c) Nil. (v) (a) Bulandshahr. (b) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 333 lb./ac. (ii) 97.6 lb./ac. (iii) Treatment differences are not significant. (iv) Av. yield of *kapas* in lb./ac.

Treatment	M_0	M_1	M_2
Av. yield	328	313	359
S.E./mean = 48.8 lb./ac.			

Crop :- Cotton (*Kharif*).

Ref :- U.P. 59(539).

Site :- Govt. Cotton Res. Sub-Stn., Raya.

Type :- 'M'.

Object :— To study the effect of burning *Jowar* stubbles on the yield of Cotton.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Gram. (c) N.A. (ii) (a) Sandy loam. (b) Refer soil analysis, Raya. (iii) 6.6.1959. (iv) (a) 3 ploughings. (b) Behind the plough. (c) 16 lb./ac. (d) 2'×1½'. (e) N.A. (v) Nil. (vi) 216 F. (vii) Irrigated. (viii) 1 harrowing, 2 weedings and 1 cultivator. (ix) 27.76". (x) 3, 19.10.1959 and 4.11.1959.

2. TREATMENTS :

Same as in expt. no. 58(377) on page 1394.

3. DESIGN :

(i) R.B.D. (ii) (a) 3. (b) 20'×32'. (iii) 4. (iv) (a) N.A. (b) 20'×10'. (v) N.A. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Nil. (iii) Plant stand and yield of *kapas*. (iv) (a) 1958—contd. (b) No. (c) Nil. (v) (a) Bulandshahr. (b) Nil. (vi) and (vii) Nil.

5. RESULTS :

(i) 679 lb./ac. (ii) 133.4 lb./ac. (iii) Treatment differences are not significant. (iv) Av. yield of *kapas* in lb./ac.

Treatment	M_0	M_1	M_2
Av. yield	867	445	726
S.E./mean = 66.7 lb./ac.			

Crop :- Cotton (*Kharif*).

Ref :- U.P. 55(136).

Site :- Govt. Cotton Res. Sub-Stn., Raya.

Type :- 'M'.

Object :—To study the effect of N and P on the yield of Cotton.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) (a) Sandy loam. (b) Refer soil analysis, Raya. (iii) 7.6.1955. (iv) (a) 2 ploughings. (b) Behind the plough in rows. (c) N.A. (d) Rows 3' apart. (e) 1. (v) Nil. (vi) and (vii) N.A. (viii) 1 weeding, 1 hoeing, 1 interculture and 1 thinning. (ix) 37.59". (x) 5.12.1955.

2. TREATMENTS :

All combinations of (1) and (2)

(1) 3 levels of N as A/S : $N_0=0$, $N_1=20$ and $N_2=40$ lb./ac.

(2) 3 levels of P_2O_5 as Super : $P_0=0$, $P_1=20$ and $P_2=40$ lb./ac.

N applied as broadcast before sowing. P_2O_5 applied by the sides of the cotton rows 3" to 4" deep on 21.7.1955.

3. DESIGN :

(i) Fact. in R.B.D. (ii) (a) 9. (b) 39' × 276'. (iii) 4. (iv) (a) and (b) 39' × 28'. (v) Nil. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of cotton. (iv) (a) 1955—1956. (b) No. (c) Nil. (v) (a) and (b) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 525 lb./ac. (ii) 61.4 lb./ac. (iii) None of the effects is significant. (iv) Av. yield of *kapas* in lb./ac.

	P_0	P_1	P_2	Mean
N_0	517	510	492	506
N_1	566	544	550	553
N_2	510	542	495	516
Mean	531	532	512	525

S.E. of N or P marginal mean = 17.7 lb./ac.
S.E. of body of table = 30.7 lb./ac.

Crop :- Cotton (Kharif).

Ref :- U.P. 56(86).

Site :- Govt. Cotton Res. Sub-Strn., Raya.

Type :- 'M'.

Object :—To study the effect of N and P on the yield of Cotton.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) (a) Sandy loam. (b) Refer soil analysis, Raya. (iii) 24.5.1956. (iv) (a) 4 ploughings and 2 plankings. (b) Line sowing. (c) N.A. (d) Rows 3' apart. (e) 1. (v) Nil. (vi) N.A. (vii) Un-irrigated. (viii) 1 weeding by *khurpi* and 1 hoeing by cultivator. (ix) 18.29". (x) 19.10.1956 to 10.11.1956.

2. TREATMENTS :

All combinations of (1) and (2)

(1) 3 levels of N as A/S : $N_0=0$, $N_1=20$ and $N_2=40$ lb./ac.

(2) 3 levels of P_2O_5 as Super : $P_0=0$, $P_1=20$ and $P_2=40$ lb./ac.

N applied in two equal doses before sowing and on 9.8.1956. P_2O_5 applied deep in bands on 24.5.1956.

3. DESIGN :

(i) Fact. in R.B.D. (ii) (a) 9. (b) 42' × 242'. (iii) 4. (iv) (a) and (b) 42' × 26'. (v) Nil. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of *kapas*. (iv) (a) 1955—1956. (b) No. (c) Nil. (v) (a) and (b) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 1465 lb./ac. (ii) 108.8 lb./ac. (iii) Only main effect of N is significant. (iv) Av. yield of *kapas* in lb./ac.

	P ₀	P ₁	P ₂	Mean
N ₀	1423	1401	1392	1405
N ₁	1494	1483	1516	1468
N ₂	1585	1536	1449	1523
Mean	1471	1473	1452	1465

S.E. of N or P marginal mean = 31.4 lb./ac.

S.E. of body of table = 54.4 lb./ac.

Crop :- Cotton (Kharif).

Ref :- U.P. 56(365).

Site :- Govt. Cotton Res. Sub-Stn., Raya.

Type :- 'M'.

Object :-To study the effect of different levels of N and P on the yield of Cotton.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) (a) Sandy loam. (b) Refer soil analysis, Raya. (iii) 24.5.1956. (iv) (a) 2 ploughings. (b) Sown behind the plough. (c) 20 lb./ac. (d) 2' × 1½'. (e) N.A. (v) Nil. (vi) 216 F (early). (vii) Irrigated. (viii) 1 interculturing and 1 thinning. (ix) 18.28". (x) 4.10.1956 to 16.11.1956.

2. TREATMENTS :

All combinations of (1) and (2)

(1) 2 levels of P₂O₅ as Super : P₀=0 and P₁=20 lb./ac.

(2) 3 levels of N as A/S : N₀=0, N₁=20 and N₂=40 lb./ac.

N applied on 26.7.1956 and P₂O₅ placed deep in soil just after sowing.

3. DESIGN :

(i) Fact. in R.B.D. (ii) (a) 12 (2 plots for each treatment combination). (b) 78' × 155'. (iii) 3. (iv) (a) 78' × 12'. (b) 72' × 8'. (v) 3' × 2'. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Nil. (iii) Plant stand and yield of *kapas*. (iv) (a) and (b) No. (c) Nil. (v) and (vi) Nil. (vii) The experiment was planned with 3 levels of N and 2 levels each of P₂O₅ and K₂O. K₂O was not applied due to non-availability and hence each combination of N P occur in two plots.

5. RESULTS :

(i) 1548 lb./ac. (ii) 146.1 lb./ac. (iii) Only main effect of N is significant. (iv) Av. yield of *kapas* in lb./ac.

	N ₀	N ₁	N ₂	Mean
P ₀	1455	1538	1590	1528
P ₁	1433	1625	1648	1568
Mean	1444	1581	1619	1548

S.E. of P marginal mean = 34.4 lb./ac.

S.E. of N marginal mean = 42.2 lb./ac.

S.E. of body of table = 59.6 lb./ac.

Crop :- Cotton (Kharif).

Ref :- U.P. 56(364).

Site :- Govt. Cotton Res. Sub-Stn., Raya.

Type :- 'M'.

Object :-To test the efficacy of treating the Cotton seed with molecular solutions.

1. BASAL CONDITIONS :

(i) (a) G.M.—Wheat—Cotton—Pea. (b) Wheat. (c) N.A. (ii) (a) Sandy loam. (b) Refer soil analysis, Raya. (iii) 26.5.1956. (iv) (a) 2 ploughings. (b) Sown behind the plough. (c) 20 lb./ac. (d) 2' × 1.5'. (e) N.A. (v) Nil. (vi) 2/6 F (early). (vii) Irrigated. (viii) 1 thinning, 1 interculture, 1 harrowing and 1 hoeing. (ix) 18.28". (x) 17.9.1956 to 13.11.1956.

2. TREATMENTS :

13 molecular solution treatments: M₀=Control (4 plots), M₁=Tannic acid M/50, M₂=Tannic acid M/100, M₃=Tannic acid M/200, M₄=Aluminium Sulphate M/50, M₅=Aluminium Sulphate M/100, M₆=Aluminium Sulphate M/200, M₇=Formaldehyde 0.2 %, M₈=Formaldehyde 0.1 %, M₉=Formaldehyde 0.05 %, M₁₀=Lead Acetate M/50, M₁₁=Lead Acetate M/100 and M₁₂=Lead Acetate M/200.

3. DESIGN :

(i) R.B.D. (ii) (a) 16. (b) N.A. (iii) 4. (iv) (a) 40' × 12'. (b) 34' × 8'. (v) 3' × 2'. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Nil. (iii) Plant stand and yield of *kapas*. (iv) (a) and (b) No. (c) Nil. (v) (a) and (b) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 929 lb./ac. (ii) 147.9 lb./ac. (iii) Treatment differences are not significant. (iv) Av. yield of *kapas* in lb./ac.

Treatment	M ₀	M ₁	M ₂	M ₃	M ₄	M ₅	M ₆
Av. yield	885	843	1005	876	1031	1063	956
Treatment	M ₇	M ₈	M ₉	M ₁₀	M ₁₁	M ₁₂	
Av. yield	916	863	931	928	971	948	

S.E./mean (excluding M₀) = 73.9 lb./ac.
S.E. of M₀ mean = 37.0 lb./ac.

Crop :- Cotton (Kharif).

Ref :- U.P. 56(366).

Site :- Govt. Cotton Res. Sub-Stn., Raya.

Type :- 'M'.

Object :—To test the efficacy of treating the Cotton seed with molecular solutions.

1. BASAL CONDITIONS :

(i) (a) G.M.—Wheat—Cotton—Pea. (b) Wheat. (c) N.A. (ii) (a) Sandy loam. (b) Refer soil analysis, Raya. (iii) 23.5.1956. (iv) (a) 2 ploughings. (b) Sown behind the plough. (c) 20 lb./ac. (d) 2' × 1½'. (e) N.A. (v) Nil. (vi) 35/1 (early). (vii) Irrigated. (viii) 1 thinning, 1 weeding, 2 interculturings, 1 harrowing, and 1 hoeing. (ix) 18.28". (x) 16.9.1956 to 17.10.1956.

2. TREATMENTS to 4. GENERAL :

Same as in expt. no. 56(364) on page 1397.

5. RESULTS :

(i) 1020 lb./ac. (ii) 143.3 lb./ac. (iii) Treatment differences are not significant. (iv) Av. yield of *kapas* in lb./ac.

Treatment	M ₀	M ₁	M ₂	M ₃	M ₄	M ₅	M ₆
Av. yield	1038	998	962	962	1066	990	1030
Treatment	M ₇	M ₈	M ₉	M ₁₀	M ₁₁	M ₁₂	
Av. yield	1011	1172	1057	1018	977	931	

S.E./mean (excluding M₀) = 71.6 lb./ac.
S.E. of M₀ mean = 35.8 lb./ac.

Crop :- Cotton.**Ref :- U.P. 57(9).****Site :- Govt. Cotton Res. Sub-Strn., Raya.****Type :- 'M'.**

Object :—To study the effect of A/S and straw used as manure on Cotton.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Barley. (c) Nil. (ii) (a) Sandy loam. (b) Refer soil analysis, Raya. (iii) 21.5.1957. (iv) (a) 2 Victory and 2 *desi* ploughings. (b) to (e) N.A. (v) Nil. (vi) 216 F (early). (vii) Irrigated. (viii) 2 harrowings, 3 hand weedings and 2 hoeings. (ix) 34.50". (x) 28.9.1957 to 22.11.1957.

2. TREATMENTS:

4 manurial treatments : M_0 =Control, M_1 =A/S at 224 lb./ac., M_2 =Straw at 2 tons/ac. and M_3 =Straw at 2 tons/ac. + A/S at 224 lb./ac.

3. DESIGN :

(i) R.B.D. (ii) (a) 4. (b) N.A. (iii) 6. (iv) (a) 50'×26'. (b) 44'×22'. (v) 3'×2'. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Nil. (iii) Plant stand and yield of *kapas*. (iv) (a) 1957—1958. (b) No. (c) Nil. (v) (a) and (b) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 1149 lb./ac. (ii) 103.4 lb./ac. (iii) Treatment differences are highly significant. (iv) Av. yield of *kapas* in lb./ac.

Treatment	M_0	M_1	M_2	M_3
Av. yield	924	1264	1014	1384

S.E./mean = 42.2 lb./ac.

Crop :- Cotton.**Ref :- U.P. 58(376).****Site :- Govt. Cotton Res. Sub-Strn., Raya.****Type :- 'M'.**

Object :—To study the effect of A/S and straw used as manure on Cotton.

1. BASAL CONDITIONS :

(i) (a) *Sanai*—Wheat—Cotton—Pea. (b) Wheat. (c) G.M. (*sanai*). (ii) (a) Sandy loam. (b) Refer soil analysis, Raya. (iii) 22.5.1958. (iv) (a) 2 ploughings. (b) Sown behind the plough. (c) 16 lb./ac. (d) 2'×1½'. (e) N.A. (v) Nil. (vi) 216 F (early). (vii) Irrigated. (viii) 1 spiketooth harrow, 2 weedings with *khurpi*, 1 hoeing and 1 cultivator. (ix) 47.87". (x) 7.10.1958 to 24.11.1958.

2. TREATMENTS and 3. DESIGN :

Same as in expt. no. 57(9) above.

4. GENERAL :

(i) Good. (ii) Light attack of jassid, and DDT sprayed. (iii) Plant stand and yield of *kapas*. (iv) (a) 1957—1958. (b) No. (c) Nil. (v) (a) and (b) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 401 lb./ac. (ii) 56.2 lb./ac. (iii) Treatment differences are highly significant. (iv) Av. yield of *kapas* in lb./ac.

Treatment	M_0	M_1	M_2	M_3
Av. yield	323	365	412	505

S.E./mean = 22.9 lb./ac.

Crop :- Cotton (Kharif).**Ref :- U.P. 54(10).****Site :- Govt. Cotton Res. Sub-Stn., Raya.****Type :- 'M'.**

Object :- To find out the effect of application of organic manure in combination with A/S on Cotton.

1. BASAL CONDITIONS :

(i) (a) Cotton—Pea—G.M.—Wheat. (b) Wheat. (c) G.M. (ii) (a) Sandy loam. (b) Refer soil analysis, Raya. (iii) 23.5.1954. (iv) (a) 3 ploughings. (b) Sown behind the plough. (c) 16 lb./ac. (d) 2' × 1½'. (e) N.A. (v) Nil. (vi) 216 F. (vii) Irrigated. (viii) 1 harrowing, 1 weeding and 1 interculturing. (x) 16.29". (x) 18.10.1954 and 5.11.1954.

2. TREATMENTS :

All combinations of (1) and (2)

(1) 3 levels of A/S : $A_0=0$, $A_1=224$ and $A_2=448$ lb./ac.(2) 3 levels of compost : $C_0=0$, $C_1=2$ and $C_2=5$ tons/ac.**3. DESIGN :**

(i) R.B.D. (ii) (a) 9. (b) N.A. (iii) 4. (iv) (a) 84' × 16'. (b) 78' × 12'. (v) 3' × 2'. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Minor damage by pink boll worm. (iii) Plant stand and yield of *kapas*. (iv) (a) 1952—1955. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :(i) 1367 lb./ac. (ii) 74.4 lb./ac. (iii) Only A effect is highly significant. (iv) Av. yield of *kapas* in lb./ac.

	C_0	C_1	C_2	Mean
A_0	1161	1255	1246	1221
A_1	1426	1431	1386	1414
A_2	1479	1488	1437	1468
Mean	1355	1391	1356	1367

S.E. of A or C marginal mean = 21.5 lb./ac.

S.E. of body of table = 37.2 lb./ac.

Crop :- Cotton (Kharif).**Ref :- U.P. 55(71).****Site :- Govt. Cotton Res. Sub-Stn., Raya.****Type :- 'M'.**

Object :- To find out the effect of application of organic manure in combination with A/S on Cotton.

1. BASAL CONDITIONS :

(i) (a) G.M.—Wheat—Cotton—Pea. (b) Wheat. (c) Nil. (ii) (a) Sandy loam. (b) Refer soil analysis, Raya. (iii) 6.6.1955. (iv) (a) 1 Victory and 2 *desi* ploughings. (b) to (e) N.A. (v) Nil. (vi) 216 F (early). (vii) Irrigated. (viii) 1 weeding, 1 thinning, 3 interculturings, 1 harrowing and 2 hoeings. (ix) 38.82". (x) 11.10.1955 and 3.12.1955.

2. TREATMENTS and 3. DESIGN :

Same as in expt. no. 54(10) above.

4. GENERAL :(i) Good. (ii) Nil. (iii) Yield of *kapas*. (iv) (a) 1952—1955. (b) No. (c) Nil. (v) to (vii) Nil.**5. RESULTS :**(i) 547 lb./ac. (ii) 51.4 lb./ac. (iii) Main effect of A alone is highly significant. (iv) Av. yield of *kapas* in lb./ac.

	C ₀	C ₁	C ₂	Mean
A ₀	542	620	616	593
A ₁	551	521	564	545
A ₂	492	506	514	504
Mean	528	549	565	547

S.E. of any marginal mean = 14.8 lb./ac.
S.E. of body of table = 25.7 lb./ac.

Crop :- Cotton (Kharif).

Ref :- U.P. 54(11).

Site :- Govt. Cotton Res. Sub-Strn., Raya.

Type :- 'M'.

Object :- To find out the effect of application of organic manure in combination with A/S.

1. BASAL CONDITIONS :

(i) (a) Cotton—Pea—G.M.—Wheat. (b) Wheat. (c) G.M. (ii) (a) Sandy loam. (b) Refer soil analysis, Raya. (iii) 24.5.1954. (iv) (a) 1 Victory and 2 *desi* ploughings. (b) Sown behind the plough. (c) 16 lb./ac. (d) 2' x 1'. (e) N.A. (v) Nil. (vi) 35/1 (early). (vii) Irrigated. (viii) 1 harrowing, 1 weeding, 1 inter-culture and 1 thinning. (ix) 16.29'. (x) 10.10.1954 to 3.11.1954.

2. TREATMENTS and 3. DESIGN :

Same as in expt. no. 54(10) on page 1400.

4. GENERAL :

(i) Good. (ii) The crop was slightly affected by wilt. No control measures taken. (iii) Plant stand and yield of *kapas*. (iv) (a) 1952—1955. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 1539 lb./ac. (ii) 167.5 lb./ac. (iii) Main effect of A alone is highly significant. (iv) Av. yield of *kapas* in lb./ac.

	C ₀	C ₁	C ₂	Mean
A ₀	1363	1372	1360	1365
A ₁	1647	1584	1435	1555
A ₂	1707	1753	1632	1697
Mean	1572	1570	1476	1539

S.E. of any marginal mean = 48.4 lb./ac.
S.E. of body of table = 83.7 lb./ac.

Crop :- Cotton (Kharif).

Ref :- U.P. 55(70).

Site :- Govt. Cotton Res. Sub-Strn., Raya.

Type :- 'M'.

Object :- To find out the effect of application of organic manure in combination with A/S.

1. BASAL CONDITIONS :

(i) (a) G.M.—Wheat—Cotton—Pea. (b) Wheat. (c) No. (ii) (a) Sandy loam. (b) Refer soil analysis, Raya. (iii) 5.6.1955. (iv) (a) 1 Victory and 2 *desi* ploughings. (b) to (e) N.A. (v) Nil. (vi) 35/1 (early). (vii) Irrigated. (viii) 1 weeding, 1 thinning, 3 intercultures, 1 harrowing and 2 hoeings. (ix) 38.82". (x) 7.10.1955 to 1.12.1955.

2. TREATMENTS and 3. DESIGN :

Same as in expt. no. 54(10) on page 1400.

4. GENERAL :

(i) Good. (ii) Nil. (iii) Yield of *kapas*. (iv) (a) 1952—1955. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 994 lb./ac. (ii) 850 lb./ac. (iii) Main effects of A and C are highly significant. (iv) Av. yield of *kapas* in lb./ac.

	C ₀	C ₁	C ₂	Mean
A ₀	769	817	855	814
A ₁	924	1054	1122	1033
A ₂	1104	1111	1186	1134
Mean	932	994	1054	994

S.E. of any marginal mean = 24.5 lb./ac.
S.E. of body of table = 42.5 lb./ac.

Crop :- Cotton (Kharif).

Ref :- U.P. 57(396).

Site :- Govt. Cotton Res. Sub-Stn., Raya.

Type :- 'M'.

Object :—To find out the best source and optimum time of application of N to Cotton crop.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Wheat. (c) N.A. (ii) (a) Sandy loam. (b) Refer soil analysis, Raya. (iii) 27.5.1957. (iv) (a) 1 *desi* and 1 Victory ploughing. (b) Sown behind the plough. (c) 16 lb./ac. (d) 2' × 1½'. (e) N.A. (v) Nil. (vi) 216 F (early). (vii) Irrigated. (viii) 2 harrowings, 2 hoeings, 3 weedings by *khurpi* and 1 thinning. (ix) 34.50". (x) 30.9.1957 to 11.11.1957.

2. TREATMENTS :

Main-plot treatments :

3 times of application of N : T₁=Full dose at sowing, T₂=Full dose at flowering and T₃=½ dose at sowing and ½ at flowering.

Sub-plot treatments :

9 manurial treatments : N₀=Control, N₁=30 lb./ac. of N as A/S, N₂=30 lb./ac. of N as G.N.C, N₃=60 lb./ac. of N as A/S, N₄=60 lb./ac. of N as G.N.C., N₅=N₁+N₂, N₆=N₁+N₄, N₇=N₂+N₃ and N₈=N₃+N₄.

3. DESIGN :

(i) Split-plot. (ii) (a) 3 main-plots/replication ; 9 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) 52' × 12'. (b) 46' × 8'. (v) 3' × 2'. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Nil. (iii) Plant stand and yield of *kapas*. (iv) (a) and (b) No. (c) Nil. (v) (a) and (b) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 624 lb./ac. (ii) (a) 300.6 lb./ac. (b) 120.7 lb./ac. (iii) None of the effects is significant. (iv) Av. yield of *kapas* in lb./ac.

	N ₀	N ₁	N ₂	N ₃	N ₄	N ₅	N ₆	N ₇	N ₈	Mean
T ₁	—	505	466	575	616	560	601	616	581	565
T ₂	—	605	618	732	662	745	655	790	677	685
T ₃	—	758	693	569	618	568	660	675	671	652
Mean	545	623	592	625	632	624	639	694	643	—

S.E. of difference of two

1. T marginal means = 75.1 lb./ac.
2. N marginal means = 49.3 lb./ac.
3. N means at the same level of T = 85.4 lb./ac.
4. T means at the same level of N = 107.2 lb./ac.

Crop :- Cotton (Kharif).

Ref :- U.P. 57(397).

Site :- Govt. Cotton Res. Sub-Stn., Raya.

Type :- 'M'.

Object :- To study the effect of trace-elements on the yield of Cotton.

1. BASAL CONDITIONS :

(i) (a) *Sanai*—Wheat Cotton—Pea. (b) Wheat. (c) Nil. (ii) (a) Sandy loam. (b) Refer soil analysis, Raya. (iii) 19.5.1957. (iv) (a) 3 *desi* and 1 Victory ploughing. (b) Sown behind the plough. (c) 16 lb./ac. (d) 2' × 1½'. (e) N.A. (v) Nil. (vi) 216 F (early). (vii) Irrigated. (viii) 1 harrowing, 3 weedings and 1 hoeing. (ix) 34.50°. (x) 29.9.1957 to 12.11.1957.

2. TREATMENTS :

Main-plot treatments :

2 trace-elements : T₁=Boron as Borax and T₂=Manganese as Potassium Permanganate.

Sub-plot treatments :

3 levels of elements : L₀=0, L₁=5 and L₂=10 lb./ac.

3. DESIGN :

(i) Split-plot. (ii) (a) 2 main-plots/replication ; 3 sub-plots/main-plot. (b) 80' × 54'. (iii) 6. (iv) (a) 54' × 12'. (b) 48' × 8'. (v) 3' × 2'. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Nil. (iii) Plant stand and yield of *kapas*. (iv) (a) and (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 660 lb./ac. (ii) (a) 48.9 lb./ac. (b) 85.0 lb./ac. (iii) None of the effects is significant. (iv) Av. yield of *kapas* in lb./ac.

	L ₀	L ₁	L ₂	Mean
T ₁	676	662	684	675
T ₂	666	633	640	646
Mean	671	647	662	660

S.E. of difference of two

1. T marginal means = 16.3 lb./ac.
2. L marginal means = 34.7 lb./ac.
3. L means at the same level of T = 49.1 lb./ac.
4. T means at the same level of L = 43.3 lb./ac.

Crop :- Cotton (Kharif).**Ref :- U.P. 59(84).****Site :- Sahupuri Agri. Expt. Farm, Sahupuri.****Type :- 'M'.**

Object :—To study the effect of different sources of N on the yield of Cotton.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) *Bajra*. (c) Nil. (ii) (a) Sandy loam. (b) Refer soil analysis, Sahupuri. (iii) 29.5.1959. (iv) (a) 3 ploughings and 2 plankings. (b) Dibbling. (c) 20 lb./ac. (d) 2' x 2' to 2½'. (e) 1. (v) 30 mds./ac. of T.C. (vi) 216 F (medium). (vii) Irrigated. (viii) 2 weedings and 2 hoeings. (ix) N.A. (x) 7.10.1959 to 25.1.1960.

2. TREATMENTS :

3 sources of N at 50 lb./ac. : S_0 =Control, S_1 =A/C and S_2 =A/S.
N applied in two equal doses at sowing and at flowering.

3. DESIGN :

(i) R.B.D. (ii) (a) 3. (b) 64' x 62'. (iii) 6. (iv) (a) 62' x 20'. (b) 58' x 20'. (v) 2' on either side. (vi) Yes.

4. GENERAL :

(i) Normal (ii) Leaf roller attack. Affected leaves removed. (iii) Yield of *kapas*. (iv) (a) 1959—1962. (b) Yes (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 842 lb./ac. (ii) 82.5 lb./ac. (iii) Treatment differences are highly significant. (iv) Av. yield of *kapas* in lb./ac.

Treatment	S_0	S_1	S_2
Av. yield	692	949	884

S.E./mean = 33.7 lb./ac.

Crop :- Cotton (Kharif).**Ref :- U.P. 58(47).****Site :- Reg. Res. Stn., Meerut.****Type :- 'C'.**

Object :— To find out the optimum spacing and date of sowing for Cotton.

I. BASAL CONDITIONS :

(i) (a) *Guar*—*Pea*—*Cotton*—*Sugarcane*. (b) *Pea*. (c) Nil. (ii) (a) Silt loam. (b) Refer soil analysis, Meerut. (iii) As per treatments. (iv) (a) 2 ploughings by *desi* plough. (b) Dibbling. (c) N.A. (d) As per treatments. (e) 1: (v) 30 lb./ac of N as castor cake. (vi) 35/1 (early). (vii) Irrigated. (viii) 3 weedings, 2 intercultures by cultivator and thinnings. (ix) N.A. (x) 23.9.1958 to 8.11.1958.

2. TREATMENTS :**Main-plot treatments :**

4 dates of sowing : D_1 =15.4.1958, D_2 =30.4.1958, D_3 =15.5.1958 and D_4 =30.5.1958.

Sub-plot treatments :

4 spacings : S_1 =2' x 1', S_2 =2' x 1½', S_3 =2' x 2' and S_4 =2' x 2½'.

3. DESIGN :

(i) Split-plot. (ii) (a) 4 main-plots/replication ; 4 sub-plots/main-plot. (b) 129' x 83'. (iii) 4. (iv) (a) 30' x 20'. (b) 24' x 16'. (v) 3' x 2'. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Nil. (iii) Plant stand and yield of *kapas*. (iv) (a) and (b) No. (c) Nil. (v) (a) and (b) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 641 lb./ac (ii) (a) 195.2 lb./ac. (b) 106.0 lb./ac. (iii) Main effect of D alone is highly significant. (iv) Av. yield of *kapas* in lb./ac.

	S ₁	S ₂	S ₃	S ₄	Mean
D ₁	696	702	641	682	680
D ₂	759	765	649	856	757
D ₃	777	744	675	670	716
D ₄	472	480	372	322	412
Mean	676	673	584	632	641

S E. of difference of two

1. D marginal means = 69.0 lb./ac.
2. S marginal means = 37.5 lb./ac.
3. S means at the same level of D = 74.5 lb./ac.
4. D means at the same level of S = 94.8 lb./ac.

Crop :- Cotton (Kharif).

Ref :- U.P. 58(483).

Site :- Govt. Cotton Res. Sub-Stn., Raya.

Type :- 'C'.

Object :- To study the effect of spraying of Plonofix hormone on Cotton.

1. BASAL CONDITIONS :

(i) (a) Cotton—Pea—*Sanai*—Wheat. (b) Wheat. (c) G.M. (*sanai*). (ii) (a) Sandy loam. (b) Refer soil analysis, Raya. (iii) 12.5.1958. (iv) (a) 1 *desi*, 1 Victory and 1 cross ploughing. (b) Sown behind the plough. (c) 16 lb./ac. (d) 2' × 1½'. (e) N.A. (v) Nil. (vi) 216 F (early). (vii) Irrigated. (viii) 1 harrowing, 2 weedings by *khurpi* and 2 hoeings. (ix) 47.87°. (x) 7.10.1958 to 24.11.1958.

2. TREATMENTS :

Main-plot treatments :

3 times of application of hormone : T₁=At bud formation, T₂=At flowering and T₃=½ at bud formation + ½ at flowering.

Sub-plot treatments :

3 levels of hormone : H₀=0, H₁=10 and H₂=20 ppm.

3. DESIGN :

(i) Split-plot (ii) (a) 3 main-plots/replication ; 3 sub-plots/main-plot. (b) 40' × 38'. (iii) 4. (iv) (a) 40' × 12'. (b) 34' × 8'. (v) 3' × 2'. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Light attack of jassid. DDT spraying was done. (iii) Plant stand and yield of *kapas*. (iv) (a) and (b) N.A. (c) Nil. (v) (a) and (b) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 410 lb./ac. (ii) (a) 110.5 lb./ac. (b) 37.7 lb./ac. (iii) None of the effects is significant. (iv) Av. yield of *kapas* in lb./ac.

	H ₀	H ₁	H ₂	Mean
T ₁	—	383	433	408
T ₂	—	393	413	403
T ₃	—	440	395	418
Mean	410	405	414	—

S.E. of difference of two

1. T marginal means	= 55.2 lb./ac.
2. H marginal means	= 15.4 lb./ac.
3. H means at the same level of T	= 26.7 lb./ac.
4. T means at the same level of H	= 50.1 lb./ac.

Crop :- Cotton (Kharif).

Ref :- U.P. 58(484).

Site :- Govt. Cotton Res. Sub-Stn., Raya.

Type :- 'C'.

Object— To find out the optimum spacing and date of sowing for Cotton.

1. BASAL CONDITIONS :

(i) (a) Cotton—Pea—*Sanai*—Wheat. (b) Wheat. (c) G.M. (*sanai*). (ii) (a) Sandy loam. (b) Refer soil analysis, Raya. (iii) As per treatments. (iv) (a) 1 *desi*, 1 Victory and 1 cross ploughing. (b) Dibbling. (c) N.A. (d) As per treatments. (e) 2 to 3. (v) Nil. (vi) 216 F (early). (vii) Irrigated. (viii) 3 weedings by *khurpi* and 1 hoeing. (ix) 47.87". (x) 5.10.1958 to 23.11.1958.

2. TREATMENTS :

Same as in expt. no. 58(47) on page 1404.

3. DESIGN :

(i) Split-plot. (ii) (a) 4 main-plots/replication ; 4 sub-plots/main-plot. (b) 129' × 83'. (iii) 4. (iv) (a) 36' × 20'. (b) 30' × 16'. (v) 3' × 2'. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Light attack of jassid. DDT spraying was done. (iii) Plant stand and yield of *kapas*. (iv) (a) and (b) No. (c) Nil. (v) (a) Meerut. (b) Nil. (vi) and (vii) Nil.

5. RESULTS :

(i) 607 lb./ac. (ii) (a) 141.1 lb./ac. (b) 91.7 lb./ac. (iii) Main effect of D alone is highly significant. (iv) Av. yield of *kapas* in lb./ac.

	S ₁	S ₂	S ₃	S ₄	Mean
D ₁	797	773	808	747	781
D ₂	712	737	777	717	736
D ₃	712	706	649	627	674
D ₄	330	217	197	210	239
Mean	638	608	608	575	607

S.E. of difference of two

1. D marginal means	= 49.9 lb./ac.
2. S marginal means	= 32.4 lb./ac.
3. S means at the same level of D	= 64.9 lb./ac.
4. D means at the same level of S	= 75.1 lb./ac.

Crop :- Cotton (Kharif).

Ref :- U.P. 59(538).

Site :- Govt. Cotton Res. Sub-Stn., Raya.

Type :- 'C'.

Object :— To find out the most economic crop to be sown in rotation with Cotton.

1. BASAL CONDITIONS :

(ii) (a) to (c) As per treatments. (ii) (a) Sandy loam. (b) Refer soil analysis, Raya. (iii) 6.6.1959. (iv) (a) 1 Victory, 1 *desi* and 1 cross ploughing. (b) Dibbling. (c) N.A. (d) 2' × 2'. (e) 3 to 4. (v) Nil. (vi) 216 F (early). (vii) Unirrigated. (viii) 2 weedings, 1 harrowing with spike, tooth harrow and 1 inter-cultures. (ix) 22.76". (x) 3.10.1959, 19.10.1959 and 4.11.1959.

2. TREATMENTS :

3 crop rotations with manuring of previous crop : R_1 =*Sanai*—Wheat—Cotton. *Sanai* manured with 25 lb./ac. of P_2O_5 as Super, R_2 =Maize—*Berseem*—Cotton. Maize manured with 20 lb./ac. of P_2O_5 as Super+5 lb./ac. of N as A/S and R_3 =Sugarcane—Cotton. Sugarcane manured with 14 C.L./ac. of F.Y.M.+20 lb./ac. of N as G.N.C. in equal doses on 9.2.1958 and 1.4.1958+20 lb./ac. of N as A/S on 9.2.1958+20 lb./ac. of N as G.N.C.+A/S on 17.5.1958.

3. DESIGN :

(i) R.B.D. (ii) (a) 3. (b) 112'×85'. (iii) 4. (iv) (a) 85'×36'. (b) 81'×30'. (v) 2'×3'. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Nil. (iii) Yield of *kapas*. (iv) (a) 1959—contd. (b) Yes. (c) Nil. (v) (a) and (b) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 984 lb./ac. (ii) 77.5 lb./ac. (iii) Treatment differences are significant. (iv) Av. yield of *kapas* in lb./ac.

Treatment	R_1	R_2	R_3
Av. yield	841	1070	1042

S.E./mean = 38.7 lb./ac.

Crop :- Cotton (*Kharif*).

Ref :- U.P. 55(397).

Site :- Govt. Agri. Res. Farm, Belatal.

Type :- 'CV'.

Object :—To study the effect of different sowing dates on the yield of different varieties of Cotton.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) (a) Hard *kabar*. (b) Refer soil analysis, Belatal. (iii) As per treatments. (iv) (a) 1 *desi* ploughing. (b) Sown behind the plough. (c) 16 lb./ac. (d) 2' between rows. (e) N.A. (v) F.Y.M. at 20 lb./ac. before sowing. (vi) As per treatments. (vii) Irrigated. (viii) 5 weedings, hoeings and 3 thinnings. (ix) N.A. (x) 16.9.1955 to 20.11.1955.

2. TREATMENTS :

Main-plot treatments :

2 sowing dates : D_1 =25th April and D_2 =25th May.

Sub-plot treatments :

2 varieties : V_1 =*Desi* and V_2 =*American*.

3. DESIGN :

(i) Split-plot. (ii) (a) 2 main-plots/replication ; 2 sub-plots/main-plot. (b) 79'×78'. (iii) 4. (iv) (a) 78'×12'. (b) 72'×8'. (v) 3'×2'. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Nil. (iii) Plant stand and yield of *kapas*. (iv) (a) 1955—1956. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 143 lb./ac. (ii) (a) 114.2 lb./ac. (b) 54.5 lb./ac. (iii) Main effects of D, V and interaction $D \times V$ are significant. (iv) Av. yield of *kapas* in lb./ac.

	V_1	V_2	Mean
D_1	172	344	258
D_2	40	14	27
Mean	106	179	143

S.E. of difference of two

1. D marginal means	=	57.1 lb./ac.
2. V marginal means	=	27.2 lb./ac.
3. V means at the same level of D	=	38.5 lb./ac.
4. D means at the same level of V	=	63.3 lb./ac.

Crop :- Cotton (Kharif).

Ref :- U.P. 56(478).

Site :- Govt. Agri. Res. Farm, Belatal.

Type :- 'CV'.

Object :—To study the effect of different sowing dates on the yield of different varieties of Cotton.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) (a) Hard *kabar*. (b) Refer soil analysis, Belatal. (iii) As per treatments. (iv) (a) 2 ploughings by *desi* plough. (b) Sown behind the plough. (c) 16 lb./ac. (d) 2' between rows. (e) N.A. (v) F.Y.M. at 20 lb./ac. before sowing. (vi) As per treatments. (vii) Irrigated. (viii) 3 weedings. (ix) N.A. (x) 16.8.1956 to 10.10.1956.

2. TREATMENTS to 4. GENERAL :

Same as in expt. no. 55(397) on page 1407.

5. RESULTS :

(i) 110 lb./ac. (ii) (a) 64.9 lb./ac. (b) 52.9 lb./ac. (iii) Main effect of V alone is highly significant. (iv) Av. yield of *kapas* in lb./ac.

	V ₁	V ₂	Mean
D ₁	239	55	147
D ₂	125	19	72
Mean	182	37	110

S.E. of difference of two

1. D marginal means	=	32.4 lb./ac.
2. V marginal means	=	26.5 lb./ac.
3. V means at the same level of D	=	37.4 lb./ac.
4. D means at the same level of V	=	41.9 lb./ac.

Crop :- Cotton (Kharif).

Ref :- U.P. 55(84).

Site :- Govt. Cotton Res. Stn., Bulandshahr.

Type :- 'CV'.

Object :—To study the effect of different sowing dates on different varieties of Cotton.

1. BASAL CONDITIONS :

(i) (a) *Sanai*—Wheat—Cotton—Pea. (b) Wheat. (c) G.M. (*sanai*) + A/S at 1 mds./ac. (ii) (a) Sandy loam. (b) Refer soil analysis, Bulandshahr. (iii) As per treatments. (iv) (a) 1 ploughing by Victory plough followed by 2 ploughings by *desi* plough. (b) Sown behind the plough. (c) 18 to 20 lb./ac. (d) 2' × 2'. (e) N.A. (v) Castor cake at 8 mds./ac. applied before sowing. (vi) As per treatments. (vii) Irrigated. (viii) 2 weedings followed by 2 hoeings with cultivator. (ix) 34.15%. (x) 19.9.1955 to 2.11.1955.

2. TREATMENTS :

Main-plot treatments :

2 dates of sowing : D₁=April (last week) and D₂=May (last week).

Sub-plot treatments :

8 varieties : V₁=D.T. webb, V₂=9995, V₃=C. Am/4, V₄=M₄, V₅=320—F, V₆=100—F, V₇=216—F and V₈=197—3 (*desi*).

3. DESIGN :

(i) Split-plot. (ii) (a) 2 main-plots/replication ; 8 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) 50'×10'. (b) 44'×6'. (v) 3'×2'. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Mild attack of jassids and leaf rollers. Spraying with DDT and hand picking of effected leaves was done. (iii) Plant stand and yield of *kapas*. (iv) (a) 1955—1957. (b) No. (c) Nil. (v) (a) Raya. (b) Nil. (vi) and (vii) Nil.

5. RESULTS :

(i) 699 lb./ac. (ii) (a) 273.3 lb./ac. (b) 90.5 lb./ac. (iii) Main effects of V is highly significant and main effect of D is significant. (iv) Av. yield of *kapas* in lb./ac.

	V ₁	V ₂	V ₃	V ₄	V ₅	V ₆	V ₇	V ₈	Mean
D ₁	853	1052	812	954	908	869	944	418	851
D ₂	477	678	554	657	544	603	637	229	547
Mean	665	865	683	806	726	736	790	324	699

S.E. of difference of two

- | | |
|-----------------------------------|----------------|
| 1. D marginal means | = 68.3 lb./ac. |
| 2. V marginal means | = 45.3 lb./ac. |
| 3. V means at the same level of D | = 64.0 lb./ac. |
| 4. D means at the same level of V | = 90.8 lb./ac. |

Crop :- Cotton (Kharif).

Ref :- U.P. 56(17).

Site :- Govt. Cotton Res. Stn., Bulandshahr.

Type :- 'CV'.

Object :—To study the effect of different sowing dates on different varieties of Cotton.

1. BASAL CONDITIONS :

(i) (a) *anai*—Wheat—Cotton—Pea. (b) Wheat. (c) G.M. (*Sanai*) + A/S at 1 md./ac. (ii) (a) Sandy loam. (b) Refer soil analysis, Bulandshahr. (iii) As per treatments. (iv) (a) 1 ploughing by Victory plough followed by 2 ploughings by *desi* plough. (b) Sown behind the plough. (c) 18 to 20 lb./ac. (d) 2'×2'. (e) N.A. (v) Castar cake at 8 mds./ac. applied before sowing. (vi) As per treatments. (vii) Irrigated. (viii) 2 weedings followed by 2 hoeings with cultivator. (ix) 31.63". (x) 7.9.1956 to 6.11.1956.

2. TREATMENTS :

Main-plot treatments :

2 dates of sowing : D₁=April (last week) and D₂=May (last week).

Sub-plot treatments :

8 varieties : V₁=9995, V₂=M .4, V₃=H .14, V₄=216 F, V₅=D.T. webb, V₆=C. Am/4, V₇=320 F and V₈=100 F.

Varieties V₁ and V₄ are early and others are medium.

3. DESIGN :

(i) Split-plot. (b) 2 main-plots/replication ; 8 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) 50'×10'. (b) 46'×6'. (v) 2'×2'. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Mild attack of leaf rollers and jassids. Spraying with DDT and hand picking of the leaves attacked by rollers. (iii) Plant stand and yield of *kapas*. (iv) (a) 1955—1957. (b) No. (c) Nil. (v) (a) Raya. (b) Nil. (vi) Nil. (vii) Heavy rains in first week of October resulted in severe damage of the crop.

5. RESULTS :

(i) 885 lb./ac. (ii) (a) 232.9 lb./ac. (b) 72.5 lb./ac. (iii) Main effect of D is highly significant and main effect of V is significant. (iv) Av. yield of *kapas* in lb./ac.

	V ₁	V ₂	V ₃	V ₄	V ₅	V ₆	V ₇	V ₈	Mean
D ₁	1208	907	1223	1157	792	912	846	900	993
D ₂	903	764	974	833	658	740	651	686	776
Mean	1055	836	1099	995	725	826	748	793	885

S.E. of difference of two

1. D marginal means = 58.2 lb./ac.
2. V marginal means = 36.2 lb./ac.
3. V means at the same level of D = 51.2 lb./ac.
4. D means at the same level of V = 75.4 lb./ac.

Crop :- Cotton (*Kharif*).

Ref :- U.P. 57(6).

Site :- Govt. Cotton Res. Stn., Bulandshahr.

Type :- 'CV'.

Object :- To study the effect of different sowing dates on different varieties of Cotton.

1. BASAL CONDITIONS:

(i) (a) *Sanai*—Wheat—Cotton—Pea. (b) Wheat. (c) G.M. (*sanai*) + 8 lb./ac. of N as A/S. (ii) (a) Sandy loam. (b) Refer soil analysis, Bulandshahr. (iii) As per treatments. (iv) (a) 2 ploughings by Victory and 2 with *desi* plough. (b) to (e) N.A. (v) Castor cake at 20 lb./ac. applied before sowing. (vi) As per treatments. (vii) Irrigated. (viii) 2 weedings followed by 2 hoeings. (ix) 28.97". (x) 19.9.1957 to 11.11.1957.

2. TREATMENTS :

Same as in expt. no. 56(17) on page 1409.

3. DESIGN :

(i) Split-plot. (ii) (a) 2 main-plots/replication; 8 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) 50' × 10'. (b) 44' × 6'. (v) 3' × 2'. (vi) Yes.

4. GENERAL :

(i) Satisfactory. (ii) Mild attack of jassids and severe attack of leaf rollers. Sprayings with 0.25 % DDT was done to control the jassids while for leaf rollers hand picking was done. (iii) Plant stand and yield of *kapas*. (iv) (a) 1955–1957. (b) No. (c) Nil. (v) (a) Raya. (b) Nil. (vi) and (vii) Nil.

5. RESULTS :

(i) 899 lb./ac. (ii) (a) 110.2 lb./ac. (b) 98.7 lb./ac. (iii) Main effect of D and interaction D × V are highly significant. (iv) Av. yield of *kapas* in lb./ac.

	V ₁	V ₂	V ₃	V ₄	V ₅	V ₆	V ₇	V ₈	Mean
D ₁	938	1024	1044	1116	1024	993	1103	1062	1038
D ₂	820	753	918	776	712	815	688	600	760
Mean	879	888	981	946	868	904	896	831	899

S.E. of difference of two

1. D marginal means = 27.6 lb./ac.
2. V marginal means = 49.4 lb./ac.
3. V means at the same level of D = 69.8 lb./ac.
4. D means at the same level of V = 70.9 lb./ac.

Crop :- Cotton (*Kharif*).

Ref :- U.P. 55(69).

Site :- Govt. Cotton Res. Sub-Stn., Raya.

Type :- 'CV'.

Object :- To study the effect of different sowing dates on the yield of different varieties of Cotton.

1. BASAL CONDITIONS :

(i) (a) Cotton—Pea. (b) Pea. (c) Nil. (ii) (a) Sandy loam. (b) Refer soil analysis, Raya. (iii) As per treatments. (iv) (a) 1 Victory and 2 *desi* ploughings. (b) Sown behind the plough. (c) 20 lb./ac. (d) and (e) N.A. (v) Nil. (vi) As per treatments. (vii) Irrigated. (viii) 2 interculture, 1 harrowing and 1 hoeing. (ix) 38.82°. (x) 10.10.1955 to 18.11.1955.

2. TREATMENTS :

Main-plot treatments :

2 dates of sowing : D_1 = April (last week) and D_2 = May (last week).

Sub-plot treatments :

8 varieties : V_1 = 216 F, V_2 = H14, V_3 = M 4, V_4 = 9995, V_5 = D.T. webb, V_6 = 100 F, V_7 = M.P. 2 and V_8 = 320 F.Varieties V_1 to V_3 are early, V_4 to V_7 are medium and V_8 is late.

3. DESIGN :

(i) Split-plot. (ii) (a) 2 main-plots/replication ; 8 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) 50' × 10'. (b) 44' × 6'. (v) 3' × 2'. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Nil. (iii) Yield of *kapas*. (iv) (a) 1955—1957. (b) No. (c) Nil. (v) (a) Bulandshahr. (b) Nil. (vi) and (vii) Nil.

5. RESULTS :

(i) 440 lb./ac. (ii) (a) 156.8 lb./ac. (b) 74.4 lb./ac. (iii) Main effect of V is highly significant. Main effect of D and interaction $D \times V$ are significant. (iv) Av. yield of *kapas* in lb./ac.

	V_1	V_2	V_3	V_4	V_5	V_6	V_7	V_8	Mean
D_1	619	652	590	655	258	438	562	474	531
D_2	498	394	342	418	229	227	296	384	349
Mean	558	523	465	536	244	333	429	429	440

S.E. of difference of two

- | | |
|-----------------------------------|----------------|
| 1. D marginal means | = 39.2 lb./ac. |
| 2. V marginal means | = 37.2 lb./ac. |
| 3. V means at the same level of D | = 52.6 lb./ac. |
| 4. D means at the same level of V | = 63.0 lb./ac. |

Crop :- Cotton (*Kharif*).

Ref :- U.P. 56(15).

Site :- Govt. Cotton Res. Sub-Stn., Raya.

Type :- 'CV'.

Object :- To find out the effect of different sowing dates on the yield of different varieties of Cotton.

1. BASAL CONDITIONS :

(i) (a) G.M.—Barley—Cotton—Pea. (b) Barley. (c) Nil. (ii) (a) Sandy loam. (b) Refer soil analysis, Raya. (iii) As per treatments. (iv) (a) 1 Victory ploughing and 3 *desi* ploughings. (b) to (e) N.A. (v) Nil. (vi) As per treatments. (vii) Irrigated. (viii) 1 thinning and 1 weeding. (ix) 18.28°. (x) 19.9.1956, 30.10.1956 and 17.11.1956.

2. TREATMENTS to 4. GENERAL :

Same as in expt. no. 55(69) above.

5. RESULTS :

(i) 977 lb./ac. (ii) (a) 267.3 lb./ac. (b) 188.8 lb./ac. (iii) Main effect of D alone is highly significant. (iv) Av. yield of *kapas* in lb./ac.

	V ₁	V ₂	V ₃	V ₄	V ₅	V ₆	V ₇	V ₈	Mean
D ₁	1315	1109	1096	1176	1031	1250	1072	1191	1155
D ₂	820	977	727	750	727	913	784	691	799
Mean	1067	1043	911	963	879	1082	928	941	977

S.E. of difference of two

1. D marginal means = 66.8 lb./ac.
2. V marginal means = 94.4 lb./ac.
3. V means at the same level of D = 133.6 lb./ac.
4. D means at the same level of V = 141.5 lb./ac.

Crop :- Cotton (*Kharif*).

Ref :- U.P. 57(7).

Site :- Govt. Cotton Res. Sub-Stn., Raya.

Type :- 'CV'.

Object :- To find out the effect of different sowing dates on the yield of different varieties of Cotton.

1. BASAL CONDITIONS :

(i) (a) Barley—Cotton—Pea. (b) Barley. (c) Nil. (ii) (a) Sandy loam. (b) Refer soil analysis, Raya. (iii) As per treatments. (iv) (a) 2 Victory and 2 *desi* ploughings. (b) to (e) N.A. (v) Nil. (vi) As per treatments. (vii) Irrigated. (viii) 3 weedings, 3 harrowings and 3 hoeings. (ix) 34.50%. (x) 28.9.1957, 9.10.1957, 19.10.1957, 31.10.1957, 9.11.1957 and 21.11.1957.

2. TREATMENTS :

Main-plot treatments :

2 dates of sowing : D₁=April (last week) and D₂=May (last week).

Sub-plot treatments :

8 varieties : V₁=9995. V₂=H 14, V₃=M 4, V₄=216 F, V₅=D.T. webb., V₆=320 F, V₇=100 F and V₈=C. Am/4.

Varieties V₁ to V₄ are early, V₅ medium and V₆ to V₈ are late.

3. DESIGN and 4. GENERAL :

Same as in expt. no. 55(69) on page 1411.

5. RESULTS :

(i) 955 lb./ac. (ii) (a) 324.3 lb./ac. (b) 182.6 lb./ac. (iii) Only main effect of V is highly significant. (iv) Av. yield of *kapas* in lb./ac.

	V ₁	V ₂	V ₃	V ₄	V ₅	V ₆	V ₇	V ₈	Mean
D ₁	982	1000	1163	951	861	1078	1000	864	987
D ₂	859	1170	1116	859	549	1116	822	889	923
Mean	920	1085	1140	905	705	1097	911	877	955

S.E. of difference of two

1. D marginal means = 81.1 lb./ac.
2. V marginal means = 91.3 lb./ac.
3. V means at the same level of D = 129.1 lb./ac.
4. D means at the same level of V = 145.5 lb./ac.

Crop :- Cotton (*Kharif*).

Ref :- U.P. 57(267).

Site :- B.R. College Insttl. Res. Farm, Bichpuri.

Type :- 'CM'.

Object :—To study the effect of varying plant populations and different levels of N on the yield of Cotton.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Sugarcane. (c) N.A. (ii) (a) Sandy loam. (b) Refer soil analysis, Bichpuri. (iii) 17.4.1957.
 (iv) (a) 4 ploughings. (b) Dibbling. (c) N.A. (d) As per treatments. (e) 3. (v) M.C. at 35 lb./ac. of N.
 (vi) F 216 (late). (vii) Irrigated. (viii) 2 hoeings and 3 weedings. (ix) N.A. (x) 14.10.1957 to 17.11.1957.

2. TREATMENTS :

All combinations of (1) and (2)

(1) 3 spacings : $S_1=30'' \times 9''$, $S_2=30'' \times 18''$ and $S_3=30'' \times 27''$.(2) 4 levels of N as A/S : $N_0=0$, $N_1=20$, $N_2=40$ and $N_3=60$ lb./ac.

3. DESIGN :

(i) Fact. in R.B.D. (ii) (a) 12. (b) N.A. (iii) 4. (iv) (a) N.A. (b) $36' \times 20'$. (v) N.A. (vi) Yes.

4. GENERAL :

(i) N.A. (ii) Red cotton bug. B.H.C. at 5 lb./ac. applied. (iii) Yield of *kapas*. (iv) (a) and (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 751 lb./ac. (ii) 74.1 lb./ac. (iii) Main effect of S, N and interaction $S \times N$ are highly significant. (iv) Av. yield of *kapas* in lb./ac.

	N_0	N_1	N_2	N_3	Mean
S_1	697	731	854	1081	841
S_2	666	820	822	757	766
S_3	522	662	714	690	647
Mean	628	738	797	843	751

S.E. of S marginal mean = 18.5 lb./ac.

S.E. of N marginal mean = 21.4 lb./ac.

S.E. of body of table = 37.0 lb./ac.

Crop :- Cotton (*Kharif*).

Ref :- U.P. 54(9).

Site :- Govt. Agri. Res. Farm, Kalianpur.

Type :- 'CM'.

Object :—To study the effect of manures in combination with cultural practices on the yield of Cotton.

1. BASAL CONDITIONS :

(i) (a) Sugarcane—Wheat—Cotton. (b) Wheat. (c) N.A. (ii) (a) Loam soil. (b) Refer soil analysis, Kalianpur. (iii) 19.5.1954. (iv) (a) N.A. (b) Sown behind the plough. (c) 16 lb./ac. (d) $2' \times 1'$ to $1\frac{1}{2}'$. (e) N.A. (v) Nil. (vi) 35/1 (early). (vii) Irrigated. (viii) As per treatments. (ix) 34.52%. (x) 11.10.1954 to 15.12.1954.

2. TREATMENTS :

T_1 =No manure, one hand weeding and one bullock hoeing and T_2 =60 lb./ac. of N as A/S with two hand weedings and two bullock hoeings.

3. DESIGN :

(i) R.B.D. (ii) (a) 2. (b) N.A. (iii) 12. (iv) (a) $78' \times 20'$. (b) $72' \times 16'$. (v) $3 \times 2'$. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Nil. (iii) Yield of *kapas* and plant stand. (iv) (a) and (b) No. (c) Nil. (v) (a) Bulandshahr and Raya. (b) Nil. (vi) and (vii) Nil.

5. RESULTS :

(i) 905 lb./ac. (ii) 145.1 lb./ac. (iii) Treatment difference is significant. (iv) Av. yield of *kapas* in lb./ac.

Treatment	T ₁	T ₂
Av. yield	774	1036

S.E./mean = 41.9 lb./ac.

Crop :- Cotton (*Kharif*).

Ref :- U.P. 59(46).

Site :- Reg. Res. Stn., Meerut.

Type :- 'CM'.

Object :- To study the effect of different dates of sowing, spacings and different levels of N on the yield of Cotton.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Sugarcane. (c) Nil. (ii) Silt loam. (b) Refer soil analysis, Meerut. (iii) As per treatments (iv) (a) 3 ploughings. (b) Dibbling. (c) N.A. (d) As per treatments. (e) 1. (v) Nil. (vi) 35/1 (early). (vi) Irrigated. (viii) Weeding and thinning. (ix) 20.45' (x) 1.9.1959 to 5 11.1959.

2. TREATMENTS :

Main-plot treatments :

4 dates of sowing : D₁=15.4.1959, D₂=30.4.1959, D₃=15.5.1959 and D₄=30.5.1959.

Sub-plot treatments :

All combinations of (1) and (2)

(1) 4 spacings : S₁=2'×1', S₂=2'×1½', S₃=2'×2' and S₄=2'×2½'.(2) 3 levels of N : N₀=0, N₁=25 and N₂=50 lb./ac.

N applied in two doses, 6 weeks and 10 weeks after sowing.

3. DESIGN :

(i) Split-plot. (ii) (a) 4 main-plots/replication ; 12 sub-plots/main-plot. (b) 128'×156'. (iii) 4. (iv) (a) 30'×12'. (b) 24'×8'. (v) 3'×2'. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Nil. (iii) Germination %, plant stand and yield of *kapas*. (iv) and (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 1512 lb./ac. (ii) (a) 658.4 lb./ac. (b) 207.2 lb./ac. (iii) Main effects of D, N and S are highly significant. Interaction D×N is significant. (iv) Av. yield of *kapas* in lb./ac.

	S ₁	S ₂	S ₃	S ₄	Mean	N ₀	N ₁	N ₂
D ₁	1315	1426	1469	1355	1391	1064	1528	1581
D ₂	2034	1979	1970	1942	1981	1732	2090	2123
D ₃	1644	1651	1459	1357	1528	1422	1599	1563
D ₄	1224	1218	1077	1078	1150	975	1177	1297
Mean	1554	1568	1494	1433	1512	1298	1598	1641
N ₀	1363	1330	1250	1249				
N ₁	1635	1691	1571	1498				
N ₂	1665	1686	1661	1553				

S.E. of difference of two

- | | | | |
|-----------------------------------|-----------------|-----------------------------------|-----------------|
| 1. D marginal means | = 134.4 lb./ac. | 5. D means at the same level of S | = 153.1 lb./ac. |
| 2. S marginal means | = 42.3 lb./ac. | 6. N means at the same level of D | = 73.3 lb./ac. |
| 3. N marginal means | = 36.6 lb./ac. | 7. D means at the same level of S | = 147.1 lb./ac. |
| 4. S means at the same level of D | = 84.6 lb./ac. | S.E. of body of S×N table | = 51.8 lb./ac. |

Crop :- Cotton (Kharif).

Ref :- U.P. 54(8).

Site :- Govt. Cotton Res. Sub-Stn., Raya.

Type :- 'CM'.

Object :- To study the effect of manure in combination with cultural practices on the yield of Cotton.

1. BASAL CONDITIONS :

(i) (a) Cotton—Pea—G.M.—Wheat. (b) Wheat. (c) G.M. (ii) (a) Sandy loam. (b) Refer soil analysis, Raya. (iii) 18.5.1954. (iv) (a) 4 ploughings and 1 harrowing. (b) Behind the plough. (c) 16 lb./ac. (d) Between plants 1' for *desi* and 1½' for American variety. (e) N.A. (v) Nil. (vi) *Desi* 35/1 and American 216 F. (vii) Irrigated. (viii) As per treatments and 1 thinning. (ix) 16.29". (x) 16.10.1954 to 22.11.1954.

2. TREATMENTS :

T₁=No manure, one hand weeding and 1 interculture and T₂=60 lb./ac. of N as A/S at flowering with 2 hand weedings and 2 intercultures.

3. DESIGN :

(i) R.B.D. (ii) (a) 2 for each variety. (b) N.A. (iii) 6. (iv) (a) 78'×20'. (b) 72'×16'. (v) 3'×2' (vi) Yes.

4. GENERAL :

(i) Good. (ii) Mild attack of leaf roller on variety 216 F. (iii) Yield of *kapas* and plant stand. (iv) (a) and (b) No. (c) Nil. (v) (a) Bulandshahr and Kalianpur. (b) Nil. (vi) and (vii) Nil.

5. RESULTS :

Variety : *Desi* 35/1

(i) 973 lb./ac. (ii) 99.4 lb./ac. (iii) Treatment difference is not significant. (iv) Av. yield of *kapas* in lb./ac.

Treatment	T ₁	T ₂
Av. yield	916	1030

S.E./mean = 40.6 lb./ac.

Variety : American 216 F

(i) 892 lb./ac. (ii) 41.6 lb./ac. (iii) Treatment difference is highly significant. (iv) Av. yield of *kapas* in lb./ac.

Treatment	T ₁	T ₂
Av. yield	843	942

S.E./mean = 16.9 lb./ac.

Crop :- Cotton (Kharif).

Ref :- U P. 59(407).

Site :- Govt. Cotton Res. Sub-Stn., Raya.

Type :- 'CM'.

Object :- To study the effect of different sowing dates, spacings and different levels of N on the yield of Cotton.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) (a) Sandy loam. (b) Refer soil analysis, Raya. (iii) As per treatments. (iv) (a) 1 Victory ploughing, 1 cross *Desi* ploughing and 1 harrowing. (b) Dibbling. (c) N.A. (d) As per treatments. (e) 3 to 4. (v) Nil. (vi) 216 F. (vii) Irrigated. (viii) 3 weedings and 1 cultivator. (ix) 17.20". (x) 27.9.1959, 14.10.1959 and 30.10.1959.

2. TREATMENTS :

Same as in expt. no. 59(46) on page 1414.

3. DESIGN :

(i) Split-plot. (ii) (a) 4 main-plots/replication ; 12 sub-plots/main-plot. (b) 130'×15c'. (iii) 4. (iv) (a) 30'×12'. (b) 30'×8'. (v) N.A. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Nil. (iii) Plant counts and yield of *kapas*. (iv) (a) 1959—N.A. (b) N.A. (c) Nil. (v) (a) and (b) N.A. (vi) Nil. (vii) The sowing in D₄ treatment was delayed and actually done on 4.6.1959 because of rainfall on 28.5.1959.

5. RESULTS :

(i) 897 lb./ac. (ii) (a) 250.6 lb./ac. (b) 157.6 lb./ac. (iii) Main effect of D is highly significant. S and N effects are significant. (iv) Av. yield of *kapas* in lb./ac.

	S ₁	S ₂	S ₃	S ₄	Mean	N ₀	N ₁	N ₂
D ₁	1126	1131	1090	1085	1108	938	1094	1293
D ₂	1025	966	975	865	958	843	943	1087
D ₃	920	844	1046	885	924	836	918	1017
D ₄	649	704	567	478	599	536	618	644
Mean	930	911	919	828	897	788	893	1010
N ₀	805	760	833	755				
N ₁	928	924	886	835				
N ₂	1056	1049	1040	985				

S.E. of difference of two

- | | | | |
|-----------------------------------|----------------|-----------------------------------|----------------|
| 1. D marginal means | = 51.2 lb./ac. | 5. D means at the same level of S | = 75.6 lb./ac. |
| 2. S marginal means | = 32.2 lb./ac. | 6. N means at the same level of D | = 55.7 lb./ac. |
| 3. N marginal means | = 27.9 lb./ac. | 7. D means at the same level of N | = 68.5 lb./ac. |
| 4. S means at the same level of D | = 64.4 lb./ac. | S.E. of body of S×N table | = 39.4 lb./ac. |

Crop :- Cotton (Kharif).

Ref :- U.P. 59(245).

Site :- B.R. College Insttl. Res. Farm, Bichpuri.

Type :- 'CMV'.

Object :— To study the effect of different levels of N and spacings on Cotton varieties.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Pea. (c) N.A. (ii) (a) Sandy loam. (b) Refer soil analysis, Bichpuri. (iii) 2.5.1959. (iv) (a) 1 cross ploughing. (b) In furrows by hand. (c) 20 srs./ac. (d) As per treatments. (e) N.A. (v) 20 lb./ac. of N as M.C.+40 lb./ac. of P₂O₅ as Super. (vi) As per treatments. (vii) Irrigated. (viii) 1 ridge making, 2 gap fillings, 1 thinning, 3 weeding and 3 hoeings. (ix) 19.50". (x) 18.9.1959 to 28.11.1959.

2. TREATMENTS :

All combinations of (1), (2) and (3)

(1) 2 varieties : V₁=H 14 and V₂=216 F.

(2) 3 spacings : S₁=30"×9", S₂=30"×18" and S₃=30"×27".

(3) 3 levels of N : N₁=40, N₂=80 and N₃=120 lb./ac.

Before sowing the seeds were drenched in water for four hours.

3. DESIGN :

(i) Fact. in R.B.D. (ii) (a) 18. (b) N.A. (iii) 3. (iv) (a) N.A. (b) 27'×20'. (v) N.A. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Sprayed with DDT (iii) Yield of seed cotton. (iv) (a) and (b) No. (c) Nil. (v) (a) and (b) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 1020 lb./ac. (ii) 347.0 lb./ac. (iii) Main effects of V and S are highly significant and main effect of N is significant. (iv) Av. yield of *kapas* in lb./ac.

Treatment	V ₁	V ₂	S ₁	S ₂	S ₃	N ₁	N ₂	N ₃
Av. yield	1212	829	771	1232	1059	818	1168	1075

S.E. of V marginal mean = 66.8 lb./ac.
S.E. of S or N marginal means = 81.8 lb./ac.

Crop :- Cotton (Kharif).

Ref :- U.P. 57(49).

Site :- Reg. Res. Stn., Meerut.

Type :- 'D'.

Object :- To study the effect of the plant hormone α -naphthalene on the yield of Cotton.

1. BASAL CONDITIONS :

(i) (a) G.M.—Wheat—Cotton. (b) Wheat. (c) N.A. (ii) (a) Silt loam. (b) Refer soil analysis, Meerut. (iii) 27.5.1957. (iv) (a) 2 cross ploughings by *desi* plough. (b) Behind the plough in rows. (c) 16 lb./ac. (d) 1½' × 2'. (e) N.A. (v) 20 lb./ac. of N as F.Y.M. (vi) 35/1 (early). (vii) Irrigated. (viii) 1 thinning. (ix) 43.29'. (x) 30.9.1957 to 27.11.1957.

2. TREATMENTS :

Main-plot treatments :

3 times of application of α -naphthalene : T₁=At bud formation, T₂=At flowering and T₃=½ at bud formation and ½ at flowering.

Sub-plot treatments :

3 levels of hormone : H₀=0, H₁=5 and H₂=10 ppm.

Hormone applied on 22.8.1957 and 7.9.1957.

3. DESIGN :

(i) Split-plot. (ii) (a) 3 main-plots/replication ; 3 sub-plots/main-plot. (b) 100' × 40'. (iii) 4. (iv) (a) 40' × 10'. (b) 36' × 6'. (v) 2' × 2'. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Nil. (iii) Plant stand and yield of *kapas*. (iv) (a) 1957—1958 (with changed treatments) (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 1317 lb./ac. (ii) (a) 173.8 lb./ac. (b) 166.5 lb./ac. (iii) None of the effects is significant. (iv) Av. yield of *kapas* in lb./ac.

	T ₁	T ₂	T ₃	Mean
H ₀	—	—	—	1335
H ₁	1426	1230	1426	1361
H ₂	1309	1153	1343	1268
Mean	1367	1191	1384	—

S.E. of difference of two

1. T marginal means = 86.9 lb./ac.
2. H marginal means = 67.9 lb./ac.
3. H means at the same level of T = 117.7 lb./ac.
4. T means at the same level of M = 120.9 lb./ac.

Crop :- Cotton (Kharif).

Ref :- U.P. 58(45).

Site :- Reg. Res. Stn., Meerut.

Type :- 'D'.

Object :- To study the effect of plant hormone (Planofix) on the yield of Cotton.

1. BASAL CONDITIONS :

(i) (a) G.M.—Wheat—Cotton. (b) Wheat. (c) G.M. (*sanai*). (ii) (a) Silt loam. (b) Refer soil analysis, Meerut. (iii) 25.5.1958. (iv) (a) 2 cross ploughings by *desi* plough. (b) Behind the plough. (c) 16 lb./ac. (d) 2' × 2'. (e) N.A. (v) 30 lb./ac. of N as castor cake. (vi) 35/1 (early). (vii) Irrigated. (viii) N.A. (ix) 53.44". (x) 8.10.1958 to 19.11.1958.

2. TREATMENTS :

Main-plot treatments :

3 times of application of planofix : T_1 =At bud formation, T_2 =At flowering and T_3 = $\frac{1}{2}$ dose at bud formation and $\frac{1}{2}$ at flowering.

Sub-plot treatments :

3 levels of hormone : $H_0=0$, $H_1=10$ and $H_2=20$ ppm.
Hormone applied on 14.8.1958 and 19.9.1958.

3. DESIGN :

(i) Split-plot. (ii) 3 main-plots/replication ; 3 sub-plots/main-plot. (b) 100' × 40'. (iii) 4. (iv) (a) 40' × 10'. (b) 34' × 6'. (v) 3' × 2'. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Nil. (iii) Plant stand and yield of *kapas*. (iv) (a) 1957—1958 (with changed treatments). (b) No. (c) Nil. (v) (a) and (b) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 508 lb./ac. (ii) (a) 58.5 lb./ac. (b) 83.4 lb./ac. (iii) None of the effects is significant. (iv) Av. yield of *kapas* in lb./ac.

	T_1	T_2	T_3	Mean
H_0	—	—	—	424
H_1	491	448	542	494
H_2	513	577	564	551
Mean	502	512	553	

S.E. of difference of two

1. T marginal means	= 29.2 lb./ac.
2. H marginal means	= 34.0 lb./ac.
3. H means at the same level of T	= 58.9 lb./ac.
4. T means at the same level of H	= 42.7 lb./ac.

Crop :- Cotton (*Kharif*).

Ref :- U.P. 59(45).

Site :- Reg. Res. Stn., Meerut.

Type :- 'D'.

Object :- To study the effect of plant hormones on the yield of Cotton.

1. BASAL CONDITIONS :

(i) (a) G.M.—Wheat+Barley—Cotton. (b) Wheat+Barley. (c) G.M. (ii) (a) Silt loam. (b) Refer soil analysis, Meerut. (iii) 5.6.1959. (iv) (a) 2 cross ploughings by *desi* plough. (b) Dibbling. (c) N.A. (d) 1½' × 2'. (e) 1. (v) Castor cake at 6 mds./ac. (vi) 35/1 (early). (vii) Irrigated. (viii) 1 thinning, 1 weeding and 3 cultivators. (ix) 19.45". (x) 29.9.1959 to 7.11.1959.

2. TREATMENTS :

All combinations of (1) and (2)

(1) 3 times of application of hormone : T_1 =At bud formation, T_2 =At flowering stage and T_3 = $\frac{1}{2}$ at bud formation + $\frac{1}{2}$ at flowering.

(2) 5 hormone treatments : H_0 =Control—(spraying with water (2 plots), H_1 =10 ppm of Napthalene acetic acid, H_2 =20 ppm of Napthalene acetic acid, H_3 =10 p.p.m. of Napthoxy acetic acid and H_4 =20 p.p.m. of Napthoxy acetic acid.

Hormones dissolved in alcohol and sprayed at 100 gallons/ac. on 25, 27.8.1959 and 10.9.1959.

3. DESIGN :

(i) Fact. in R.B.D. (ii) (a) 18. (b) 98'×83'. (iii) 4. (iv) (a) 40'×10'. (b) 34'×6'. (v) 3'×2'. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Nil. (iii) Germination %, plant stand and yield of *kapas*. (iv) (a) and (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 723 lb./ac. (ii) 140.6 lb./ac. (iii) None of the effects is significant. (iv) Av. yield of *kapas* in lb./ac.

Control = 745 lb./ac.

	H ₁	H ₂	H ₃	H ₄	Mean
T ₁	637	801	861	788	772
T ₂	692	660	619	794	691
T ₃	707	734	634	651	681
Mean	679	732	705	744	715

S.E. of T marginal mean = 35.1 lb./ac.
 S.E. of H marginal mean = 40.6 lb./ac.
 S.E. of body of table = 70.3 lb./ac.
 S.E. of control mean = 28.7 lb./ac.

Crop :- Cotton (*Kharij*).

Ref :- U.P. 57(8).

Site :- Sugarcane Res. Sub-Stn., Muzaffarnagar.

Type :- 'D'.

Object :—To find out the effect of plant hormone (Planofix) on the yield of Cotton.

1. BASAL CONDITIONS :

(i) (a) Fallow—Wheat—Cotton—Sugarcane. (b) Wheat. (c) 40 lb./ac. of N as G.N.C., + 8 lb./ac. of N as A/S. (ii) (a) Sandy loam. (b) Refer soil analysis, Muzaffarnagar. (iii) 19.5.1957. (iv) (a) 2 Victory and 2 *desi* ploughings. (b) to (e) N.A. (v) 20 lb./ac. of N as T.C. (vi) 35/1 (medium). (vii) Irrigated. (viii) 2 weedings, 2 bullock power hoeings and thinning. (ix) 40.18%. (x) 11.10.1957 to 11.11.1957.

2. TREATMENTS :

Main-plot treatments :

3 times of application of planofix : T₁=At bud formation, T₂=At flowering and T₃=½ dose at bud formation and ½ at flowering.

Sub-plot treatments :

3 levels of hormone : H₀=0, H₁=5 and H₂=10 ppm.

3. DESIGN :

(i) Split-plot. (ii) (a) 3 main-plots/replication ; 3 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) 40'×10'. (b) 36'×6'. (v) 3'×2'. (vi) Yes.

4. GENERAL :

(i) Satisfactory. (ii) Nil. (iii) Yield of *kapas*. (iv) (a) 1957—1958. (b) No. (c) Nil. (v) (a) Raya and Meerut. (b) Nil. (vi) and (vii) Nil.

5. RESULTS :

(i) 913 lb./ac. (ii) (a) 154.8 lb./ac. (b) 137.2 lb./ac. (iii) None of the effects is significant. (iv) Av. yield of *kapas* in lb./ac.

	H ₀	H ₁	H ₂	Mean
T ₁	—	998	1011	1004
T ₂	—	833	995	914
T	—	820	979	900
	861	884	995	—

S.E. of difference of two

1. T marginal means = 77.4 lb./ac.
2. H marginal means = 56.0 lb./ac.
3. H means at the same level of T = 97.0 lb./ac.
4. T means at the same level of H = 101.3 lb./ac.

Crop :- Cotton (Kharif).

Ref :- U.P. 58(493).

Site :- Sugarcane Res. Sub-Stn., Muzaffarnagar.

Type :- 'D'.

Object :-To find out the effect of plant hormone (Planofix) on the yield of Cotton.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Wheat. (c) G.M. (*Guar*)+1.5 mds. of A/S. (ii) (a) Light loam. (b) Refer soil analysis, Muzaffarnagar. (iii) 18.5.1958. (iv) (a) 4 to 5 ploughings. (b) to (e) N.A. (v) 5 mds./ac. of castor cake broadcast before sowing. (vi) 35/l. (vii) Irrigated. (viii) 3 hoeings and 3 weedings. (ix) 42.78". (x) 18.9 1958. to 1.11.1958.

2. TREATMENTS :

Main-plot treatments :

3 times of application of planofix : T₁=At bud formation, T₂=At flowering and T₃= $\frac{1}{2}$ dose at bud formation and $\frac{1}{2}$ at flowering.

Sub-plot treatments :

3 levels of hormone : H₀=0, H₁=10 and H₂=20 ppm.

3. DESIGN :

(i) Split-plot. (ii) (a) 3 main-plots/replication ; 3 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) 40'×10', (b) 34'×6'. (v) 3'×2'. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Nil. (iii) Yield of *kapas*. (iv) (a) and (b) No. (c) Nil. (v) (a) Raya and Meerut. (b) Nil, (vi) and (vii) Nil.

5. RESULTS :

(i) 488 lb./ac. (ii) (a) 128.1 lb./ac. (b) 111.8 lb./ac. (iii) None of the effects is significant. (iv) Av. yield of *kapas* in lb./ac.

	H ₀	H ₁	H ₂	Mean
T ₁	—	561	506	533
T ₂	—	422	439	430
T ₃	—	580	511	546
Mean	458	521	485	—

S.E. of difference of two

1. T marginal means	=	64.0 lb./ac.
2. H marginal means	=	45.6 lb./ac.
3. H means at the same level of T	=	79.0 lb./ac.
4. T means at the same level of H	=	83.1 lb./ac.

Crop :- Cotton (Kharif).

Ref :- U.P. 57(10).

Site :- Govt. Cotton Res. Sub-Stn., Raya.

Type :- 'D'.

Object :- To find out the effect of plant hormone (Planofix) on the yield of Cotton.

1. BASAL CONDITIONS :

(i) (a) *Sanai*—Wheat—Cotton—Pea. (b) Wheat. (c) G.M. (*sanai*). (ii) (a) Sandy loam. (b) Refer soil analysis, Raya. (iii) 21.5.1957. (iv) (a) 1 ploughing by Victory plough and 2 with *desi* plough. (b) to (e) N.A. (v) Nil. (vi) 216 F (early). (vii) Irrigated. (viii) 3 harrowings, 3 weedings and 1 hoeing. (ix) 34.50°. (x) 29.9.1957 to 12.11.1957.

2. TREATMENTS :

Same as in expt. no. 57(8) on page 1419.

3. DESIGN :

(i) Split-plot. (ii) (a) 3 main-plots/replication ; 3 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) 40' × 12'. (b) 34' × 8'. (v) 3' × 2'. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Nil. (iii) Plant stand and yield of *kapas*. (iv) (a) 1957—1958 (treatments changed in 1958). (b) No. (c) Nil. (v) (a) Meerut and Muzaffarnagar. (b) Nil. (vi) and (vii) Nil.

5. RESULTS :

(i) 680 lb./ac. (ii) (a) 154.0 lb./ac. (b) 90.4 lb./ac. (iii) None of the effects is significant. (iv) Av. yield of *kapas* in lb./ac.

	H ₀	H ₁	H ₂	Mean
T ₁	—	698	616	657
T ₂	—	773	718	745
T ₃	—	636	658	647
Mean	675	702	664	—

S.E. of difference of two

1. T marginal means	=	77.0 lb./ac.
2. H marginal means	=	36.9 lb./ac.
3. H means at the same level of T	=	63.9 lb./ac.
4. T means at the same level of H	=	81.7 lb./ac.

Crop :- Cotton (Kharif).

Ref :- U.P. 58(492).

Site :- Govt. Cotton Res. Sub-Stn., Raya.

Type :- 'D'.

Object :- To find out the effect of plant hormone (Planofix) on the yield of Cotton.

1. BASAL CONDITIONS :

(i) (a) Cotton—Pea—*sanai*—Wheat. (b) Wheat. (c) G.M. (*sanai*). (ii) (a) Sandy loam. (b) Refer soil analysis, Raya. (iii) 28.5.1959. (iv) (a) 1 *desi*, 1 Victory ploughing and 1 cross *desi* ploughing. (b) Sown behind the plough. (c) 16 lb./ac. (d) 2' × 1'. (e) N.A. (v) Nil. (vi) 35/1 (early). (vii) Irrigated. (viii) 1 harrowing and 3 weedings by *khurpi*. (ix) 47.87°. (x) 16.9.1958 to 20.10.1958.

2. TREATMENTS :

Same as in expt. no. 58(493) on page 1420.

3. DESIGN :

(i) Split-plot. (ii) (a) 3 main-plots/replication ; 3 sub-plots/main-plot. (b) 40' × 38'. (iii) 4. (iv) (a) 40' × 12'. (b) 34' × 8'. (v) 3' × 2'. (vi) Yes.

4. GENERAL :

(i) N.A. (ii) Wilt attack and DDT spraying was done. (iii) Plant stand and yield of *kapas*. (iv) (a) 1957—1958 (treatments changed in 1958). (b) No. (c) Nil. (v) (a) Meerut and Muzaffarnagar. (b) Nil. (vi) and (vii) Nil.

5. RESULTS :

(i) 133 lb./ac. (ii) (a) 72.7 lb./ac. (b) 43.6 lb./ac. (iii) None of the effects is significant. (iv) Av. yield of *kapas* in lb./ac.

	H ₀	H ₁	H ₂	Mean
T ₁	—	126	108	117
T ₂	—	113	107	110
T ₃	—	130	157	143
Mean	152	123	124	—

S.E. of difference of two

1. T marginal means = 36.3 lb./ac.
2. H marginal means = 17.8 lb./ac.
3. H means at the same level of T = 30.8 lb./ac.
4. T means at the same level of H = 38.9 lb./ac.

Crop :- Cotton (Kharif).

Ref :- U.P. 59(408).

Site :- Govt. Cotton Res. Sub-Stn., Raya.

Type :- 'D'.

Object :—To study the effect of plant hormones at different stages of growth on Cotton.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Barley. (c) N.A. (ii) (a) Sandy loam. (b) Refer soil analysis, Raya. (iii) 13.5.1959. (iv) (a) 1 Victory ploughing, 1 *desi* ploughing and 1 cross ploughing by *desi* plough. (b) Sown behind the plough. (c) 16 lb/ac. (d) 2' × 1'. (e) N.A. (v) 30 lb./ac. of N as G.N.C. (vi) 35/1. (vii) Irrigated. (viii) 1 harrowing, 1 thinning, 4 weedings, 1 hoeing and 1 cultivating. (ix) 17.20". (x) 15.9.1959 to 16.10.1959.

2. TREATMENTS :

All combinations of (1), (2) and (3) + control (6 plots)

(1) 2 hormones : F₁ = Napthalene acetic acid and F₂ = Napthoxy acetic acid.

(2) 2 concentrations of hormone : C₁ = 10 and C₂ = 20 ppm,

(3) 3 times of applications : T₁ = At bud formation, T₂ = At flowering and T₃ = $\frac{1}{2}$ at bud formation + $\frac{1}{2}$ at flowering.

3. DESIGN :

(i) R.B.D. (a) 18. (b) 98' × 83'. (iii) 4. (iv) (a) 40' × 10'. (b) 34' × 6'. (v) 3' × 2'. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Nil. (iii) Plant stand and yield of *kapas*. (iv) (a) and (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 1110 lb./ac. (ii) 244.2 lb./ac. (iii) None of the effects is significant. (iv) Av. yield of *kapas* in lb./ac.

Control = 1164 lb./ac.

	T ₁	T ₂	T ₃	Mean	C ₁	C ₂
F ₁	1110	1003	1141	1085	1064	1106
F ₂	1196	978	1074	1083	1043	1123
Mean	1153	990	1108	1084	1053	1114
C ₁	1179	916	1065			
C ₂	1127	1065	1152			

S.E. of T marginal mean	= 61.1 lb./ac.
S.E. of F or C marginal mean	= 49.8 lb./ac.
S.E. of body of TF or TC table	= 86.4 lb./ac.
S.E. of body of FC table	= 70.5 lb./ac.
S.E. of control mean	= 49.8 lb./ac.

Crop :- Cotton.

Ref :- U.P. 54(12).

Site :- Govt. Cotton Res. Sub-Stn., Raya.

Type :- 'D'.

Object :—To find out the effect of treating Cotton seed with Perenox.

1. BASAL CONDITIONS :

(i) (a) Cotton—Pea—G.M.—Wheat. (b) Wheat. (c) G.M. (ii) (a) Sandy loam. (b) Refer soil analysis, Raya. (iii) 29.5.1954. (iv) (a) 1 Victory ploughing and 2 *desi* ploughings. (b) Sown behind the plough. (c) 16 lb./ac. (d) 2' × 1½'. (e) N.A. (v) Nil. (vi) 216 F. (vii) Irrigated. (viii) 1 harrowing, 1 weeding, 1 interculture by cultivator and 1 thinning. (ix) 16.29°. (x) 12.10.1954 and 27.10.1954.

2. TREATMENTS :

4 ratios of Perenox to seed : R₀ = Control (no Perenox), R₁ = 1 : 200, R₂ = 1 : 400 and R₃ = 1 : 600.

3. DESIGN :

(i) R.B.D. (ii) (a) 4. (b) N.A. (iii) 6. (iv) (a) 78' × 12'. (b) 72' × 8'. (v) 3' × 2'. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Minor damages by pink boll worm. (iii) Yield of *kapas* and plant stand. (iv) (a) 1953–1954. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 993 lb./ac. (ii) 100.6 lb./ac. (iii) Treatment differences are not significant. (iv) Av. yield of *kapas* in lb./ac.

Treatment	R ₀	R ₁	R ₂	R ₃
Av. yield	956	940	1070	1006

S.E./mean = 41.1 lb./ac.

Crop :- Cotton (*Kharif*).

Ref :- U.P. 55(404).

Site :- Govt. Cotton Res. Sub-Stn., Raya.

Type :- 'D'.

Object :—To find out the effective control measure against spotted boll worms of Cotton.

1. BASAL CONDITIONS :

(i) (a) Wheat—Cotton—Pea. (b) Wheat. (c) 2½ mds./ac. of castor cake+20 srs./ac. of A/S. (ii) (a) Loam. (b) Refer soil analysis, Raya. (iii) 15, 16.5.1955 and 2.6.1955. (iv) (a) N.A. (b) In lines. (c) N.A. (d) Rows 2' apart. (e) N.A. (v) Nil. (vi) 216 F. (vii) N.A. (viii) Weeding and cultivation. (ix) N.A. (x) October and November, 1955.

2. TREATMENTS :

5 insecticidal treatments : T_0 =Control, T_1 =Spraying with 0.25 % DDT suspension at 25 and 40 gallons/ac. in 1st and 2nd application respectively, T_2 =Spraying with Endrin 0.2 lb./ac. and 0.5 lb./ac. in 1st and 2nd application respectively, T_3 =Removal of bored tops of seedlings followed by dusting with 5 % DDT after a fortnight and spraying with 0.25 % DDT suspension three weeks after dusting. Dust and spray used at 10 lb./ac. and 40 gallons/ac. respectively and T_4 =Dusting with 1.5% Dieldrin at 15 lb./ac. and 30 lb./ac. in the 1st and 2nd application.

Treatments applied in T_3 on 22, 23.7.1955. First application of treatments on 12, 13.8.1955 and second on 5 and 6.9.1955.

3. DESIGN :

(i) R.B.D. (ii) (a) 5. (b) N.A. (iii) 6. (iv) (a) and (b) 40'×27'2". (v) Nil. (vi) Yes.

4. GENERAL :

(i) Satisfactory. (ii) N.A. (iii) Affected number of plants and yield of *kapas*. (iv) (a) 1955—contd. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

Yield of *kapas*

(i) 535 lb./ac. (ii) 84.0 lb./ac. (iii) Treatment differences are not significant. (iv) Av. yield of *kapas* in lb./ac.

Treatment	T_0	T_1	T_2	T_3	T_4
Av. yield	532	556	532	502	554

S.E./mean = 34.3 lb./ac.

% incidence of affected plants

(i) 32.40 degrees. (ii) 2.15 degrees. (iii) Treatment differences are highly significant. (iv) Av. percentage of affected plants in degrees.

Treatment	T_0	T_1	T_2	T_3	T_4
Mean angle	40.18	27.71	28.28	33.19	32.65

S.E./mean = 0.88 degrees.

% of affected plants	41.71	21.91	22.72	30.17	29.31
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Crop :- Cotton (Kharif).

Ref :- U.P. 56(499).

Site :- Govt. Cotton Res. Sub-Stn., Raya.

Type :- 'D'.

Object :- To find out the effective control measures against spotted boll worms of Cotton.

1. BASAL CONDITIONS :

(i) (a) Wheat—Cotton—Pea. (b) Wheat. (c) 2½ mds./ac. of castor cake+20 srs./ac. of A/S. (ii) (a) Loam. (b) Refer soil analysis, Raya. (iii) 2.6.1956. (iv) (a) to (c) N.A. (d) Rows 2' apart. (e) N.A. (v) Nil. (vi) 216 F. (vii) N.A. (viii) Weeding and cultivation. (ix) and (x) N.A.

2. TREATMENTS :

5 insecticidal treatments : T_0 =Control, T_1 =Spraying with 0.25% DDT suspension at 25 and 40 gallons/ac. in the 1st and 2nd application at 3 weeks interval, T_2 =Spraying with 0.25% DDT suspension at 25, 40 and 50 gallons/ac. in 1st, 2nd and 3rd application at two-week intervals, T_3 =Dusting with 1.5% Dieldrin at 15 and 30 lb./ac. in 1st

and 2nd application at 3 weeks interval and T_4 = Dusting with 1.5% Dieldrin at 15, 30 and 40 lb./ac. in the 1st., 2nd and 3rd applications at two weeks interval.

First application of all treatments on 6, 7.8.1956, and 2nd application of treatments applied in T_2 and T_4 and T_1 and T_3 on 23, 24.8.1956 and 30, 31.8.1956 respectively and 3rd application in treatment T_2 and T_4 applied on 6 and 7.9.1956.

3. DESIGN :

(i) R.B.D. (ii) (a) 5. (b) N.A. (iii) 3. (iv) (a) and (b) 40' x 27' 2". (v) Nil. (vi) Yes.

4. GENERAL :

(i) Satisfactory. (ii) N.A. (iii) Plant stand and yield of kapas. (iv) (a) 1955—contd. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

Yield of kapas

(i) 969 lb./ac. (ii) 147.4 lb./ac. (iii) Treatment differences are not significant. (iv) Av. yield of kapas in lb./ac.

Treatment	T_0	T_1	T_2	T_3	T_4
Av. yield	831	1067	928	1007	1013

S.E./mean = 85.1 lb./ac.

% incidence of affected plants

(i) 54.39 degrees. (ii) 9.42 degrees. (iii) Treatment differences are not significant. (iv) Mean percentage of affected plants in degrees.

Treatment	T_0	T_1	T_2	T_3	T_4
Mean angle	58.07	44.04	57.29	57.24	55.31

S.E./mean = 5.44 degrees.

Transformed back %	T_0	T_1	T_2	T_3	T_4
	71.81	48.34	70.59	70.51	67.43

Crop :- Cotton (Kharif).

Ref :- U.P. 57(521).

Site :- Govt. Cotton Res. Sub-Sta., Raya.

Type :- 'D'.

Object :- To find out the effective control measures against spotted boll worms of Cotton.

1. AS AL CONDITIONS :

(i) (a) to (c) N.A. (ii) (a) Loam. (b) Refer soil analysis, Raya. (iii) 16.6.1957. (iv) and (v) N.A. (vi) 216 F. (vii) to (x) N.A.

2. TREATMENTS :

5 insecticidal treatments : T_0 = Control, T_1 = Spraying with 0.25 % DDT suspension at 30, 45 and 60 gallons/ac. in 1st, 2nd and 3rd applications at 2 and 3 weeks intervals respectively, T_2 = Dusting with 1.5 % Dieldrin at 20, 30 and 45 lb./ac. in 1st, 2nd and 3rd applications at 2 and 3 weeks intervals, T_3 = Spraying with 0.25 % DDT suspension mixed with I in 99 dilution of Ovicide emulsion at 30, 45 and 60 gallons/ac. in 1st, 2nd and 3rd applications at 2 and 3 weeks intervals respectively and T_4 = Spraying with 0.05 % Endrin emulsion at 30, 45 and 60 gallons/ac. in 1st, 2nd and 3rd applications at 2 and 3 weeks intervals respectively.

3. DESIGN :

(i) R.B.D. (ii) (a) 5. (b) N.A. (iii) 3. (iv) (a) and (b) 40' x 27' 2". (v) Nil. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Incidence of pests and yield of kapas. (iv) (a) 1955—contd. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

Yield of *kapas*

(i) 180 lb./ac. (ii) 101.8 lb./ac. (iii) Treatment differences are not significant. (iv) Av. yield of *kapas* in lb./ac.

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄
Av. yield	264	190	13	304	129

S.E./mean = 58.8 lb./ac.

% incidence of affected plants

(i) 41.59 degrees. (ii) 8.88 degrees. (iii) Treatment differences are highly significant. (iv) Av. percentage of affected plants in degrees.

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄
Mean angle	55.28	38.19	40.00	18.61	55.85

S.E./mean = 5.13 degrees.

% of affected plants	67.39	38.35	41.41	10.58	68.30
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Crop :- Cotton (Kharif).

Ref :- U.P. 58(506).

Site :- Govt. Cotton Res. Sub-Stn., Raya.

Type :- 'D'.

Object :— To find out the effective control measure against spotted boll worm of Cotton.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) (a) Loam. (b) Refer soil analysis, Raya. (iii) N.A. (iv) (a) to (c) N.A. (d) Rows 2' apart. (e) N.A. (v) Nil. (vi) 216 F. (vii) to (ix) N.A. (x) 8.10.1958 to 24.11.1958.

2. TREATMENTS :

5 insecticidal treatments : T₀=Control, T₁=Spraying with 0.25% DDT suspension at 30, 45 and 60 gallons/ac. in 1st, 2nd and 3rd applications respectively, T₂=Dusting with 1.5% Dieldrin at 20, 30 and 45 lb./ac. in 1st, 2nd and 3rd application respectively, T₃=Spraying with 0.25% DDT suspension mixed with 1 in 99 dilution of Ovicide in water at 30, 45 and 60 gallons/ac. in 1st, 2nd and 3rd applications respectively and T₄=Spraying with 0.1% Lindane at 30, 45 and 60 gallons/ac. in 1st, 2nd and 3rd applications respectively.

First application applied to all the treatments on 28.8.1958 and 2nd on 19.9.1958.

3. DESIGN :

(i) R.B.D. (ii) (a) 5. (b) N.A. (iii) 3. (iv) (a) and (b) 40' x 27' 2". (v) Nil. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Incidence of plots and yield of *kapas*. (iv) (a) 1955—contd. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

Yield of *kapas*

(i) 351 lb./ac. (ii) 61.8 lb./ac. (iii) Treatment differences are significant. (iv) Av. yield of *kapas* in lb./ac.

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄
Av. yield	271	502	304	298	380

S.E./mean = 35.7 lb./ac.

% incidence of affected plants

(i) 34.02 degrees. (ii) 4.24 degrees. (iii) Treatment differences are not significant. (iv) Mean percentage of affected plants in degrees.

Treatment	T ₀	T ₁	T ₂	T ₃	S ₄
Mean angle	36.23	26.45	37.22	33.96	36.23
S.E./mean = 2.45 degrees.					
Transformed back %	35.08	20.14	36.71	31.39	35.08

Crop :- Cotton (Kharif).

Ref :- U.P. 58(500).

Site :- Govt. Cotton Res. Sub-Stn., Raya.

Type :- 'D'.

Object :- To find out the effective control measures against spotted bollworms of Cotton.

1. BASAL CONDITIONS :

(i) (a) Wheat—Cotton—Pea. (b) Wheat. (c) 2½ mds./ac. of castor cake+20 srs./ac. of A/S. (ii) (a) Loam. (b) Refer soil analysis, Raya. (iii) 20.5.1956. (iv) (a) to (c) N.A. (d) Rows 2' apart. (e) N.A. (v) Nil. (vi) 35/l. (vii) N.A. (viii) Weeding and cultivation. (ix) and (x) N.A.

2. TREATMENTS to 4. GENERAL :

Same as in expt. no. 56(499) on page 1424.

5. RESULTS :

Yield of kapas

(i) 742 lb./ac. (ii) 113.7 lb./ac. (iii) Treatment differences are not significant. (iv) Av. yield of kapas in lb /ac.

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄
Av. yield	689	696	742	752	833

S.E./mean = 65.6 lb./ac.

% incidence of affected plants

(i) 53.66 degrees. (ii) 10.38 degrees. (iii) Treatment differences are not significant. (iv) Mean percentage of affected plants in degrees.

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄
Mean angle	50.97	54.75	52.40	51.95	58.22

S.E./mean = 5.99 degrees.

Transformed back %	60.25	66.51	62.64	61.90	72.05
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Crop :- Cotton (Kharif).

Ref :- U.P. 57(522).

Site :- Govt. Cotton Res. Sub-Stn., Raya.

Type :- 'D'.

Object :- To find out the effective control measures against boll worms of Cotton.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) (a) Loam. (b) Refer soil analysis, Raya. (iii) 28.5.1957. (iv) and (v) N.A. (vi) 35/l. (vii) to (x) N.A.

2. TREATMENTS to 4. GENERAL :

Same as in expt. no. 57(521) on page 1425.

5. RESULTS :

Yield of kapas

(i) 865 lb./ac. (ii) 137.9 lb./ac. (iii) Treatment differences are significant. (iv) Av. yield of kapas in lb./ac.

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄
Av. yield	707	937	849	1165	669

S.E./mean = 79.6 lb./ac.

% incidence of affected plants

(i) 38.60 degrees. (ii) 4.66 degrees. (iii) Treatment differences are highly significant. (iv) Mean percentage of affected plants in degrees.

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄
Mean angle	55.95	35.11	39.21	12.92	49.82

S.E./mean = 2.69 degrees.

Transformed back %	68.46	33.25	23.91	5.45	58.29
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Crop :- Cotton (Kharif).

Ref :- U.P. 58(505).

Site :- Govt. Cotton Res. Sub-Stn., Raya.

Type :- 'D'.

Object :—To find out the effective control measure against spotted boll worms of Cotton.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) (a) Loam. (b) Refer soil analysis, Raya. (iii) N.A. (iv) (a) to (c) N.A. (d) Rows 2' apart. (e) N.A. (v) Nil. (vi) 35/1. (vii) to (ix) N.A. (x) 22.9.1958 to 21.10.1958.

2. TREATMENTS to 4. GENERAL :

Same as in expt. no. 58(506) on page 1526.

5. RESULTS :

Yield of kapas

(i) 149 lb./ac. (ii) 53.7 lb./ac. (iii) Treatment differences are not significant. (iv) Av. yield of kapas in lb./ac.

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄
Av. yield	183	109	169	107	178

S.E./mean = 31.0 lb./ac.

% incidence of affected plants.

(i) 32.40 degrees. (ii) 3.04 degrees. (iii) Treatment differences are highly significant. (iv) Mean percentage of affected plants in degrees.

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄
Mean angle	41.13	27.70	39.21	24.04	29.92

S.E./mean = 1.76 degrees.

Transformed back %	43.34	21.89	40.07	16.93	25.13
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Crop :- Jute (Kharif).

Ref :- U.P. 59(256).

Site :- Jute Res. Stn., Gograghat.

Type :- 'M'.

Object :—To study the effect of foliar spray of fertilizers on the yield of Jute fibre.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Sannhemp. (c) Nil. (ii) (a) Sandy loam. (b) Refer soil analysis, Gograghat. (iii) 12.7.1959. (iv) (a) 5 ploughings each followed by planking. (b) Line sowing. (c) 4 lb./ac. (d) 1' x 2" to 3". (e) N.A. (v) 200 mds./ac. of factory yard compost + G.M. (sannhemp). (vi) J.R.O. 632 (medium). (vii) Unirrigated. (viii) 1 weeding and 2 hoeings. (ix) 37.9". (x) 17.10.1959.

2. TREATMENTS :

All combinations of (1) and (2) + one control

(1) 2 sources of N : $S_1 = \text{A/S}$ and $S_2 = \text{Urea}$.

(2) 2 methods of application of N : $M_1 = \text{Spraying in 4 equal instalments after 30 days of growth and}$
 $M_2 = \text{Top dressing at 30 days of growth.}$

Level of N applied is N.A.

3. DESIGN :

(i) R.B.D. (ii) (a) 5. (b) $122' \times 109'$. (iii) 4. (iv) (a) and (b) $25' \times 22'$. (v) Nil. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Hairy caterpillar attack. Hand picking was done. (iii) Yield of fibre. (iv) (a) and (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 617 lb./ac. (ii) 110.8 lb./ac. (iii) 'Control vs. others' is highly significant and M effect is significant. (iv) Av. yield of fibre in lb./ac.

Control = 411 lb./ac.

	M_1	M_2	Mean
S_1	566	723	645
S_2	628	759	694
Mean	597	741	669

S.E. of any marginal mean = 39.2 lb./ac.
 S.E. of body of table or control mean = 55.4 lb./ac.

Crop :- Jute (Kharif).

Ref :- U.P. 59(247).

Site :- Jute Res. Stn., Gograghat.

Type :- 'M'.

Object :—To study the effect of N, P and K on the yield of Jute fibre.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Jute. (c) N.A. (ii) (a) Sandy loam. (b) Refer soil analysis, Gograghat. (iii) 14.7.1959. (iv) (a) 6 ploughings each followed by planking. (b) Line sowing. (c) 4 lb./ac. (d) $1' \times 2''$ to $3''$. (e) N.A. (v) 4000 lb./ac. cowdung. (vi) J.R.O. 632 (medium). (vii) Unirrigated. (viii) 1 weeding, 3 hoeings and 1 thinning. (ix) 37.9° . (x) 9 to 11.10.1959.

2. TREATMENTS :

12 manurial treatments : $M_0 = \text{Control}$, $M_1 = 20 \text{ lb./ac. of N}$, $M_2 = 40 \text{ lb./ac. of N}$, $M_3 = 60 \text{ lb./ac. of N}$, $M_4 = 80 \text{ lb./ac. of N}$, $M_5 = 160 \text{ lb./ac. of N}$, $M_6 = 10 \text{ lb./ac. of } P_2O_5 + 10 \text{ lb./ac. of } K_2O$, $M_7 = M_1 + M_6$, $M_8 = M_2 + 20 \text{ lb./ac. of } P_2O_5 + 20 \text{ lb./ac. of } K_2O$, $M_9 = M_3 + 30 \text{ lb./ac. of } P_2O_5 + 30 \text{ lb./ac. of } K_2O$, $M_{10} = M_4 + 40 \text{ lb./ac. of } P_2O_5 + 40 \text{ lb./ac. of } K_2O$ and $M_{11} = M_5 + 80 \text{ lb./ac. of } P_2O_5 + 80 \text{ lb./ac. of } K_2O$.

3. DE

(i) R.B.D. (ii) (a) 12. (b) $102' \times 84'$. (iii) 6. (iv) (a) $26' \times 24'$. (b) $22' \times 20'$. (v) $2' \times 2'$. (vi) Yes.

4. GENERAL :

(i) Good. (ii) *Anomis sabulifera* attack and Endrin sprayed at 0.03 %. (iii) Growth observation and yield of fibre. (iv) (a) 1959—contd. (b) Yes. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 759 lb./ac. (ii) 213.5 lb./ac. (iii) Treatment differences are highly significant. (iv) Av. yield of fibre in lb./ac.

Treatment	M ₀	M ₁	M ₂	M ₃	M ₄	M ₅	M ₆	M ₇	M ₈	M ₉	M ₁₀	M ₁₁
Av. yield	536	683	717	777	797	907	464	705	842	647	1033	999

S.E./mean = 87.2 lb./ac.

Crop :- Jute.

Ref :- U.P. 59(249).

Site :- Jute Res. Stn., Gograghat.

Type :- 'M'.

Object :- To study the effect of application of N at various stages of growth of Jute crop.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) and (c) N.A. (ii) (a) Sandy loam. (b) N.A. (iii) 6.3.1959. (iv) (a) 6 ploughings each followed by planking. (b) Line sowing. (c) 6 lb./ac. (d) 1'×2" to 3". (e) N.A. (v) 200 mds./ac. of factory yard compost. (vi) J.R.C.—212. (vii) Unirrigated. (viii) 3 weedings, 5 hoeings and 2 thinnings. (ix) 37.9". (x) 25 and 26.9.1959.

2. TREATMENTS :

9 manurial treatments : M₀=Control, M₁=20 lb./ac. of P₂O₅+20 lb./ac. of K₂O, M₂=M₁+40 lb./ac. of N at sowing, M₃=M₁+40 lb./ac. of N when the crop height is 1', M₄=M₁+40 lb./ac. of N when the crop height is 2', M₅=M₁+20 lb./ac. N at sowing+20 lb./ac. of N at 1' crop height. M₆=M₁+20 lb./ac. of N at sowing+20 lb./ac. of N at 2' crop height, M₇=M₁+20 lb./ac. of N at 1' crop height+20 lb./ac. of N at 2' crop height and M₈=M₁+10 lb./ac. of N at sowing+10 lb./ac. of N at 1' crop height+10 lb./ac. of N at 2' crop height.

3. DESIGN :

(i) R.B.D. (ii) (a) 9. (b) 64'×64'. (iii) 6. (iv) (a) 20'×20'. (b) 18'×18'. (v) 1'×1'. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Attack of apion and indigo caterpillar was noticed and spraying of Folidol 0.01% and dusting of Gammexane was done. (iii) Growth observation and yield of fibre. (iv) (a) 1959—contd. (b) Yes. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 2023 lb./ac. (ii) 376.9 lb./ac. (iii) Treatment differences are not significant. (iv) Av. yield of fibre in lb./ac.

Treatment	M ₀	M ₁	M ₂	M ₃	M ₄	M ₅	M ₆	M ₇	M ₈
Av. yield	1870	2021	1952	2204	2228	1857	1969	2069	2033

S.E./mean = 153.8 lb./ac.

Crop :- Jute.

Ref :- U.P. 55(336).

Site :- Jute Exptl. and Demons. Farm, Gograghat.

Type :- 'MV'.

Object :- To study the performance of different varieties of Jute and their responses to various levels of fertilizers.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) (a) Sandy loam. (b) Refer soil analysis, Gograghat. (c) 5.3.1955. (iv) and (v) N.A. (vi) As per treatments. (vii) Unirrigated. (viii) N.A. (ix) 63.78". (x) September, 1955.

2. TREATMENTS :

Treatments in one direction :

4 varieties : V₁=J.R.C. 212, V₂=J.R.C. 321, V₃=D. 154 and V₄=Local.

Treatments in orthogonal direction :

4 levels of N : N₀=0, N₁=20, N₂=40 and N₃=60 lb./ac.

3. DESIGN :

(i) Strip-plot. (ii) (a) 16. (b) N.A. (iii) 4. (iv) (a) 32'×21'. (b) 28'×17'. (v) 2'×2'. (vi) Yes.

4. GENERAL :

(i) In some plots the growth was poor and in others from good to fair. (ii) N.A. (iii) Yield of fibre. (iv) (a) 1955—contd. (b) N.A. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 1889 lb./ac. (ii) S.E. (V)=394.9 lb./ac. S.E. (N)=560.4 lb./ac. and S.E. (V×N)=264.2 lb./ac. (iii) V×N interaction alone is significant. (iv) Av. yield of fibre in lb./ac.

	V ₁	V ₂	V ₃	V ₄	Mean
N ₀	2036	1930	1640	1831	1859
N ₁	2264	1987	1648	2152	2013
N ₂	2003	1916	2010	1491	1855
N ₃	2019	1900	1940	1465	1831
Mean	2080	1933	1809	1735	1889

S.E. of difference of two

1. V marginal means = 139.6 lb./ac.
2. N marginal means = 198.1 lb./ac.
3. N means at the same level of V = 255.8 lb./ac.
4. V means at the same level of N = 213.7 lb./ac.

Crop :- Jute.**Ref :- U.P. 56(356).****Site :- Jute Exptl. and Demons. Farm, Gograghat.****Type :- 'MV'.**

Object :- To study the performance of different varieties of Jute and their responses to various levels of fertilizers.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) (a) Sandy loam. (b) Refer soil analysis, Gograghat. (iii) 9.3.1956. (iv) and (v) N.A. (vi) As per treatments. (vii) Unirrigated. (viii) N.A. (ix) 27.47°. (x) September, 1956.

2. TREATMENTS and 3. DESIGN :

Same as in expt. no. 55(336) on page 1430.

4. GENERAL :

(i) and (ii) N.A. (iii) Fibre yield. (iv) (a) 1955—contd. (b) Yes. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 1627 lb./ac. (ii) S.E. (V) = 373.8 lb./ac., S.E. (N) = 403.8 lb./ac. and S.E. (V×N) = 373.4 lb./ac. (iii) Only main effect of V is significant. (iv) Av. yield of fibre in lb./ac.

	V ₁	V ₂	V ₃	V ₄	Mean
N ₀	1656	1844	1284	1585	1592
N ₁	1920	1793	1456	2043	1803
N ₂	1619	1979	1340	1244	1546
N ₃	1275	2076	1374	1537	1566
Mean	1618	1923	1364	1602	1627

S.E. of difference of two

1. V marginal means	= 132.2 lb./ac.
2. N marginal means	= 142.8 lb./ac.
3. N means at the same level of V	= 269.6 lb./ac.
4. V means at the same level of N	= 264.1 lb./ac.

Crop :- Jute.

Ref :- U.P. 57(385).

Site :- Jute Exptl. and Demons. Farm, Gograhat.

Type :- 'MV'.

Object :— To study the performance of different varieties of Jute and their responses to various levels of fertilizers.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) (a) Sandy loam. (b) Refer soil analysis, Gograhat. (iii) to (v) N.A. (iv) As per treatments. (vii) Unirrigated. (viii) N.A. (ix) 36.66". (x) September, 1957.

2. TREATMENTS and 3. DESIGN :

Same as in expt. no. 55(336) on page 1430.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of fibre. (iv) (a) 1955—contd. (b) Yes. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 1767 lb./ac. (ii) S.E. (V) = 600.9 lb./ac., S.E. (N) = 232.6 lb./ac. and S.E. (V×N) = 271.4 lb./ac. (iii) Main effect of V of alone is significant. (iv) Av. yield of fibre in lb./ac.

	V ₁	V ₂	V ₃	V ₄	Mean
N ₀	1797	1991	1477	1450	1679
N ₁	2082	2117	1400	1518	1804
N ₂	1938	2181	1551	1228	1725
N ₃	2219	2100	1559	1559	1859
Mean	2009	2097	1522	1439	1767

S.E. of difference of two

1. V marginal means	= 82.2 lb./ac.
2. N marginal means	= 212.4 lb./ac.
3. N means the same level of V	= 269.7 lb./ac.
4. V means at the same level of N	= 185.4 lb./ac.

Crop :- Jute.

Ref :- U.P. 59(399).

Site :- Jute Exptl. and Demons. Farm, Gograhat.

Type :- 'MV'.

Object :— To study the performance of different varieties of Jute and their responses to various levels of fertilizers.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) (a) Sandy loam. (b) Refer soil analysis, Gograhat. (iii) 11.3.1959. (iv) and (v) N.A. (vi) As per treatments. (vii) Unirrigated. (viii) N.A. (ix) 38.06". (x) September, 1959.

2. TREATMENTS and 3. DESIGN :

Same as in expt. no. 55(336) on page 1430.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of fibre. (iv) (a) 1955—contd. (b) Yes. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 1915 lb./ac. (ii) S.E. (V) = 492.0 lb./ac., S.E. (N) = 426.3 lb./ac. and S.E. (V×N) = 206.9 lb./ac.
(iii) None of the effects is significant. (iv) Av. yield of fibre in lb./ac.

	V ₁	V ₂	V ₃	V ₄	Mean
N ₀	1988	1761	1740	1504	1748
N ₁	2253	1823	2054	2128	2064
N ₂	2153	1789	1856	1830	1907
N ₃	1973	2019	2138	1640	1942
Mean	2092	1848	1947	1775	1915

S.E. of difference of two

- | | |
|-----------------------------------|-----------------|
| 1. V marginal means | = 173.9 lb./ac. |
| 2. N marginal means | = 150.7 lb./ac. |
| 3. V means at the same level of N | = 215.2 lb./ac. |
| 4. N means at the same level of V | = 196.9 lb./ac. |

Crop :- Jute.

Ref :- U.P. 59(248).

Site :- Jute Res. Stn., Gograghat.

Type :- 'C'.

Object :—To study the effect of retaining soil moisture on the yield of Jute fibre.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Fallow. (c) Nil. (ii) (a) Sandy loam. (b) Refer soil analysis, Gograghat. (iii) 28.2.1959.
(iv) (a) 6 ploughings each followed by planking. (b) Line sowing. (c) 4 lb./ac. (d) 1'×2" to 3". (e) N.A. (v) Nil. (vi) J.R.C. 212 (late). (vii) Unirrigated. (viii) 3 weedings. (ix) 37.9". (x) 27.9.1959.

2. TREATMENTS :

6 cultural treatments : C₀=Control, C₁=Wheat straw, C₂=Maize stalk, C₃=Broken jute stick, C₄=Cut kauo and C₅=Mulching.

Treatments C₁ to C₄ are used as covering material.

3. DESIGN :

(i) R.B.D. (ii) (a) 6. (b) 27'×17'. (iii) 4. (iv) (a) and (b) 7'×7'. (v) Nil. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Apion and semi looper attack. Spraying of Folidol, Endrin and DDT. (iii) Yield of fibre.
(iv) 1959—contd. (b) Yes. (c) N.A. (v) to (vii) Nil.

5. RESULTS :

(i) 3806 lb./ac. (ii) 827.3 lb./ac. (iii) Treatment differences are not significant. (iv) Av. yield of fibre in lb./ac.

Treatment	C ₀	C ₁	C ₂	C ₃	C ₄	C ₅
Av. yield	4140	3464	3807	3680	3763	3979

S.E./mean = 413.6 lb./ac.

Crop :- Jute.

Ref :- U.P. 59(252).

Site :- Jute Res. Stn., Gograghat.

Type :- 'C'.

Object :—To study the effect of different dates of sowing on the yield of Jute fibre.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Jute. (c) 200 mds./ac. of factory yard compost. (ii) (a) Sandy loam. (b) Refer soil analysis, Gograghat. (iii) As per treatments. (iv) (a) 5 ploughings. (b) Line sowing. (c) 6 lb./ac. (d) 1'×2" to 3". (e) N.A. (v) 200 mds./ac. of factory yard compost on 11.2.1959. (vi) J.R.C. 212 (late). (vii) Irrigated. (viii) 4 weedings, 3 hoeings and 1 thinning. (ix) 37.9". (x) 18.9.1959 to 9.10.1959.

2. TREATMENTS :

6 dates of sowing : D₁=15.2.1959, D₂=1.3.1959, D₃=15.3.1959, D₄=1.4.1959, D₅=15.4.1959 and D₆=1.5.1959.

3. DESIGN :

(i) R.B.D. (ii) (a) 6. (b) 64'×42'. (iii) 6. (iv) (a) 20'×20'. (b) 18'×18'. (v) 1'×1'. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Semi-looper, apion and mite attack observed. Sprayings of DDT, Folidol, Endrin and Lime Sulphur solution were done. (iii) Growth and yield of fibre. (iv) (a) 1959—contd. (b) Yes. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 1388 lb./ac. (ii) 405.5 lb./ac. (iii) Treatment differences are highly significant. (iv) Av. yield of fibre in lb./ac.

Treatment	D ₁	D ₂	D ₃	D ₄	D ₅	D ₆
Av. yield	1013	1400	1543	1914	1482	973

S.E./mean = 165.5 lb./ac.

Crop :- Jute.

Ref :- U.P. 59(250).

Site :- Jute Res. Sta., Gograghat.

Type :- 'C'.

Object :—To study the effect of harvest at different stages of crop growth on the yield of Jute fibre.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Jute. (c) 200 mds./ac. of factory yard compost. (ii) (a) Sandy loam. (b) Refer soil analysis, Gograghat. (iii) 15.2.1959. (iv) (a) 6 ploughings each followed by planking. (b) Line sowing. (c) 6 lb./ac. (d) 1'×2" to 3". (e) N.A. (v) 200 mds./ac. of factory yard compost. (vi) J.R.C. 212 (late). (vii) Irrigated. (viii) 4 weedings, 8 hoeings and 1 thinning. (ix) 37.9". (x) As per treatments.

2. TREATMENTS :

9 dates of harvesting : D₁=90 days old crop (15.5.1959), D₂=105 days old crop (30.5.1959), D₃=120 days old crop (14.6.1959), D₄=135 days old crop (29.6.1959), D₅=150 days old crop (14.7.1959), D₆=10 days after water accumulation (10.8.1959), D₇=20 days after water accumulation (20.8.1959), D₈=30 days after water accumulation (2.9.1959) and D₉=At pod maturity stage (27.9.1959).

3. DESIGN :

(i) R.B.D. (ii) (a) 9. (b) 64'×64'. (iii) 6. (iv) (a) 20'×20'. (b) 18'×18'. (v) 1'×1'. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Attack of apion and semi-looper noticed. Folidol 0.01 %, Endrin 0.03 % and DDT were sprayed. (iii) Fibre yield. (iv) (a) 1959—contd. (b) Yes. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 978 lb./ac. (ii) 411.1 lb./ac. (iii) Treatment differences are highly significant. (iv) Av. yield of fibre in lb./ac.

Treatment	D ₁	D ₂	D ₃	D ₄	D ₅	D ₆	D ₇	D ₈	D ₉
Av. yield	178	173	498	620	683	1427	1605	1719	1898

S.E./mean = 167.8 lb./ac.

Crop :- Jute.**Ref :- U.P. 59(253).****Site :- Jute Res. Stn., Gograghat.****Type :- 'CV'.**

Object :—To study the effect of different depths of sowing against draught in high land on different varieties of Jute.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Jute. (c) 200 mds./ac. of factory yard compost. (ii) (a) Sandy loam. (b) Refer soil analysis, Gograghat. (iii) 14.3.1959. (iv) (a) 6 ploughings each followed by planking. (b) Line sowing. (c) 6 lb./ac. (d) 1' x 2" to 3". (e) N.A. (v) 200 mds./ac. of factory yard compost. (vi) As per treatments. (vii) Irrigated. (viii) 2 weedings and 3 hoeings. (ix) 37.9". (x) 21.9.1959.

2. TREATMENTS :**Main-plot treatments :**2 varieties : $V_1 = \text{J.R.C. 212}$ and $V_2 = \text{J.R.C. 321}$.**Sub-plot treatments :**4 depths of sowing : $D_1 = \frac{1}{2}"$, $D_2 = 1"$, $D_3 = 2"$ and $D_4 = 4"$.**3. DESIGN :**

(i) Split-plot. (ii) (a) 2 main-plots/replication ; 4 sub-plots/main-plot. (b) 46' x 42'. (iii) 2. (iv) (a) and (b) 20' x 10'. (v) Nil. (vi) Yes.

4. GENERAL :

(i) N.A. (ii) Apion and semi-looper attack. Folidol and Endrin were sprayed. (iii) Fibre yield. (iv) (a) 1959—contd. (b) Yes. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 314 lb./ac. (ii) (a) 282.1 lb./ac. (b) 92.9 lb./ac. (iii) Interaction $V \times D$ alone is significant. (iv) Av. yield of fibre in lb./ac.

	D_1	D_2	D_3	D_4	Mean
V_1	298	202	504	641	411
V_2	216	254	154	231	216
Mean	262	228	329	436	314

S.E. of difference of two

- | | |
|-----------------------------------|-----------------|
| 1. V marginal means | = 141.0 lb./ac. |
| 2. D marginal means | = 65.7 lb./ac. |
| 3. D means at the same level of V | = 92.9 lb./ac. |
| 4. V means at the same level of D | = 248.7 lb./ac. |

Crop :- Jute.**Ref :- U.P. 59(254).****Site :- Jute Res. Stn., Gograghat.****Type :- 'CV'.**

Object :—To study the effect of different depths of sowing against draught in high land on different varieties of Jute.

1. BASAL CONDITIONS to 3. DESIGN :

Same as in expt. no. 59(253) above.

4. GENERAL :

(i) Good. (ii) Semi-looper, apion and mite attack observed. DDT, Folidol, Endrin and Lime Sulphur solution sprayed. (iii) Yield of fibre. (iv) (a) 1959—contd. (b) Yes. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 2878 lb./ac. (ii) (a) 66.0 lb./ac. (b) 467.6 lb./ac. (iii) Main effect of V alone is highly significant. (iv) Av. yield of fibre in lb./ac.

	D ₁	D ₂	D ₃	D ₄	Mean
V ₁	2917	3611	3438	2977	3236
V ₂	2166	2802	2636	2480	2521
Mean	2542	3206	3037	2728	2878

S.E. of difference of two

1. V marginal means = 33.0 lb./ac.
2. D marginal means = 330.6 lb./ac.
3. D means at the same level of V = 467.6 lb./ac.
4. V means at the same level of D = 240.7 lb./ac.

Crop :- Jute.

Ref :- U.P. 59(255).

Site :- Jute Res. Stn., Gograhat.

Type :- 'CV'.

Object :- To study the effect of depth of sowing against draught in low land on different varieties of Jute.

1. BASAL CONDITIONS to 3. DESIGN :

Same as in expt. no. 59(253) on page 1435.

4. GENERAL :

(i) Good. (ii) Semi-loor, apion and mite attack observed. DDT, Folidol, Endrin and Lime Sulphur solution sprayed. (iii) Fibre yield. (iv) (a) 1959—contd. (b) Yes. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 1416 lb./ac. (ii) (a) 625.4 lb./ac. (b) 286.1 lb./ac. (iii) None of the effects is significant. (iv) Av. yield of fibre in lb./ac.

	D ₁	D ₂	D ₃	D ₄	Mean
V ₁	1625	1318	1335	1810	1522
V ₂	862	1304	1669	1402	1309
Mean	1244	1311	1502	1606	1416

S.E. of difference of two

1. V marginal means = 312.7 lb./ac.
2. D marginal means = 202.3 lb./ac.
3. D means at the same level of V = 286.1 lb./ac.
4. V means at the same level of D = 399.0 lb./ac.

Crop :- Jute.

Ref :- U.P. 59(551).

Site :- Tarai State Farm, Matkota.

Type :- 'D'.

Object :- To find out a suitable insecticide for hairy caterpillars on Jute.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Wheat. (c) N.A. (ii) (a) Sandy loam and clay loam. (b) Refer soil analysis, Matkota. (iii) 11.7.1959. (iv) to (x) N.A.

2. TREATMENTS :

4 insecticidal treatments: T_0 =Control (2 plots), T_1 =Dusting with Geigy kutra dust at 60 lb./ac., T_2 =Dusting with 2% Diazinon dust at 60 lb./ac. and T_3 =Dusting with 10% B.H.C. dust (Gammaxane D. 120) at 60 lb./ac.

Treatments dusted with Orient hand dusting machine on 17.9.1959.

3. DESIGN :

(i) R.B.D. (ii) (a) 5. (b) N.A. (iii) 2. (iv) (a) and (b) 80'×90.75'. (v) N.A. (vi) Yes.

4. GENERAL :

(i) N.A. (ii) Attack of hairy caterpillars. (iii) Population of surviving hairy caterpillars on 20.9.1959. (iv) (a) and (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 44.12 degrees. (ii) 2.38 degrees. (iii) Treatment differences are highly significant. (iv) Av. population of caterpillars in degrees.

Treatment	T_0	T_1	T_2	T_3
Mean angle	21.81	66.46	55.04	55.48
	S.E./mean (excluding T_0) = 1.68 degrees.			
	S.E. of T_0 mean = 1.19 degrees.			
Transformed back %	14.16	83.71	67.01	67.70

Crop :- Tobacco (*Rabi*).

Ref :- U.P. 56(479).

Site :- Govt. Tobacco Res. Stn., Saraimiran.

Type :- 'M'.

Object :— To study the effect of different levels of N, P and K on the yield and quality of Hookah Tobacco.

1. BASAL CONDITIONS :

(i) (a) Jowar—Arhar—Sonai—Tobacco. (b) Sonai. (c) Nil. (ii) (a) Sandy loam. (b) Refer soil analysis, Saraimiran. (iii) 15.9.1956. (iv) (a) 6 to 8 ploughings. (b) Transplanting. (c) N.A. (d) $1\frac{1}{2}' \times 1\frac{1}{2}'$. (e) 1. (v) Nil. (vi) N.P.S. 219 (medium). (vii) Irrigated. (viii) Frequent weedings and hoeings. (ix) and (x) N.A.

2. TREATMENTS :

All combinations of (1), (2) and (3)

(1) 3 levels of N as A/S : $N_0=0$, $N_1=50$ and $N_2=100$ lb./ac.

(2) 3 levels of P_2O_5 as Super : $P_0=0$, $P_1=25$ and $P_2=50$ lb./ac.

(3) 3 levels of K_2O as Pot. Sul. : $K_0=0$, $K_1=50$ and $K_2=100$ lb./ac.

3. DESIGN :

(i) Fact. in R.B.D. (ii) 27. (b) N.A. (iii) 2. (iv) (a) N.A. (b) 25.5'×21'. (v) N.A. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Nil. (iii) Plant number and yield of tobacco. (iv) (a) and (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 514 lb./ac. (ii) 209.2 lb./ac. (iii) Only P effect is significant. (iv) Av. yield of tobacco in lb./ac.

	P ₀	P ₁	P ₂	Mean	K ₀	K ₁	K ₂
N ₀	455	572	475	501	506	495	502
N ₁	449	415	559	474	462	576	385
N ₂	331	633	736	567	455	656	589
Mean	412	540	590	514	474	576	492
K ₀	378	549	495				
K ₁	512	506	710				
K ₂	345	566	566				

S.E. of any marginal mean = 49.3 lb./ac.
S.E. of body of any table = 85.4 lb./ac.

Crop :- Tobacco (Rabi).

Ref :- U.P. 58(490).

Site :- Govt. Tobacco Res. Stn., Saraimiran.

Type :- 'M'.

Object :—To find out a suitable dose of N for better yield and quality of Bidi Tobacco.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Wheat. (c) G.M. (ii) (a) Sandy loam. (b) Refer soil analysis, Saraimiran. (iii) 1.10.1958.
(iv) (a) N.A. (b) Transplanting. (c) N.A. (d) 3'×3'. (e) 1. (v) Nil. (vi) G. 6 (medium). (vii) Irrigated.
(viii) 3 hoeings and weedings by *khurpi*. (ix) 7.07". (x) 14 and 15 3.1959.

2. TREATMENTS :

5 levels of N as G.N.C. and A/S in 1 : 1 ratio : N₀=Control (no manure), N₁=80, N₂=120, N₃=160 and N₄=200 lb./ac.

G.N.C. applied as basal before transplanting and A/S applied as top dressing on 19.11.1958.

3. DESIGN :

(i) R.B.D. (ii) (a) 5. (b) N.A. (iii) 4. (iv) (a) and (b) 36'×27.5'. (v) Nil. (vi) Yes.

4. GENERAL :

(i) Satisfactory. (ii) Nil. (iii) No. of plants per plot at planting and maturity, height of plants, no. of leaves per plant, internode length, length and breadth of leaf, % of spangle formation and yield of tobacco.
(iv) (a) 1958—1960. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 1090 lb./ac. (ii) 230.5 lb./ac. (iii) Treatment differences are not significant. (iv) Av. yield of tobacco in lb./ac.

Treatment	N ₀	N ₁	N ₂	N ₃	N ₄
Av. yield	874	1022	1046	1147	1359

S.E./mean = 115.2 lb./ac.

Crop :- Tobacco (Rabi).

Ref :- U.P. 59(536).

Site :- Govt. Tobacco Res. Stn., Saraimiran.

Type :- 'M'.

Object :—To find out a suitable dose of N for better yield and quality of Bidi Tobacco.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) and (c) N.A. (ii) (a) Sandy loam. (b) Refer soil analysis, Saraimiran. (iii) 12.10.1959.
(iv) (a) 6 to 8 ploughings. (b) Transplanting. (c) N.A. (d) 3'×3'. (e) 1. (v) Nil. (vi) G. 6 (medium).
(vii) Irrigated. (viii) 3 hoeings and weedings by *khurpi*. (ix) N.A. (x) 17 and 18.3.1960.

2. TREATMENTS and 3. DESIGN :

Same as in expt. no 58(490) on page 1438.

4. GENERAL :

(i) Good. (ii) Nil. (iii) Plant number and yield of cured leaves. (iv) (a) 1958—1960. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 1000 lb./ac. (ii) 130.5 lb./ac. (iii) Treatment differences are highly significant. (iv) Av. yield of tobacco in lb./ac.

Treatment	N ₀	N ₁	N ₂	N ₃	N ₄
Av. yield	622	877	1044	1205	1253

S.E./mean = 65.3 lb./ac.

Crop :- Tobacco (Rabi).**Ref :- U.P. 58(489).****Site :- Govt. Tobacco Res. Stn., Saraimiran.****Type :- 'M'.****Object :—**To find out the effect of different levels of hornscrap and A/S and their combination on the yield and quality of Chewing Tobacco.**1. BASAL CONDITIONS :**(i) (a) Nil. (b) Tobacco. (c) 10 C.L. of F.Y.M. (ii) (a) Sandy loam. (b) Refer soil analysis, Saraimiran. (iii) 30.9.1958. (iv) (a) N.A. (b) Transplanting. (c) N.A. (d) 2.5' × 2.5'. (e) 1. (v) Nil. (vi) N.P. 31 (medium). (vii) Irrigated. (viii) 3 hoeings and weedings by *khurpi*. (ix) 7.07". (x) 4 and 6.3.1959.**2. TREATMENTS :**

All combinations of (1) and (2) + a control

(1) 3 sources of N : S₁=A/S, S₂=Hornscrap and S₃=½ as A/S and ½ as hornscrap.(2) 2 levels of N : N₁=100 and N₂=150 lb./ac. of N.

Hornscrap was applied as basal before planting and A/S as top dressing on 18.11.1958.

3. DESIGN :

(i) R.B.D. (ii) (a) 7. (b) N.A. (iii) 3. (iv) (a) and (b) 40' × 20'. (v) Nil. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Nil. (iii) No. of plants at the time of planting and maturity, height of plants, no. of leaves per plant, internode length, length and breadth of leaf and yield of tobacco. (iv) (a) 1958—1960. (b) N.A. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 1548 lb./ac. (ii) 160.0 lb./ac. (iii) N and 'control vs. others' effects are highly significant. F effect and interaction F × N are not significant. (iv) Av. yield of tobacco in lb./ac.

Control = 1029 lb./ac.

	S ₁	S ₂	S ₃	Mean
N ₁	1526	1400	1622	1516
N ₂	1750	1690	1820	1753
Mean	1638	1545	1721	1635

S.E. of S marginal mean = 65.3 lb./ac.

S.E. of N marginal mean = 53.3 lb./ac.

S.E. of body of table or control mean = 92.4 lb./ac.

Crop :- Tobacco (*Rabi*).

Ref :- U.P. 59(535).

Site :- Govt. Tobacco Res. Stn., Saraimiran.

Type :- 'M'.

Object:—To find out the effect of different levels of hornscrap and A/S and their combination on the yield and quality of Chewing Tobacco.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) and (c) N.A. (ii) (a) Sandy loam. (b) Refer soil analysis, Saraimiran. (iii) 25.11.1959
(iv) (a) 6 to 8 ploughings. (b) Transplanting. (c) N.A. (d) 2.5'×2.5'. (e) 1. (v) Nil. (vi) N.P. 31 (medium).
(vii) Irrigated. (viii) 3 hoeings and weedings by *khurpi*. (ix) N.A. (x) 2 and 3.3.1960.

2. TREATMENTS :

All combinations of (1) and (2)+a control

(1) 3 sources of N : $S_1=A/S$, $S_2=Hornscrap$ and $S_3=\frac{1}{2}$ as A/S and $\frac{1}{2}$ as hornscrap.

(2) 2 levels of N : $N_1=100$ and $N_2=150$ lb./ac. of N.

Hornscrap applied before planting. A/S applied as top dressing after one month of planting.

3. DESIGN :

(i) R.B.D. (ii) (a) 7. (b) N.A. (iii) 3. (iv) (a) and (b) 40'×20'. (v) Nil. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Nil. (iii) Plant number and yield of tobacco. (iv) (a) 1958—1960. (b) N.A. (c) Nil. (v) to (vii) Nil.

5. RESULTS .

(i) 562 lb./ac. (ii) 100.8 lb./ac. (iii) F, N and 'control vs. others' effects are all highly significant. Interaction $S \times N$ is not significant. (iv) Av. yield of tobacco in lb./ac.

Control = 161 lb./ac.

	S_1	S_2	S_3	Mean
N_1	430	509	598	512
N_2	572	747	822	747
Mean	501	628	760	629

S.E. of S marginal mean = 41.1 lb./ac.

S.E. of N marginal mean = 33.6 lb./ac.

S.E. of body of table or control mean = 58.2 lb./ac.

Crop :- Tobacco (*Rabi*).

Ref :- U.P. 59(534).

Site :- Govt. Tobacco Res. Stn., Saraimiran.

Type :- 'M'.

Object:—To find out optimum dose of N for Hookah Tobacco.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) and (c) N.A. (ii) (a) Sandy loam. (b) Refer soil analysis, Saraimiran. (iii) 27.10.1959. (iv) (a) 6 to 8 ploughings. (b) Transplanting. (c) N.A. (d) 1.5'×1.5'. (e) 1. (v) Nil. (vi) N.P.S. 219 (medium). (vii) Irrigated. (viii) 3 hoeings and weedings by *khurpi*. (ix) N.A. (x) 3.3.1960.

2. TREATMENTS :

4 levels of N as castor cake and A/S in 1 : 1 ratio : $N_1=100$, $N_2=200$, $N_3=300$ and $N_4=400$ lb./ac.

3. DESIGN :

(i) R.B.D. (ii) (a) 4. (b) N.A. (iii) 3. (iv) (a) and (b) 15'×24'. (v) Nil. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Nil. (iii) Plant number and yield of cured leaves. (iv) (a) 1959—N.A. (b) N.A. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 1462 lb./ac. (ii) 259.0 lb./ac. (iii) Treatment differences are not significant. (iv) Av. yield of tobacco in lb./ac.

Treatment	N ₁	N ₂	N ₃	N ₄
Av. yield	1088	1566	1545	1649

S.E./mean = 149.6 lb./ac.

Crop :- Tobacco (*Rabi*).

Ref :- U.P. 59(543).

Site :- Govt. Tobacco Res. Stn., Saraimiran.

Type :- 'M'.

Object :—To study the effect of different levels of A/S and Potassium Nitrate and their combination on the yield and quality of Hookah Tobacco.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) and (c) N.A. (ii) (a) Sandy loam. (b) Refer soil analysis, Saraimiran. (iii) 27.10.1959. (iv) (a) 6 to 8 ploughings. (b) Transplanting. (c) N.A. (d) 1.5'×1.5'. (e) 1. (v) Nil. (vi) N.P.S. 219 (medium). (vii) Irrigated. (viii) Frequent hoeings and weedings. (ix) N.A. (x) 2 and 3.3.1960.

2. TREATMENTS :

All combinations of (1) and (2) + a control

(1) 3 sources of N : S₁=A/S, S₂=Pot. Nitrate and S₃= $\frac{1}{2}$ as A/S + $\frac{1}{2}$ as Pot. Nitrate.

(2) 2 levels of N : N₁=50 and N₂=100 lb./ac.

3. DESIGN :

(i) R B D. (ii) (a) 7. (b) N.A. (iii) 4. (iv) (a) 27'×27'. (b) 25.5'×25.5'. (v) N.A. (vi) Yes.

4. GENERAL :

(i) Normal. (ii) Nil. (iii) Plant number and yield of cured leaves. (iv) (a) 1959—N.A. (b) N.A. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 450 lb./ac. (ii) 113.1 lb./ac. (iii) S effect and 'control vs. others' are highly significant. (iv) Av. yield of tobacco in lb./ac.

Control = 73.2 lb./ac.

	S ₁	S ₂	S ₃	Mean
N ₁	298	461	734	498
N ₂	386	492	707	528
Mean	342	476	720	513

S.E. of S marginal mean = 40.0 lb./ac.

S.E. of N marginal mean = 32.6 lb./ac.

S.E. of body of table or control mean = 56.5 lb./ac.

Crop :- Tobacco (*Rabi*).

Ref :- U.P. 59(338).

Site :- Govt. Tobacco Res. Stn., Saraimiran.

Type :- 'M'.

Object :- To study the effect of different sources of N on the yield and quality of Hookah Tobacco.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) *Jowar*. (c) N.A. (ii) (a) Sandy loam. (b) Refer soil analysis, Saraimiran. (iii) 24 and 25.10.1959. (iv) (a) 1 ploughing by Victory plough, 6 ploughings by *desi* plough followed by planking and hoeing. (b) Transplanting. (c) N.A. (d) 1.5' x 1.5'. (e) 1. (v) Nil. (vi) N.P.S. 219. (vii) Irrigated. (viii) Gap filling, weeding and hoeings as and when necessary + 4 toppings and 4 suckering. (ix) 0.3". (x) 27.2 1960.

2. TREATMENTS :

7 nitrogenous fertilizers : N_0 =Control, N_1 =50 lb./ac. of N as A/S, N_2 =50 lb./ac. of N as Pot. nitrate, N_3 =25 lb./ac. of N as A/S + 25 lb./ac. of N as Pot. nitrate, N_4 =100 lb./ac. of N as A/S, N_5 =100 lb./ac. of N as Pot. nitrate and N_6 =50 lb./ac. of N as A/S + 50 lb./ac. of Pot. nitrate.

Fertilizers applied in two split doses on 20.11.1959 and 29.12.1959.

3. DESIGN :

(i) R.B.D. (ii) (a) 7. (b) 201' x 122'. (iii) 4. (iv) (a) 27' x 27'. (b) 24' x 24'. (v) 1.5' x 1.5'. (vi) Yes.

4. GENERAL :

(i) N.A. (ii) Stem rot was noticed to some extent. Plot not receiving Potassium nitrate showed sign of Potassium deficiency. *Orobanche* attack in all plots. (iii) Height of plants, no. of leaves, wt. of unit area, population count and yield of tobacco. (iv) (a) 1959—N.A. (b) No. (c) Nil. (v) (a) and (b) N.A. (vi) Water logging. (vii) Nil.

5. RESULTS :

(i) 3221 lb./ac. (ii) 693.4 lb./ac. (iii) Treatment differences are highly significant. (iv) Av. yield of green leaves in lb./ac.

Treatment	N_0	N_1	N_2	N_3	N_4	N_5	N_6
Av. yield	635	2587	3438	3063	3515	5048	4259

S.E./mean = 346.7 lb./ac.

Crop :- Tobacco (*Kharif*).

Ref :- U.P. 56(2).

Site :- Govt. Tobacco Res. Stn., Saraimiran.

Type :- 'M'.

Object :- To find out a suitable combinations of N and P for higher yields of Hookah Tobacco.

1. BASAL CONDITIONS :

(i) (a) Cotton—Fallow—Cotton—Tobacco. (b) Cotton. (c) 100 C.L./ac. of F.Y.M. and 10 mds./ac. of castor cake. (ii) (a) N.A. (b) Refer soil analysis, Saraimiran. (iii) 24.3 1956. (iv) (a) Ploughing by soil turning plough, and planking was given. (b) Transplanting. (c) to (e) N.A. (v) Nil. (vi) Local. (vii) Irrigated. (viii) Weedings every fortnight, topping and suckering. (ix) 6.95". (x) June, 1956.

2. TREATMENTS :

All combinations of (1) and (2)

(1) 3 levels of N as A/S : $N_0=0$, $N_1=50$ and $N_2=100$ lb./ac.

(2) 3 levels of P_2O_5 as Super : $P_0=0$, $P_1=25$ and $P_2=50$ lb./ac.

3. DESIGN :

(i) Fact. in R.B.D. (ii) (a) 9. (b) N.A. (iii) 4. (iv) (a) and (b) 40.5' x 10.5'. (v) Nil. (vi) Yes.

4. GENERAL :

(i) Satisfactory. (ii) Attack of mosaic and wilt. Affected plants were removed. (iii) Yield of tobacco leaves. (iv) (a) 1956—contd. (b) No. (c) Nil. (v) (a) and (b) No. (vi) and (vii) Nil.

5. RESULTS :

(i) 1196 lb./ac. (ii) 302.2 lb./ac. (iii) Main effect of N alone is highly significant. (iv) Av. yield of tobacco in lb./ac.

	P ₀	P ₁	P ₂	Mean
N ₀	468	502	635	535
N ₁	1105	1192	1478	1258
N ₂	1707	1796	1880	1796
Mean	1093	1163	1331	1196

S.E. of any marginal mean = 87.2 lb./ac.
S.E. of body of table = 151.1 lb./ac.

Crop :- Tobacco (*Rabi*).

Ref :- U.P. 57(13).

Site :- Govt. Tobacco Res. Stn., ...

Type :- 'M'.

Object :- To find out a suitable combination of N and P for higher yield of Hookah Tobacco.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Tobacco. (c) *Sanai* (G.M.). (ii) (a) Sandy loam. (b) Refer soil analysis, Saraimiran. (iii) 9.11.1957. (iv) (a) 2 ploughings by Victory plough and 2 with *desi* plough. (b) Transplanting. (c) to (e) N.A. (v) G.M. with *sanai*. (vi) N.P.S. 219 (medium). (vii) Irrigated. (viii) Hoeing and weeding. (ix) 1.22". (x) 29.3.1958.

2. TREATMENTS :

Same as in expt. no. 56(2) on page 1442.

3. DESIGN :

(i) Fact. in R.B.D. (ii) (a) 9. (b) N.A. (iii) 4. (iv) (a) and (b) 72.5' × 10½'. (v) Nil. (vi) Yes.

4. GENERAL :

(i) Satisfactory. (ii) Nil. (iii) Plant stand and yield of tobacco. (iv) (a) 1957—1958. (b) Yes. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 842 lb./ac. (ii) 146.7 lb./ac. (iii) N and P effects are highly significant and interaction is not significant. (iv) Av. yield of tobacco in lb./ac.

	P ₀	P ₁	P ₂	Mean
N ₀	674	574	599	616
N ₁	934	765	925	875
N ₂	1208	894	1002	1035
Mean	939	744	842	842

S.E. of any marginal mean = 42.3 lb./ac.
S.E. of body of table = 73.3 lb./ac.

Crop :- Tobacco (*Rabi*).

Ref :- U.P. 58(491).

Site :- Govt. Tobacco Res. Stn., Saraimiran.

Type :- 'M'.

Object :- To find out a suitable combination of N and P for higher yield of Hookah tobacco.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Tobacco. (c) As per treatments. (ii) (a) Sandy loam. (b) Refer soil analysis, Saraimiran. (iii) 8 and 9.11.1958. (iv) (a) N.A. (b) Transplanting. (c) N.A. (d) 1.5'×1.5'. (e) 1. (v) Nil. (vi) N.P. S. 219 (medium). (vii) Irrigated. (viii) 3 hoeings and weedings by *khurpi*. (ix) 2.5'. (x) 2 and 3.3.1959.

2. TREATMENTS :

Same as in expt. no. 56(2) on page 1442.

3. DESIGN :

(i) Fact. in R.B.D. (ii) (a) 9. (b) N.A. (iii) 4. (iv) (a) and (b) 70.5'×10.5'. (v) Nil. (vi) Yes.

4. GENERAL :

(i) Satisfactory. (ii) Nil. (iii) No. of plants per plot at the time of planting and maturity. Height of plants no. of leaves per plant, internode length, length and breadth of leaf and yield of cured leaves. (iv) (a) 1957—1958. (b) Yes. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 1646 lb./ac. (ii) 339.5 lb./ac. (iii) Only N effect is highly significant. (iv) Av. yield of tobacco in lb./ac.

	P ₀	P ₁	P ₂	Mean
N ₀	1475	969	1180	1208
N ₁	1604	1506	1693	1601
N ₂	2242	2079	2062	2128
Mean	1774	1518	1645	1646

S.E. of any marginal mean = 98.0 lb./ac.
S.E. of body of table = 169.8 lb./ac.

Crop :- Tobacco (*Kharif*).

Ref :- U.P. 55(398).

Site :- Govt. Cotton Res. Stn., Bulandshahr.

Type :- 'C'.

• Object :—To find out the most suitable time of planting and spacing for Hookah Tobacco.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Sugarcane. (c) N.A. (ii) (a) Sandy loam. (b) Refer soil analysis, Bulandshahr. (iii) As per treatments. (iv) (a) 2 ploughings by *desi* plough. (b) Transplanting. (c) N.A. (d) As per treatments. (e) 1. (v) 8 C.L./ac. of F.Y.M. before planting. (vi) N.P. S. 219 (medium). (vii) Irrigated. (viii) 7 weedings and hoeings. (ix) 1.30'. (x) 5, 6, 20 and 28.6.1956.

2. TREATMENTS :

Main-plot treatments :

3 dates of planting : D₁=5th March, D₂=15th March and D₃=25th March 1955.

Sub-plot treatments :

4 spacings : S₁=18"×9", S₂=18"×12", S₃=18"×15" and S₄=18"×18".

3. DESIGN :

(i) Split-plot. (ii) (a) 3 main-plots/replication ; 4 sub-plots/main-plot. (b) 82'×69'. (iii) 3. (iv) (a) N.A. (b) 27'×15'. (v) N.A. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Nil. (iii) Yield of stalks, cured leaves and plant numbers. (iv) (a) 1955—1957. (b) No. (c) Nil. (v) (a) Saraimiran. (b) Nil. (vi) and (vii) Nil.

5. RESULTS .

(i) 1184 lb./ac. (ii) (a) 257.9 lb./ac. (b) 356.7 lb./ac. (iii) Only D effect is highly significant, (iv) Av. yield of tobacco in lb./ac.

	S ₁	S ₂	S ₃	S ₄	Mean
D ₁	1560	1407	1786	1132	1471
D ₂	1488	1318	1069	1291	1292
D ₃	1076	986	506	587	789
Mean	1375	1237	1120	1003	1184

S.E. of difference of two

1. D marginal means = 105.3 lb./ac.
2. S marginal means = 168.2 lb./ac.
3. S means at the same level of D = 291.3 lb./ac.
4. D means at the same level of S = 273.3 lb./ac.

Crop :- Tobacco (*Kharif*).

Ref :- U.P. 56(480).

Site :- Govt. Cotton Res. Stn., Bulandshahr.

Type :- 'C'.

Object :—To find out the most suitable time of planting and spacing for Hookah Tobacco.

1. BASAL CONDITIONS:

(i) (a) *Sanai*—Tobacco. (b) *Sanai*. (c) Nil. (ii) (a) Sandy loam. (b) Refer soil analysis, Bulandshahr. (iii) As per treatments. (iv) (a) Ploughings by *desi* plough. (b) Transplanting. (c) Nil. (d) As per treatments. (e) 1. (v) 160 mds./ac. of F.Y.M. and 8 mds./ac. of castor cake applied before transplanting. (vi) N.P.S. 219 (medium). (vii) Irrigated. (viii) Weeding and interculture, removal of suckers, branches and flowers. (ix) 2.03". (x) N.A.

2. TREATMENTS:

Main-plot treatments :

3 dates of planting : D₁=8th March, D₂=23rd March and D₃=7th April 1956.

Sub-plot treatments :

4 spacings : S₁=18"×9", S₂=18"×12", S₃=118"×5" and S₄=18"×18".

3. DESIGN:

(i) Split plot. (ii) (a) 3 main-plots/replication ; 4 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) 27'×15', (b) 25.50'×12' for S₁, 25.00'×12' for S₂, 23.75'×12' for S₃ and 24'×12' for S₄. (v) Varying. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Nil. (iii) Yield of cured leaves and stalk. Number of plants at transplanting and maturity and height of plants. (iv) (a) 1935—1957. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 1441 lb./ac. (ii) (a) 316.8 lb./ac. (b) 195.9 lb./ac. (iii) No effect is significant. (iv) Av. yield of tobacco in lb./ac.

	S ₁	S ₂	S ₃	S ₄	Mean
D ₁	1566	1399	1362	1400	1432
D ₂	1379	1527	1564	1375	1461
D ₃	1283	1416	1500	1527	1431
Mean	1409	1447	1475	1434	1441

S.E. of difference of two

1. D marginal means	= 112.0 lb./ac.
2. S marginal means	= 80.0 lb./ac.
3. S means at the same level of D	= 138.5 lb./ac.
4. D means at the same level of S	= 164.1 lb./ac.

Crop :- Tobacco (Kharif).

Ref :- U.P. 58(12).

Site :- Govt. Tobacco Res. Stn., Bulandshahr.

Type :- 'C'.

Object :- To find out the most suitable time for planting and spacing for Hookah Tobacco.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Peas. (c) Nil. (ii) (a) Sandy loam. (b) Refer soil analysis, Bulandshahr. (iii) As per treatments. (iv) (a) 6 ploughings followed by planking. (b) Transplanting. (c) N.A. (d) As per treatments. (e) N.A. (v) 6 C.L. of F.Y.M. applied in March. (vi) N.P.S. 219 (medium). (vii) Irrigated. (viii) 7 hand hoeings and weedings with *khurpi*. (ix) N.A. (x) 16, 17, 23 and 30.6.1958.

2. TREATMENTS :

Main-plot treatments :

3 dates of transplanting : $D_1=21$ st March, $D_2=4$ th April and $D_3=18$ th April 1958.

Sub-plot treatments :

4 spacings : $S_1=18'' \times 9''$, $S_2=18'' \times 12''$, $S_3=18'' \times 15''$ and $S_4=18'' \times 18''$.

3. DESIGN :

(i) Split-plot. (ii) (a) 3 main-plots/block : 4 sub-plots/main-plot. (b) N.A. (iii) 3. (iv) (a) $28.5' \times 16.5'$. (b) $27' \times 15'$. (v) N.A. (vi) Yes.

4. GENERAL :

(i) Satisfactory. (ii) Mild attack of mosaic and stem borer, severe attack of wilt. (iii) Plant stand and yield of tobacco. (iv) (a) 1955—1957. (b) No. (c) Nil. (v) (a) Saraimiran. (b) Nil. (vi) and (vii) Nil.

5. RESULTS :

(i) 1059 lb./ac. (ii) (a) 228.3 lb./ac. (b) 199.0 lb./ac. (iii) None of the effects is significant. (iv) Av. yield of tobacco in lb./ac.

	S_1	S_2	S_3	S_4	Mean
D_1	1369	1170	1121	1060	1180
D_2	1811	1150	1035	1049	1104
D_3	1002	986	796	791	894
Mean	1184	1102	884	967	1059

S.E. of difference of two

1. D marginal means	= 93.2 lb./ac.
2. S marginal means	= 93.8 lb./ac.
3. S means at the same level of D	= 162.5 lb./ac.
4. D means at the same level of S	= 168.8 lb./ac.

Crop :- Tobacco (Kharif).

Ref :- U.P. 55(1).

Site :- Govt. Tobacco Res. Stn., Saraimiran.

Type :- 'C'.

Object :- To find out the most suitable time of planting and spacing for Hookah Tobacco.

1. BASAL CONDITIONS :

(i) (a) *Sanai*—Fallow—*Sanai* and *patsan*—Tobacco. (b) *Sanai* and *patsan* for seed. (c) Nil. (ii) (a) N.A. (b) Refer soil analysis, Saraimiran. (iii) As per treatments. (iv) (a) 1 ploughing with soil turning plough and 7 ploughings with *desi* plough. (b) Transplanting. (c) to (e) N.A. (v) Nil. (vi) Farrukhabad local. (vii) Irrigated. (viii) Weeding at fortnightly interval. Uprooting of '*orobanche*,' topping and suckering. (ix) 6.95". (x) June, 1956.

2. TREATMENTS :

Main-plot treatments :

3 dates of transplanting : $D_1=1\text{st}$ of March, $D_2=15\text{th}$ March and $D_3=1\text{st}$ April 1955.

Sub-plot treatments :

4 spacings between plants : $S_1=9"$, $S_2=12"$, $S_3=15"$ and $S_4=18"$.

3. DESIGN :

(i) Split-plot. (ii) (a) 3 main-plots/replication ; 4 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) and (b) $40' \times 7.5'$. (v) Nil. (vi) Yes.

4. GENERAL :

(i) Satisfactory. (ii) Slight attack of mosaic and wilt. Removed the affected plants. (iii) Yield of cured leaves, and no. of plants. (iv) (a) 1955—contd. (b) No. (c) Nil. (v) (a) and (b) No. (vi) and (vii) Nil.

5. RESULTS :

(i) 1247 lb./ac. (ii) (a) 852.3 lb./ac. (b) 833.4 lb./ac. (iii) None of the effects is significant. (iv) Av. yield of tobacco in lb./ac.

	S_1	S_2	S_3	S_4	Mean
D_1	1412	1108	985	1689	1299
D_2	1013	1125	2184	1027	1337
D_3	1640	1190	705	882	1104
Mean	1355	1141	1291	1199	1247

S.E. of difference of two

- | | |
|-----------------------------------|-----------------|
| 1. D marginal means | = 294.3 lb./ac. |
| 2. S marginal means | = 340.2 lb./ac. |
| 3. S means at the same level of D | = 589.3 lb./ac. |
| 4. D means at the same level of S | = 591.7 lb./ac. |

Crop :- Tobacco (*Rabi*).

Ref :- U.P. 56(16).

Site :- Govt. Tobacco Res. Stn., Saraimiran.

Type :- 'C'.

Object :—To find out the most suitable time of planting and spacing for Hookah Tobacco.

1. BASAL CONDITIONS :

(i) (a) *Sanai*—Wheat—*Sanai*—Tobacco. (b) *Sanai*. (c) No. (ii) (a) Sandy loam. (b) Refer soil analysis, Saraimiran. (iii) As per treatments. (iv) (a) Ploughing with soil turning plough and country plough. (b) Transplanting. (c) N.A. (d) As per treatments. (e) N.A. (v) 6 mds./ac. of castor cake applied before transplanting. (vi) N.P.S. 219. (vii) Irrigated. (viii) Weeding, hoeing, topping and suckering. (ix) 4.35". (x) N.A.

2. TREATMENTS :

Main-plot treatments :

3 dates of sowing : $D_1=25\text{th}$ October, $D_2=10\text{th}$ November and $D_3=25\text{th}$ November 1956.

Sub-plot treatments :

3 spacings : $S_1=18" \times 12"$, $S_2=18" \times 18"$ and $S_3=18" \times 24"$.

3. DESIGN :

(i) Split-plot (ii) (a) 3 main-plots/replication ; 3 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) and (b) $22.5' \times 24'$. (v) Nil. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Nil. (iii) Yield of cured leaves and stalk were taken. (iv) (a) 1956—1957. (b) No. (c) Nil. (v) (a) and (b) No. (vi) and (vii) Nil.

5. RESULTS :

(i) 947 lb./ac. (ii) (a) 298.4 lb./ac. (b) 288.0 lb./ac. (iii) Only D effect is highly significant. (iv) Av. yield of tobacco in lb./ac.

	S ₁	S ₂	S ₃	Mean
D ₁	1409	1272	1538	1407
D ₂	931	772	847	850
D ₃	647	573	528	583
Mean	996	872	971	947

S.E. of difference of two

1. D marginal means = 121.8 lb./ac.
2. S marginal means = 117.5 lb./ac.
3. S means at the same level of D = 203.6 lb./ac.
4. D means at the same level of S = 206.1 lb./ac.

Crop :- Tobacco (Rabi).

Ref :- U.P. 57(511).

Site :- Govt. Tobacco Res. Stn., Saraimiran.

Type :- 'C'.

Object :—To find out the most suitable time of planting and spacing for Hookah Tobacco.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Wheat. (c) *Sanai* (G.M.). (ii) (a) Sandy loam. (b) Refer soil analysis, Saraimiran. (iii) As per treatments. (iv) (a) N.A. (b) Transplanting. (c) N.A. (d) As per treatments. (e) I. (v) *Sanai* (G.M.). 10 mds./ac. of G.N.C. applied on 16.11.1957. (vi) N.P.S. 219 (medium). (vii) Irrigated. (viii) 2 weedings and hoeings by *khurpi*. (ix) 1.22". (x) 15, 17 and 21.4.1958.

2. TREATMENTS :

Main-plot treatments :

3 planting dates : D₁=25.10.1957, D₂=10.11.1957 and D₃=25.11.1957.

Sub-plot treatments :

3 spacings : S₁=18"×12", S₂=18"×18" and S₃=18"×24".

3. DESIGN :

(i) Split-plot. (ii) (a) 3 main-plots/replication ; 3 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) and (b) 22.5'×36'. (v) Nil. (vi) Yes.

4. GENERAL :

(i) Satisfactory. (ii) Leaf spot. Bordeaux mixture (2 : 2 : 50) was sprayed. (iii) Height, length and breadth of leaf, no. of leaves, internodes no. of plants and yield of tobacco. (iv) (a) 1956—1957. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 1068 lb./ac. (ii) (a) 321.8 lb./ac. (b) 236.2 lb./ac. (iii) Only D effect is significant. (iv) Av. yield of tobacco in lb./ac.

	S ₁	S ₂	S ₃	Mean
D ₁	1556	1490	965	1337
D ₂	983	966	1018	989
D ₃	869	986	783	879
Mean	1136	1147	922	1068

S.E. of difference of two

1. D marginal means	= 131.4 lb./ac.
2. S marginal means	= 96.4 lb./ac.
3. S means at the same level of D	= 167.0 lb./ac.
4. D means at the same level of S	= 189.4 lb./ac.

Crop :- Tobacco (Kharif).

Ref :- U.P. 57(512).

Site :- Govt. Tobacco Res. Stn., Saraimiran.

Type :- 'C'.

Object :- To find out the most suitable time of planting and spacing for Hookah Tobacco.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) *Jowar*. (c) Nil. (ii) (a) Sandy loam. (b) Refer soil analysis, Saraimiran. (iii) As per treatments. (iv) (a) N.A. (b) Transplanting. (c) N.A. (d) As per treatments. (e) 1. (v) 4 C.L./ac. of F.Y.M. + 20 mds./ac. of decorticated G.N.C. before transplanting. (vi) Farrukhabad local (medium). (vii) Irrigated. (viii) 5 hoeings and weedings with *khurpi*. (ix) 1.54". (x) 16 to 26.6.1958.

2. TREATMENTS :

Main-plot treatments :

3 dates of planting : $D_1=11$ th March, $D_2=26$ th March and $D_3=10$ th April, 1958.

Sub-plot treatments :

4 spacings : $S_1=18'' \times 9''$, $S_2=18'' \times 12''$, $S_3=18'' \times 15''$ and $S_4=18'' \times 18''$.

3. DESIGN :

(i) Split-plot. (ii) (a) 3 main-plots/replication ; 4 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) and (b) $13.5' \times 30'$. (v) Nil. (vi) Yes.

4. GENERAL :

(i) Satisfactory. (ii) Nil. (iii) No. of plants at transplanting and maturity. Height, growth, no. of leaves per plant, length, breadth of leaf and yield of tobacco. (iv) (a) 1955—1957. (b) No. (c) Nil. (v) (a) Bulandshahr. (b) Nil. (vi) Nil. (vii) Results and details of expt. conducted during 1956 not available.

5. RESULTS :

(i) 805 lb./ac. (ii) (a) 322.5 lb./ac. (b) 231.2 lb./ac. (iii) None of the effects is significant. (iv) Av. yield of tobacco in lb./ac.

	S_1	S_2	S_3	S_4	Mean
D_1	799	930	786	652	792
D_2	752	716	752	703	731
D_3	1143	841	862	728	893
Mean	898	829	800	694	805

S.E. of difference of two

1. D marginal means	= 114.0 lb./ac.
2. S marginal means	= 94.4 lb./ac.
3. S means at the same level of D	= 163.5 lb./ac.
4. D means at the same level of S	= 181.8 lb./ac.

Crop :- Tobacco (Rabi).

Ref :- U.P. 58(488).

Site :- Govt. Tobacco Res. Stn., Saraimiran.

Type :- 'C'.

Object :- To find out the suitable level of topping for better yield in Hookah Tobacco.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Sugarcane. (c) 7.5 C.L./ac. of F.Y.M. and 7.5 mds./ac. of G.N.C. (ii) (a) Sandy loam. (b) Refer soil analysis, Saraimiran. (iii) 5.11.1958. (iv) (a) N.A. (b) Transplanting. (c) N.A. (d) 1.5'×1.5'. (e) 1. (v) 5 C.L./ac. of F.Y.M. and 1 md./ac. of G.N.C. before planting. 9 srs./ac. of A/S as top dressing on 21.11.1958 and 4 srs./ac. of A/S as top dressing on 22.12.1958. (vi) N.P.S. 219 (medium). (vii) Irrigated. (viii) Hoeings and weedings were done twice by *khurpi*. (ix) 2.5". (x) 17.3.1959.

2. TREATMENTS :

3 stages of leaf topping : T_0 =Control (no topping), T_1 =6th to 8th and T_2 =8th to 10th leaf stage.

3. DESIGN :

(i) R.B.D. (ii) (a) 3. (b) N.A. (iii) 3. (iv) (a) and (b) 24'×21'. (v) Nil. (vi) Yes.

4. GENERAL :

(i) Satisfactory. (ii) Nil. (iii) No. of plants at planting and maturity and yield of tobacco. (iv) (a) 1958—contd. (modified in 1959). (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 1376 lb./ac. (ii) 208.5 lb./ac. (iii) Treatment differences are significant. (iv) Av. yield of tobacco in lb./ac.

Treatment	T_0	T_1	T_2
Av. yield	1008	1463	1657

S.E./mean = 120.4 lb./ac.

Crop :- Tobacco (Rabi).

Ref :- U.P. 59(532).

Site :- Govt. Tobacco Res. Stn., Saraimiran.

Type :- 'C'.

Object :— To find out the suitable level of topping for better yield in Hookah Tobacco.

1. BASAL CONDITIONS .

(i) (a) Nil. (b) and (c) N.A. (ii) (a) Sandy loam. (b) Refer soil analysis, Saraimiran. (iii) 27.10.1959. (iv) (a) 6 to 8 ploughings. (b) Transplanting. (c) N.A. (d) 1.5'×1.5'. (e) 1. (v) 10 C.L./ac. of F.Y.M. before sowing, 2 mds./ac. of G.N.C. and 26 srs./ac. of A/S as top dressing. (vi) N.P.S. 219 (medium). (vii) Irrigated. (viii) Hoeings and weedings. (ix) N.A. (x) 8.3.1960.

2. TREATMENTS :

3 stages of leaf topping : T_1 =6th, T_2 =8th and T_3 =10th leaf stage.

3. DESIGN :

(i) R.B.D. (ii) (a) 3. (b) N.A. (iii) 4. (iv) (a) and (b) 21'×12'. (v) Nil. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Nil. (iii) No. of plants and yield of tobacco. (iv) (a) 1958—contd. (modified in 1959). (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 1437 lb./ac. (ii) 149.6 lb./ac. (iii) Treatment differences are not significant. (iv) Av. yield of tobacco in lb./ac.

Treatment	T_1	T_2	T_3
Av. yield	1284	1416	1611

S.E./mean = 74.9 lb./ac.

Crop :- Tobacco (Rabi).**Ref :- U.P. 58(487).****Site :- Govt. Tobacco Res. Sta., Saraimiran.****Type :- 'C'.**

Object :— To find out the suitable level of topping for better yield in Chewing Tobacco.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Sugarcane. (c) 7.5 C.L./ac. of F.Y.M. and 7.5 mds./ac. of G.N.C. (ii) (a) Sandy loam. (b) Refer soil analysis, Saraimiran. (iii) 15.10.1958. (iv) (a) N.A. (b) Transplanting. (c) N.A. (d) 1.5' × 1.5'. (e) 1. (v) 5 C.L./ac. of F.Y.M., 1 md./ac. of G.N.C., 9 srs./ac. of A/S as top dressing on 21.11.1958 and 4 srs./ac. of A/S as top dressing on 22.12.1958. (vi) N.P. 31 (medium). (vii) Irrigated. (viii) Hoeings and weeding done twice by *khurpl*. (ix) 7.07". (x) 18.3.1959.

2. TREATMENTS :3 stages of leaf topping : T_0 = Control (no topping), T_1 = 10th to 12th and T_2 = 14th to 16th leaf stage.**3. DESIGN :**

(i) R.B.D. (ii) (a) 3. (b) N.A. (iii) 3. (iv) (a) and (b) 24' × 21'. (v) Nil. (vi) Yes.

4. GENERAL :

(i) Satisfactory. (ii) Nil. (iii) No. of plants at planting and maturity and yield of tobacco. (iv) (a) 1958—contd. (modified in 1959). (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 680 lb./ac. (ii) 45.2 lb./ac. (iii) Treatment differences are highly significant. (iv) Av. yield of tobacco in lb./ac.

Treatment	T_0	T_1	T_2
Av. yield	442	693	905

S.E./mean = 26.1 lb./ac.

Crop :- Tobacco (Rabi).**Ref :- U.P. 59(531).****Site :- Govt. Tobacco Res. Sta., Saraimiran.****Type :- 'C'.**

Object :— To study the effect of topping at different stages on the yield of Chewing Tobacco.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) and (c) N.A. (ii) (a) Sandy loam. (b) Refer soil analysis, Saraimiran. (iii) 16.10.1959. (iv) (a) 6 to 8 ploughings. (b) Transplanting. (c) N.A. (d) 1.5' × 1.5'. (e) 1. (v) 10 C.L./ac. of F.Y.M., 2 mds./ac. of G.N.C. before planting and 26 srs./ac. of A/S as top dressing. (vi) N.P. 31 (medium). (vii) Irrigated. (viii) 2 hoeings and weeding by *khurpl*. (ix) N.A. (x) 15.3.1960.

2. TREATMENTS :3 stages of leaf topping : T_1 = 10th, T_2 = 12th and T_3 = 14th leaf stage.**3. DESIGN :**

(i) R.B.D. (ii) (a) 3. (b) N.A. (iii) 4. (iv) (a) and (b) 21' × 12'. (v) Nil. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Nil. (iii) No. of plants and yield of tobacco. (iv) (a) 1958—contd. (modified in 1959). (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 758 lb./ac. (ii) 119.0 lb./ac. (iii) Treatment differences are not significant. (iv) Av. yield of tobacco in lb./ac.

Treatment	T_1	T_2	T_3
Av. yield	907	712	656

S.E./mean = 59.5 lb./ac.

Crop :- Tobacco (Rabi).**Ref :- U.P. 59(533).****Site :- Govt. Tobacco Res. Stn., Saraimiran.****Type :- 'C'.**

Object :—To find out suitable level of topping for better yield of Bidi Tobacco.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) and (c) N.A. (ii) (a) Sandy loam. (b) Refer soil analysis, Saraimiran. (iii) 12.10.1959.
 (iv) (a) 6 to 8 ploughings. (b) Transplanting. (c) N.A. (d) 3' × 3'. (e) 1. (v) 10 C.L./ac. of F.Y.M. before
 planting, 20 mds./ac. of G.N.C. and 26 srs./ac. of A/S as top dressing. (vi) G-6 (medium). (vii) Irrigated.
 (viii) 3 weedings and hoeings by *khurpi*. (ix) N.A. (x) 18.3.1960.

2. TREATMENTS :3 stages of leaf topping : $T_1=8\text{th}$, $T_2=10\text{th}$ and $T_3=12\text{th}$ leaf stage.**3. DESIGN :**

(i) R.B.D. (ii) (a) 3. (b) N.A. (iii) 4. (iv) (a) and (b) 21' × 12'. (v) Nil. (vi) Yes.

4. GENERAL :(i) Good. (ii) Nil. (iii) No. of plants and yield of tobacco. (iv) (a) 1959—N.A. (b) N.A. (c) Nil.
(v) to (vii) Nil.**5. RESULTS :**(i) 955 lb./ac. (ii) 203.4 lb./ac. (iii) Treatment differences are not significant. (iv) Av. yield of tobacco
in lb./ac.

Treatment	T_1	T_2	T_3
Av. yield	779	1012	1073

S.E./mean = 101.7 lb./ac.

Crop :- Groundnut (Kharif).**Ref :- U.P. 55(288).****Site :- Students' Instrl., Farm., Govt. Agri. College, Kanpur. Type :- 'M'.**

Object :—To study the effect of different levels of N, P and K on the yield and quality of Groundnut.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Sugarcane. (c) N.A. (ii) (a) Sandy loam. (b) Refer soil analysis, Kanpur. (iii) 18.7.1955.
 (iv) (a) 2 ploughings by Victory plough, 3 *desi* ploughings and one harrowing. (b) Furrows opened by
desi plough and seeds dropped at 8" to 9" apart. (c) 45 lb./ac. (d) 18" × 8" to 9". (e) N.A. (v) Nil. (vi)
 $T=19$. (vii) Irrigated. (viii) 4 weedings. (ix) 36 63". (x) Last week of November, 1955.

2. TREATMENTS :

All combinations of (1), (2) and (3)

(1) 2 levels of N as A/S : $N_0=0$ and $N_1=30$ lb./ac.(2) 3 levels of P_2O_5 as Super : $P_0=0$, $P_1=30$ and $P_2=60$ lb./ac.(3) 3 levels of K_2O as Pot. Sul. : $K_0=0$, $K_1=20$ and $K_2=40$ lb./ac. P_2O_5 applied by placing fertilizer below the seed before sowing on 18.7.1955. N and K_2O applied 27 days
after sowing as top dressing on 14.8.1955.**3. DESIGN :**

(i) Fact. in R.B.D. (ii) (a) 18. (b) N.A. (iii) 3. (iv) (a) N.A. (b) 38' × 16.5'. (v) N.A. (vi) Yes.

4. GENERAL :(i) Good growth. (ii) *Scabrotial* root rot, *rhizoctomia* root rot and *cercospora* leaf spot. (iii) Germination
%, no. of branches and yield of pod. (iv) (a) and (b) No. (c) Nil. (v) (a) and (b) N.A. (vi) and (vii) Nil.**5. RESULTS :**(i) 1661 lb./ac. (ii) 211.6 lb./ac. (iii) Main effect of N alone is significant. (iv) Av. yield of pod
in b./ac.

	K ₀	K ₁	K ₂	Mean	P ₀	P ₁	P ₂
N ₀	1636	1775	1803	1738	1788	1799	1629
N ₁	1564	1572	1617	1584	1578	1651	1525
Mean	1600	1674	1710	1661	1683	1725	1577
P ₀	1525	1736	1787				
P ₁	1727	1767	1680				
P ₂	1549	1518	1664				

S.E. of N marginal mean = 40.7 lb./ac.
 S.E. of P or K marginal mean = 49.9 lb./ac.
 S.E. of body of N×K or N×P table = 70.5 lb./ac.
 S.E. of body of P×K table = 86.4 lb./ac.

Crop :- Groundnut (Kharif).

Ref :- U.P. 55(238).

Site :- Students' Instrl. Farm, Govt. Agri. College, Kanpur.

Type :- 'C'.

Object :-To study the effect of earthings on Groundnut.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Sugarcane (ratoon). (c) N.A. (ii) (a) Sandy loam. (b) Refer soil analysis, Kanpur. (iii) 18.7.1955. (iv) (a) 2 Victory ploughings, 3 *desi* ploughings and 1 harrowing. (b) N.A. (c) 45 lb./ac. (d) 6" between seeds. (e) N.A. (v) Nil. (vi) T-19. (vii) Irrigated. (viii) 2 weedings and earthings as per treatments. (ix) 36.63". (x) 9, 10.12.1955.

2. TREATMENTS :

2 earthing treatments : E₀= Control (no earthing) and E₁=Earthing.

Earthing was done on 30.8.1955 by placing earth on the main and primary branches of groundnut plants.

3. DESIGN :

(i) Paired plot. (ii) (a) 2. (b) N.A. (iii) 4. (iv) (a) and (b) 9'×30'. (v) Nil. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Germination % and yield of pod. (iv) (a) and (b) No. (c) Nil. (v) (a) and (b) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 1830 lb./ac. (ii) 144.4 lb./ac. (iii) Treatment difference is significant. (iv) Av. yield of pod in lb./ac.

Treatment	E ₀	E ₁
Av. yield	1565	2094

S.E./mean = 72.2 lb./ac.

Crop :- Groundnut.

Ref :- U.P. 54(26).

Site :- Govt. Agri. Res. Farm, Kalianpur.

Type :- 'CV'.

Object :-To find out the best time of digging for different varieties of Groundnut.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Wheat. (c) Nil. (ii) (a) Sandy loam. (b) Refer soil analysis, Kalianpur. (iii) 14.7.1954.
 (iv) (a) 1 ploughing followed by planking. (b) Sown behind the plough. (c) N.A. (d) Between rows $1\frac{1}{2}'$.
 (e) N.A. (v) Nil. (vi) As per treatments. (vii) Unirrigated. (viii) 4 weedings and 4 hoeings. (ix) 24".
 (x) 22 and 23.10.1954 to 11.11.1954.

2. TREATMENTS :

All combinations of (1) and (2)

(1) 4 varieties : $V_1=R.B. 1$, $V_2=T.M.V. 2$, $V_3=A.K.-12-24$ and $V_4=T-19$.
 (2) 4 times of digging : $T_1=90$, $T_2=100$, $T_3=110$ and $T_4=120$ days after sowing.

3. DESIGN :

(i) Fact. in R.B.D. (ii) (a) 16. (b) N.A. (iii) 3. (iv) (a) and (b) $16.5' \times 24'$. (v) Nil. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Slight damage to crop by pigs. (iii) Yield of pod. (iv) (a) 1952—1954. (b) No. (c) Nil.
 (v) to (vii) Nil.

5. RESULTS :

(i) 347 lb./ac. (ii) 151.8 lb./ac. (iii) Main effect of T is highly significant and main effect of V is significant.
 (iv) Av. yield of pod in lb./ac.

	T ₁	T ₂	T ₃	T ₄	Mean
V ₁	385	697	246	124	363
V ₂	366	502	396	121	346
V ₃	227	217	246	279	245
V ₄	392	649	396	297	433
Mean	342	519	321	205	347

S.E. of any marginal mean = 43.8 lb./ac.
 S.E. of body of table = 87.6 lb./ac.

Crop :- Groundnut.

Ref :- U.P. 54(27).

Site :- Govt. Agri. Res. Farm, Kalianpur.

Type :- 'CV'.

Object :—To study the effect of different spacings and seed rates on different varieties of Groundnut.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) *Lobia*. (c) Nil. (ii) (a) Sandy loam. (b) Refer soil analysis, Kalianpur. (iii) 14.7.1954.
 (iv) (a) 1 ploughing followed by planking. (b) N.A. (c) and (d) As per treatments. (e) N.A. (v) Nil. (vi)
 As per treatments. (vii) Unirrigated. (viii) 3 weedings and 3 hoeings. (ix) 24". (x) 22 and 23.10.1954.

2. TREATMENTS :

Main-plot treatments :

2 spacings between rows : $S_1=1\frac{1}{2}'$ and $S_2=2'$.

Sub-plot treatments :

All combinations of (1) and (2)

(1) 2 varieties : $V_1=T-25$ and $V_2=E.C. 1699$.
 (2) 3 seed rates : $R_1=40$, $R_2=60$ and $R_3=80$ lb./ac.

3. DESIGN :

(i) Split-plot. (ii) (a) 2 main-plots/replication ; 6 sub-plots/main-plot. (b) N.A. (iii) 3. (iv) (a) and (b)
 $24' \times 18'$. (v) Nil. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Slight damage by pigs and other rodents. (iii) Pod yield. (iv) (a) 1953—1955. (b) No. (c)
 Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 1138 lb./ac. (ii) (a) 243.0 lb./ac. (b) 275.5 lb./ac. (iii) Main effects of R and V are significant. (iv) Av. yield of pod in lb./ac.

	R ₁	R ₂	R ₃	Mean	V ₁	V ₂
S ₁	1091	1149	1213	1151	1216	1086
S ₂	995	905	1477	1126	1276	976
Mean	1043	1027	1345	1138	1246	1031
V ₁	1105	1158	1474			
V ₂	981	896	1216			

S.E. of difference of two

- | | | | |
|-----------------------------------|-----------------|-----------------------------------|-----------------|
| 1. S marginal means | = 81.0 lb./ac. | 5. S means at the same level of R | = 153.1 lb./ac. |
| 2. R marginal means | = 112.5 lb./ac. | 6. V means at the same level of S | = 129.8 lb./ac. |
| 3. V marginal means | = 91.8 lb./ac. | 7. S means at the same level of V | = 122.5 lb./ac. |
| 4. R means at the same level of S | = 159.1 lb./ac. | S.E. of body of R×V table | = 112.5 lb./ac. |

Crop :- Groundnut.

Ref :- U.P. 55(81).

Site :- Govt. Agri. Res. Farm, Kalianpur.

Type :- 'CV'.

Object :—To study the effect of different spacings and seed rates on different varieties of Groundnut.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) and (c) N.A. (ii) (a) Loam. (b) Refer soil analysis, Kalianpur. (iii) 23.6.1955. (iv) (a) and (b) N.A. (c) and (d) As per treatments. (e) N.A. (v) Nil. (vi) As per treatments. (vii) Unirrigated. (viii) 1 weeding and 1 hoeing. (ix) and (x) N.A.

2. TREATMENTS :

Main-plot treatments :

2 spacings between rows : S₁=1½' and S₂=2'.

Sub-plot treatments :

All combinations of (1) and (2)

(1) 3 seed rates : R₁=60, R₂=80 and R₃=100 lb./ac.

(2) 2 varieties : V₁=T-25 and V₂=E.C. 1699.

3. DESIGN :

(i) Split-plot. (ii) (a) 2 main-plots/replication ; 6 sub-plots/main-plot. (b) N.A. (iii) 3. (iv) (a) and (b) 24' × 18'. (v) Nil. (vi) Yes.

4. GENERAL :

(i) Satisfactory. (ii) Nil. (iii) Yield of pod. (iv) (a) 1953—1955. (b) No. (c) Nil. (v) (a) and (b) N.A. (vi) Nil. (vii) Heavy damage by rats in some of the plots.

5. RESULTS :

(i) 1196 lb./ac. (ii) (a) 151.2 lb./ac. (b) 221.8 lb./ac. (iii) Only interactions S×R and V×R are significant. (iv) Av. yield of pod in lb./ac.

	R ₁	R ₂	R ₃	Mean	V ₁	V ₂
S ₁	878	899	865	881	871	890
S ₂	847	752	1214	938	927	948
Mean	862	826	1040	909	899	919
V ₁	954	861	883			
V ₂	771	790	1196			

S.E. of difference of two

- | | | | |
|-----------------------------------|-----------------|-----------------------------------|-----------------|
| 1. S marginal means | = 50.4 lb./ac. | 5. S means at the same level of R | = 116.1 lb./ac. |
| 2. R marginal means | = 90.5 lb./ac. | 6. V means at the same level of S | = 104.6 lb./ac. |
| 3. V marginal means | = 73.9 lb./ac. | 7. S means at the same level of V | = 89.5 lb./ac. |
| 4. R means at the same level of S | = 128.1 lb./ac. | S.E. of body of R × V table | = 90.5 lb./ac. |

Crop :- Groundnut.

Ref :- U.P. 54(83).

Site :- Govt. Agri. Res. Farm, Keserwa.

Type :- 'CV'.

Object :—To find out the best time of digging for different Groundnut varieties.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) and (c) N.A. (ii) (a) Loam. (b) N.A. (iii) 7.7.1954. (iv) (a) to (e) N.A. (v) Nil. (vi) As per treatments. (vii) Unirrigated. (viii) 1 weeding and 1 hoeing. (ix) N.A. (x) As per treatments.

2. TREATMENTS :

All combinations of (1) and (2)

(1) 4 varieties : V₁=T-9 (late), V₂=R.B. 1 (early), V₃=T.M.V. 2 (early) and V₄=AK. 12-24 (early).
 (2) 4 times of digging : T₁=90, T₂=100, T₃=110 and T₄=120 days after sowing.

3. DESIGN :

(i) Fact. in R.B.D. (ii) (a) 16. (b) N.A. (iii) 3. (iv) (a) and (b) 30' × 15'. (v) Nil. (vi) Yes.

4. GENERAL :

(i) Satisfactory. (ii) Nil. (iii) Yield of pod. (iv) (a) 1954—1956. (b) No. (c) Nil. (v) (a) and (b) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 899 lb./ac. (ii) 280.0 lb./ac. (iii) Main effect of T alone is highly significant. (iv) Av. yield of pod in lb./ac.

	T ₁	T ₂	T ₃	T ₄	Mean
V ₁	506	1016	1062	1256	960
V ₂	609	1048	916	971	886
V ₃	575	829	955	945	826
V ₄	772	1007	765	1149	923
Mean	616	975	924	1080	899

S.E. of any marginal mean = 80.8 lb./ac.
 S.E. of body of table = 161.7 lb./ac.

Crop :- Groundnut.

Ref :- U.P. 55(22).

Site :- Govt. Agri. Res. Farm, Haderwa.

Type :- 'CV'.

Object :—To find out the best time of digging on the yield of different Groundnut varieties.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) and (c) N.A. (ii) (a) Loam. (b) N.A. (iii) 21.7.1955. (iv) (a) 2 ploughings and harrowing. (b) N.A. (c) 1 mds./ac. (d) 1½' to 2' apart. (e) N.A. (v) Nil. (vi) As per treatments. (vii) Unirrigated. (viii) 1 weeding and 1 hoeing. (ix) N.A. (x) As per treatments.

2. TREATMENTS :

All combinations of (1) and (2)

(1) 5 varieties : V₁=RB-1 (early), V₂=TMV-2 (early), V₃=AK-12-24 (early), V₄=T-9 (late) and V₅=Local (late).

(2) 4 times of digging : T₁=90, T₂=100, T₃=110 and T₄=120 days after sowing.

3. DESIGN :

(i) Fact. in R.B.D. (ii) (a) 20. (b) N.A. (iii) 3. (iv) (a) and (b) 36'×13.5'. (v) Nil. (vi) Yes.

4. GENERAL :

(i) Satisfactory. (ii) Nil. (iii) Yield of pod. (iv) (a) 1954—1956. (b) No. (c) Nil. (v) (a) No. (b) Nil. (vi) and (vii) Nil.

5. RESULTS :

(i) 949 lb./ac. (ii) 172.5 lb./ac. (iii) Main effect of T is highly significant and that of V is significant. (iv) Av. yield of pod in lb./ac.

	V ₁	V ₂	V ₃	V ₄	V ₅	Mean
T ₁	538	568	389	194	283	394
T ₂	986	1030	806	732	896	890
T ₃	1254	1136	1285	1105	1614	1279
T ₄	1165	1225	1195	1240	1344	1234
Mean	986	990	919	818	1034	949

S.E. of T marginal mean = 44.5 lb./ac.
 S.E. of V marginal mean = 49.8 lb./ac.
 S.E. of body of table = 99.6 lb./ac.

Crop :- Groundnut.

Ref :- U.P. 56(28).

Site :- Govt. Agri. Res. Farm, Keserwa.

Type :- 'CV'.

Object :—To find out the best time of digging on the yield of different Groundnut varieties.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) and (c) N.A. (ii) (a) Loam. (b) N.A. (iii) 18.7.1956. (iv) (a) to (e) N.A. (v) Nil. (vi) As per treatments. (vii) Unirrigated. (viii) 1 weeding and 1 hoeing. (ix) N.A. (x) As per treatments.

2. TREATMENTS :

All combinations of (1) and (2)

(1) 5 varieties : V₁=RB-1 (early), V₂=TMV-2 (early), V₃=AK-12-24 (early), V₄=EC-1699 (medium) and V₅=Budaun local (late).

(2) 4 times of digging : T₁=90, T₂=100, T₃=110 and T₄=120 days after sowing.

3. DESIGN :

(i) Fact. in R.B.D. (ii) (a) 20. (b) N.A. (iii) 3. (iv) (a) and (b) 44'×10.5' (v) Nil. (vi) No.

4. GENERAL :

(i) Poor in all replications due to water logging. (ii) Mild attack of *tikka* disease, but severe infection of white ants. (iii) Yield of pod. (iv) (a) 1954—1956. (b) No. (c) Nil. (v) (a) No. (b) Nil. (vi) Nil. (vii) Digging of plots scheduled after 90 days could not be carried out until after 97 days because of water logging. As the time of 1st digging is very nearly the same as that of 2nd digging and as the yield record is also very poor and patchy this has been excluded from analysis.

5. RESULTS :

(i) 615 lb./ac. (ii) 199.4 lb./ac. (iii) Main effect of T alone is highly significant. (iv) Av. yield of pod in lb./ac.

	V ₁	V ₂	V ₃	V ₄	V ₅	Mean
T ₂	336	414	402	383	333	374
T ₃	666	1015	795	444	444	673
T ₄	861	722	933	600	874	798
Mean	621	717	710	476	550	615

S.E. of T marginal mean = 51.5 lb./ac.
 S.E. of V marginal mean = 66.5 lb./ac.
 S.E. of body of table = 115.1 lb./ac.

Crop :- Groundnut.

Ref :- U.P. 56(26).

Site :- Groundnut Res. Stn., Mainpuri.

Type :- 'CV'.

Object :—To study the effect of different seed rates on the yield of different varieties of Groundnut.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) and (c) N.A. (ii) (a) Loam. (b) Refer soil analysis, Mainpuri. (iii) and (iv) N.A. (v) Nil. (vi) As per treatments. (vii) Unirrigated. (viii) 1 weeding and harrowing. (ix) and (x) N.A.

2. TREATMENTS :

9 treatments : T₁=T-25 (late ; 40 lb./ac.), T₂=T-25 (late ; 60 lb./ac.), T₃=T-25 (late ; 80 lb./ac.), T₄=EC-1699 (medium ; 60 lb./ac.), T₅=EC-1699 (medium ; 80 lb./ac.), T₆=EC-1699 (medium ; 100 lb./ac.), T₇=Local (late ; 40 lb./ac.), T₈=Local (late ; 60 lb./ac.) and T₉=Local (late ; 80 lb./ac.).

Figures in bracket indicate seed rate.

3. DESIGN :

(i) R.B.D. (ii) (a) 9. (b) N.A. (iii) 4. (iv) (a) and (b) 40' × 13.5'. (v) Nil. (vi) Yes.

4. GENERAL :

(i) Satisfactory. (ii) Nil. (iii) Yield of pod. (iv) (a) and (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 1158 lb./ac. (ii) 189.0 lb./ac. (iii) Treatment differences are significant. (iv) Av. yield of pod in lb./ac.

Treatment	T ₁	T ₂	T ₃	T ₄	T ₅	T ₆	T ₇	T ₈	T ₉
Av. yield	1018	1099	1129	1179	1018	1250	988	1189	1553

S.E./mean = 94.5 lb./ac.

Crop :- Groundnut (*Kharif*).

Ref :- U.P. 56(322).

Site :- Botanical Garden, Govt. Agri. College Farm, Kanpur. Type :- 'CM'.

Object :—To study the effect of different cultural and manurial treatments on the yield and quality of Groundnut.

1. BASAL CONDITIONS :

(i) (a) No. (b) Barley. (c) N.A. (ii) (a) Sandy loam. (b) Refer soil analysis, Kanpur. (iii) 19.7.1956. (iv) (a) 1 ploughing by Victory plough, 1 harrowing with spring harrow, 1 *dest* ploughing followed by planking, 1 cultivator application to mix the lime and followed by planking. (b) In furrows opened by plough. (c) 45.3 lb/ac. (d) 2' x 5'6". (e) N.A. (v) Nil. (vi) T-19 (medium late). (vii) Irrigated. (viii) As per treatments. (ix) N.A. (x) 1 to 3.12.1956.

2. TREATMENTS :

All combinations of (1), (2), (3) and (4)

(1) 2 seed treatments : A_0 =Control (untreated seeds) and A_1 =Seed treated with Agrosan G.N. at the rate of 1 tola of fungicide per 5 seers of kernels.(2) 2 levels of earthings : B_0 =No earthing and B_1 =Earthing the plants near pegging stage by placing 2" to 3" of soil on the centre of the plant after spreading its branches.(3) 2 levels of P_2O_5 as Super : C_0 =0 and C_1 =50 lb/ac.(4) 2 levels of lime : D_0 =0 and D_1 =5 mds./ac.

The fungicide used for seed treatment i.e. Agrosan G.N. at the rate of 1 part of the fungicide to 400 parts of seed. The seed was treated with the fungicidal dust for 15 minutes in a seed dresser and the kernels were kept in it for 24 hours. The treated seed was then taken out and stored for 5 days in a closed vessel before sowing. Lime was applied broadcast on 18.7.1956. i.e. before sowing. Super was applied by placing the fertilizers 1" below the seed at the time of sowing on 19.7.1956.

3. DESIGN :

(i) Fact. in R.B.D. (ii) (a) 16. (b) N.A. (iii) 3. (iv) (a) 20' x 35.5'. (b) 17' x 32.5'. (v) 1.5' x 1.5'. (vi) Yes.

4. GENERAL :

(i) N.A. (ii) Termite attack was observed. Rats, *Rhizoctonia* root rot and *Cercospora* leaf spots. (iii) Germination count, branch count, flower production, root nodule count, yield of groundnut and shelling percentage etc. (iv) (a) and (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 1498 lb/ac. (ii) 165.5 lb/ac. (iii) Main effects of B and interaction C x B are highly significant. Interactions C x D and A x B are significant. (iv) Table of mean and differential responses in lb/ac.

Differential response

Effect	Mean response	A		B		C		D	
		—	+	—	+	—	+	—	+
A	168.0	—	—	219.4	116.6	332.6	3.4	41.1	294.9
B	13.7	65.1	-37.7	—	—	-99.4	126.8	-20.6	48.0
C	37.7	202.3	-126.9	-75.4	150.8	—	—	68.6	6.9
D	0.0	-126.9	126.9	-34.3	34.3	30.9	-30.9	—	—

S.E. of mean response = 47.8 lb/ac.

S.E. of differential response = 67.6 lb/ac.

Crop :- Groundnut (*Kharif*).

Ref :- U.P. 57(419).

Site :- Govt. Agri. Res. Farm, Keserwa.

Type :- 'CM'.

Object :—To study the effect of different manures and the time of digging on the yield of Groundnut.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) (a) Loam. (b) Refer soil analysis, Keserwa. (iii) to (v) N.A. (vi) T-27 (late). (vii) to (ix) N.A. (x) As per treatments.

2. TREATMENTS :**Main-plot treatments :**

3 times of digging : $D_1=115$, $D_2=130$ and $D_3=145$ days after sowing.

Sub-plot treatments :

4 levels of manure : M_0 =No manure, $M_1=30$ lb./ac. of N, $M_2=30$ lb./ac. of P_2O_5 and $M_3=30$ lb./ac. of K_2O .

3. DESIGN :

(i) Split-plot. (ii) (a) 3 main-plots/replication ; 4 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 1/94 ac. (v) N.A. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Pod yield. (iv) (a) and (b) No. (c) Nil. (v) (a) and (b) N.A. (vi) Crop was badly damaged on account of water logging in the fields and early stoppage of rains. (vii) The plots dug up later on (i.e. D_3) were further destroyed by animals. Hence the results could not be conclusive. D_3 omitted from analysis. Results as available are furnished.

5. RESULTS :

(i) 406 lb./ac. (ii) (a) 333.4 lb./ac. (b) 110.0 lb./ac. (iii) None of the effects is significant. (iv) Av. yield of pod in lb./ac.

Treatment	D_1	D_2	M_0	M_1	M_2	M_3
Av. yield	467	345	360	411	424	429

S.E. of difference of two

1. D marginal means	= 117.9 lb./ac.
2. M marginal means	= 44.9 lb./ac.

Crop :- Groundnut (*Kharif*).

Ref :- U.P. 58(395).

Site :- Govt. Agri. Res. Farm, Keserwa.

Type :- 'CV'.

Object :—To study the effect of different levels of N and P and time of digging on the yield of Groundnut.

1. BASAL CONDITIONS ;

(i) (a) to (c) N.A. (ii) Loam. (b) Refer soil analysis, Keserwa. (iii) to (v) N.A. (vi) T-28 (late). (vii) to (x) N.A.

2. TREATMENTS :**Main-plot treatments :**

3 times of digging : $D_1=115$, $D_2=130$ and $D_3=145$ days after sowing.

Sub-plot treatments :

All combinations of (1) and (2)

(1) 2 levels of N : $N_0=0$ and $N_1=30$ lb./ac.

(2) 2 levels of P_2O_5 : $P_0=0$ and $P_1=30$ lb./ac.

Manures were used in furrows at the time of sowing.

3. DESIGN :

(i) Split-plot. (ii) 3 main-plots/replication ; 4 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) N.A. (b) (b) 1/80 ac. (v) N.A. (vi) Yes.

4. GENERAL :

(i) Germination was badly affected in N manured treatments. (ii) N.A. (iii) Yield of pod. (iv) (a) and (b) No. (c) Nil. (v) (a) and (b) N.A. (vi) Nil. (vii) Results as available are furnished.

5. RESULTS :

(i) 1349 lb./ac. (ii) (a) 349.6 lb./ac. (b) 266.0 lb./ac. (iii) Main effect of N alone is significant. (iv) Av. yield of pod in lb./ac.

Treatment	D ₁	D ₂	D ₃	N ₀	N ₁	P ₀	P ₁
Av. yield	1222	1337	1403	1429	1269	1309	1328

S.E. of difference of two

1. D marginal means = 123.6 lb./ac.
2. N or P marginal means = 76.8 lb./ac.

Crop :- Groundnut (Kharif).
Site :- Govt. Agri. Res. Farm, Keserwa.

Ref :- U.P. 59(426).
Type :- 'GM'.

Object :- To study the effect of different levels of N and P and time of digging on the yield of Groundnut.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) (a) Loam. (b) Refer soil analysis, Keserwa. (iii) to (v) N.A. (vi) T-28 (late). (vii) to (x) N.A.

2. TREATMENTS :

Main-plot treatments :

2 times of digging : D₁=130 and D₂=145 days after sowing.

Sub-plot treatments :

All combinations of (1) and (2)

(1) 3 levels of N : N₀=0, N₁=10 and N₂=20 lb./ac.

(2) 3 levels of P₂O₅ : P₀=0, P₁=20 and P₂=40 lb./ac.

Manures were applied at sowing time in furrows.

3. DESIGN :

(i) Split-plot. (ii) (a) 3 main-plots/replication ; 9 sub-plots/main-plot. (b) N.A. (iii) 3. (iv) (a) N.A. (b) (b) 1/110 ac. (v) N.A. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Pod yield. (iv) (a) 1959—N.A. (b) N.A. (c) Nil. (v) and (vi) Nil. (vii) Results as available are furnished. Other two-way tables—N.A.

5. RESULTS :

(i) 1183 lb./ac. (ii) (a) 187.4 lb./ac. (b) 276.3 lb./ac. (iii) None of the effects is significant. (iv) Av. yield of pod in lb./ac.

D₁ = 1119 and D₂ = 1248 lb./ac.

	P ₀	P ₁	P ₂	Mean
N ₀	1010	1165	1287	1154
N ₁	1103	1312	1161	1192
N ₂	1125	1161	1327	1204
Mean	1079	1213	1258	1183

S.E. of difference of two

1. D marginal means = 51.0 lb./ac.
 2. N or P marginal means = 92.1 lb./ac.
- S.E. of body of N×P table = 112.8 lb./ac.

Crop :- Groundnut (Kharif).
Site :- Govt. Agri. Res. Farm, Kalianpur.

Ref :- U.P. 58(375).
Type :- 'D'.

Object :- To test the effect of different fungicides for the control of the Groundnut leaf spot disease.

1. BASAL CONDITIONS:

(i) (a) No. (b) *Arhar*. (c) N.A. (ii) (a) Loam. (b) Refer soil analysis, Kalianpur. (iii) 16.6.1958. (iv) (a) N.A. (b) Line sowing. (c) 55 lb./ac. (d) 18" between rows. (e) N.A. (v) N.A. (vi) T-23 (late). (vii) and (viii) N.A. (ix) 23.3". (x) N.A.

2. TREATMENTS:

7 fungicidal treatments: T₀=Control, T₁=Ceresan—seed dressing before sowing, T₂=Cupramar—0.3%, T₃=Micop W.50—0.3%, T₄=Dithane Z.78—0.3%, T₅=Fytolon—0.3% and T₆=Bordeaux Mixture (5 : 5 : 50)—1%.

1st spray : 19th July 1958 (No sticker used—rains just after spray) 2nd : 9th August, 1958 (Linseed oil used as sticker—rains in the evening and continued for 3 days) and 3rd spray : 30th August, 1958 (Linseed oil used as sticker).

3. DESIGN:

(i) R.B.D. (ii) (a) 7. (b) 129'×36'. (iii) 5. (iv) (a) and (b) 36'×15'. (v) Nil. (vi) Yes.

4. GENERAL:

(i) Satisfactory. (ii) N.A. (iii) Pod yield. (iv) (a) 1958—1959. (b) No. (c) Nil. (v) (a) and (b) N.A. (vi) Continuous rains recorded. (vii) Nil.

5. RESULTS:

(i) 1234 lb./ac. (ii) 280 lb./ac. (iii) Treatment differences are not significant. (iv) Av. yield of pod in lb./ac.

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄	T ₅	T ₆
Av. yield	1250	1299	1242	1137	1121	1283	1307
S.E./mean = 125.2 lb./ac.							
Av. defoliation %	78.0	28.0	25.0	60.0	55.0	25.0	15.0

Crop :- Groundnut (*Kharif*).

Ref :- U.P. 59(406).

Site :- Govt. Agri. Res. Farm, Kalianpur.

Type :- 'D'.

Object :— To test the efficacy of different fungicides for control of leaf spot disease of Groundnut.

1. BASAL CONDITIONS:

(i) (a) No. (b) and (c) N.A. (ii) (a) Loam. (b) Refer soil analysis, Kalianpur. (iii) 31.7.1959. (iv) (a) N.A. (b) Line sowing. (c) 50 lb./ac. (d) 1½' between rows. (e) N.A. (v) N.A. (vi) T-27 (late). (vii) Irrigated. (viii) N.A. (ix) 15.9". (x) N.A.

2. TREATMENTS:

Same as in expt. no. 58(375) on page 1461.

1st spray : 2.9.1959, 2nd spray : 26.9.1959 and 3rd spray : 15.10.1959.

3. DESIGN:

(i) R.B.D. (ii) (a) 7. (b) 36'×127'. (iii) 5. (iv) (a) and (b) 36'×15'. (v) Nil. (vi) Yes.

4. GENERAL:

(i) N.A. (ii) Under study. (iii) Pod yield. (iv) (a) 1958—1959. (b) No. (c) Nil. (v) (a) and (b) N.A. (vi) Very scanty rains this year. (vii) Disease not appeared, spots of *tikka* sp. observed in November, 1959, when the crop was mature.

5. RESULTS:

(i) 1429 lb./ac. (ii) 293.1 lb./ac. (iii) Treatment differences are not significant. (iv) Av. yield of pod in lb./ac.

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄	T ₅	T ₆
Av. yield	1195	1310	1576	1394	1460	1543	1527
S.E./mean = 131.1 lb./ac.							
Av. defoliation %	50.0	30.0	12.0	35.0	32.0	12.0	10.0

Crop :- Groundnut.

Ref :- U.P. 55(83).

Site :- Govt. Agri. Res. Farm, Keserwa.

Type :- 'D'.

Object :-To study the effect of treating the seeds with and without Ceresan on the yield of Groundnut.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) (a) Sandy loam, (b) Refer soil analysis, Keserwa. (iii) 22.7.1955. (iv) (a) One ploughing and harrowing. (b) N.A. (c) 60 lb./ac. (d) and (e) N.A. (v) Nil. (vi) T-27 (late). (vii) Unirrigated. (viii) One weeding and one hoeing. (ix) and (x) N.A.

2. TREATMENTS:

2 treatments : T₀ = Untreated (control) and T₁ = Treated (Ceresan).

The seeds were treated with Ceresan before sowing. Quantity of Ceresan used is 4 ozs./ac.

3. DESIGN :

(i) R.B.D. (ii) (a) 2. (b) N.A. (iii) 4. (iv) (a) and (b) 36' x 28½'. (v) Nil. (vi) Yes.

4. GENERAL :

(i) Satisfactory. (ii) Nil. (iii) Pod yield. (iv) (a) and (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 2271 lb./ac. (ii) 209.4 lb./ac. (iii) Treatment difference is significant. (iv) Av. yield of pod in lb./ac.

Treatment	T ₀	T ₁
Av. yield	2009	2532

S.E./mean = 104.7 lb./ac.

Crop :- Groundnut.

Ref :- U.P. 56(27).

Site :- Govt. Agri. Res. Farm, Keserwa.

Type :- 'DV'.

Object :-To study the effect of different fungicides on different varieties of Groundnut for controlling fungus disease.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) and (c) N.A. (ii) (a) Loam. (b) Refer soil analysis, Keserwa. (iii) 19.7.1956. (iv) (a) to (e) N.A. (v) Nil. (vi) As per treatments. (vii) Unirrigated. (viii) to (x) N.A.

2. TREATMENTS :

Main-plot treatments :

2 varieties : V₁ = T-25 (late) and V₂ = T-27.

Sub-plot treatments :

3 fungicides : C₀ = Control, C₁ = Ceresan and C₂ = Cupravit.

Ceresan was used for seed treatment at sowing time at the rate of 4 ozs. per cwt of seed. Cupravit (1 lb./100 gallons of water) was sprayed on 2.8.1956, 28.8.1956 and 12.9.1956.

3. DESIGN :

(i) Split-plot. (ii) (a) 2 main-plots/replication ; 3 sub-plots/main-plot. (b) N.A. (iii) 6. (iv) (a) and (b) 28' x 19 5'. (v) Nil. (vi) Yes.

4. GENERAL :

(i) Good. Water digging in some plots. (ii) 8 to 10 % damage by white ants. (iii) Yield of pod. (iv) (a) 1955—1956. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 1664 lb./ac. (ii) (a) 207.2 lb./ac. (b) 235.2 lb./ac. (iii) None of the effects is significant. (iv) Av. yield of pod in lb./ac.

	C ₀	C ₁	C ₂	Mean
V ₁	1613	1617	1668	1633
V ₂	1522	1895	1668	1695
Mean	1568	1756	1668	1664

S.E. of difference of two

1. V marginal means = 69.1 lb./ac.
2. C marginal means = 96.0 lb./ac.
3. C means at the same level of V = 135.8 lb./ac.
4. V means at the same level of C = 130.6 lb./ac.

Crop :- Sesamum (*Kharif*).

Ref :- U.P. 55(210).

Site :- B. R. College Insttl. Res. Farm, Bichpuri.

Type :- 'M'.

Object :- To study the effect of different levels of N, P and K applied alone and in combinations on the yield of Sesamum.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Wheat. (c) N.A. (ii) (a) Sandy loam. (b) Refer soil analysis, Bichpuri. (iii) 6.7.1955. (iv) (a) 1 ploughing by McCormick cultivator followed by planking. (b) 2" to 3" deep in furrows. (c) 2½ srs./ac. (d) 18" between rows. (e) N.A. (v) Nil. (vi) Agra local. (vii) Irrigated. (viii) 2 weedings, 1 thinning and gap filling. (ix) N.A. (x) 14.10.1955.

2. TREATMENTS:

All combinations of (1), (2) and (3)

(1) 2 levels of N as A/S : N₀=0 and N₁=25 lb./ac.

(2) 2 levels of P₂O₅ as Super : P₀=0 and P₁=40 lb./ac.

(3) 2 levels of K₂O as sulphate of potash : K₀=0 and K₁=40 lb./ac.

N by broadcasting, P₂O₅ as placement through bamboo spout (Nai), attached to *desi* plough and K₂O by broadcasting.

3. DESIGN :

(i) Fact. in R.B.D. (ii) (a) 8. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 18'×30'. (v) N.A. (vi) Yes.

4. GENERAL :

(i) Satisfactory. (iii) N.A. (iii) Seed yield. (iv) (a) and (b) No. (c) Nil. (v) and (vi) Nil. (vii) No original data and other two way tables were available. The results as available are given below.

5. RESULTS :

(i) 410 lb./ac. (ii) 71.0 lb./ac. (iii) Main effects of N, K and interaction N×K are highly significant. Interaction N×P is significant. (iv) Av. yield of seed in lb./ac.

	P ₀	P ₁	Mean	K ₀	K ₁
N ₀	370	360	365	369	361
N ₁	403	508	455	554	356
Mean	386	434	410	462	358

S.E. of any marginal mean = 17.7 lb./ac.
S.E. of body of any table = 25.1 lb./ac.

Crop :- Soyabean (Kharif).

Ref :- U.P. 58(965).

Site :- Reg. Res. Stn., Majhera.

Type :- 'CV'.

Object :- To study the effect of different spacings on the yield of different varieties of Soyabean.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Wheat. (c) N.A. (ii) (a) Sandy loam. (b) Refer soil analysis, Majhera. (iii) 13 and 14.7.1958. (iv) (a) N.A. (b) As per treatments. (c) 15 srs./ac. (d) As per treatments. (e) N.A. (v) N.A. (vi) As per treatments. (vii) Unirrigated. (viii) 2 weedings and 2 hoeings. (ix) N.A. (x) 16 and 19.10.1958.

2. TREATMENTS :

All combinations of (1) and (2)

(1) 4 spacings between rows : $S_1=1\frac{1}{2}'$, $S_2=2'$, $S_3=2\frac{1}{2}'$ and $S_4=$ Broadcast.

(2) 2 varieties : $V_1=T-33$ and $V_2=$ Local.

3. DESIGN :

(i) Fact. in R.B.D. (ii) (a) 8. (b) N.A. (iii) 4. (iv) (a) and (b) $30' \times 15'$. (v) Nil. (vi) Yes.

4. GENERAL :

(i) Normal. (ii) Attack of hairy caterpillar. (iii) Germination % and yield of soyabean. (iv) (a) and (b) No. (c) Nil. (v) (a) and (b) N.A. (vi) Heavy rains and storm affected the crop. (vii) Nil.

5. RESULTS :

(i) 409 lb./ac. (ii) 120.3 lb./ac. (iii) Only S effect is significant. (iv) Av. yield of soyabean in lb./ac.

	S_1	S_2	S_3	S_4	Mean
V_1	569	445	327	389	432
V_2	445	445	264	389	386
Mean	507	445	296	389	409

S.E. of S marginal mean = 42.5 lb./ac.
S.E. of V marginal mean = 30.1 lb./ac.
S.E. of body of table = 60.1 lb./ac.

Crop :- Linseed (Rabi).

Ref :- U.P. 58(396).

Site :- Govt. Agri. Res. Farm, Belatal.

Type :- 'M'.

Object :- To study the effect of different levels of N and P applied alone and in combinations on the yield of Linseed.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) (a) Hard *kabar*. (b) Refer soil analysis, Belatal. (iii) to (v) N.A. (vi) Type-1 (early). (vii) to (x) N.A.

2. TREATMENTS :

All combinations of (1) and (2)

(1) 2 levels of N as A/S : $N_0=0$ and $N_1=30$ lb./ac.

(2) 2 levels of P_2O_5 as Super : $P_0=0$ and $P_1=30$ lb./ac.

The manures were applied in furrows at sowing time.

3. DESIGN :

(i) Fact. in R.B.D. (ii) (a) 4. (b) N.A. (iii) 6. (iv) and (v) N.A. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of linseed. (iv) (a) 1958—1959. (b) No. (c) Nil. (v) (a) Kalianpur. (b) N.A. (vi) Nil. (vii) Expt. failed in 1959.

5. RESULTS :

(i) 804 lb./ac. (ii) 106.3 lb./ac. (iii) Main effect of N alone is significant. (iv) Av. yield of linseed in lb./ac.

	P ₀	P ₁	Mean
N ₀	706	721	714
N ₁	895	895	895
Mean	800	808	804

S.E. of any marginal mean = 30.7 lb./ac.
 S.E. of body of table = 43.4 lb./ac.

Crop :- Linseed (Rabi).**Ref :- U.P. 58(391).****Crop :- Govt. Agri. Res. Farm, Kalianpur.****Type :- 'M'.**

Object:—To study the effect of different levels of N and P applied alone and in combinations on the yield of Linseed.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) (a) Loam. (b) Refer soil analysis, Kalianpur. (iii) 27.10.1958. (iv) (a) and (b) N.A. (c) 39 lb./ac. (d) Rows 1' apart. (e) N.A. (v) N.A. (vi) T—1 (early). (vii) to (x) N.A.

2. TREATMENTS :

Same as in expt. no. 58(396) on page 1465.

3. DESIGN :

(i) Fact. in R.B.D. (ii) (a) 4. (b) 30' × 93'. (iii) 6. (iv) (a) and (b) 30' × 21'. (v) Nil. (vii) Yes.

4. GENERAL :

(i) Poor. (ii) N.A. (iii) Flowering dates and linseed yield. (iv) (a) and (b) No. (c) Nil. (v) (a) Belatal. (b) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 440 lb./ac. (ii) 35.9 lb./ac. (iii) Main effect of N alone is highly significant. (iv) Av. yield of linseed in lb./ac.

	P ₀	P ₁	Mean
N ₀	360	350	355
N ₁	514	536	525
Mean	437	443	440

S.E. of any marginal mean = 10.3 lb./ac.
 S.E. of body of table = 14.6 lb./ac.

Crop :- Linseed (*Rabi*).

Ref :- U.P. 59(448).

Site :- Govt. Agri. Res. Farm, Kalianpur.

Type :- 'MV'.

Object :—To study the effect of different levels of N and P applied alone and in combinations on different varieties of Linseed.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) (a) Sandy loam. (b) Refer soil analysis, Kalianpur. (iii) 26.10.1959. (iv) (a) to (c) N.A. (d) 12' between rows. (e) N.A. (v) N.A. (vi) As per treatments. (vii) to (x) N.A.

2. TREATMENTS :

Main-plot treatments :

All combinations of (1) and (2)

(1) 3 levels of N : $N_0=0$, $N_1=25$ and $N_2=50$ lb./ac.(2) 3 levels of P_2O_5 : $P_0=0$, $P_1=25$ and $P_2=50$ lb./ac.

Sub-plot treatments :

6 varieties : $V_1=H. 126$, $V_2=H. 397$, $V_3=H. 49-2$, $V_4=R.R. 9$, $V_5=H. 54-1$ and $V_6=H. 226-2$.

3. DESIGN :

(i) Split-plot. (ii) (a) 9 main-plots/replication ; 6 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) and (b) 4' x 7'. (v) Nil. (vi) Yes.

4. GENERAL :

(i) Good germination. (ii) Attack of wilt in some plots. (iii) Germination % and yield of linseed. (iv) (a) 1959—N.A. (b) N.A. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 750 lb./ac. (ii) (a) 387.9 lb./ac. (b) 163.7 lb./ac. (iii) Main effects of N and V are highly significant. (iv) Av. yield of linseed in lb./ac.

	V_1	V_2	V_3	V_4	V_5	V_6	Mean	P_0	P_1	P_2
N_0	617	683	558	667	617	650	632	558	650	688
N_1	725	867	708	658	700	800	743	838	671	721
N_2	858	1033	792	842	933	792	875	804	975	846
Mean	733	861	686	722	750	747	750	733	765	752
P_0	700	858	717	658	708	758				
P_1	792	908	625	808	725	733				
P_2	708	817	717	700	817	750				

S.E. of difference of two

1. N or P marginal means	= 64.6 lb./ac.
2. V marginal means	= 38.6 lb./ac.
3. V means at the same level of N or P	= 66.8 lb./ac.
4. N or P means at the same level of V	= 88.9 lb./ac.
S.E. of body of $N \times P$ table	= 79.2 lb./ac.

Crop :- Linseed (*Rabi*).

Ref :- U.P. 58(132).

Site :- Govt. Reg. Res. Stu., Amrukh.

Type :- 'CM'.

Object :—To study the effect of different seed rates in combination with different times of sowing and levels of fertilizers on Linseed crop.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) and (c) N.A. (ii) (a) *Kabar*. (b) N.A. (iii) As per treatments. (iv) (a) 1 *bakhoring* and 1 ploughing by Victory plough. (b) N.A. (c) As per treatments. (d) and (e) N.A. (v) Nil. (vi) T—1. (vii) Irrigated. (viii) Nil. (ix) N.A. (x) 23.3.1959.

2. TREATMENTS :

Main-plot treatments:

All combinations of (1) and (2)

(1) 2 levels of manuring: $L_1=25$ lb./ac. of N+20 lb./ac. of P_2O_5 and $L_2=2L_1$.(2) 3 dates of sowing: $T_1=20.10.1958$, $T_2=27.10.1958$ and $T_3=3.11.1958$.

Sub-plot treatments :

3 seed rates: $S_1=10$, $S_2=15$ and $S_3=20$ srs./ac.

3. DESIGN :

(i) Split-plot. (ii) (a) 6 main-plots/replication; 3 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) and (b) $24' \times 23'$. (v) Nil. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Nil. (iii) Yield of linseed. (iv) (a) to (c) N.A. (v) to (vii) Nil.

5. RESULTS :

(i) 792 lb./ac. (ii) (a) 265.6 lb./ac. (b) 103.7 lb./ac. (iii) Main effect of T is highly significant. Main effect of L and interaction $T \times S$ are significant. (iv) Av. yield of linseed in lb./ac.

	T_1	T_2	T_3	Mean	S_1	S_2	S_3
L_1	1117	752	707	859	837	847	893
L_2	938	669	568	725	693	725	757
Mean	1028	711	637	792	765	786	825
S_1	996	718	581				
S_2	959	728	672				
S_3	1129	687	825				

S.E. of difference of two

- | | | | |
|-----------------------------------|----------------|------------------------------------|----------------|
| 1. L marginal means | = 62.6 lb./ac. | 5. L means at the same level of S | = 71.5 lb./ac. |
| 2. T marginal means | = 76.7 lb./ac. | 6. S means at the same level of T | = 51.8 lb./ac. |
| 3. S marginal means | = 29.9 lb./ac. | 7. T means at the same level of S | = 87.6 lb./ac. |
| 4. S means at the same level of L | = 42.3 lb./ac. | S.E. of body of $L \times T$ table | = 76.7 lb./ac. |

Crop :- Linseed (*Rabi*).

Ref :- U.P. 59(542).

Site :- Govt. Reg. Res. Stn., Amrukh.

Type :- 'CM'.

Object :- To study the effect of different seed rates in combination with different times of sowing and levels of fertilizers on Linseed crop.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) (a) *Kabar* and *parwa*. (b) N.A. (iii) As per treatments. (iv) (a) Preparation of field, 4 *bakherings* and 1 planking. (b) Line sowing. (c) As per treatments. (d) 1' between rows. (e) N.A. (v) Nil. (vi) T-1. (vii) Irrigated. (viii) 2 weedings. (ix) N.A. (x) 1 and 4.3.1960.

2. TREATMENTS :

Main-plot treatments :

2 levels of manuring: $L_1=20$ lb./ac. of N as A/S+20 lb./ac. of P_2O_5 as Super and $L_2=2L_1$.

Sub-plot treatments :

All combinations of (1) and (2).

(1) 3 seed rates: $S_1=10$, $S_2=15$ and $S_3=20$ srs./ac.(2) 3 sowing dates: $T_1=18.10.1959$, $T_2=25.10.1959$ and $T_3=1.11.1959$.

3. DESIGN :

(i) Split-plot. (ii) (a) 2 main-plots/replication; 3 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) and (b) $24' \times 18'$. (v) Nil. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of linseed. (iv) (a) to (c) N.A. (v) to (vii) Nil.

5. RESULTS :

(i) 574 lb./ac. (ii) (a) 150.5 lb./ac. (b) 100.6 lb./ac. (iii) Main effects of T and S are highly significant. (iv) Av. yield of linseed in in lb./ac.

	T ₁	T ₂	T ₃	Mean	S ₁	S ₂	S ₃
L ₁	540	475	641	552	451	630	574
L ₂	667	425	697	596	483	622	684
Mean	604	450	669	574	467	626	629
S ₁	441	372	589				
S ₂	690	476	712				
S ₃	680	502	706				

S.E. of difference of two

- | | |
|--|----------------|
| 1. L marginal means | = 35.5 lb./ac. |
| 2. T or S marginal means | = 40.6 lb./ac. |
| 3. T or S means at the same level of L | = 57.4 lb./ac. |
| 4. L means at the same level of T or S | = 58.8 lb./ac. |
| S.E. of body of S×T table | = 49.7 lb./ac. |

Crop :- Linseed (Rabi).

Ref :- U.P. 58(394).

Site :- Govt. Res. Farm, Kanpur.

Type :- 'IV'.

Object :- To find out the effect of different levels of irrigation on the yield and oil content of different varieties of Linseed.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) (a) Loam. (b) N.A. (iii) to (v) N.A. (vi) and (vii) As per treatments. (viii) to (x) N.A.

2. TREATMENTS :

Main-plot treatments :

2 levels of irrigation : I₀=No irrigation and I₁=One irrigation at the time of flowering.

Sub-plot treatments :

5 varieties : V₁=H. 126—2 (medium), V₂=H. 54—1 (medium), V₃=H. 48 (medium), V₄=Type 1 (early) and V₅=H. 226—2 (medium).

3. DESIGN :

(i) Split-plot. (ii) (a) 2 main-plots/replication ; 5 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 1/130 ac. (v) N.A. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of linseed. (iv) (a) 1958—1960. (b) N.A. (c) Nil. (v) and (vi) Nil. (vii) Most probably the advantage of irrigation, if any, was offset on account of little shower of rain during the last week of December and middle of January.

5. RESULTS :

(i) 1060 lb./ac. (ii) (a) 176.6 lb./ac. (b) 195.7 lb./ac. (iii) Main effect of V alone is significant. (iv) Av. yield of linseed in lb./ac.

	V ₁	V ₂	V ₃	V ₄	V ₅	Mean
I ₀	899	1157	1153	833	1199	1048
I ₁	973	1157	1299	859	1068	1071
Mean	936	1157	1226	846	1133	1060

S.E. of difference of two

1. I marginal means = 55.8 lb./ac.
2. V marginal means = 97.8 lb./ac.
3. V means at the same level of I = 138.4 lb./ac.
4. I means at the same level of V = 135.8 lb./ac.

Crop :- Linseed (Rabi).

Ref :- U.P. 59(428).

Site :- Govt. Res. Farm, Kanpur.

Type :- 'IV'.

Object :- To find out the effect of different levels of irrigation on the yield and oil content of different varieties of Linseed.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) (a) Loam. (b) N.A. (iii) to (v) N.A. (vi) and (vii) As per treatments. (viii) to (x) N.A.

2. TREATMENTS :

Same as in expt. no. 58(394) on page 1469.

3. DESIGN :

(i) Split-plot. (ii) (a) 2 main-plots/replication ; 5 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) and (v) N.A. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of linseed. (iv) (a) 1958—1960. (b) N.A. (c) Nil. (v) and (vi) Nil. (vii) No original records were made available. Information taken from the annual report. Two-way table—N.A.

5. RESULTS :

(i) 870 lb./ac. (ii) (a) 165.9 lb./ac. (b) 143.1 lb./ac. (iii) Main effect of I alone is significant. (iv) Av. yield of linseed in lb./ac.

Treatment	I ₀	I ₁	V ₁	V ₂	V ₃	V ₄	V ₅
Av. yield	691	1048	911	905	852	840	840

S.E. of I marginal mean = 37.1 lb./ac.

S.E. of V marginal mean = 50.6 lb./ac.

Crop :- Castor.

Ref :- U.P. 59(427).

Site :- Govt. Agri. Res. Farm, Kalianpur.

Type :- 'M'.

Object :- To study the effect of different levels of P on the yield of Castor.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) (a) Loam. (b) Refer soil analysis, Kalianpur. (iii) to (v) N.A. (vi) T-3 (late). (vii) to (x) N.A.

2. TREATMENTS :

3 levels of P_2O_5 : $P_0=0$, $P_1=25$ and $P_2=50$ lb./ac.
Applied at sowing time in furrows.

3. DESIGN :

(i) R.B.D. (ii) (a) 3. (b) N.A. (iii) 6. (iv) (a) N.A. (b) 1/67 ac. (v) N.A. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of seed. (iv) (a) 1959—1962. (b) No. (c) Nil. (v) and (vi) Nil. (vii) Results taken from annual reports.

5. RESULTS :

(i) 540 lb./ac. (ii) N.A. (iii) Treatment differences are not significant. (iv) Av. yield of seed in lb./ac.

Treatment	P_0	P_1	P_2
Av. yield	541	528	550

S.E./mean = N.A.

Crop :- Castor.

Ref :- U.P. 54(84).

Site :- Govt. Agri. Res. Farm, Kalianpur.

Type :- 'C'.

Object :— To study the effect of different times of sowing and spacings on Castor.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) and (c) N.A. (ii) (a) Loam. (b) Refer soil analysis, Kalianpur. (iii) As per treatments. (iv) (a) to (c) N.A. (d) As per treatments. (e) N.A. (v) Nil. (vi) Type 3 (late). (vii) Unirrigated. (viii) 1 hoeing and 1 weeding. (ix) N.A. (x) 15.3.1955 for D_1 and D_2 and 3, 4.4.1955 for D_3 and D_4 .

2. TREATMENTS :

Main-plot treatments :

4 dates of sowing : $D_1=27.7.1954$, $D_2=24.8.1954$, $D_3=16.9.1954$ and $D_4=9.10.1954$.

Sub-plot treatments :

3 row spacings : $R_1=2'$, $R_2=3'$ and $R_3=4'$.

3. DESIGN :

(i) Split-plot. (ii) (a) 4 main-plots/replication ; 3 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) $24' \times 15'$. (b) $24' \times 9'$. (v) 3' on either side. (vi) Yes.

4. GENERAL :

(i) Crop growth in D_3 was unsatisfactory and D_4 could not mature in time. (ii) N.A. (iii) Yield of seed. (iv) (a) 1953—1954. (b) No. (c) Nil. (v) (a) and (b) Nil. (vi) and (vii) Crop in D_4 plots could not mature in time and hence yield could not be taken.

5. RESULTS :

(i) 1325 lb./ac. (ii) (a) 455.8 lb./ac. (b) 184.8 lb./ac. (iii) Main effect of D alone is highly significant. (iv) Av. yield of seed in lb./ac.

	R_1	R_2	R_3	Mean
D_1	1876	1708	1624	1736
D_2	1441	1408	1655	1501
D_3	843	647	725	738
Mean	1387	1254	1335	1325

S.E. of difference of two

1. D marginal means	= 186.1 lb./ac.
2. R marginal means	= 75.4 lb./ac.
3. R means at the same level of D	= 130.7 lb./ac.
4. D means at the same level of R	= 214.5 lb./ac.

Crop :- Castor.**Ref :- P.U. 58(410).****Site :- Govt. Agri. Res. Farm, Kalianpur.****Type :- 'CM'.**

Object :— To study the effect of different levels of N, P and different times of sowing on Castor yield.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) (a) Loam. (b) Refer soil analysis, Kalianpur. (iii) As per treatments. (iv) and (v) N.A. (vi) T-3 (late). (vii) to (x) N.A.

2. TREATMENTS :**Main-plot treatments :**2 dates of sowing : $D_1=3.7.1958$ and $D_2=18.8.1958$.**Sub-plot treatments :**

All combinations of (1) and (2)

(1) 2 level of N as A/S : $N_0=0$ and $N_1=50$ lb./ac.(2) 2 levels of P_2O_5 as Super : $P_0=0$ and $P_1=50$ lb./ac.

Manures applied one month after sowing as top dressing.

3. DESIGN :

(i) Split-plot. (ii) (a) 2 main-plots/replication ; 4 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 1/100 ac. (v) N.A. (vi) Yes.

4. GENERAL :(i) Normal. (ii) Crop was destroyed by semi looper in early August. (iii) Yield of seed. (iv) (a) and (b) No. (c) Nil. (v) Nil. (vi) D_1 plots were affected by severe rains and water logging in the field when the plants were young. (vii) The yields in D_1 plots, were very poor hence no reliable yield data could be obtained. Results as available are given.**5. RESULTS :**

(i) 1907 lb./ac. (ii) (a) and (b) N.A. (iii) Only N effect is significant. (iv) Av. yield of seed in lb./ac.

Treatment	N_0	N_1	P_0	P_1
Av. yield	1629	2184	1844	1970

S.E./mean = N.A.

Crop :- Brassica (Rabi).**Ref :- U.P. 58(393).****Site :- Govt. Agri. Res. Farm, Kalianpur.****Type :- 'M'.**

Object :—To study the effect of different levels of N and P on the yield of Rai.

1. BASAL CONDITIONS :(i) (a) to (c) N.A. (ii) (a) Loam. (b) Refer soil analysis, Kalianpur. (iii) 6.11.1958. (iv) (a) to (c) N.A. (d) 1.5' between rows. (e) N.A. (v) N.A. (vi) Laha—101 (late) (*B. Juncea*). (vii) Irrigated. (viii) to (x) N.A.**2. TREATMENTS :**

All combinations of (1) and (2)

(1) 3 levels of N as A/S : $N_0=0$, $N_1=25$ and $N_2=50$ lb./ac.(2) 3 levels of P_2O_5 as Super : $P_0=0$, $P_1=25$ and $P_2=50$ lb./ac.

Manures applied in furrows at sowing time.

3. DESIGN :

(i) Fact. in R.B.D. (ii) (a) 9. (b) N.A. (iii) 6. (iv) (a) 32'×15'. (b) 32'×12'. (v) 1½' on either side. (vi) Yes.

4. GENERAL :

(i) Good, lodging in some plots only on account of rains and strong wind at the time of flowering. (ii) Nil. (iii) Germination %, flowering, maturity dates, no. of plants and yield of seed. (vi) (a) 1958—contd. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 865 lb./ac. (ii) 146.1 lb./ac. (ii) Only main effect of N is highly significant. (iv) Av. yield of seed in lb./ac.

	P ₀	P ₁	P ₂	Mean
N ₀	705	758	751	738
N ₁	993	981	932	969
N ₂	928	928	811	889
Mean	875	889	831	865

S.E. of any marginal mean = 34.5 lb./ac.
S.E. of body of table = 59.7 lb./ac.

Crop :- Brassica (Rabi).

Ref :- U.P. 59(425).

Site :- Govt. Agri. Res. Farm, Kalianpur.

Type :- 'M'.

Object :- To study the effect of different levels of N and P on the yield of Rai.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) (a) Loam. (b) Refer soil analysis, Kalianpur. (iii) 20.10.1959. (iv) (a) to (c) N.A. (d) 1.5' between rows. (e) N.A. (v) N.A. (vi) Laha—101 (late) (*B. juncea*). (vii) to (x) N.A.

2. TREATMENTS :

All combinations of (1) and (2)

(1) 3 levels of N as A/S : N₀=0, N₁=25 and N₂=50 lb./ac.

(2) 3 levels of P₂O₅ as Super : P₀=0, P₁=25 and P₂=50 lb./ac.

3. DESIGN :

(i) Fact. in R.B.D. (ii) (a) 9. (b) 152'×44'. (iii) 6. (iv) (a) 48'×12'. (b) 48'×10.5'. (v) 0.75' on either side length wise. (vi) Yes.

4. GENERAL :

(i) Good. (ii) N.A. (iii) Germination %, flowering dates, plant height and yield of seed. (iv) (a) 1958—contd. (b) No. (c) Nil. (v) (a) and (b) No. (vi) and (vii) Nil.

5. RESULTS :

(i) 660 lb./ac. (ii) 127.3 lb./ac. (iii) Main effect of N alone is significant. (iv) Av. yield of seed in lb./ac.

	P ₀	P ₁	P ₂	Mean
N ₀	591	621	614	609
N ₁	619	656	675	650
N ₂	693	785	688	722
Mean	634	687	659	660

S.E. of any marginal mean = 30.0 lb./ac.
S.E. of body of the table = 52.0 lb./ac.

Crop :- Brassica (Rabi).

Ref :- U.P. 58(388).

Site :- Govt. Agri. Res. Farm, Kalianpur.

Type :- 'M'.

Object :- To study the effect of different levels of N, P and K applied alone and in combinations on the growth and yield of Rai.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) (a) Sandy loam. (b) Refer soil analysis, Kalianpur. (iii) 19.10.1958. (iv) and (v) N.A. (vi) RT-11 (medium) (*B. juncea*). (vii) to (ix) N.A. (x) 27.2.1959.

2. TREATMENTS :

All combinations of (1), (2) and (3)

- (1) 3 levels of N : $N_0=0$, $N_1=30$ and $N_2=60$ lb./ac.
(2) 3 levels of P_2O_5 : $P_0=0$, $P_1=25$ and $P_2=50$ lb./ac.
(3) 3 levels of K_2O : $K_0=0$, $K_1=20$ and $K_2=40$ lb./ac.

3. DESIGN :

(i) 3^3 fact. completely confd. interaction NPK. (ii) (a) 9 plots/block ; 3 blocks/replication. (b) N.A. (iii) 2. (iv) (a) and (b) 1/80.67 ac. (v) Nil. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of seed. (iv) (a) 1958-1959. (b) Yes. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 1169 lb./ac. (ii) 188.6 lb./ac. (iii) Main effect of N is highly significant and main effect of P is significant. (iv) Av. yield of seed in lb./ac.

	P_0	P_1	P_2	Mean	K_0	K_1	K_2
N_0	825	850	1007	894	838	888	956
N_1	1086	1199	1300	1195	1262	1080	1244
N_2	1337	1438	1480	1418	1530	1438	1287
Mean	1083	1162	1262	1169	1210	1135	1162
K_0	1127	1201	1302				
K_1	1046	1156	1203				
K_2	1075	1130	1282				

S.E. of any marginal mean = 44.5 lb./ac.
S.E. of body of any table = 77.0 lb./ac.

Crop :- Brassica (Rabi).

Ref :- U.P. 59(424).

Site :- Govt. Agri. Res. Farm, Kalianpur.

Type :- 'M'.

Object :- To study the effect of different levels of N, P and K applied alone and in combinations on the growth and yield of Rai.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) (a) Sandy loam. (b) Refer soil analysis, Kalianpur. (iii) 22.10.1959. (iv) (a) N.A. (b) Line sowing behind the plough. (c) N.A. (d) 6"×18". (e) 1 plant/hole. (v) N.A. (vi) RT-11 (medium) (*B. juncea*). (vii) N.A. (viii) 1 weeding and 1 hoeing. (ix) N.A. (x) 21.2.1960.

2. TREATMENTS :

Same as in expt. no. 58(388) on page 1474.

3. DESIGN :

(i) 3rd confd. fact. in which 2 degrees of freedom corresponding to W component of NPK interaction are completely confounded with blocks. (ii) (a) 9 plots/block ; 3 blocks/replication. (b) N.A. (iii) 2. (iv) (a) and (b) 36'×15'. (v) Nil. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Height, number of branches and number of pods per plant and yield data. (iv) (a) 1958-1959. (b) Yes. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 260 lb./ac. (ii) 96.1 lb./ac. (iii) Only main effect of N is highly significant. (iv) Av. yield of seed in lb./ac.

	P ₀	P ₁	P ₂	Mean	K ₀	K ₁	K ₂
N ₀	39	57	65	54	54	64	43
N ₁	267	336	259	287	261	284	317
N ₂	435	450	428	438	430	436	447
Mean	247	281	251	260	248	261	269
K ₀	236	251	257				
K ₁	249	302	233				
K ₂	255	289	262				

S.E. of any marginal mean
S.E. of body of any table

= 22.6 lb./ac.
= 39.2 lb./ac.

Crop :- Brassica (Rabi).

Ref :- U.P. 58(385).

Site :- Govt. Agri. Res. Farm, Kalianpur.

Type :- 'M'.

Object :- To study the effect of placement of P at different levels on the yield of Rai.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) (a) Sandy loam. (b) Refer soil analysis, Kalianpur. (iii) N.A. (iv) (a) N.A. (b) Line sowing behind the plough. (c) to (e) N.A. (v) N.A. (vi) Laha-101 (late) (*B. juncea*). (vii) to (ix) N.A. (x) 11.3.1959.

2. TREATMENTS :

All combinations of (1) and (2)+control (2 plots/block)

(1) 2 levels of P₂O₅: P₁=25 and P₂=50 lb./ac.

(2) 3 methods of application: M₁=Drilling before sowing, M₂=Drilling along with seed and M₃=Placing in bands.

5. DESIGN :

(i) R.B.D. (ii) (a) 8. (b) N.A. (iii) 3. (iv) (a) and (b) 15'×36'. (v) Nil. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Height, number of plants and yield of seed. (iv) (a) 1958-1959. (b) Yes. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 1185 lb./ac. (ii) 148.3 lb./ac. (iii) None of the effects is significant. (iv) Av. yield of seed in lb./ac.

Control = 1246 lb./ac.

	M ₁	M ₂	M ₃	Mean
P ₁	1099	1131	1140	1123
P ₂	1257	1123	1246	1209
Mean	1178	1127	1193	1166

S.E. of P marginal mean = 49.4 lb./ac.
 S.E. of M marginal mean or control mean = 60.5 lb./ac.
 S.E. of body of table = 85.6 lb./ac.

Crop :- Brassica (Rabi).**Site :- Govt. Agri. Res. Farm, Kalianpur.****Ref :- U.P. 59(417).****Type :- 'M'.**

Object :—To study the effect of placement of P at different levels on the yield of Rai.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) (a) Sandy loam. (b) Refer soil analysis, Kalianpur. (iii) 23.10.1959. (iv) (a) N.A.
 (b) Line sowing behind the plough (c) N.A. (d) 18"×6". (e) 1. (v) N.A. (vi) Laha—101 (late) (*B. juncea*).
 (vii) Irrigated. (viii) 1 weeding and 1 hoeing. (ix) and (x) N.A.

2. TREATMENTS :

Same as in expt. no. 58(385) on page 1475.

3. DESIGN :

(i) R.B.D. (ii) (a) 8. (b) N.A. (iii) 3. (iv) (a) 15'×36'. (b) N.A. (v) N.A. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Height, number of branches and pods per plant and seed yield. (iv) (a) 1958 to 1959.
 (b) Yes. (c) Nil. (v) and (vi) Nil. (vii) Two ways tables are not available.

5. RESULTS :

(i) 1166 lb./ac. (ii) 125.0 lb./ac. (iii) None of the main effects is significant. (iv) Av. yield of grain in lb./ac.

Treatment	Control	P ₁	P ₂	M ₁	M ₂	M ₃
Av. yield	1160	1127	1210	1168	1144	1193

S.E. of P mean = 41.7 lb./ac.

S.E. of M or control mean = 51.0 lb./ac.

Crop :- Brassica (Rabi).**Site :- Govt. Agri. Res. Farm, Kalianpur.****Ref :- U.P. 59(419).****Type :- 'M'.**

Object :—To study the most suitable time for the application of different nitrogenous fertilizers on the yield of Rai

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) (a) Sandy loam. (b) Refer soil analysis, Kalianpur. (iii) 30.11.1959. (iv) (a) N.A.
 (b) Line sowing behind the plough. (c) N.A. (d) 18"×6". (e) 1. (v) N.A. (vi) Laha T—101 (late)
 (*B. juncea*). (vii) N.A. (viii) 1 weeding and 1 hoeing. (ix) N.A. (x) 18.3.1960.

2. TREATMENTS :

All combinations of (1) and (2) + control

(1) 4 sources of N at 30 lb./ac. : $S_1=A/S$, $S_2=C/A/N$, $S_3=A/C$ and $S_4=Urea$.

(2) 4 times and methods of application : $T_1=Broadcasting$ before sowing, $T_2=Drilling$ before the seed, $T_3=Broadcasting$ at the time of branching and $T_4=\frac{1}{2}$ at sowing time (broadcasting) + $\frac{1}{2}$ at the time of branching.

3. DESIGN :

(i) R.B.D. (ii) (a) 17. (b) N.A. (iii) 4. (iv) (a) and (b) $36' \times 15'$. (v) Nil. (vi) Yes.

4. GENERAL :

(i) N.A. (ii) On account of serious incidence of aphid the yield was very low. (iii) Height, number of pods and branches per plant and yield of seed. (iv) (a) and (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 124 lb./ac. (ii) 43.0 lb./ac. (iii) Main effects of S, T and 'control vs. others' are highly significant and interaction $S \times T$ is significant. (iv) Av. yield of grain in lb./ac.

Control = 61 lb./ac.

	N_1	N_2	N_3	N_4	Mean
S_1	125	131	53	129	110
S_2	147	145	23	137	113
S_3	175	175	58	50	114
S_4	256	222	66	157	175
Mean	176	168	50	118	128

S.E. of S or T marginal mean = 10.8 lb./ac.

S.E. of body of table or control mean = 21.5 lb./ac.

Crop :- Brassica (Rabi).

Ref :- U.P. 58(386).

Site :- Govt. Agri. Res. Farm, Kalianpur.

Type :- 'M'.

Object :—To study the effect of different methods of application of P on the yield Sarson.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) (a) Sandy loam. (b) Refer soil analysis, Kalianpur. (iii) N.A. (iv) (a) N.A. (b) Line sowing behind the plough. (c) to (e) N.A. (v) N.A. (vi) T—1 (late) yellow sarson (*B. campestris* var. sarson). (vii) to (ix) N.A. (x) 30.3.1959.

2. TREATMENTS :

All combinations of (1) and (2) + control (no manure)

(1) 2 levels of P_2O_5 : $P_1=25$ and $P_2=50$ lb./ac.

(2) 3 methods of application : $M_1=Drilling$ before sowing, $M_2=Drilling$ along with seed and $M_3=Placing$ in band 3" away from line.

3. DESIGN :

(i) R.B.D. (ii) (a) 7. (b) N.A. (iii) 4. (iv) (a) N.A. (b) $1/97.8$ ac. (v) N.A. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Number of plants, height and yield of seed. (iv) (a) 1958 to 1959. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 180 lb./ac. (ii) 64.0 lb./ac. (iii) None of the effects is significant. (iv) Av. yield of seed in lb./ac.

Control = 206 lb./ac.

	M ₁	M ₂	M ₃	Mean
P ₁	145	201	217	188
P ₂	157	167	171	165
Mean	151	184	194	176

S.E. of P marginal mean = 18.5 lb./ac.
 S.E. of M marginal mean = 22.6 lb./ac.
 S.E. of body of table or control mean = 32.0 lb./ac.

Crop :- Brassica (*Rabi*).

Ref :- U.P. 58(392).

Site :- Govt. Agri. Res. Farm, Kalianpur.

Type :- 'M'.

Object :- To study the effect of N and P applied alone and in combinations on the yield of Sarson.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Maize. (c) N.A. (ii) (a) Loam. (b) Refer soil analysis, Kalianpur. (iii) 5.11.1958. (iv) (a) to (c) N.A. (d) Rows 1.5' apart. (e) N.A. (v) 200 mds./ac. of F.Y.M. (vi) T-151 (late) yellow sarson (*B. campestris* var. *sarson*). (vii) to (x) N.A.

2. TREATMENTS :

All combinations of (1) and (2)

(1) 3 levels of N as A/S : N₀=0, N₁=25 and N₂=50 lb./ac.(2) 3 levels of P₂O₅ as Super : P₀=0, P₁=25 and P₂=50 lb./ac.

Manures applied at sowing in furrows.

3. DESIGN :

(i) Fact. in R.B.D. (ii) (a) 9. (b) N.A. (iii) 6. (iv) (a) and (b) 40' × 12'. (v) Nil. (vi) Yes.

4. GENERAL :

(i) Germination good. Complete lodging due to heavy shower and strong wind at the time of flowering. (ii) Attack of *alternaria*. (iii) No. of plants per plot and yield of seed. (iv) (a) 1958 to 1960. (b) N.A. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 531 lb./ac. (ii) 77.5 lb./ac. (iii) Main effect of N is highly significant and main effect of P is significant, while interaction is not significant. (iv) Av. yield of seed in lb./ac.

	P ₀	P ₁	P ₂	Mean
N ₀	360	395	402	386
N ₁	469	611	623	568
N ₂	634	665	619	639
Mean	488	557	548	531

S.E. of any marginal mean = 18.3 lb./ac.
 S.E. of body of table = 31.7 lb./ac.

Crop :- Brassica (*Rabi*).

Ref :- U.P. 59(429).

Site :- Govt. Agri. Res. Farm, Kalianpur.

Type :- 'M'.

Object :- To study the effect of different levels of N and P applied alone and in combinations on the yield of Sarson.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) (a) Loam. (b) Refer soil analysis, Kalianpur. (iii) to (v) N.A. (vi) T-151 (late) (*B. campestris* var. *sarson*) yellow sarson. (vii) to (x) N.A.

2. TREATMENTS :

All combinations of (1) and (2)

(1) 3 levels of N : $N_0=0$, $N_1=25$ and $N_2=50$ lb./ac.

(2) 3 levels of P_2O_5 : $P_0=0$, $P_1=25$ and $P_2=50$ lb./ac.

3. DESIGN :

(i) Fact. in R.B.D. (ii) (a) 9. (b) N.A. (iii) 6. (iv) (a) N.A. (b) 1/90 ac. (v) N.A. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Germination, height of plant and yield of seed. (iv) (a) 1958 to 1960. (b) N.A. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 378 lb./ac. (ii) 66.4 lb./ac. (iii) Main effect of N alone is significant. (iv) Av. yield of seed in lb./ac.

	P_0	P_1	P_2	Mean
N_0	265	228	253	249
N_1	360	449	420	410
N_2	420	505	501	475
Mean	348	394	391	378

S.E. of any marginal mean = 15.7 lb./ac.

S.E. of body of table = 27.1 lb./ac.

Crop :- Brassica (Rabi).

Ref :- U.P. 58(389).

Site :- Govt. Agri. Res. Farm, Kalianpur.

Type :- 'M'.

Object :—To study the effect of different levels of N, P and K applied alone and in combinations on Sarson.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) (a) Sandy loam. (b) Refer soil analysis, Kalianpur. (iii) 8.11.1958. (iv) (a) N.A. (b) Line sowing behind the plough. (c) to (e) N.A. (v) N.A. (vi) T—Gurgaon (late) brown sarson (*B. campestris* var. *dichotoma*). (vii) to (ix) N.A. (x) 6.3.1959.

2. TREATMENTS :

All combinations of (1), (2) and (3)

(1) 3 levels of N as A/S : $N_0=0$, $N_1=25$ and $N_2=50$ lb./ac.

(2) 3 levels of P_2O_5 as Super : $P_0=0$, $P_1=20$ and $P_2=40$ lb./ac.

(3) 3 levels of K_2O as Mur. Pot. : $K_0=0$, $K_1=15$ and $K_2=30$ lb./ac.

3. DESIGN :

(i) 3^3 fact. confd. completely confounding N P² K³ component. (ii) (a) 9 plots/block ; 3 blocks/replication. (b) N.A. (iii) 2. (iv) and (v) N.A. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Height and yield of seed. (iv) 1958 to 1959. (b) Yes. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 57.0 lb./ac. (ii) 101.0 lb./ac. (iii) Main effect of N is highly significant and interactions N×K and P×K are significant. Other effects are not significant. (iv) Av. yield of seed in lb./ac.

	P ₀	P ₁	P ₂	Mean	K ₀	K ₁	K ₂
N ₀	340	339	487	388	400	460	305
N ₁	600	659	634	631	636	677	580
N ₂	744	670	659	691	658	646	769
Mean	561	556	593	570	565	594	551
K ₀	608	603	484				
K ₁	567	538	678				
K ₂	509	527	617				

S.E. of any marginal mean = 23.8 lb./ac.
 S.E. of body of any table = 41.2 lb./ac.

Crop :- Brassica (Rabi).

Ref :- U.P. 59(423).

Site :- Govt. Agri. Res. Farm, Kalianpur.

Type :- 'M'.

Object :- To study the effect of different levels of N, P and K applied alone and in combinations on the yield of Sarson.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) (a) Sandy loam. (b) Refer soil analysis, Kalianpur. (iii) 26.10.1959. (iv) (a) N.A. (b) Line sowing behind the plough. (c) N.A. (d) 18" x 6". (e) 1. (v) N.A. (vi) T—Gurgaon (late) brown sarson (*B. campestris* var. *dichotoma*). (vii) N.A. (viii) 1 weeding and 1 hoeing. (ix) N.A. (x) 25.2.1960.

2. TREATMENTS :

All combinations of (1), (2) and (3)

- (1) 3 levels of N : N₀=0, N₁=25 and N₂=50 lb./ac.
 (2) 3 levels of P₂O₅ : P₀=0, P₁=20 and P₂=40 lb./ac.
 (3) 3 levels of K₂O : K₀=0, K₁=15 and K₂=30 lb./ac.

3. DESIGN :

(i) 3³ fact. confd. completely confounding N P² K² interaction. (ii) (a) 9 plots/block ; 3 blocks/replication. (b) N.A. (iii) 2. (iv) (a) and (b) 1/80 ac. (v) Nil. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of seed. (iv) (a) 1958 to 1959. (b) Yes. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 403 lb./ac. (ii) 50.3 lb./ac. (iii) Main effect of N alone is highly significant. (iv) Av. yield of seed in lb./ac.

	P ₀	P ₁	P ₂	Mean	K ₀	K ₁	K ₂
N ₀	219	223	253	232	242	234	220
N ₁	417	426	458	434	439	416	446
N ₂	514	547	568	543	479	564	585
Mean	383	399	426	403	387	405	417
K ₀	344	398	419				
K ₁	392	407	415				
K ₂	414	391	445				

S.E. of any marginal mean = 11.9 lb./ac.
S.E. of body of any table = 20.5 lb./ac.

Crop :- Brassica (Rabi).

Ref :- U.P. 59(225).

Site :- Agri. College Farm, B.H.U, Varanasi.

Type :- 'M'.

Object :- To study the effect of different levels of N, P and K applied alone and in combinations on the yield of Sarson.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) *Sanai*. (c) N.A. (ii) (a) Light loam. (b) Refer soil analysis, Varanasi. (iii) N.A. (iv) (a) First ploughing given by mould board plough followed by 4 ploughings with *dest* plough. (b) Behind plough. (c) to (e) N.A. (v) N.A. (vi) T-10 yellow sarson (*B. campestris* var. *sarson*). (vii) Irrigated. (viii) 1 weeding and 1 thinning. (ix) N.A. (x) 8.3.1960.

2. TREATMENTS :

All combinations (1), (2) and (3)

(1) 3 levels of N as A/S : $N_0=0$, $N_1=30$ and $N_2=60$ lb./ac.

(2) 3 levels of P_2O_5 as Super : $P_0=0$, $P_1=20$ and $P_2=40$ lb./ac.

(3) 3 level of K_2O as Pot. Sul. : $K_0=0$, $K_1=20$ and 40 lb./ac.

N and K_2O top dressed 20 days after sowing with irrigation and P_2O_5 applied behind plough.

3. DESIGN :

(i) 3^3 fact. confd. in which 2nd order interaction is partially confounded. (ii) (a) 9 plcts/block ; 3 blocks/replication. (b) N.A. (iii) 4. (a) (vi) $34' \times 10'$. (b) $32' \times 8'$. (v) $1' \times 1'$. (vi) Yes.

4. GENERAL :

(i) N.A. (ii) Aphid infection. Gammexane was dusted for prevention of aphid attack but was not very effective. (iii) Yield of seed. (iv) (a) and (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 438 lb./ac. (ii) 65.9 lb./ac. (iii) Main effect of N, P and interaction $N \times P$ are highly significant. Interaction $N \times P \times K$ is significant. Other effects are not significant. (iv) Av. yield of seed in lb./ac.

	P_0	P_1	P_2	Mean	K_0	K_1	K_2
N_0	362	348	373	361	373	378	331
N_1	415	482	464	454	412	491	459
N_2	448	470	578	499	477	499	520
Mean	408	433	472	438	421	456	437
K_0	430	382	450				
K_1	407	482	479				
K_2	388	435	487				

S.E. of any marginal mean = 11.0 lb./ac.
S.E. of body of any table = 19.0 lb./ac.

Crop :- Brassica (Rabi).

Ref :- U.P. 58(397).

Site :- Tarai State Farm, Phoolbagh.

Type :- 'M'.

Object :- To study the effect of different levels of N and P on the yield of Toria.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) (a) Sandy loam. (b) N.A. (iii) to (v) N.A. (vi) *Toria* (*B. campestris* var. *toria* Duthie). (vii) to (x) N.A.

2. TREATMENTS :

All combinations of (1) and (2)

(1) 3 levels of N as A/S : $N_0=0$, $N_1=25$ and $N_2=50$ lb./ac.

(2) 3 levels of P_2O_5 as Super : $P_0=0$, $P_1=25$ and $P_2=50$ lb./ac.

Manures were mixed in soil with a cultivator at the sowing time.

3. DESIGN :

(i) Fact. in R.B.D. (ii) (a) 9. (b) N.A. (iii) 6. (iv) (a) N.A. (b) 1/80 ac. (v) N.A. (vi) Yes.

4. GENERAL :

(i) Satisfactory. (ii) N.A. (iii) Yield of seed. (iv) (a) and (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 1348 lb./ac. (ii) 283.0 lb./ac. (iii) Main effect of N alone is significant. (iv) Av. yield of seed in lb./ac.

	P_0	P_1	P_2	Mean
N_0	995	1372	1453	1273
N_1	1305	1170	1224	1233
N_2	1560	1480	1574	1538
Mean	1287	1341	1417	1348

S.E. of any marginal mean = 66.7 lb./ac.

S.E. of body of table = 115.5 lb./ac.

Crop :- Brassica (Rabi).

Ref :- U.P. 54(323).

Centre :- Kashipur (Nautal, c.f.).

Type :- 'M'.

Object :—To study the effect of different levels of P on the yield of *Toria*.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Maize for 5 trials, fallow for 4 trials, *guar* fodder for 1 trial, *sanai* G.M. for 1 trial and information N.A. for 2 trials. (c) N.A. (ii) Sandy to sandy loam. (iii) N.A. (iv) *B. campestris* var. *toria*. (v) (a) 6 to 8 ploughings by *desi* plough. (b) Broadcast. (c) 3 srs/ac. (d) and (e) N.A. (vi) 25.9.1954 to 23.10.1954. (vii) Unirrigated. (viii) and (ix) N.A. (x) 6.1.1955 to 13.2.1955.

2. TREATMENTS :

3 levels of P_2O_5 as Super : $P_0=0$, $P_1=25$ and $P_2=50$ lb./ac.

Super placed deep in furrows behind the plough just before sowing.

3. DESIGN :

(i) R.B.D. ; 3 plots/block. (ii) 7 villages were selected in the *tehsil*. In 1 village 6 fields, in another village 2 fields and in remaining 5 villages 1 field each were selected. (iii) (a) 66' × 33'. (b) 33' × 33'. (iv) Yes.

4. GENERAL :

(i) Good in 11 trials, normal in 2 trials and lodging in 3 trials. (ii) N.A. (iii) Yield of seed and straw. (iv) (a) No. (b) and (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 653 lb./ac. (ii) 59.4 lb./ac. (iii) Treatment differences are highly significant. (iv) Av. yield of seed in lb./ac.

Treatment	P ₀	P ₁	P ₂
Av. yield	571	658	730
S.E./mean = 16.5 lb./ac.			

Crop :- Brassica (Rabi).

Ref :- U.P. 54(322).

Centre :- Kichba (Nainital, c.f.).

Type :- 'M'.

Object :—To study the effect of different levels of P on the yield of Toria.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Maize for 7 trials, fallow for 2 trials, *dhaincha* G.M. for 3 trials and *guar* G.M. for 1 trial. (c) N.A. (ii) Loam to sandy loam. (iii) N.A. (iv) *B. campestris* var. *toria*. (v) (a) 6 to 8 ploughings by *desi* plough. (b) Broadcast. (c) 3 srs/ac. (d) and (e) N.A. (vi) 12 to 29.10.1954. (vii) 11 trials unirrigated, 1 trial irrigated and no information available for 1 trial. (viii) and (ix) N.A. (x) 29.1.1955 to 22.2.1955.

2. TREATMENTS :

Same as in expt. no. 54(323) on page 1482.

3. DESIGN :

(i) R.B.D. ; 3 plots/block. (ii) 5 villages were selected in the *tehsil*. In 1 village 6 fields, in 3 villages 2 fields and in 1 village 1 field were selected. (iii) (a) 66'×33'. (b) 33'×33'. (iv) Yes.

4. GENERAL :

(i) Good in 8 trials, normal in 3 trials, poor in 1 trial. Good except in treatment P₀ in 1 trial. (ii) Light damage by pest and disease in 3 trials. (iii) Yield of seed and straw. (iv) (a) 1953 to 1954. (b) and (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 792 lb./ac. (ii) 144.3 lb./ac. (iii) Treatment differences are highly significant. (iv) Av. yield of seed in lb./ac.

Treatment	P ₀	P ₁	P ₂
Av. yield	653	848	874
S.E./mean = 40.0 lb./ac.			

Crop :- Brassica (Rabi).

Ref :- U.P. 54(324).

Centre :- Bilaspur (Rampur, c.f.).

Type :- 'M'.

Object :—To study the effect of different levels of P on the yield of Toria.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) *Dhaincha*, maize. (c) N.A. (ii) Sandy loam. (iii) N.A. (iv) *B. campestris* var. *toria*. (v) (a) 6 to 8 ploughings by *desi* plough. (b) Broadcast. (c) 3 srs/ac. (d) and (e) N.A. (vi) 19 10 1954. (vii) Unirrigated. (viii) and (ix) N.A. (x) 14 and 15.2.1955.

2. TREATMENTS :

Same as in expt. no. 54(323) on page 1482.

3. DESIGN :

(i) R.B.D. ; 3 plots/block. (ii) One village was selected in the *tehsil* in which 2 fields were selected. (iii) (a) 66'×33'. (b) 33'×33'. (iv) Yes.

4. GENERAL :

(i) Good to normal. Lodging. (ii) N.A. (iii) Yield of seed and straw. (iv) (a) No. (b) and (c) Nil. (v) and (vi) Nil. (vii) Damage due to frost.

5. RESULTS :

(i) 630 lb./ac. (ii) 37.4 lb./ac. (iii) Treatment differences are not significant. (iv) Av. yield of seed in lb./ac.

Treatment	P ₀	P ₁	P ₂
Av. yield	570	660	660

S.E./mean = 26.4 lb./ac.

Crop :- Brassica.

Site :- Govt. Agri. Res. Farm, Kalianpur.

Ref :- U.P. 57(5).

Type :- 'CV'.

Object :- To find out the best time of sowing for Toria.

1. BASAL CONDITIONS :

(i) (a) No. (b) Wheat. (c) No. (ii) (a) Loam. (b) Refer soil analysis, Kalianpur. (iii) As per treatments. (iv) (a) to (e) N.A. (v) No. (vi) As per treatments. (vii) Irrigated. (viii) 1 weeding and 1 hoeing. (ix) No. (x) Toria local harvested on 15.12.1957.

2. TREATMENTS :

Main-plot treatments :

6 dates of sowing : D₁=10.9.1957, D₂=20.9.1957, D₃=30.9.1957, D₄=10.10.1957, D₅=20.10.1957 and D₆=30.10.1957.

Sub-plot treatments :

2 varieties : V₁=Local (medium) and V₂=Abohar (late).

3. DESIGN :

(i) Split-plot. (ii) (a) 6 main-plots/replication ; 2 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) and (b) 1/111 ac. (v) Nil. (vi) Yes.

4. GENERAL :

(i) First sowing was damaged by rains and later sowings were affected by aphid. (ii) There was some incidence of aphid which damaged mostly the later sown crop. Spraying once with diazinon could not control the incidence fully. (iii) Yield of seed. (iv) (a) and (b) No. (c) Nil. (v) (a) and (b) No. (vi) Nil. (vii) 6th sowing (30.10.1957) failed on account of aphid incidence, hence not included in the analysis.

5. RESULTS :

(i) 296 lb./ac. (ii) (a) 123.2 lb./ac. (b) 68.3 lb./ac. (iii) Main effects of D and V are highly significant and the interaction D×V is significant. (iv) Av. yield of seed in lb./ac.

	D ₁	D ₂	D ₃	D ₄	D ₅	Mean
V ₁	164	208	417	355	116	252
V ₂	278	422	522	394	83	340
Mean	221	315	470	374	100	296

S.E. of difference of two

1. D marginal means = 61.6 lb./ac.
2. V marginal means = 21.6 lb./ac.
3. V means at the same level of D = 48.3 lb./ac.
4. D means at the same level of V = 70.4 lb./ac.

Crop :- Brassica (Rabi).

Ref :- U.P. 58(387).

Site :- Govt. Agri. Res. Farm, Kalianpur.

Type :- 'CM'.

Object :- To study the effect of N and different spacings on the yield of Rai.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) (a) Sandy loam. (b) Refer soil analysis, Kalianpur. (iii) 21.10.1958. (iv) (a) N.A. (b) Line sowing behind the plough. (c) N.A. (d) As per treatments. (e) N.A. (v) N.A. (vi) Laha—101 (late) (*B. juncea*). (vii) Irrigated. (viii) and (ix) N.A. (x) 11.3.1959.

2. TREATMENTS:

Main-plot treatments:

3 row spacings : $R_1=18"$, $R_2=24"$ and $R_3=30"$.

Sub-plot treatments :

All combinations of (1) and (2)

(1) 3 plant spacings : $D_1=3"$, $D_2=6"$ and $D_3=9"$.(2) 3 levels of N : $N_0=0$, $N_1=30$ and $N_2=60$ lb./ac.

3. DESIGN .

(i) Split-plot. (ii) (a) 3 main-plots/replication ; 9 sub-plots/main-plot. (b) N.A. (iii) 2. (iv) and (v) N.A. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Height, number of branches, pods per plant and seed yield. (iv) (a) 1958—1959. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 1152 lb./ac. (ii) (a) 375.2 lb./ac. (b) 178.2 lb./ac. (iii) None of the effects is significant. (iv) Av. yield of seed in lb /ac.

	D_1	D_2	D_3	Mean	N_0	N_1	N_2
R_1	1203	1302	1320	1275	1194	1279	1352
R_2	1017	1201	1069	1096	1032	1210	1045
R_3	1175	1125	957	1085	1030	1110	1116
Mean	1132	1209	1115	1152	1085	1200	1171
N_0	991	1220	1045				
N_1	1305	1158	1136				
N_2	1099	1250	1164				

S.E. of difference of two

- | | |
|--|-----------------|
| 1. R marginal means | = 125.1 lb./ac. |
| 2. N or D marginal means | = 59.4 lb./ac. |
| 3. N or D means at the same level of R | = 102.9 lb./ac. |
| 4. R means at the same level of D or N | = 150.7 lb./ac. |
| S.E. of body $N \times D$ table | = 72.7 lb./ac. |

Crop :- Brassica (Rabi).

Ref :- U.P. 58(399).

Site :- Govt. Agri. Res. Farm, Kalianpur.

Type :- 'CM'.

Object :- To study the effect of different levels of N and spacings on the yield of Sarson.

1. BASAL CONDITIIONS :

(i) (a) to (c) N.A. (ii) (a) Loam. (b) Refer soil analysis, Kalianpur. (iii) 1.11.1958. (iv) (a) N.A. (b) Line sowing behind the plough. (c) N.A. (d) As per treatments. (e) N.A. (v) N.A. (vi) Type—1 (late) yellow sarson (*B. campestris* var. *sarson*). (vii) to (x) N.A.

2. TREATMENTS :

Main-plot treatments :

3 row spacings : $R_1=18''$, $R_2=24''$ and $R_3=30''$.

Sub-plot treatments :

All combinations of (1) and (2)

(1) 3 plant spacings : $D_1=3''$, $D_2=6''$ and $D_3=9''$.(2) 3 levels of N as A/S : $N_0=0$, $N_1=30$ and $N_2=60$ lb./ac.

3. DESIGN :

(i) Split-plot. (ii) (a) 3 main-plots/replication ; 9 sub-plots/main-plot. (b) N.A. (iii) 2. (iv) (a) and (b) 1/97.8 ac. (v) Nil. (vi) Yes.

4. GENERAL :

(i) and (ii) N A. (iii) Plant height and yield of seed. (iv) (a) 1958—1959. (b) No. (c) Nil. (v) (a) and (b) No. (vi) Nil. (vii) Modified in the year 1959. Expt. conducted during 1958 failed. Yield of treatment $R_1N_1D_2$ was estimated as it was missing.

5. RESULTS :

(i) 260 lb./ac. (ii) (a) 69.7 lb./ac. (b) 91.8 lb./ac. (iii) Main effect of N is highly significant and interaction $R \times D$ is significant. Other effects are not significant. (iv) Av. yield of seed in lb./ac.

	N_0	N_1	N_2	Mean	D_1	D_2	D_3
R_1	226	258	486	323	300	383	287
R_2	214	168	394	259	304	206	266
R_3	184	105	302	197	161	174	256
Mean	208	177	394	260	255	254	270
D_1	182	182	400				
D_2	256	131	375				
D_3	187	217	406				

S.E. of difference of two

1. R marginal means
 2. N or D marginal means
 3. D or N means at the same level of R
 4. R means at the same level of N or D
- S.E. of body of $N \times D$ table

With no value missing With one value missing

=	23.2	24.5
=	30.6	33.3
=	53.0	57.7
=	49.1	63.2
=	53.0	57.7

Crop :- Brassica (*Rabi*).

Site :- Agri. College Farm, B. H. U., Varanasi.

Ref :- U.P. 57(260).

Type :- 'CMV'.

Object:—To study the effect of varying levels of fertilizers and dates of sowing on the yield of Sarson varieties.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Fallow. (c) N.A. (ii) (a) Medium alluvial soil. (b) Refer soil analysis, Varanasi. (iii) As per treatments. (iv) (a) The land was well prepared and brought to very fine tilth. (b) Seeds were sown in rows at a depth of $1\frac{1}{2}''$ to $2''$. (c) $3\frac{1}{2}$ srs./ac. (d) Rows $1\frac{1}{4}'$ apart. (e) N.A. (v) 6 C.L./ac. of F.Y.M. (vi) As per treatments. (vii) Irrigated. (viii) Hoeings. (ix) N.A. (x) 24.1.1958.

2. TREATMENTS :

All combinations of (1), (2) and (3)

(1) 3 varieties of *sarson* : V_1 =Variety 'A' (late), V_2 =W.B. P-31 (early) and V_3 =M/3 (early).(2) 3 dates of sowing : S_1 =26.9.1957, S_2 =8.10.1957 and S_3 =20.10.1957.(3) 3 levels of fertilizers : M_0 =0, M_1 =40 lb./ac. of N+20 lb./ac. of P_2O_5 +20 lb./ac. of K_2O and M_2 =80 lb./ac. of N+40 lb./ac. of P_2O_5 +40 lb./ac. of K_2O .

3. DESIGN :

(i) 3^3 fact. confd. in which 2nd order interaction is partially confounded. (ii) (a) 9 plots/block ; 3 blocks/replication. (b) N.A. (iii) 4. (iv) (a) $30' \times 13'$. (b) $28\frac{1}{2}' \times 10'$. (v) $1\frac{1}{2}' \times \frac{1}{2}'$. (vi) Yes.

4. GENERAL :

(i) N.A. (ii) Aphid attack in few plants. Gammexane at 5 lb./ac. was dusted at the end of November followed by 2nd dusting at 10 lb./ac. in early December. (iii) Growth character and yield of seed. (iv) (a) and (b) No. (c) Nil. (v) (a) and (b) No. (vi) and (vii) Nil.

5. RESULTS :

(i) 806 lb./ac. (ii) 83.5 lb./ac. (iii) Main effects of S, M and interaction $S \times M$ are highly significant. Main effect of V is significant. No other effect is significant. (iv) Av. yield of seed in lb./ac.

	M_0	M_1	M_2	Mean	S_1	S_2	S_3
V_1	693	881	1014	863	861	923	804
V_2	617	815	944	792	789	862	726
V_3	568	857	868	764	743	865	684
Mean	626	851	942	806	798	883	738
S_1	634	805	954				
S_2	579	906	1165				
S_3	665	842	706				

S.E. of any marginal mean = 13.9 lb./ac.

S.E. of body of any table = 24.1 lb./ac.

Crop :- Brassica.

Ref :- U.P. 58(398).

Site :- Govt. Agri. Res. Farm, Kalianpur.

Type :- 'IM'.

Object :- To study the effect of different levels of N, P and irrigations on the yield of Rai.

1. BASAL CONDITIONS :

(i) to (c) N.A. (ii) (a) Loam soil. (b) Refer soil analysis, Kalianpur. (iii) 25.10.1958. (iv) (a) N.A. (b) Line sowing behind the plough. (c) to (e) N.A. (v) N.A. (vi) *Laha*-101 (late) (*B. juncea*). (vii) As per treatments. (viii) and (ix) N.A. (x) 10 and 14.3.1959.

2. TREATMENTS :

Main-plot treatments :

4 levels of irrigation : $I_1=0$, $I_2=1$, $I_3=2$, and $I_4=3$ irrigations.

Sub-plot treatments :

All combinations of (1) and (2)

(1) 3 levels of N : $N_0=0$, $N_1=30$ and $N_2=69$ lb./ac.(2) 3 levels of P_2O_5 : $P_0=0$, $P_1=25$ and $P_2=50$ lb./ac.1st irrigation given on 2.12.1958, 2nd on 7.1.1959 and 3rd irrigation could not be given. Hence I_3 and I_4 are identical.

3. DESIGN :

(i) Split-plot. (ii) (a) 4 main-plots/replication ; 9 sub-plots/main-plot. (b) N.A. (iii) 3. (iv) (a) $15' \times 36'$. (b) A.N. (v) N.A. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of seed. (iv) to (vi) N.A. (vii) As yield data for I_3 in Rep. II and I_3 and I_4 in Rep. III was not available, main-plot treatments have been analysed as completely randomized design.

5. RESULTS :

No irrigation (I_0)

(i) 958 lb./ac. (ii) 218.4 lb./ac. (iii) Only N effect is significant. (iv) Av. yield of seed in lb./ac.

	P ₀	P ₁	P ₂	Mean
N ₀	777	777	795	783
N ₁	1067	950	1032	1016
N ₂	1227	1046	948	1074
Mean	1024	924	925	958

S.E. of any marginal mean = 72.8 lb./ac.

S.E. of body of table = 726.1 lb./ac.

1 irrigation (I_1)

(i) 1001 lb./ac. (ii) 112.3 lb./ac. (iii) Only N effect is highly significant. (iv) Av. yield of seed in lb./ac.

	P ₀	P ₁	P ₂	Mean
N ₀	782	769	756	769
N ₁	1009	1110	1175	1098
N ₂	1180	1040	1192	1137
Mean	990	973	1041	1001

S.E. of any marginal mean = 37.4 lb./ac.

S.E. of body of table = 64.8 lb./ac.

2 irrigations (I_2)

(i) 1137 lb./ac. (ii) 166.9 lb./ac. (iii) Only N effect is highly significant. (iv) Av. yield of seed in lb./ac.

	P ₀	P ₁	P ₂	Mean
N ₀	899	890	1015	935
N ₁	1123	1261	1249	1211
N ₂	1171	1318	1305	1265
Mean	1064	1156	1190	1137

S.E. of any marginal mean = 55.6 lb./ac.

S.E. of body of table = 96.4 lb./ac.

Crop :- Brassica (Rabi).

Site :- Govt. Agri. Res. Farm, Kalianpur.

Ref :- U.P. 59(418).

Type :- 'IM'.

Object :- To study the effect of different levels of N, P and irrigation applied alone and in combinations on the yield of Rai.

BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) (a) Sandy loam. (b) Refer soil analysis, Kalianpur. (iii) 26.10.1959. (iv) (a) N.A. (b) Line sowing behind the plough. (c) N.A. (d) 18" x 6". (e) 1. (v) N.A. (vi) Laha-101 (late) (*B. juncea*). (vii) As per treatments. (viii) 1 weeding and 1 hoeing. (ix) N.A. (x) 17.3.1960.

2. TREATMENTS :**Main-plot treatments :**

3 levels of irrigation : $I_0=0$, $I_1=1$ and $I_2=2$ irrigations.

Sub-plot treatments :

All combinations of (1) and (2)

(1) 3 levels of N : $N_0=0$, $N_1=30$ and $N_2=60$ lb./ac.

(2) 3 levels of P_2O_5 : $P_0=0$, $P_1=25$ and $P_2=50$ lb./ac.

3. DESIGN :

(i) Split-plot. (ii) (a) 3 main-plots/replication ; 9 sub-plots/main-plot. (b) N.A. (iii) 2. (iv) (a) N.A. (b) $33\frac{1}{2}' \times 13'$. (v) N.A. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Height, number of branches number of pods per plant and yield of seed. (iv) (a) 1958-1959. (b) No. (c) Nil. (v) (a) and (b) No. (vi) and (vii) Nil.

5. RESULTS :

(i) 655 lb./ac. (ii) (a) 389.0 lb./ac. (b) 175.1 lb./ac. (iii) None of the effects is significant. (iv) Av. yield of seed in lb./ac.

	P_0	P_1	P_2	Mean	N_0	N_1	N_2
I_0	470	447	474	464	192	476	723
I_1	703	747	717	722	468	817	882
I_2	679	883	778	780	451	839	1049
Mean	617	692	656	655	370	711	885
N_0	282	444	385				
N_1	695	691	747				
N_2	875	942	837				

S.E. of difference of two

- | | |
|--|-----------------|
| 1. I marginal means | = 129.7 lb./ac. |
| 2. N or P marginal means | = 58.4 lb./ac. |
| 3. N or P means at the same level of I | = 101.1 lb./ac. |
| 4. I means at the same level of N or P | = 153.7 lb./ac. |
| S.E. of body of N x P table | = 71.5 lb./ac. |

Crop :- Brassica (Rabi).

Ref :- U.P. 58(384).

Site :- Govt. Agri. Res. Farm, Kalianpur.

Type :- 'IM'.

Object :-To study the effect different levels of N, P and irrigation on the yield of Sarson.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) (a) Sandy loam. (b) Refer soil analysis, Kalianpur. (iii) 7.11.1958. (iv) (a) N.A. (b) Line sowing behind the plough. (c) to (e) N.A. (v) N.A. (vi) T-15 (late) yellow sarson (*B. campestris* L. var. *sarson* Prain). (vii) Irrigated. (viii) and (ix) N.A. (x) March, 1959.

2. TREATMENTS :**Main-plot treatments :**4 levels of irrigation : $I_0=0$, $I_1=1$, $I_2=2$ and $I_3=3$ irrigations.**Sub-plot treatments :**

All combinations of (1) and (2)

(1) 3 levels of N : $N_0=0$, $N_1=25$ and $N_2=50$ lb./ac.(2) 3 levels of P_2O_5 : $P_0=0$, $P_1=20$ and $P_2=40$ lb./ac.**3. DESIGN :**(i) Split-plot. (ii) (a) 4 main-plots/replication ; 9 sub-plots/main-plot. (b) N.A. (iii) 2. (iv) (a) N.A. (b) $33\frac{1}{2}' \times 13'$. (v) N.A. (vi) Yes.**4. GENERAL :**

(i) and (ii) N.A. (iii) Height of plants and yield of seed. (iv) (a) 1958—1959. (b) No. (c) Nil. (v) and (vi) Nil. (vii) Experiment conducted during the year 1959 was modified and it failed.

5. RESULTS :

(i) 641 lb./ac. (ii) (a) 119.0 lb./ac. (b) 143.5 lb./ac. (iii) Main effect of N is highly significant and that of I is significant. Other effects are not significant. (iv) Av. yield of seed in lb./ac.

	N_0	N_1	N_2	Mean	P_0	P_1	P_2
I_0	386	570	406	454	393	497	471
I_1	538	729	662	643	636	581	712
I_2	677	934	857	823	755	868	846
I_3	522	780	628	643	679	580	670
Mean	531	753	638	641	616	631	675
P_0	481	697	669				
P_1	517	781	596				
P_2	594	781	649				

S.E. of difference of two

1. I marginal means	= 39.7 lb./ac.
2. N or P marginal means	= 41.4 lb./ac.
3. N or P means at the same level of I	= 82.9 lb./ac.
4. I means at the same level of N or P	= 78.4 lb./ac.
S.E. of body of N×P table	= 50.7 lb./ac.

Crop :- Brassica.**Ref :- U.P. 54(28).****Site :- Govt. Agri. Res. Farm, Kalianpur.****Type :- 'IMV'.**

Object :- To study the effect of different levels of irrigation and manure on different varieties of Mustard.

1. BASAL CONDITIONS :(i) (a) Nil. (b) Maize. (c) Nil. (ii) (a) Loam. (b) Refer soil analysis, Kalianpur. (iii) 8.10.1954. (iv) (a) to (c) N.A. (d) Rows $1\frac{1}{2}'$ apart. (e) N.A. (v) Nil. (vi) and (vii) As per treatments. (viii) and (ix) N.A. (x) 8 to 28.2.1955.**2. TREATMENTS :****Main-plot treatments :**2 levels of irrigation : $I_0=0$ and $I_1=1$ irrigation.**Sub-plot treatments :**2 levels of N as A/S : $N_0=0$ and $N_1=50$ lb./ac.**Sub-sub-plot treatments :**4 varieties : $V_1=$ Mustard A.G.H—A (late), $V_2=$ Mustard S.T. 30-1, $V_3=$ Rai type 11 and $V_4=$ Laha—101

3. DESIGN :

(i) Split-plot. (ii) (a) 2 main-plots/replication ; 2 sub-plots/main-plot and 4 sub-sub-plots/sub-plot. (b) N.A.
 (iii) 4. (iv) (a) 32' × 15'. (b) 32' × 13.5'. (v) 9" on either side. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Slight attack of aphids. (iii) Yield of seed. (iv) (a) 1954—contd. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 784 lb./ac. (ii) (a) 188.2 lb./ac. (b) 196.0 lb./ac. (c) 162.4 lb./ac. (iii) Main effect of V is highly significant and interactions V × I and V × N are significant. (iv) Av. yield of seed in lb./ac.

	V ₁	V ₂	V ₃	V ₄	Mean	N ₀	N ₁
I ₀	710	564	569	954	699	670	729
I ₁	763	591	961	1158	868	816	920
Mean	736	578	765	1056	784	743	824
N ₀	670	650	688	965			
N ₁	803	506	842	1147			

S.E. of difference of two

- | | | | |
|-----------------------------------|----------------|-----------------------------------|----------------|
| 1. I marginal means | = 47.0 lb./ac. | 6. V means at the same level of I | = 81.2 lb./ac. |
| 2. N marginal means | = 49.0 lb./ac. | 7. I means at the same level of V | = 84.6 lb./ac. |
| 3. V marginal means | = 57.4 lb./ac. | 8. V means at the same level of N | = 81.2 lb./ac. |
| 4. N means at the same level of I | = 69.3 lb./ac. | 9. N means at the same level of V | = 85.7 lb./ac. |
| 5. I means at the same level of N | = 67.9 lb./ac. | | |

Crop :- Brassica.

Ref :- U.P. 56(389).

Site :- Govt. Agri. Res. Farm, Kalianpur.

Type :- 'IMV'.

Object :- To study the effect of different levels of irrigation and manure on the yield of different varieties of Mustard.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) *Sanai* G.M. (c) Nil. (ii) (a) Loam. (b) Refer soil analysis, Kalianpur. (iii) 25.10.1956.
 (iv) (a) 3 ploughings and harrowing after turning *sanai*. (b) Line sowing. (c) to (e) N.A. (v) *Sanai* G.M.
 (vi) and (vii) As per treatments. (viii) Nil. (ix) and (x) N.A.

2. TREATMENTS :

Main-plot treatments :

2 levels of irrigation : I₀=No irrigation and I₁=One irrigation.

Sub-plot treatments :

2 levels of N as A/S : N₀=0 and N₁=50 lb./ac.

Sub-sub-plot treatments :

4 varieties : V₁=*Sarson* A.G.A.—A (late), V₂=*Sarson* type 30—1 (early), V₃=*Rai* type 11 (early) and V₄=*Laha*—101 (late).

3. DESIGN :

(i) Split-plot. (ii) (a) 2 main-plots/replication, 2 sub-plots/main-plot and 4 sub-sub-plots/sub plot. (b) N.A.
 (iii) 4. (iv) (a) 29' × 15'. (b) 29' × 13.5'. (v) 1 row on either side. (vi) Yes.

4. GENERAL :

(i) Satisfactory. (ii) No. (iii) Yield of seed. (iv) (a) 1954—1957. (b) No. (c) Nil. (v) (a) and (b) No.
 (vi) Nil. (vii) Experiments conducted during the years 1955 and 1957 partially failed and hence not included in the compendium.

5. RESULTS :

(i) 1691 lb./ac. (ii) (a) 703.8 lb./ac. (b) 111.3 lb./ac. (c) 168.7 lb./ac. (iii) Main effects of N and V are highly significant. (iv) Av. yield of seed in lb./ac.

	V ₁	V ₂	V ₃	V ₄	Mean	N ₀	N ₁
I ₀	1477	1505	1915	1826	1681	1554	1807
I ₁	1498	1498	1900	1912	1702	1567	1837
Mean	1488	1501	1908	1869	1691	1560	1822
N ₀	1348	1332	1804	1758			
N ₁	1627	1670	2011	1981			

S.E. of difference of two

- | | | | |
|-----------------------------------|-----------------|-----------------------------------|-----------------|
| 1. I marginal means | = 175.9 lb./ac. | 6. V means at the same level of I | = 84.4 lb./ac. |
| 2. N marginal means | = 27.8 lb./ac. | 7. I means at the same level of V | = 190.5 lb./ac. |
| 3. V marginal means | = 59.7 lb./ac. | 8. V means at the same level of N | = 84.4 lb./ac. |
| 4. N means at the same level of I | = 39.3 lb./ac. | 9. N means at the same level of V | = 78.2 lb./ac. |
| 5. I means at the same level of N | = 178.1 lb./ac. | | |

Crop :- Brassica (*Rabi*).

Ref :- U.P. 57(486).

Site :- Reg. Res. Stn., Nawabganj.

Type :- 'D'.

Object :- To evolve a suitable measure of control of Mustard aphid : *Seplocoryne indobrassicae* Das.

1. BASAL CONDITIONS :

- (i) (a) N.A. (b) Paddy. (c) N.A. (ii) (a) Clayey. (b) Refer soil analysis, Nawabganj. (iii) 9.11.1957.
 (iv) (a) to (e) N.A. (v) 25 lb./ac. of N as A/S. (vi) Yellow mustard (local). (vii) Irrigated. (viii) 1 thinning. (ix) and (x) N.A.

2. TREATMENTS :

- 6 spraying treatments : T₀=Control, T₁=Spraying with pyrocollid 1 : 800 at 80 gallons/ac., T₂=Spraying with 0.025% Endrin emulsion at 80 gallons/ac., T₃=Spraying with 0.075% Nicotine sulphate, 0.25% soft soap, 1.25% oil + a little quantity of soda and alcohol at 80 gallons/ac., T₄=Spraying with 0.033% Diazinon emulsion at 80 gallons/ac. and T₅=Spraying with tobacco soap infusion (1 : 1½ : 10) × 10 at 80 gallons/ac.

Two applications at fortnightly intervals.

3. DESIGN :

- (i) R.B.D. (ii) (a) 6. (b) 33' × 240'. (iii) 4. (iv) (a) and (b) 33' × 33'. (v) Nil. (vi) Yes.

4. GENERAL :

- (i) N.A. (ii) As per treatments. (iii) The number of aphid colonies present on ten mustard plants selected at random from each experimental bed will be recorded before the application of treatments and after 48 hours and 72 hours by counting the surviving colonies on the plant as indicated above. (iv) (a) and (b) No. (c) Nil. (v) (a) and (b) No. (vi) Nil. (vii) The experiment was originally laid with four replications but the analysis has been done with two replications as there was practically no crop left in blocks III and IV.

5. RESULTS :

- (i) 6.01. (ii) 0.87. (iii) Treatment differences are highly significant. (iv) Av. value of \sqrt{x} [where x=no. of counts of colonies present on 10 mustard plants 72 hours after 2nd application of treatment.]

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄	T ₅
Av. value	11.30	4.46	6.66	3.39	3.08	7.18

S.E./mean = 0.62

Crop :- Garlic (*Rabi*).

Ref :- U.P. 57(263).

Site :- Agri. College Farm, B.H.U., Varanasi.

Type :- 'M'.

Object :- To study the effect of different levels of N, P and K on Garlic.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Fallow. (c) Nil. (ii) (a) Medium alluvial soil. (b) Refer soil analysis, Varanasi. (iii) 8.11.1957. (iv) (a) 5 ploughings and 3 plankings. (b) and (c) N.A. (d) 5"×5". (e) N.A. (v) 15mds./ac. of F.Y.M. (vi) N.A. (vii) Irrigated. (viii) 3 weedings and 3 hoeings. (ix) N.A. (x) 16.4.1958.

2. TREATMENTS :

All combinations of (1), (2) and (3)

- (1) 3 levels of N as A/S : $N_0=0$, $N_1=40$ and $N_2=80$ lb./ac.
 (2) 3 levels of P_2O_5 as Super : $P_0=0$, $P_1=80$ and $P_2=160$ lb./ac.
 (3) 3 levels of K_2O as Pot. Sul. : $K_0=0$, $K_1=40$ and $K_2=80$ lb./ac.

3. DESIGN :

(i) Fact. in R.B.D. (ii) (a) 27. (b) N.A. (iii) 4. (iv) (a) 17'×20'. (b) 14'×17'. (v) 1½'×1½'. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of garlic. (iv) (a) and (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 3180 lb./ac. (ii) 585.5 lb./ac. (iii) Main effect of N alone is highly significant. (iv) Av. yield of garlic in lb /ac.

	N_0	N_1	N_2	Mean	K_0	K_1	K_2
P_0	2169	3215	3999	3128	3287	2948	3148
P_1	1948	3218	4225	3130	3494	3095	2801
P_2	2549	3182	4115	3282	3212	3475	3159
Mean	2222	3205	4113	3180	3331	3173	3036
K_0	2129	3566	4298				
K_1	2175	3080	4264				
K_2	2362	2969	3777				

S.E. of any marginal mean = 97.6 lb./ac.

S.E. of body of any table = 169.1 lb./ac.

Crop :- Garlic (Rabi).

Ref:- U.P. 54(220).

Site :- Agri. College Farm, B.H.U., Varanasi.

Type :- 'CM'.

Object :-To study the effect of different levels of macro and micro elements and different spacings on the yield of Garlic.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Fallow. (c) Nil. (ii) (a) Sandy loam. (b) Refer soil analysis, Varanasi. (iii) 1.11.1954. (iv) (a) Ploughings. (b) and (c) N.A. (d) As per treatments. (e) N.A. (v) N.A. (vi) *Allium sativum L.* (vii) Irrigated. (viii) and (ix) N.A. (x) 5.4.1955.

2. TREATMENTS :

All combinations of (1), (2) and (3)

- (1) 3 levels of micro element mixture : $E_0=0$, $E_1=4.99$ and $E_2=7.48$ lb./ac.
 (2) 3 levels of macro element mixture : $M_0=0$, $M_1=50$ and $M_2=75$ lb./ac.
 (3) 3 spacings between rows : $S_1=3'$, $S_2=5'$ and $S_3=7'$.

Micro element mixture contains 0.74 lb. of Borax, 4.01 lb. of Zinc Oxide and 0.24 lb. of Ammo. Molybdate.

3. DESIGN :

(i) Fact. in R.B.D. (ii) (a) 27. (b) N.A. (iii) 3. (iv) (a) 17'×13'. (b) 15'×11'. (v) 1'×1'. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of garlic. (iv) (a) and (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 2089 lb./ac. (ii) 607.8 lb./ac. (iii) Main effects of E, M and S are significant. (iv) Av. yield of garlic in lb./ac.

	E ₀	E ₁	E ₂	Mean	S ₁	S ₂	S ₃
M ₀	1003	1639	1452	1365	1507	1485	1104
M ₁	1465	2592	2114	2057	2339	1948	1885
M ₂	2038	3067	2827	2844	2981	2992	2558
Mean	1502	2633	2131	2089	2275	2142	1849
S ₁	1747	2955	2123				
S ₂	1594	2696	2136				
S ₃	1166	2248	2133				

S.E. of any marginal mean = 117.0 lb./ac.
 S.E. of body of any table = 202.6 lb./ac.

Crop :- Barley (Rabi).**Ref :- U.P. 56(324).****Site :- Students' Instrl. Farm, Govt. Agri. College, Kanpur. Type :- 'CM'.**

Object :—To study the residual effect of cultural and manurial treatments applied to previous maize crop on the yield of Barley fodder.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Maize. (c) As per treatments. (ii) (a) Sandy loam. (b) Refer soil analysis, Kanpur. (iii) 2.11.1956. (iv) (a) 3 ploughings and 1 planking. (b) N.A. (c) 40 srs./ac. (d) 9" between rows. (e) N.A. (v) Nil. (vi) T—251. (vii) Irrigated. (viii) N.A. (ix) 2.19". (x) 7.4.1957.

2. TREATMENTS :

All combinations of (1), (2) and (3)

(1) 3 sources of 60 lb./ac. of N : S₀=Control (no application), S₁=A/S and S₂=Urea.(2) 2 seed treatments : T₀=Untreated and T₁=Seeds treated with cerasan 1 : 400(3) 2 levels of earthing : E₀=No earthing and E₁=Earthing.

These treatments along with a B.D. of 30 lb./ac. of N as F.Y.M. were applied to previous maize crop.

3. DESIGN :

(i) R.B.D. (ii) (a) 12. (b) 180'×242'. (iii) 4. (iv) (a) 19'×41'. (b) 15'×37'. (v) 2'×2'. (vi) Yee.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of fodder. (iv) (a) and (b) No. (c) Nil. (v) (a) and (b) N.A. (vi) Nil. (vii) The plot-wise data and two-way tables are N.A.

5. RESULTS :

(i) 4680 lb./ac. (ii) 760.3 lb./ac. (iii) Main effect of F alone is highly significant. (iv) (a) Av. yield of fodder in lb./ac.

Treatment	F ₀	F ₁	F ₂	T ₀	T ₁	E ₀	E ₁
Av. yield	3920	4944	5176	4884	4476	4581	4779

S.E. of F marginal mean = 190.0 lb./ac.
 S.E. of T or E marginal mean = 155.1 lb./ac.

Crop :- Berseem (Rabi).**Ref :- U.P. 54(120).****Site :- State Mechanised Farm, Bharari.****Type :- 'M'.**

Object :—To study the effect of trace elements on the yield of Berseem fodder.

1. BASAL CONDITIONS :

(i) (a) Paddy—Berseem. (b) Paddy. (c) N.A. (ii) (a) *Kabar* soil. (b) Refer soil analysis, Bharari. (iii) 11.11.1954. (iv) (a) 1 ploughing with disc plough and 1 harrowing. (b) Broadcast. (c) 10 srs./ac. (d) and (e) N.A. (v) 20 lb./ac. of N as A/S + 40 lb./ac. of P_2O_5 as Super + 20 lb./ac. of K_2O as Pot. Sul. + 30 lb./ac. of CaO as Gypsum. (vi) N.A. (vii) Irrigated. (viii) and (ix) N.A. (x) 4.1.1955 to 30.4.1955.

2. TREATMENTS :

8 trace element treatments : T_0 =Control, T_1 =2 lb./ac. of Borax, T_2 =5 lb./ac. of $CuSO_4$, T_3 =5 lb./ac. of $ZnSO_4$, T_4 =5 lb./ac. of Manganese Sulphate, T_5 =6 lb./ac. of Molybdic acid, T_6 =10 lb./ac. of Sulphur and T_7 =5 lb./ac. of $FeSO_4$.

Trace elements applied mixed with fine dry earth as surface dressing a day before sowing so as to secure uniform distribution within the plot.

3. DESIGN :

(i) R.B.D. (ii) (a) 8. (b) N.A. (iii) 4. (iv) (a) $42' \times 23'$. (b) $39' \times 20'$. (v) $1\frac{1}{2}' \times 1\frac{1}{2}'$. (vi) Yes.

4. GENERAL :

(i) N.A. (ii) Nil. (iii) Yield of fodder. (iv) (a) 1954—contd. (b) No. (c) Nil. (v) (a) Madhurikund. (b) Nil. (vi) and (vii) Nil.

5. RESULTS :

(i) 21.76 tons/ac. (ii) 1.49 tons/ac. (iii) Treatment differences are highly significant. (iv) Av. yield of fodder in tons/ac.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5	T_6	T_7
Av. yield	20.07	22.39	23.34	22.30	22.06	19.33	23.35	21.20

S.E./mean = 0.74 tons/ac

Crop :- Berseem (Rabi).**Ref :- U.P. 55(276).****Site :- State Mechanised Farm, Bharari.****Type :- 'M'.**

Object :—To study the effect of trace elements on the yield of Berseem fodder.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) (a) *Parwa* soil. (b) Refer soil analysis, Bharari. (iii) 28.11.1955. (iv) (a) 2 harrowings. (b) Broadcast. (c) 12 srs./ac. (d) and (e) N.A. (v) 20 lb./ac. of N as A/S + 50 lb./ac. of P_2O_5 as Super. (vi) N.A. (vii) Irrigated. (viii) and (ix) N.A. (x) 20.2.1956 and 20.3.1956.

2. TREATMENTS :

Same as in expt. no. 54(120) above.

3. DESIGN :

(i) R.B.D. (ii) (a) 8. (b) N.A. (iii) 3. (iv) (a) $41' \times 28'$. (b) $38' \times 24'$. (v) $1\frac{1}{2}' \times 2'$. (vi) Yes.

4. GENERAL :

(i) N.A. (ii) Nil. (iii) Yield of fodder. (iv) (a) 1954—contd. (b) No. (c) Nil. (v) (a) Madhurikund. (b) Nil. (vi) and (vii) Nil.

5. RESULTS :

(i) 13.49 tons/ac. (ii) 1.21 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of fodder in tons/ac.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5	T_6	T_7
Av. yield	13.30	14.91	13.52	13.16	12.28	14.04	13.96	12.72

S.E./mean = 0.70 tons/ac.

Crop :- Berseem (Rabi).

Ref :- U.P. 56(292).

Site :- State Mechanised Farm, Bharari.

Type :- 'M'.

Object :- To study the effect of trace elements on the yield of Berseem fodder.

1. BASAL CONDITIONS :

(i) (a) Paddy—Berseem. (b) Paddy. (c) N.A. (ii) (a) Parwa soil. (b) Refer soil analysis, Bharari. (iii) 14.11.1956. (iv) (a) 1 ploughing and 2 harrowings. (b) Broadcast. (c) 10 srs./ac. (d) and (e) N.A. (v) 20 lb./ac. of N as A/S+50 lb/ac. of P_2O_5 as Super. (vi) N.A. (vii) Irrigated. (viii) and (ix) N.A. (x) 11.1.1957 to 19.4.1957.

2. TREATMENTS :

Same as in expt. no. 54(123) on page 1495.

3. DESIGN :

(i) R.B.D. (ii) (a) 8. (b) N.A. (iii) 4. (iv) (a) $41' \times 28'$. (b) $38' \times 25'$. (v) $1\frac{1}{2}' \times 1\frac{1}{2}'$. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of fodder. (iv) (a) 1954—contd. (b) No. (c) Nil. (v) (a) Madhurikund. (b) Nil. (vi) and (vii) Nil.

5. RESULTS :

(i) 22.40 tons/ac. (ii) 3.46 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of fodder in tons/ac.

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄	T ₅	T ₆	T ₇
Av. yield	20.85	21.03	22.10	23.19	22.07	23.47	21.14	25.37

S.E./mean = 1.73 tons/ac.

Crop :- Berseem (Rabi).

Ref :- U.P. 55(175).

Site :- State Mechanised Farm, Bharari.

Type :- 'M'.

Object :- To study the effect of P along with minor elements on the yield of Berseem fodder.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Paddy. (c) Sanai (G.M.)+1 md./ac. of A/S. (ii) (a) Light kabar. (b) Refer soil analysis, Bharari. (iii) 29.10.1955. (iv) (a) 1 ploughing and 1 harrowing. (b) Broadcast. (c) 10 srs./ac. (d) and (e) N.A. (v) Nil. (vi) N.A. (vii) Irrigated. (viii) N.A. (ix) 8.41". (x) 27.12.1955 to 12.4.1956.

2. TREATMENTS :

Main-plot treatments :

2 levels of P_2O_5 as triple Super : $P_0=0$ and $P_1=50$ lb./ac.

Sub-plot treatments :

All combinations of (1) and (2)

(1) 2 levels of Boron as Sod. Borate : $B_0=0$ and $B_1=4$ ozs./ac.(2) 2 levels of Mo as Ammo. Molybdate : $M_0=0$ and $M_1=4$ ozs./ac.

Treatments applied one day before sowing.

3. DESIGN :

(i) Split-plot. (ii) (a) 2 main-plots/replication ; 4 sub-plots/main-plot. (b) N.A. (iii) 2. (iv) (a) and (b) $45' \times 12.1'$. (v) Nil. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of fodder. (iv) (a) 1955—1957. (b) N.A. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 26.79 tons./ac. (ii) (a) 1.07 tons/ac. (b) 1.94 tons/ac. (iii) None of the effects is significant. (iv) **Av.** yield of fodder in tons/ac.

	B ₀	B ₁	Mean	M ₀	M ₁
P ₀	26.11	25.88	26.00	25.38	26.61
P ₁	27.15	28.04	27.59	27.65	27.54
Mean	26.63	26.96	26.79	26.52	27.07
M ₀	26.43	26.61			
M ₁	26.83	27.31			

S.E. of difference of two

- | | |
|--|-----------------|
| 1. P marginal means | = 0.54 tons/ac. |
| 2. B or M marginal means | = 0.97 tons/ac. |
| 3. B or M means at the same level of P | = 1.37 tons/ac. |
| 4. P means at the same level of B or M | = 1.11 tons/ac. |
| S.E. of body of B×M table | = 0.97 tons/ac. |

Crop :- Berseem (Rabi).

Ref :- U.P. 56(150).

Site :- State Mechanised Farm, Bharari.

Type :- 'M'.

Object :- To study the effect of P along with other minor elements on the yield of Berseem fodder.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Paddy. (c) N.A. (ii) (a) Heavy *parwa*. (b) Refer soil analysis, Bharari. (iii) 1.11.1956. (iv) (a) 2 harrowings. (b) Broadcast. (c) 10 srs /ac. (d) and (e) N.A. (v) Nil. (vi) N.A. (vii) Irrigated. (viii) N.A. (ix) 1.79". (x) 2.1.1957 to 6.4.1957.

2. TREATMENTS and 3. DESIGN :

Same as in expt. no. 55(175) on page 1496.

4. GENERAL :

(i) In the beginning the growth was poor. (ii) N.A. (iii) Yield of fodder. (iv) (a) 1955—1957. (b) N.A. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 14.49 tons/ac. (ii) (a) 1.20 tons/ac. (b) 2.79 tons/ac. (iii) None of the effects is significant. (iv) **Av.** yield of fodder in tons/ac.

	B ₀	B ₁	Mean	M ₀	M ₁
P ₀	11.67	11.22	11.44	10.43	12.46
P ₁	17.00	18.07	17.54	17.16	17.91
Mean	14.34	14.64	14.49	13.80	15.18
M ₀	13.11	14.48			
M ₁	15.56	14.81			

S.E. of difference of two

1. P marginal means	= 0.60 tons/ac.
2. B or M marginal means	= 1.39 tons/ac.
3. B or M means at the same level of P	= 1.97 tons/ac.
4. P means at the same level of B or M	= 1.52 tons/ac.
S.E. of body of B×M table	= 1.39 tons/ac.

Crop :- Berseem (Rabi).

Ref :- U.P. 57(226).

Site :- State Mechanised Farm, Bharari.

Type :- 'M'.

Object :—To study the effect of P along with other minor elements on the yield of Berseem fodder.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Paddy. (c) N.A. (ii) (a) Heavy *parwa*. (b) Refer soil analysis, Bharari. (iii) 8.11.1957. (iv) (a) 1 ploughing and 2 harrowings. (b) Broadcast. (c) 10 srs./ac. (d) and (e) N.A. (v) Nil. (vi) N.A. (vii) Irrigated. (viii) N.A. (ix) 0.52". (x) 10.1.1958 to 4.4.1958.

2. TREATMENTS and 3. DESIGN :

Same as in expt. no. 55(175) on page 1496.

4. GENERAL :

(i) Unsatisfactory. (ii) N.A. (iii) Yield of green fodder. (iv) (a) 1955—1957. (b) N.A. (c) Nil. (v) and (vi) Nil. (vii) Germination poor due to late sowing.

5. RESULTS :

(i) 15.88 tons/ac. (ii) (a) 3.62 tons/ac. (b) 2.02 tons/ac. (iii) None of the effects is significant. (iv) Av. yield of fodder in tons/ac.

	B ₀	B ₁	Mean	M ₀	M ₁
P ₀	14.40	15.06	14.73	14.62	14.84
P ₁	16.89	17.16	17.03	15.96	18.10
Mean	15.64	16.11	15.88	15.29	16.47
M ₀	14.82	15.76			
M ₁	16.47	16.46			

S.E. of difference of two

1. P marginal means	= 1.81 tons/ac.
2. B or M marginal means	= 1.01 tons/ac.
3. B or M means at the same level of P	= 1.43 tons/ac.
4. P means at the same level of B or M	= 2.07 tons/ac.
S.E. of body of B×M table	= 1.01 tons/ac.

Crop :- Berseem (Rabi).

Ref :- U.P. 57(342).

Site :- Instt. of Crop Physiology, Dilkusha.

Type :- 'M'.

Object :—To study the effect of spraying of trace elements on the yield of Berseem fodder.

1. BASAL CONDITIONS :

(i) (a) Paddy—Berseem. (b) Paddy. (c) N.A. (ii) (a) Clay loam. (b) Refer soil analysis, Dilkusha. (iii) 8.12.1957. (iv) (a) 4 diggings by *kudalt*. (b) Broadcast. (c) 10 srs./ac. (d) and (e) N.A. (v) and (vi) N.A. (vii) Irrigated. (viii) and (ix) N.A. (x) 9.1.1958 to 8.4.1958.

2. TREATMENTS :

6 trace element treatments : T_0 =Control, T_1 =0.001 % solution of Ammo. Molybdate (34.5 % of Mo), T_2 =0.01% solution of Boric acid (16.2 % of B), T_3 =0.02 % solution of $FeSO_4$ (20.7 % of Fe), T_4 =0.02 % solution of $MnSO_4$ (24.8 % of Mn) and T_5 =0.02% solution of $CuSO_4$ (25.4 % of Cu).

Treatments sprayed 3 times, 2 weeks before each cutting.

3. DESIGN :

(i) R.B.D. (ii) (a) 6. (b) N.A. (iii) 4. (iv) (a) N.A. (b) $14' \times 6'$. (v) N.A. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Fodder yield. (iv) (a) N.A. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 35.44 tons/ac. (ii) 1.98 tons/ac. (iii) Treatment differences are significant. (iv) Av. yield of fodder in tons/ac.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5
Av. yield	32.62	37.62	36.55	34.05	35.95	35.84

S.E./mean = 0.99 tons/ac.

Crop :- Berseem (Rabi).

Ref :- U.P. 59(411).

Site :- Govt. Agri. Farm, Kalai.

Type :- 'M'.

Object :-To study the effect of trace elements with and without P on the yield of Berseem fodder.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Maize. (c) N.A. (ii) (a) Loam. (b) Refer soil analysis, Kalai. (iii) 7.10.1959. (iv) (a) 1 ploughing by Victory plough, 2 ploughings by *desi* plough and planking after each ploughing. (b) Broadcast. (c) 7 to 8 srs./ac. (d) and (e) N.A. (v) Nil. (vi) N.A. (vii) Irrigated. (viii) Nil. (ix) N.A. (x) 23.11.1959 to 26.3.1960.

2. TREATMENTS :

All combinations of (1) and (2)

(1) 3 levels of P_2O_5 as Super : $P_0=0$, $P_1=50$ and $P_2=100$ lb./ac.

(2) 3 applications of trace elements : T_0 =No trace element, $T_1=8$ ozs./ac. of B as Sodium Borate, $T_2=8$ ozs./ac. of Mo as Ammo. Molybdate.

Super and trace elements mixed with soil and broadcast before sowing.

3. DESIGN :

(i) Fact. in R.B.D. (ii) (a) 9. (b) $26.0' \times 203.5'$. (iii) 2. (iv) (a) and (b) $26' \times 20'10''$. (v) Nil. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of green fodder. (iv) (a) 1959—contd. (b) Yes. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 25.34 tons/ac. (ii) 1.41 tons/ac. (iii) P effect is highly significant and T effect is significant. (iv) Av yield of fodder in tons/ac.

	T_0	T_1	T_2	Mean
P_0	21.67	21.33	23.86	22.29
P_1	23.86	26.28	26.42	25.52
P_2	27.55	27.20	29.89	28.21
Mean	24.36	24.94	26.72	25.34

S.E. of any marginal mean = 0.58 tons/ac.
S.E. of body of table = 1.00 tons/ac.

Crop :- Berseem (Rabi).

Ref :- U.P. 54(121).

Site :- State Live Stock-Cum-Agri. Farm, Madhurikund. Type :- 'M'.

Object :-To study the effect of trace elements on the yield of Berseem fodder..

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Paddy. (c) N.A. (ii) (a) Loam. (b) Refer soil analysis, Madhurikund. (iii) N.A. (iv) (a) 1 ploughing, 2 harrowings and 1 planking. (b) Broadcast. (c) 10 srs./ac. (d) and (e) N.A. (v) 20 lb./ac. of N as A/S+40 lb./ac. of P₂O₅ as Super+20 lb./ac. of K₂O as Pot. Sul.+30 lb./ac. of CaO as gypsum. (vi) N.A. (vii) Irrigated. (viii) and (ix) N.A. (x) 22.1.1955 to 6.5.1955.

2. TREATMENTS :

8 trace element treatments : T₀=Control, T₁=2 lb./ac. of Borax, T₂=5 lb./ac. of CuSO₄, T₃=5 lb./ac. of ZnSO₄, T₄=5 lb./ac. of MnSO₄, T₅=6 lb./ac. of Molybdic acid, T₆=10 lb./ac. of Sulphur and T₇=5 lb./ac. of FeSO₄.

Trace elements applied mixed with fine dry earth as surface dressing a day before sowing so as to secure uniform distribution within the plots.

3. DESIGN :

(i) R.B.D. (ii) (a) 8. (b) N.A. (iii) 4. (iv) (a) 41'×29'. (b) 38'×26'. (v) 1½'×1½'. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of fodder. (iv) (a) 1954—N.A. (b) No. (c) Nil. (v) (a) Bharari. (b) Nil. (vi) and (vii) Nil.

5. RESULTS :

(i) 28.13 tons/ac. (ii) 3.47 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of green fodder in tons/ac.

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄	T ₅	T ₆	T ₇
Av. yield	30.89	28.00	26.29	27.83	28.28	29.09	26.88	27.81

S.E./mean = 1.74 tons/ac.

Crop :- Berseem (Rabi).

Ref :- U.P. 56(289).

Site :- State Live Stock-Cum-Agri. Farm, Madhurikund. Type :- 'M'.

Object :-To study the effect of trace elements on the yield of Berseem fodder.

1. BASAL CONDITIONS :

(i) (a) Berseem—Paddy—Jowar. (b) Jowar. (c) N.A. (ii) (a) Heavy loam. (b) Refer soil analysis, Madhurikund. (iii) 9.11.1956. (iv) (a) 1 ploughing and 1 harrowing. (b) Broadcast. (c) 10 srs./ac. (d) and (e) N.A. (v) 20 lb./ac. of N as A/S+50 lb./ac. of P₂O₅ as Super. (vi) N.A. (vii) Irrigated. (viii) and (ix) N.A. (x) 18.1.1957 to 15.4.1957.

2. TREATMENTS :

Same as in expt. no. 54(121) above.

3. DESIGN :

(i) R.B.D. (ii) (a) 8. (b) N.A. (iii) 4. (iv) (a) 41'×28'. (b) 38'×25'. (v) 1½'×1½'. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of fodder. (iv) (a) 1954—N.A. (b) No. (c) Nil. (v) (a) Bharari. (b) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 37.95 tons/ac. (ii) 3.38 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of fodder in tons/ac.

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄	T ₅	T ₆	T ₇
Av. yield	38.01	39.05	38.65	36.96	39.12	33.86	36.97	40.96

S.E./mean = 1.69 tons/ac.

Crop :- **Berseem (Rabi).**

Ref :- U.P. 59(37).

Site :- **Reg. Res. Stn., Meerut.**

Type :- 'M'.

Object :—To study the effect of P on the yield of Berseem.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) *Jowar*. (c) Nil. (ii) (a) Silt loam. (b) Refer soil analysis, Meerut. (iii) 25.11.1959. (iv) (a) 1 ploughing by soil turning plough and 2 ploughings by *desi* plough. (b) Broadcast. (c) 10 srs/ac. (d) and (e) N.A. (v) Nil. (vi) Egyptian Clover. (vii) Irrigated. (viii) Nil. (ix) 1.01". (x) 30.3.1960 and 3.6.1960.

2. TREATMENTS :

3 levels of P₂O₅ : P₀=0, P₁=40 and P₂=80 lb./ac.

3. DESIGN :

(i) R.B.D. (ii) (a) 3. (b) 153' × 51'. (iii) 4. (iv) (a) and (b) 36' × 15'. (v) Nil. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Nil. (iii) Yield of fodder and grain. (iv) 1959—contd. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

I Fodder

(i) 7.60 tons/ac. (ii) 0.85 tons/ac. (iii) Treatment differences are highly significant. (iv) Av. yield of fodder in tons/ac.

Treatment	P ₀	P ₁	P ₂
Av. yield	5.82	7.73	9.26

S.E./mean = 0.42 tons/ac.

II Grain

(i) 647 lb./ac. (ii) 119.1 lb./ac. (iii) Treatment differences are not significant. (iv) Av. yield of grain in lb./ac.

Treatment	P ₀	P ₁	P ₂
Av. yield	540	740	662

S.E./mean = 59.5 lb./ac.

Crop :- **Berseem (Rabi).**

Ref :- U.P. 59(39).

Site :- **Reg. Res. Stn., Meerut.**

Type :- 'M'.

Object :— To study the residual effect of different manures applied to previous paddy crop on the yield of Berseem.

1. BASAL CONDITIONS :

(i) (a) Paddy—Berseem. (b) Paddy. (c) As per treatments. (ii) (a) Clayey loam. (b) Refer soil analysis, Meerut. (iii) 11.6.1960. (iv) (a) 1 ploughing by soil turning plough and 2 ploughings by *desi* plough. (b) Broadcast. (c) 10 srs./ac. (d) and (e) N.A. (v) Nil. (vi) Egyptian Clover. (vii) Irrigated. (viii) Nil. (ix) 1.01". (x) 8.11.1959.

2. TREATMENTS :

10 manurial treatments: M_0 =Control, M_1 =20 lb./ac. of N as A/S, M_2 =40 lb./ac. of N as A/S, M_3 = M_1 +40 lb./ac. of P_2O_5 as Super, M_4 =20 lb./ac. of N as F.Y.M., M_5 =40 lb./ac. of N as F.Y.M., M_6 = M_4 +40 lb./ac. of P_2O_5 as Super, M_7 = M_1 + M_4 , M_8 = M_1 + M_4 +40 lb./ac. of P_2O_5 as Super and M_9 =40 lb./ac. of P_2O_5 as Super.

Manures applied to previous paddy crop.

3. DESIGN :

(i) R.B.D. (ii) (a) 10. (b) 39'×234'6". (iii) 4. (iv) (a) and (b) 39'×20'. (v) Nil. (vi) Yes.

4. GENERAL :

(i) N.A. (ii) Nil. (iii) Yield of grain. (iv) (a) and (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 102 lb./ac. (ii) 85.9 lb./ac. (iii) Treatment differences are not significant. (iv) Av. yield of grain in lb./ac.

Treatment	M_0	M_1	M_2	M_3	M_4	M_5	M_6	M_7	M_8	M_9
Av. yield	63	139	64	150	70	70	181	134	101	45

S.E./mean = 42.9 lb./ac.

Crop :- Berseem (Rabi).

Ref :- U.P. 57(99).

Site :- Reg. Res. Stn., Nawabganj.

Type :- 'M'.

Object :— To study the effect of trace elements on Berseem fodder.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) (a) Clayey loam. (b) Refer soil analysis, Nawabganj. (iii) 1st week of Nov., 1957. (iv) (a) N.A. (b) Broadcast. (c) 10 srs./ac. (d) and (e) N.A. (v) Nil. (vi) N.A. (vii) Irrigated. (viii) N.A. (ix) 0.59". (x) 25.1.1958, 4.3.1958 and 2.4.1958.

2. TREATMENTS :

Same as in expt. no. 57(34) on page 1498.

3. DESIGN :

(i) R.B.D. (ii) (a).6. (b) N.A. (iii) 4. (iv) (a) 27'×28'. (b) 24'×25'. (v) 1½'×1½'. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of fodder. (iv) (a) and (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 6.08 tons/ac. (ii) 1.09 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of fodder in tons/ac.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5
Av. yield	5.81	7.14	5.77	5.48	5.91	6.38

S.E./mean = 0.54 tons/ac.

Crop :- Berseem (Rabi).
Site :- Govt. Res. Farm, Pura.

Ref :- U.P. 55(302).
Type :- 'M'.

Object :— To study the effect of minor elements with and without P on the yield of Berseem fodder.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) (a) Sandy loam. (b) Refer soil analysis, Pura. (iii) 8.11.1955. (iv) to (ix) N.A. (x) 31.3.1956 to 1.4.1956.

2. TREATMENTS :

Main-plot treatments :

2 levels of P_2O_5 as Super : $P_0=0$ and $P_1=50$ lb./ac.

Sub-plot treatments :

All combinations of (1) and (2)

(1) 2 levels of B as Sod. Borate : $B_0=0$ and $B_1=4$ ozs./ac.

(2) 2 levels of Mo as Ammo. Molybdate : $M_0=0$ and $M_1=4$ ozs./ac.

Super placed deep in bands. Sod. Borate and Ammo. Molybdate mixed with soil and broadcast before sowing.

3. DESIGN :

(i) Split-plot. (ii) (a) 2 main-plots/replication ; 4 sub-plots/main-plot. (b) $27.57 \times 167'$. (iii) 2. (iv) (a) and (b) $27.57' \times 19.75'$. (v) Nil. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of fodder. (iv) (a) 1955—1958. (b) No. (c) Nil. (v) (a) Ti.suhi. (b) Nil. (vi) and (vii) Nil.

5. RESULTS :

(i) 8.68 tons/ac. (ii) (a) 0.47 tons/ac. (b) 0.94 tons/ac. (iii) None of the effects is significant. (iv) Av. yield of fodder in tons/ac.

	M_0	M_1	Mean	B_0	B_1
P_0	7.95	7.22	7.58	7.90	7.27
P_1	10.03	9.51	9.77	9.57	9.97
Mean	8.99	8.37	8.68	8.74	8.62
B_0	9.33	8.14			
B_1	8.65	8.60			

S.E. of difference of two

1. P marginal means	= 0.24 tons/ac.
2. M or B marginal means	= 0.47 tons/ac.
3. M or B means at the same level of P	= 0.66 tons/ac.
4. P means at the same level of M or B	= 0.53 tons/ac.
S.E. of body of $M \times B$ table	= 0.47 tons/ac.

Crop :- Berseem (Rabi).
Site :- Govt. Res. Farm, Pura.

Ref :- U.P. 56(341).
Type :- 'M'.

Object :—To study the effect of minor elements with and without P on the yield of Berseem fodder.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) (a) Sandy loam. (b) Refer soil analysis, Pura. (iv) to (ix) N.A. (x) 23, 24.1.1957 and 4, 5.3.1957.

2. TREATMENTS to 4. GENERAL :

Same as in expt. no. 55(302) above.

5. RESULTS:

(i) 6.95 tons/ac. (ii) (a) 1.28 tons/ac. (b) 1.18 tons/ac. (iii) None of the effects is significant. (iv) Av. yield of fodder in tons/ac

	M ₀	M ₁	Mean	B ₀	B ₁
P ₀	4.25	3.72	3.98	4.11	3.86
P ₁	9.89	9.95	9.92	10.24	9.61
Mean	7.07	6.84	6.95	7.18	6.73
B ₀	7.83	6.52			
B ₁	6.31	7.15			

S.E. of difference of two

1. P marginal means = 0.64 tons/ac.
 2. M or B marginal means = 0.59 tons/ac.
 3. M or B means at the same level of P = 0.83 tons/ac.
 4. P means at the same level of M or B = 0.87 tons/ac.
- S.E. of body of M × B table = 0.59 tons/ac.

Crop :- Berseem (Rabi).

Ref :- U.P. 57(376).

Site :- Govt. Res Farm, Pura.

Type :- 'M'.

Object :- To study the effect of minor elements with and without P on the yield of Berseem fodder.

1. BASAL CONDITIONS:

(i) (a) to (c) N.A. (ii) (a) Sandy loam. (b) Refer soil analysis, Pura. (iii) 16.10.1957. (iv) to (ix) N.A. (x) 18.12.1957, 29.1.1958 and 19.2.1958.

2. TREATMENTS to 4. GENERAL:

Same as in expt. no. 55(302) on page 15/3.

3. RESULTS:

(i) 8.59 tons/ac. (ii) (a) 1.77 tons/ac. (b) 0.51 tons/ac. (iii) None of the effects is significant. (iv) Av. yield of fodder in tons/ac

	M ₀	M ₁	Mean	B ₀	B ₁
P ₀	5.58	6.21	5.90	5.93	5.87
P ₁	11.00	11.56	11.28	10.78	11.79
Mean	8.29	8.88	8.59	8.35	8.83
B ₀	7.89	8.81			
B ₁	8.69	8.96			

S.E. of difference of two

1. P marginal means = 0.88 tons/ac.
 2. M or B marginal means = 0.25 tons/ac.
 3. M or B means at the same level of P = 0.36 tons/ac.
 4. P means at the same level of M or B = 0.92 tons/ac.
- S.E. of body of M × B table = 0.25 tons/ac.

Crop :- Berseem (Rabi).

Ref :- U.P. 58(340).

Site :- Govt. Res. Farm, Pura.

Type :- 'M'.

Object :- To study the effect of minor elements with and without P on the yield of Berseem fodder.

BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) (a) Sandy loam. (b) Refer soil analysis, Pura. (iii) 29.10.1958. (iv) (a) N.A. (b) Broadcast. (c) 10 srs./ac. (d) and (e) N.A. (v) to (ix) N.A. (x) 4.1.1959, 10.2.1959, 4 and 5.3.1959.

TREATMENTS to 4. GENERAL :

Same as in expt. no. 55(302) on page 1503.

RESULTS :

(i) 8.04 tons/ac. (ii) (a) 0.08 tons/ac. (b) 0.76 tons/ac. (iii) Main effect of P alone is highly significant. (iv) Av. yield of fodder in tons/ac.

	M ₀	M ₁	Mean	B ₀	B ₁
P ₀	3.25	3.74	3.50	3.80	3.19
P ₁	12.67	12.51	12.59	12.58	12.60
Mean	7.96	8.12	8.04	8.19	7.90
B ₀	8.24	8.14			
B ₁	7.68	8.11			

S.E. of difference of two

- | | |
|--|-----------------|
| 1. P marginal means | = 0.04 tons/ac. |
| 2. M or B marginal means | = 0.37 tons/ac. |
| 3. M or B means at the same level of P | = 0.54 tons/ac. |
| 4. P means at the same level of M or B | = 0.38 tons/ac. |
| S.E. of body of M × B table | = 0.38 tons/ac. |

Crop :- Berseem (Rabi).

Ref :- U.P. 59(389).

Site :- Govt. Res. Farm, Pura.

Type :- 'M'.

Object :- To study the effect of minor elements with and without P on the yield of Berseem fodder.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) (a) Sandy loam. (b) Refer soil analysis, Pura. (iii) 29.10.1959. (iv) to (ix) N.A. (x) 10.1.1960, 27, 28.2.1960 and 24.3.1960.

2. TREATMENTS :

All combinations of (1) and (2)

(1) 3 levels of P₂O₅ as Super : P₀=0, P₁=50 and P₂=100 lb./ac.(2) 3 applications of trace elements : T₀=No trace element, T₁=4 ozs./ac. of B as Sod. Borate and T₂=4 ozs./ac. of Mo as Ammo. Molybdate.

3. DESIGN :

(i) Fact. in R.B.D. (ii) (a) 9. (b) N.A. (iii) 2. (iv) (a) and (b) 27'5" × 19' 7.5". (v) Nil. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of fodder. (iv) 1959—contd. (b) N.A. (e) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 7.78 tons/ac. (ii) 0.83 tons/ac. (iii) Main effect of P is highly significant. Main effect of T and interaction P × T are significant. (iv) Av. yield of fodder in tons/ac.

	T ₀	T ₁	T ₂	Mean
P ₀	4.68	3.78	4.14	4.20
P ₁	9.40	6.98	7.99	8.12
P ₂	11.17	10.41	11.48	11.02
Mean	8.42	7.06	7.87	7.78

S.E. of any marginal mean = 0.34 tons/ac.
S.E. of body of table = 0.59 tons/ac.

Crop :- Berseem (Rabi).

Ref :- U.P. 55(337).

Site :- Rice Res. Sub-Stn., Tissuhi.

Type :- 'M'.

Object :- To study the effect of minor elements with and without P on the yield of Berseem fodder.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Paddy. (c) N.A. (ii) (a) Vindhyan black clay. (b) Refer soil analysis, Tissuhi. (iii) 25.11.1955. (iv) (a) 4 ploughings by *desi* plough. (b) Broadcast. (c) to (e) N.A. (v) Nil. (vi) N.A. (vii) Irrigated. (viii) N.A. (ix) Nil. (x) 10.2.1956, 11 and 12.3.1956.

2. TREATMENTS :

Same as in expt. no. 55(302) on page 1503.

Super placed deep in bands. Ammo. Molybdate and Sodium Borate mixed with soil and broadcast before sowing.

3. DESIGN :

(i) Split-plot. (ii) (a) 2 main-plots/replication ; 4 sub-plots/main-plot. (b) N.A. (iii) 2. (iv) (a) and (b) 30' x 18.2'. (v) Nil. (vi) Yes.

4. GENERAL :

(i) Stand very poor in the initial stage but after 1st cutting, the crop improved and stand was fair. (ii) N.A. (iii) Yield of fodder. (iv) (a) and (b) No. (c) Nil. (v) (a) Pura. (b) Nil. (vi) Nil. (vii) Due to heavy cloddy nature of soil, the germination was not very good.

5. RESULTS :

(i) 3.31 tons/ac. (ii) (a) 1.46 tons/ac. (b) 0.54 tons/ac. (iii) None of the effects is significant. (iv) Ay. yield of fodder in tons/ac.

	B ₀	B ₁	Mean	M ₀	M ₁
P ₀	2.84	2.71	2.78	2.51	3.04
P ₁	3.58	4.12	3.85	4.22	3.48
Mean	3.21	3.41	3.31	3.36	3.26
M ₀	3.28	3.45			
M ₁	3.14	3.37			

S.E. of difference of two

1. P marginal means = 0.73 tons/ac.
 2. B or M marginal means = 0.27 tons/ac.
 3. B or M means at the same level of P = 0.38 tons/ac.
 4. P means at the same level of B or M = 0.78 tons/ac.
- S.E. of body of B x M table = 0.27 tons/ac.

Crop :- Berseem (Rabi).

Ref :- U.P. 59(305).

Site :- Student's Instrl. Farm, Govt. Agri. College, Kanpur. Type :- 'CM'.

Object :- To study the effect of mustard as a mixed crop and manuring the crop with P on the yield of Berseem fodder.

1. BASAL CONDITIONS :

- (i) (a) N.A. (b) *Jowar*. (c) N.A. (ii) (a) Sandy loam. (b) Refer soil analysis, Kanpur. (iii) 27.10.1959. (iv) (a) 2 Victory ploughings, 1 harrowing and 2 plankings. (b) N.A. (c) 10 srs./ac. (d) and (e) N.A. (v) Nil. (vi) Local. (vii) Irrigated. (viii) N.A. (ix) 1.44". (x) 26.12.1959 to 31.3.1960.

2. TREATMENTS :

Main-plot treatments :

2 levels of P_2O_5 as Super : $P_0=0$ and $P_1=40$ lb./ac.

Sub-plot treatments :

5 seed rates of mustard : $R_0=0$, $R_1=2$, $R_2=4$, $R_3=8$ and $R_4=16$ chh./ac.

Mustard is sown mixed with berseem. Super was placed in furrows at a depth of about 4".

3. DESIGN :

- (i) Split-plot. (ii) 2 main-plots/replication ; 5 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) 34' × 16'. (b) 31' × 13'. (v) 1½' × 1½'. (vi) Yes.

4. GENERAL :

- (i) Good. (ii) Nil. (iii) Yield of fodder. (iv) (a) 1959—N.A. (b) N.A. (c) Nil. (v) and (vi) Nil. (vii) The plot-wise yield and two way tables are not available.

5. RESULTS :

- (i) 28.59 tons/ac. (ii) (a) 1.27 tons/ac. (b) 1.51 tons/ac. (iii) Main effects of P and R are highly significant. (iv) Av. yield of fodder in lb./ac.

Treatment	P_0	P_1	R_0	R_1	R_2	R_3	R_4
Av yield	26.91	30.27	26.53	28.01	29.16	29.76	29.46

S.E. of difference of two

P marginal means = 0.40 tons/ac.

R marginal means = 0.75 tons/ac.

Crop :- Berseem (Rabi).

Ref :- U.P. 57(324).

Site :- Student's Instrl. Farm, Govt. Agri. College Kanpur. Type :- 'CM'.

Object :- To study the effect of seed treatment and levels of N and P on the yield of Berseem fodder.

1. BASAL CONDITIONS :

- (i) (a) N.A. (b) *Jowar*. (c) N.A. (ii) (a) Sandy loam. (b) Refer soil analysis, Kanpur. (iii) 5.11.1957. (iv) (a) 1 Victory ploughing, 2 plankings and 1 *desi* ploughing. (b) Broadcast. (c) 10 srs./ac. (d) 9" between rows. (e) N.A. (v) Nil. (vi) Local. (vii) Irrigated. (viii) N.A. (ix) 0.70". (x) 4.1.1958 to 4.4.1958.

2. TREATMENTS :

All combinations of (1), (2) and (3)

(1) 2 treatment of seed : I_0 =No inoculation and I_1 =Inoculation.

(2) 2 levels of N as A/S : $N_0=0$ and $N_1=40$ lb./ac.

(3) 3 levels of P_2O_5 as Super : $P_0=0$, $P_1=60$ and $P_2=120$ lb./ac.

A/S was spread evenly by hand one day before sowing. Super was applied by placement at a depth of 2½" to 3". The seeds were soaked in water in 1 : 3 ratio for 16 hours before sowing to initiate germination. Inoculation was done to half pre-soaked seeds. 1½' seer of *gur* was finely powdered and prepared like paste by adding water. Seeds were mixed in the paste thoroughly.

3. DESIGN :

- (i) Fact. in R.B.D. (ii) (a) 12. (b) 81' × 56'. (iii) 4. (iv) (a) 28' × 14'. (b) 26' × 12'. (v) 1' × 1'. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Black ants were observed. Leafy bird beetle damaged the young sprouting leaves. (iii) Yield of fodder. (iv) (a) and (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 14.90 tons/ac. (ii) 3.15 tons/ac. (iii) Main effect of I and P are highly significant. N effect is significant. (iv) Av. yield of fodder in tons/ac.

	N ₀	N ₁	Mean	I ₀	I ₁
P ₀	4.65	6.19	5.42	4.14	6.71
P ₁	16.44	19.61	18.02	14.71	21.34
P ₂	17.98	24.54	21.26	15.77	26.75
Mean	13.02	16.78	14.90	11.54	18.27
I ₀	10.73	12.35			
I ₁	15.32	21.22			

S.E. of I or N marginal mean = 0.64 tons/ac.
 S.E. of P marginal mean = 0.78 tons/ac.
 S.E. of body of P×N or P×I table = 1.11 tons/ac.
 S.E. of body of I×N table = 0.91 tons/ac.

Crop :- Berseem (Rabi).

Ref :- U.P. 57(317).

Site :- Student's Instrl. Farm, Govt. Agri. College, Kanpur. Type :- 'CM'.

Object:—To study the effect of seed treatment and top dressing at various levels of manuring on the yield of Berseem fodder.

1. BASAL CONDITIONS:

(i) (a) N.A. (b) Chari. (c) N.A. (ii) (a) Sandy loam. (b) Refer soil analysis, Kanpur. (iii) 10.11.1957. (iv) (a) 1 Victory ploughing followed by plankings and 3 desi ploughings followed by planking. (b) N.A. (c) 10 srs./ac. (d) and (e) N.A. (v) Nil. (vi) Local. (vii) Irrigated. (viii) Nil. (ix) 0.74". (x) 9.1.1958 to 19.4.1958.

2. TREATMENTS :

All combinations of (1), (2) and (3)

(1) 3 seed treatments : R₀=Control, R₁=5 % and R₂=10 % common salt solution.

(2) 3 levels of P₂O₅ as Super as basal dressing : P₀=0, P₁=30 and P₂=60 lb./ac.

(3) 2 levels of P₂O₅ as Super as top dressing : T₀=0 and T₁=60 lb./ac.

Fertilizers applied behind the plough. Seed was immersed in common salt solution in the previous evening of the sowing day and then kept in water overnight. The control seed was immersed in water overnight.

3. DESIGN :

(i) Fact. in R.B.D. (ii) (a) 18. (b) N.A. (iii) 3. (iv) (a) 26'×13'. (b) 24'×11'. (v) 1'×1'. (vi) Yes.

4. GENERAL :

(i) N.A. (ii) Nil. (iii) Yield of fodder. (iv) (a) and (b) No. (c) Nil. (v) and (vi) Nil. (vii) The plot wise yield data and two way tables are not available.

5. RESULTS :

(i) 15.13 tons/ac. (ii) 2.70 tons/ac. (iii) Main effect of P and T are highly significant. (iv) Av. yield of fodder in tons/ac.

Treatment	R ₀	R ₁	R ₂	P ₀	P ₁	P ₂	T ₀	T ₁
Av. yield	15.37	15.16	14.86	9.09	16.12	20.19	12.29	17.97
	S.E. of R or P marginal mean					= 0.64 tons/ac.		
	S.E. of T marginal mean					= 0.52 tons/ac.		

Crop :- Berseem (Rabi).

Ref :- U.P. 56(190).

Site :- B.R. College Insttl. Res. Farm, Bichpuri.

Type :- 'I'.

Object :-To study the effect of irrigation water of varying salinity on the yield of Berseem fodder.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Cucurbits. (c) N.A. (ii) (a) Light loam. (b) Refer soil analysis, Bichpuri. (iii) 26.10.1963. (iv) (a) 3 ploughings and 1 planking. (b) Broadcast. (c) 20 lb./ac. (d) and (e) N.A. (v) 150 mds./ac. of compost. (vi) Local. (vii) Irrigated. (viii) Nil. (ix) 4.98". (x) 10.12.1956 to 17.3.1957.

2. TREATMENTS :

2 sources of irrigation : S₁=Surface well water and S₂=Tube well water.

3. DESIGN :

(i) R.B.D. (ii) (a) 2. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 25'×18'. (v) N.A. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Nil. (iii) Yield of fodder. (iv) (a) and (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 27.46 tons/ac. (ii) 0.95 tons/ac. (iii) Treatment difference is highly significant. (iv) Av. yield of fodder in tons/ac.

Treatment	S ₁	S ₂
Av. yield	30.71	24.22

S.E./mean = 0.48 tons/ac.

Crop :- Cowpea (Kharif).

Ref :- U.P. 58(362).

Site :- Govt. Agri. Farm, Kalai.

Type :- 'M'.

Object :-To study the residual effect of N, P and K applied alone and in combinations to previous wheat crop on the yield of Cowpea fodder.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Wheat. (c) As per treatments. (ii) (a) Loam. (b) Refer soil analysis, Kalai. (iii) 20.5.1958. (iv) to (viii) N.A. (ix) 26.64". (x) 18 to 20.8.1958.

2. TREATMENTS :

All combinations of (1), (2) and (3)

(1) 2 levels of N as A/S/N : N₀=0 and N₁=30 lb./ac.

(2) 2 levels of P₂O₅ as Super : P₀=0 and P₁=40 lb./ac.

(3) 2 levels of K₂O as Pot. Chloride : K₀=0 and K₁=60 lb./ac.

These treatments were applied to previous wheat crop.

3. DESIGN :

(i) Fact. in R.B.D. (ii) (a) 8. (b) 41'×233'. (iii) 4. (iv) (a) 41'×26.5'. (b) 1/160 ac. (v) N.A. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of green fodder. (iv) (a) and (b) No. (c) Nil. (v) (a) and (b) N.A. (vi) The crop was damaged due to heavy rains. (vii) Nil.

5. RESULTS:

(i) 2.29 tons/ac. (ii) 0.89 tons/ac. (iii) None of the effects is significant. (iv) Av. yield of fodder in tons/ac.

	K ₀	K ₁	Mean	P ₀	P ₁
N ₀	2.45	2.02	2.23	2.42	2.04
N ₁	2.71	1.99	2.35	2.54	2.15
Mean	2.58	2.00	2.29	2.48	2.10
P ₀	2.54	2.41			
P ₁	2.62	1.58			

S.E. of any marginal mean

= 0.22 tons/ac.

S.E. of body of any table

= 0.31 tons/ac.

Crop :- Cowpea (Kharif).

Ref :- U.P. 54(240).

Site :- Allahabad Agri. Instt. Allahabad.

Type :- 'M'.

Object :- To study the effect of N, P, K and Mg on the yield of Cowpea fodder.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) (a) Fine sandy loam. (b) Refer soil analysis, Allahabad. (iii) 12.7.1954. (iv) (a) N.A. (b) Line sowing. (c) N.A. (d) 2' between lines. (e) N.A. (v) to (ix) N.A. (x) 24.9.1954.

2. TREATMENTS :

All combinations of (1), (2) and (3) + one extra treatment

(1) 2 levels of A/S : N₀=0 and N₁=200 lb./ac.

(2) 2 levels of Super : P₀=0 and P₁=250 lb./ac.

(3) 2 levels of Potash : K₀=0 and K₁=100 lb./ac.

Extra treatment : E=200 lb./ac. of A/S + 300 lb./ac. of MgSO₄.

3. DESIGN :

(i) R.B.D. (ii) (a) 9. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 6' × 36'. (v) N.A. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of fodder. (iv) (a) and (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 7.04 tons/ac. (ii) 0.30 tons/ac. (iii) Main effects of P, K and interactions N×P, N×K and 'E vs. others' are highly significant. Interaction N×P×K is significant. (iv) Av. yield of fodder in tons/ac.

E = 6.50 tons/ac.

	K ₀	K ₁	Mean	P ₀	P ₁
N ₀	7.05	7.14	7.10	7.09	7.11
N ₁	7.13	7.10	7.12	7.07	7.17
Mean	7.09	7.12	7.11	7.08	7.14
P ₀	7.07	7.09			
P ₁	7.12	7.16			

S.E. of any marginal mean	= 0.07 tons/ac.
S.E. of body of any table	= 0.11 tons/ac.
S.E. of E mean	= 0.15 tons/ac.

Crop :- Cowpea (Kharif).

Ref :- U.P. 58(115).

Site :- Govt. Agri. Farm, Kalai.

Type :- 'M'.

Object :— To study the residual effect of P over a number of years on the yield of kharif and rabi Cowpea fodder.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Wheat. (c) As per treatments +25 lb./ac. of N as A/S. (ii) (a) Loam. (b) Refer soil analysis, Kalai. (iii) 20.5.1958. (iv) (a) N.A. (b) Line sowing. (c) N.A. (d) 2' between rows. (e) N.A. (v) 15 lb./ac. of N as A/S. (vi) N.A. (vii) Irrigated. (viii) Nil. (ix) 26.64°. (x) 16 and 17.8.1958.

2. TREATMENTS :

5 levels of P_2O_5 as Super : $P_0=0$, $P_1=30$, $P_2=60$, $P_3=90$ and $P_4=120$ lb./ac.
 P_2O_5 applied in bands in rabi 1957 only.

3. DESIGN :

(i) R.B.D. (ii) (a) 5. (b) $54.5' \times 112'$. (iii) 4. (iv) (a) $14.5' \times 20'$. (b) $13.6' \times 20'$. (v) N.A. (vi) Yes.

4. GENERAL :

(i) N.A. (ii) Nil. (iii) Yield of green fodder. (iv) (a) N.A. (b) Yes. (c) Nil. (v) (a) and (b) N.A. (vi) Heavy rains damaged the crop. (vii) Nil.

5. RESULTS :

(i) 4500 lb./ac. (ii) 765.2 lb./ac. (iii) Treatment differences are significant. (iv) Av. yield of fodder in lb./ac.

Treatment	P_0	P_1	P_2	P_3	P_4
Av. yield	3803	4124	4164	4764	5645

S.E./mean = 382.6 lb./ac.

Crop :- Cowpea (Kharif).

Ref :- U.P. 59(36).

Site :- Reg. Res. Stn., Meerut.

Type :- 'M'.

Object :— To study the residual effect of N and P on the yield of Cowpea fodder.

1. BASAL CONDITIONS :

(i) (a) Wheat—Cowpea. (b) Wheat. (c) As per treatments. (ii) (a) Silt loam. (b) Refer soil analysis, Meerut. (iii) 20.6.1959. (iv) (a) 1 ploughing by soil turning plough and 1 by *desi* plough. (b) Broadcast. (c) 12 srs./ac. (d) and (e) N.A. (v) Nil. (vi) N.A. (vii) Unirrigated. (viii) Nil. (ix) 14.30°. (x) 24 to 30.8.1959.

2. TREATMENTS :

10 levels of manures : M_0 =Control, $M_1=25$ lb./ac. of N as A/S, $M_2=30$ lb./ac. of N as A/S, $M_3=40$ lb./ac. of P_2O_5 as Super, $M_4=M_2+M_3$, $M_5=25$ lb./ac. of N as F.Y.M., $M_6=30$ lb./ac. of N as F.Y.M., $M_7=M_3+M_6$, $M_8=15$ lb./ac. of N as A/S+15 lb./ac. of N as F.Y.M. and $M_9=M_3+M_8$.

Manures were applied to previous wheat crop.

3. DESIGN :

(i) R.B.D. (ii) (a) 10. (b) $34' \times 165'$. (iii) 4 (iv) (a) $34' \times 16.5'$. (b) $31' \times 13.5'$. (v) $1\frac{1}{2}' \times 1\frac{1}{2}'$. (vi) Yes.

4. GENERAL :

(i) Satisfactory. (ii) Nil. (iii) Yield of fodder. (iv) (a) 1959—contd. (b) Yes. (c) Nil. (v) (a) and (b) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 8.01 tons/ac. (ii) 3.17 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of fodder in tons/ac.

Treatment	M ₀	M ₁	M ₂	M ₃	M ₄	M ₅	M ₆	M ₇	M ₈	M ₉
Av. yield	7.63	6.28	6.70	8.21	8.82	7.07	10.43	7.35	9.01	8.58

S.E./mean = 1.58 tons/ac.

Crop :- Cowpea (Kharif).

Ref :- U.P. 59(135).

Site :- Reg. Res. Stn., Nawabganj.

Type :- 'M'.

Object :— To study the residual effect of N and P on the yield of Cowpea fodder.

1. BASAL CONDITIONS :

(i) (a) Wheat—Cowpea. (b) Wheat. (c) As per treatments. (ii) (a) Clayey loam. (b) Refer soil analysis, Nawabganj. (iii) 13.7.1959. (iv) (a) N.A. (b) Behind the plough in rows. (c) 10 srs./ac. (d) 1½' between rows. (e) N.A. (v) Nil. (vi) 5282. (vii) and (viii) N.A. (ix) 24.49". (x) 6 to 9.9.1959.

2. TREATMENTS :

Same as in expt. no. 59(36) on page 1511.

3. DESIGN :

(i) R.B.D. (ii) (a) 10. (b) N.A. (iii) 4. (iv) (a) and (b) 36' × 15'. (v) Nil. (vi) Yes.

4. GENERAL :

(i) N.A. (ii) Nil. (iii) Yield of green fodder. (iv) (a) and (b) No. (c) Nil. (v) (a) and (b) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 1.62 tons/ac. (ii) 0.75 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of fodder in tons/ac.

Treatment	M ₀	M ₁	M ₂	M ₃	M ₄	M ₅	M ₆	M ₇	M ₈	M ₉
Av. yield	1.89	1.76	1.41	1.59	1.33	1.67	1.83	2.15	1.07	1.52

S.E./mean = 0.37 tons/ac.

Crop :- Cowpea (Kharif).

Ref :- U.P. 59(90).

Site :- Reg. Res. Stn., Varanasi.

Type :- 'M'.

Object :— To study the residual effect of N and P on the yield of Cowpea fodder.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Wheat. (c) As per treatments. (ii) (a) Clayey loam. (b) Refer soil analysis, Varanasi. (iii) 4.7.1959. (iv) (a) 3 tractor harrowings. (b) Line sowing. (c) 6 srs./ac. (d) and (e) N.A. (v) Nil. (vi) 5259. (vii) N.A. (viii) 2 weedings. (ix) 20.70". (x) 12.9.1959.

2. TREATMENTS :

10 levels of manures : M₀=Control, M₁=25 lb./ac. of N as A/S, M₂=50 lb./ac. of N as A/S, M₃=40 lb./ac. of P₂O₅ as Super, M₄=M₂+M₃, M₅=25 lb./ac. of N as F.Y.M., M₆=50 lb./ac. of N as F.Y.M., M₇=M₃ + M₆, M₈=M₁+M₆ and M₉=M₁+M₃+M₆.

Manures applied to previous wheat crop.

3. DESIGN :

(i) R.B.D. (ii) (a) 10. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 40'×15'. (v) N.A. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of fodder. (iv) (a) 1959—contd. (b) N.A. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 1.68 tons/ac. (ii) 0.32 tons/ac. (iii) Treatment differences are significant. (iv) Av. yield of fodder in tons/ac.

Treatment	M ₀	M ₁	M ₂	M ₃	M ₄	M ₅	M ₆	M ₇	M ₈	M ₉
Av. yield	1.14	1.83	1.89	1.53	1.64	1.61	1.99	1.68	1.86	1.64

S.E./mean = 0.16 tons/ac.

Crop :- Cowpea (Kharif).

Ref :- U.P. 59(449).

Site :- Reg. Res. Stn., Rudrapur.

Type :- 'M'.

Object :—To study the residual effect of N and P on the yield of Cowpea fodder.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Wheat. (c) As per treatments+G.M. (cowpea). (ii) (a) Clayey loam. (b) Refer soil analysis, Rudrapur. (iii) 10.7.1959. (iv) (a) N.A. (b) Broadcast. (c) 12.5 srs./ac. (d) and (e) N.A. (v) Nil. (vi) Russian giant. (vii) to (ix) N.A. (x) 10 to 13.9.1959.

2. TREATMENTS :

Same as in expt. no. 59(90) on page 1512.

3. DESIGN :

(i) R.B.D. (ii) (a) 10. (b) 178.5'×36'. (iii) 4. (iv) (a) and (b) 36'×15'. (v) Nil. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of green fodder. (iv) (a) 1959—contd. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 2.14 tons/ac. (ii) 0.52 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of fodder in tons/ac.

Treatment	M ₀	M ₁	M ₂	M ₃	M ₄	M ₅	M ₆	M ₇	M ₈	M ₉
Av. yield	1.58	1.82	2.00	2.68	2.38	1.99	2.19	2.39	1.93	2.47

S.E./mean = 0.26 tons/ac.

Crop :- Clusterbean (Kharif).

Ref :- U.P. 58(34).

Site :- Reg. Res. Stn., Meerut.

Type :- 'M'.

Object :—To study the residual effect of P spread over a number of years on the yield of kharif and rabi Clusterbean fodder.

1. BASAL CONDITIONS :

(i) (a) *Sonai*—Wheat—Clusterbean—Wheat. (b) Wheat. (c) As per treatments+25 lb./ac. of N as A/S. (ii) (a) Silt loam. (b) Refer soil analysis, Meerut. (iii) 28.5.1958. (iv) (a) 1 ploughing by soil turning plough and 1 by *desi* plough. (b) Broadcast. (c) 15 srs./ac. (d) and (e) N.A. (v) 15 lb./ac. of N as A/S broadcast before sowing. (vi) N.A. (vii) Irrigated. (viii) 1 weeding. (ix) 33.77'. (x) 11 to 14.9.1958.

2. TREATMENTS :

5 levels of P_2O_5 : $P_0=0$, $P_1=30$, $P_2=60$, $P_3=90$ and $P_4=120$ lb./ac.
Super applied to previous wheat crop by placement in bands.

3. DESIGN :

(i) R.B.D. (ii) (a) 5. (b) $50' \times 97.5'$. (iii) 4. (iv) (a) and (b) $50' \times 17.5'$. (v) Nil. (vi) Yes.

4. GENERAL :

(i) Unsatisfactory. (ii) Nil. (iii) Yield of fodder. (iv) (a) 1958—N.A. (b) Yes. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 3.21 tons/ac. (ii) 0.65 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of fodder in tons/ac.

Treatment	P_0	P_1	P_2	P_3	P_4
Av. yield	3.00	3.99	2.98	2.95	3.12

S.E./mean = 0.33 tons/ac.

Crop :- Clusterbean (*Kharif*).

Ref :- U.P. 58(33).

Site :- Reg. Res. Stn., Meerut.

Type :- 'M'.

Object :- To study the residual effect of N and P on the yield of Clusterbean fodder.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Wheat. (c) As per treatments. (ii) (a) Silt loam. (b) Refer soil analysis, Meerut. (iii) N.A. (iv) (a) 1 ploughing by soil turning plough and 1 by *desi* plough. (b) Broadcast. (c) 15 srs./ac. (d) and (e) N.A. (v) Nil. (vi) N.A. (vii) Irrigated. (viii) Nil. (ix) 51.66". (x) 21.9.1958 to 6.10.1958.

2. TREATMENTS :

All combinations of (1) and (2)

(1) 3 levels of N : $N_0=0$, $N_1=25$ and $N_2=50$ lb./ac.

(2) 3 levels of P_2O_5 : $P_0=0$, $P_1=30$ and $P_2=60$ lb./ac.

These treatments were applied to previous wheat crop.

3. DESIGN :

(i) Fact. in R.B.D. (ii) (a) 9. (b) $41.5' \times 237'$. (iii) 4. (iv) (a) and (b) $41.5' \times 25'$. (v) Nil. (vi) Yes.

4. GENERAL :

(i) Normal. (ii) Nil. (iii) Germination % and yield of green fodder. (iv) (a) and (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 4.18 tons/ac. (ii) 1.30 tons/ac. (iii) Only main effect of P is significant. (iv) Av. yield of fodder in tons/ac.

	P_0	P_1	P_2	Mean
N_0	3.51	3.27	5.05	3.94
N_1	3.19	4.93	5.45	4.52
N_2	4.10	3.15	4.98	4.08
Mean	3.60	3.78	5.16	4.18

S.E. of any marginal mean = 0.37 tons/ac.

S.E. of body of table = 0.65 tons/ac.

Crop :- Clusterbean (Kharif).**Ref :- U.P. 58(355).****Site :- Govt. Res. Farm, Pura.****Type :- 'M'.**

Object :—To study the residual effect of P applied to previous crop of wheat on the yield of Clusterbean fodder.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Wheat. (c) As per treatments + G.M. (*sanai*) + 20 lb./ac. of N as A/S. (ii) (a) Sandy loam. (b) Refer soil analysis, Pura. (iii) N.A. (iv) (a) N.A. (b) Broadcast. (c) to (e) N.A. (v) to (ix) N.A. (x) 29 and 30.8.1958.

2. TREATMENTS :

Same as in expt. no. 58(34) on page 1513.

3. DESIGN :

(i) R.B.D. (ii) (a) 5. (b) 60'5" × 128'. (iii) 4. (iv) (a) and (b) 24' × 60'5". (v) Nil. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of fodder. (iv) (a) and (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 4.91 tons/ac. (ii) 0.50 tons/ac. (iii) Treatment differences are significant. (iv) Av. yield of fodder in tons/ac.

Treatment	P ₀	P ₁	P ₂	P ₃	P ₄
Av. yield	4.23	4.52	5.45	5.24	5.10

S.E./mean = 0.25 tons/ac.

Crop :- Dhaincha (Kharif).**Ref :- U.P. 59(329).****Site :- Govt. Res. Farm, Pura.****Type :- 'C'.**

Object :—To find out the effect of harvesting Dhaincha at different periods of growth for turning in the soil.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Wheat. (c) N.A. (ii) (a) Loam. (b) Refer soil analysis, Pura. (iii) 12.7.1959. (iv) (a) N.A. (b) Line sowing. (c) 30 srs./ac. (d) 9" between rows. (e) N.A. (v) Nil. (vi) to (ix) N.A. (x) 3, 11, 17 and 27.8.1959.

2. TREATMENTS :

4 ages of dhaincha at turning-in: T₁=3, T₂=4, T₃=5 and T₄=6 weeks.

3. DESIGN :

(i) R.B.D. (ii) (a) 4. (b) 36' × 68'2". (iii) 4. (iv) (a) and (b) 36' × 15'2". (v) Nil. (vi) Yes.

4. GENERAL :

(i) Good. (ii) N.A. (iii) Yield of green matter. (iv) (a) 1959—contd. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 3999 lb./ac. (ii) 1688 lb./ac. (iii) Treatment differences are highly significant. (iv) Av. yield of green matter in lb./ac.

Treatment	T ₁	T ₂	T ₃	T ₄
Av. yield	1087	2204	4508	8197

S.E./mean = 844.0 lb./ac.

Crop :- Dhaincha (Kharif).**Ref :- U.P. 59(94).****Site :- Reg. Res. Stn., Varanasi.****Type :- 'C'.**

Object :—To find out the effect of harvesting Dhaincha at different periods of growth for turning-in the soil.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) (a) Clayey loam. (b) Refer soil analysis, Varanasi. (iii) 26.7.1959. (iv) (a) 1 ploughing. (b) Line sowing. (c) 20 srs./ac. (d) 9" between rows. (e) N.A. (v) Nil. (vi) to (viii) N.A. (ix) 9.82", 17, 25, 31.8.1959 and 9.9.1959.

2. TREATMENTS :4 ages of *dhaincha* at turning-in : $T_1=3$, $T_2=4$, $T_3=5$ and $T_4=6$ weeks.**3. DESIGN :**

(i) R.B.D. (ii) (a) 4. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 40'×15'. (v) N.A. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of green matter. (iv) (a) 1959—contd. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 3104 lb./ac. (ii) 385.3 lb./ac. (iii) Treatment differences are highly significant. (iv) Av. yield of green matter in lb./ac.

Treatment	T_1	T_2	T_3	T_4
Av. yield	1198	1379	2450	7387

S.E./mean = 192.7 lb./ac.

Crop :- Jowar (Kharif).**Ref :- U.P. 55(352).****Site :- Govt. Agri. Farm, Atarra.****Type :- 'M'.**

Object :—To study the residual effect of N, P and K applied to previous wheat crop on the yield of Jowar fodder.

1. BASAL CONDITIONS :(i) (a) N.A. (b) Wheat. (c) As per treatments. (ii) (a) *Parwa* soil. (b) N.A. (iii) 21.6.1955. (iv) (a) 2 *desi* ploughings. (b) Broadcast. (c) 10 srs./ac. (d) and (e) N.A. (v) 15 lb./ac. of N as A/N. (vi) N.A. (vii) Unirrigated. (viii) and (ix) N.A. (x) 15 to 20.9.1955.**2. TREATMENTS :**

All combinations of (1), (2) and (3)

(1) 2 levels of N as A/S : $N_0=0$ and $N_1=30$ lb./ac.(2) 2 levels of P_2O_5 as Super : $P_0=0$ and $P_1=60$ lb./ac.(3) 3 levels of K_2O as *Pot. Sul.* : $K_0=0$, $K_1=60$ and $K_2=120$ lb./ac.

Fertilizers applied to previous wheat crop.

3. DESIGN :(i) $2^2 \times 3$ partially balanced. (ii) (a) 6 plots/block ; 2 blocks/replication. (b) N.A. (iii) 4. (iv) (a) and (b) $51'5\frac{1}{2}" \times 21'2"$. (v) Nil. (vi) Yes.**4. GENERAL :**(i) Growth not satisfactory due to lodging. (ii) Nil. (iii) Yield of fodder. (iv) (a) and (b) No. (c) Nil. (v) (a) *Bharari*. (b) N.A. (vi) No. (vii) Nil.**5. RESULTS :**(i) 2.58 tons/ac. (ii) 0.64 tons/ac. (iii) Main effects of N and P are highly significant. Interaction $N \times K$ is significant. (iv) Av. yield of fodder in tons/ac.

	K ₀	K ₁	K ₂	Mean	P ₀	P ₁
N ₀	1.74	2.04	2.81	2.20	1.99	2.40
N ₁	3.12	2.98	2.78	2.96	2.60	3.32
Mean	2.43	2.51	2.79	2.58	2.29	2.86
P ₀	2.30	2.36	2.21			
P ₁	2.55	2.66	3.37			

S.E. of K marginal mean = 0.16 tons/ac.
 S.E. of N or P marginal mean = 0.13 tons/ac.
 S.E. of body of N×K or P×K table = 0.23 tons/ac.
 S.E. of body of N×P table = 0.18 tons/ac.

Crop :- Jowar (Kharif).

Ref :- U.P. 55(351).

Site :- State Mechanised Farm, Bharari.

Type :- 'M'.

Object :- To study the residual effect of N, P and K on the yield of Jowar fodder.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Wheat. (c) As per treatments. (ii) (a) Parwa soil. (b) Refer soil analysis, Bharari. (iii) 10.7.1955. (iv) (a) 2 desi ploughings. (b) Broadcast. (c) 20 srs./ac. (d) and (e) N.A. (v) 15 lb./ac. of N as A/N. (vi) N.A. (vii) Irrigated. (viii) N.A. (ix) 28.56". (x) 19.9.1955.

2. TREATMENTS :

Same as in expt. no. 55(352) on page 1516.

3. DESIGN :

(i) 2²×3 partially balanced. (ii) (a) 6 plots/block ; 2 blocks/replication. (b) N.A. (iii) 4. (iv) (a) and (b) 33'×33'. (v) Nil. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of fodder. (iv) (a) and (b) No. (c) Nil. (v) (a) Atarra. (b) Nil. (vi) Heavy rains damaged the crop. (vii) Nil.

5. RESULTS :

(i) 10.59 tons/ac. (ii) 0.67 tons/ac. (iii) Only main effect of N is highly significant. (iv) Av. yield of fodder in tons/ac.

	K ₀	K ₁	K ₂	Mean	P ₀	P ₁
N ₀	10.08	10.09	10.07	10.08	9.99	10.17
N ₁	10.65	11.38	11.26	11.10	10.90	11.29
Mean	10.36	10.74	10.66	10.59	10.45	10.73
P ₀	10.52	10.49	10.33			
P ₁	10.21	10.98	11.00			

S.E. of K marginal mean = 0.17 tons/ac.
 S.E. of N or P marginal mean = 0.13 tons/ac.
 S.E. of body of N×K or P×K table = 0.24 tons/ac.
 S.E. of body of N×P table = 0.19 tons/ac.

Crop :- Jowar (Kharif).**Ref :- U.P. 54(160).****Site :- Govt. Res. Farm, Kanpur.****Type :- 'M'.**

Object :- To study the residual effect of P applied to previous wheat crop on the yield of Jowar fodder.

1. BASAL CONDITIONS :(i) (a) *Jowar*—Wheat. (b) Wheat. (c) As per treatments. (ii) (a) Loam. (b) Refer soil analysis, Kanpur. (iii) 20.7.1954. (iv) to (ix) N.A. (x) 28.9.1954.**2. TREATMENTS :**

All combinations of (1) and (2)+2 extra treatments

(1) 2 levels of N : $N_0=0$ and $N_1=50$ lb./ac.(2) 3 methods of application of 100 lb./ac. P_2O_5 : M_1 =Broadcast, M_2 =In furrows behind Victory plough and M_3 =In furrows behind U.P. plough with funnel.2 extra treatments : $T_1=0$ and $T_2=50$ lb./ac. of N.

Treatments applied to previous wheat crop.

3. DESIGN :(i) R.B.D. (ii) (a) 8. (b) $20' \times 276'$. (iii) 5. (iv) (a) and (b) $31' \times 20'$. (v) Nil. (vi) Yes.**4. GENERAL :**

(i) and (ii) N.A. (iii) Yield of fodder. (iv) (a) 1951—1954. (b) Yes. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 9.42 tons/ac. (ii) 1.53 tons/ac. (iii) None of the effects is significant. (iv) Av. yield of fodder in tons/ac.

$$T_1 = 9.26 \text{ and } T_2 = 9.76 \text{ tons/ac.}$$

	M_1	M_2	M_3	Mean
N_0	8.90	8.59	9.56	9.02
N_1	9.75	9.26	10.29	9.77
Mean	9.32	8.92	9.92	9.39

S.E. of N marginal mean = 0.40 tons/ac.

S.E. of M marginal mean = 0.49 tons/ac.

S.E. of body of table or T mean = 0.69 tons/ac.

Crop :- Jowar (Kharif).**Ref :- U.P. 55(146).****Site :- Govt. Res. Farm, Kanpur.****Type :- 'M'.**

Object :- To study the residual effect of P applied by different methods to previous wheat crop on the yield of Jowar fodder.

1. BASAL CONDITIONS :(i) (a) *Jowar*—Wheat. (b) Wheat. (c) As per treatments. (ii) (a) Loam. (b) Refer soil analysis, Kanpur. (iii) 26.1955. (iv) to (ix) N.A. (x) 21 and 22.9.1955.**2. TREATMENTS :****Main-plot treatments :**2 levels of N : $N_0=0$ and $N_1=50$ lb./ac.**Sub-plot treatments :**4 methods of application of 100 lb./ac. of P_2O_5 : M_0 =No application, M_1 =Broadcast, M_2 =In furrows behind Victory plough and M_3 =In furrows behind U.P. plough with funnel.

Treatments applied to previous wheat crop.

3. DESIGN :

(i) Split-plot. (ii) (a) 2 main-plots/replication ; 4 sub-plots/main-plot. (b) 20' × 276'. (iii) 5. (iv) (a) and (b) 31' × 20'. (v) Nil. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of fodder. (iv) (a) and (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 7.87 tons/ac. (ii) (a) 4.58 tons/ac. (b) 1.01 tons/ac. (iii) None of the effects is significant. (iv) Av. yield of fodder in tons/ac.

	M ₀	M ₁	M ₂	M ₃	Mean
N ₀	8.82	7.29	8.09	8.31	8.13
N ₁	7.62	7.71	7.45	7.65	7.61
Mean	8.22	7.50	7.77	7.98	7.87

S.E. of difference of two

- | | |
|-----------------------------------|-----------------|
| 1. N marginal means | = 1.45 tons/ac. |
| 2. M marginal means | = 0.45 tons/ac. |
| 3. M means at the same level of N | = 0.64 tons/ac. |
| 4. N means at the same level of M | = 1.55 tons/ac. |

Crop :- Jowar (Kharif).

Ref :- U.P. 54(158).

Site :- Govt. Res. Farm, Kanpur.

Type :- 'M'.

Object :— To study the residual effect of N applied to previous wheat crop on the yield of Jowar fodder.

1. BASAL CONDITIONS :

(i) (a) Jowar—Wheat. (b) Wheat. (c) A§ per treatments. (ii) (a) Loam. (b) Refer soil analysis, Kanpur. (iii) 21.7.1954. (iv) to (ix) N.A. (x) 5.10.1954.

2. TREATMENTS :

8 levels of N : N₀=0, N₁=100, N₂=125, N₃=150, N₄=175, N₅=200, N₆=225 lb./ac. of N as F.Y.M., M₇=50 lb./ac. of N as A/S.

Treatments applied to previous wheat crop.

3. DESIGN :

(i) R.B.D. (ii) (a) 8. (b) 20' × 309'. (iii) 4. (iv) (a) and (b) 36' × 20'. (v) Nil. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of fodder. (iv) (a) 1951—1955. (b) Yes. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 9.40 tons/ac. (ii) 2.70 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of fodder in tons/ac.

Treatment	N ₀	N ₁	N ₂	N ₃	N ₄	N ₅	N ₆	N ₇
Av. yield	8.08	10.00	9.07	9.40	10.59	8.99	9.26	9.84

S.E./mean = 1.35 tons/ac.

Crop :- Jowar (Kharif).

Ref :- U.P. 55(147).

Site :- Govt. Res. Farm, Kanpur.

Type :- 'M'.

Object :— To study the residual effect of N applied to previous wheat crop on the yield of Jowar fodder.

1. BASAL CONDITIONS :

(i) (a) *Jowar*—Wheat. (b) Wheat. (c) As per treatments. (ii) (a) Loam. (b) Refer soil analysis, Kanpur. (ii) 25.6.1955. (iv) to (ix) N.A. (x) 22 and 23.9.1955.

2. TREATMENTS to 4. GENERAL :

Same as in expt. no. 54(158) on page 1519.

3. RESULTS :

(i) 11.07 tons/ac. (ii) 1.82 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of fodder in tons/ac.

Treatment	N ₀	N ₁	N ₂	N ₃	N ₄	N ₅	N ₆	N ₇
Av. yield	9.21	11.13	11.10	10.70	12.19	10.90	12.17	11.17

S.E./mean = 0.91 tons/ac.

Crop :- *Jowar* (*Kharif*).

Site :- Govt. Res. Farm, Kanpur.

Ref :- U.P. 55(166).

Type :- 'M'.

Object :—To study the effect of liquor ammonia as compared with A/S on the yield of *Jowar* fodder.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) (a) Loam. (b) Refer soil analysis, Kanpur. (iii) 4.7.1955. (iv) to (ix) N.A. (x) 23 and 24.9.1955.

2. TREATMENTS :

All combinations of (1) and (2) + one control

(1) 2 sources of N : S₁=Liquor ammonia hydrate and S₂=A/S.

(2) 2 levels of N : N₁=15 and N₂=30 lb./ac.

3. DESIGN :

(i) R.B.D. (ii) (a) 5. (b) N.A. (iii) 4. (iv) (a) and (b) 1/40 ac. (v) Nil. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of fodder. (iv) (a) and (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 12.81 tons/ac. (ii) 1.23 tons/ac. (iii) None of the effects is significant. (iv) Av. yield of fodder in tons/ac.

Control = 12.85 tons/ac.

	N ₁	N ₂	Mean
S ₁	11.71	13.24	12.48
S ₂	13.39	12.86	13.12
Mean	12.55	13.05	12.80

S.E. of any marginal mean = 0.44 tons/ac.

S.E. of body of table or control mean = 0.62 tons/ac.

Crop :- *Jowar* (*Kharif*).

Site :- Govt. Res. Farm, Kanpur.

Ref :- U.P. 55(166).

Type :- 'M'.

Object :—To study the effect of growing different crops for G.M. on the yield of *Jowar* fodder.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) As per treatments. (c) N.A. (ii) (a) Loam. (b) Refer soil analysis, Kanpur. (iii) 4.7.1956. (iv) to (x) N.A.

2. TREATMENTS :

10 preceding crops : T_0 =No crop, T_1 =Methi, T_2 =Pea, T_3 =Mosoora, T_4 =Gram, T_5 =Chatrimatri, T_6 =Linseed, T_7 =Wheat+5 lb./ac. of N as F.Y.M., T_8 =Wheat+10 lb./ac. of N as F.Y.M. and T_9 =Wheat+15 lb./ac. of N as F.Y.M.

Only half the crops of plots with treatments T_1 to T_9 were ploughed in as G.M.

3. DESIGN :

(i) R.B.D. (ii) (a) 10. (b) N.A. (iii) 4. (iv) (a) and (b) 41' x 17.75'. (v) Nil. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of fodder. (iv) (a) 1956-1957. (b) N.A. (c) Nil. (v) and (vi) Nil. (vii) Only half of the crop of plots with treatments T_1 to T_9 were ploughed in as G.M. The crop of the remaining half plots were allowed to mature till harvesting. In the results only the yield of Jowar fodder where the rabi crops were ploughed in as G.M. were considered.

5. RESULTS :

(i) 15.70 tons/ac. (ii) 2.33 tons/ac. (iii) Treatment differences are significant. (iv) Av. yield of fodder in tons/ac.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5	T_6	T_7	T_8	T_9
Av. yield	13.10	18.69	19.01	15.93	15.34	14.71	15.51	14.64	15.26	14.77

S.E./mean = 1.16 tons/ac.

Crop :- Jowar Fodder (Kharif).

Ref :- U.P. 57(405).

Site :- Govt. Res. Farm, Kanpur.

Type :- 'M'.

Object :- To study the effect of growing different crops for G.M. on the yield of Jowar fodder.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) As per treatments. (c) N.A. (ii) (a) Loam. (b) Refer soil analysis, Kanpur. (iii) 3.8.1957. (iv) to (ix) N.A. (x) 21.9.1957.

2. TREATMENTS to 4. GENERAL :

Same as in expt. no. 56 (388) on page 1520.

5. RESULTS :

(i) 4.12 tons/ac. (ii) 0.93 tons/ac. (iii) Treatment differences are significant. (iv) Av. yield of fodder in tons/ac.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5	T_6	T_7	T_8	T_9
Av. yield	2.88	4.52	5.28	5.42	3.73	4.28	4.26	3.52	3.46	3.82

S.E./mean = 0.47 tons/ac.

Crop :- Jowar Fodder (Kharif).

Ref :- U.P. 57(39).

Site :- Govt. Res. Sta., Meerut.

Type :- 'M'.

Object :- To study the effect of N and P on the yield of Jowar fodder.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) (a) Loam. (b) Refer soil analysis, Meerut. (iii) 1.8.1957. (iv) (a) 18 ploughings. (b) Behind the plough. (c) 15 to 18 ars./ac. (d) 1' between rows. (e) N.A. (v) Nil. (vi) 8.8. (vii) Irrigated. (viii) 1 weeding. (ix) 23.95%. (x) 16.10.1957.

TREATMENTS :

All combinations of (1) and (2)

(1) 3 levels of N as A/S : $N_0=0$, $N_1=20$ and $N_2=40$ lb./ac.

(2) 3 levels of P_2O_5 as Super : $P_0=0$, $P_1=20$ and $P_2=40$ lb./ac.

Super placed deep in bands on both sides of the seed line. A/S broadcast at sowing.

3. DESIGN :

(i) Fact. in R.B.D. (ii) (a) 9. (b) $44' \times 222'$. (iii) 4. (iv) (a) and (b) $44' \times 22'$. (v) Nil. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Nil. (iii) Yield of fodder. (iv) (a) and (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 2140 lb./ac. (ii) 916.2 lb./ac. (iii) None of the effects is significant. (iv) Av. yield of fodder in lb./ac.

	P_0	P_1	P_2	Mean
N_0	2008	1452	2118	1859
N_1	1880	1776	2317	1991
N_2	1794	3101	2818	2571
Mean	1894	2110	2418	2140

S.E. of any marginal mean = 264.5 lb./ac.

S.E. of body of table = 458.1 lb./ac.

Crop :- Jowar Fodder (Kharif).

Ref :- U.P. 57(123).

Site :- Reg. Res. Stn., Nawabganj.

Type :- 'M'.

Object :- To study the effect of N and P on Jowar fodder.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) (a) Clayey loam. (b) Refer soil analysis, Nawabganj. (iii) 16 and 17.7.1957. (iv) to (viii) N.A. (ix) 39.59%. (x) 12 to 17.10.1957.

2. TREATMENTS :

All combinations of (1) and (2)

(1) 3 levels of N as A/S : $N_0=0$, $N_1=20$ and $N_2=40$ lb./ac.

(2) 3 levels of P_2O_5 as Super : $P_0=0$, $P_1=20$ and $P_2=40$ lb./ac.

Super placed deep in bands on both sides of the seed line and A/S broadcast at sowing.

3. DESIGN :

(i) Fact. in R.B.D. (ii) (a) 9. (b) N.A. (iii) 4. (iv) (a) and (b) $30' \times 36'$. (v) Nil. (vi) Yes.

4. GENERAL :

(i) Good. (ii) N.A. (iii) Germination % and yield of fodder. (iv) to (v) (a) and (b) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 5820 lb./ac. (ii) 2194.8 lb./ac. (iii) Only interaction $N \times P$ is highly significant. (iv) Av. yield of fodder in lb./ac.

	P ₀	P ₁	P ₂	Mean
N ₀	5331	3837	7571	5580
N ₁	7488	5642	4263	5798
N ₂	4812	6327	7104	6081
Mean	5877	5269	6313	5820

S.E. of any marginal mean = 633.6 lb./ac.
S.E. of body of table = 1097.4 lb./ac.

Crop :- Jowar Fodder (Kharif).
Site :- Tarai State Farm, Phoolbagh.

Ref :- U.P. 58(192).
Type :- 'M'.

Object :- To study the residual effect of different sources of P applied to previous wheat crop on Jowar fodder.

1. BASAL CONDITIONS :

(i) (a) Fallow—Wheat—Jowar. (b) Wheat. (c) As per treatments. (ii) (a) Sandy loam. (b) N.A. (iii) 2.7.1958. (iv) (a) 1 hot weather cultivation, 3 harrowings and 3 plankings. (b) Behind the plough. (c) to (e) N.A. (v) to (vii) N.A. (viii) 2 weedings. (ix) 58.0". (x) N.A.

2. TREATMENTS :

All combinations of (1) and (2) + 2 extra treatments

(1) 2 levels of P₂O₅ : P₁=30 and P₂=60 lb./ac.

(2) 2 sources of P₂O₅ : S₁=Super and S₂=B.M.

2 extra treatments : E₀=Control and E₁=30 lb./ac. of N as A/S.

30 lb./ac. of N was applied to all treatments except E₀. N broadcast and P₂O₅ applied in furrows. Treatments applied to previous wheat crop.

3. DESIGN :

(i) R.B.D. (ii) (a) 6. (b) 44'×155'. (iii) 6. (iv) (a) and (b) 44'×25'. (v) Nil. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of fodder. (iv) (a) and (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 12.20 tons/ac. (ii) 1.95 tons/ac. (iii) None of the effects is significant. (iv) Av. yield of fodder in tons/ac.

$$E_0 = 11.94 \text{ and } E_1 = 12.35 \text{ tons/ac.}$$

	S ₁	S ₂	Mean
P ₁	11.74	12.54	12.14
P ₂	11.96	12.64	12.30
Mean	11.85	12.59	12.22

S.E. of any marginal mean = 0.56 tons/ac.
S.E. of body of table or E mean = 0.80 tons/ac.

Crop :- Jowar Fodder (Kharif).
Site :- Tarai State Farm, Phoolbagh.

Ref :- U.P. 58(373).

Type :- 'M'.

Object :- To study the residual effect of N, P and K applied to previous wheat crop on Jowar fodder.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Wheat. (c) As per treatments. (ii) (a) Sandy loam. (b) N.A. (iii) 2.7.1958. (iv) (a) 1 hot weather cultivation, 3 harrowings and 3 plankings. (b) Behind the plough. (c) to (e) N.A. (v) 25 lb./ac. of N as A/S. (vi) to (viii) N.A. (ix) 48.6%. (x) 27.9.1958.

2. TREATMENTS :

All combinations of (1), (2) and (3)

(1) 2 levels of N as A/S/N : $N_0=0$ and $N_1=30$ lb./ac.

(2) 2 levels of P_2O_5 as Super : $P_0=0$ and $P_1=40$ lb./ac.

(3) 2 levels of K_2O as Mur. Pot. : $K_0=0$ and $K_1=60$ lb./ac.

Treatments applied to previous wheat crop.

3. DESIGN :

(i) Fact. in R.B.D. (ii) (a) 8. (b) $49.5' \times 197'$. (iii) 4. (iv) (a) and (b) $49.5' \times 22'$. (v) Nil. (vi) Yes.

4. GENERAL :

(i) Good. (ii) N.A. (iii) Yield of fodder. (iv) (a) and (b) No. (c) Nil. (v) and (vi) Nil. (vii) The crop was slightly damaged by heavy weeds and want of moisture in the soil.

5. RESULTS :

(i) 13.33 tons/ac. (ii) 1.50 tons/ac. (iii) Only N and P effects are significant. (iv) Av. yield of fodder in tons/ac.

	P_0	P_1	Mean	K_0	K_1
N_0	12.45	13.10	12.77	12.65	12.90
N_1	13.08	14.68	13.88	13.30	14.46
Mean	12.76	13.89	13.33	12.97	13.68
K_0	12.55	13.40			
K_1	12.98	14.38			

S.E. of any marginal mean = 0.37 tons/ac.

S.E. of body of any table = 0.53 tons/ac.

Crop :- Jowar Fodder (Kharif).

Site :- Reg. Res. Farm, Varanasi.

Ref :- U.P. 54(206).

Type :- 'M'.

Object :- To study the residual effect of different sources of P applied to previous wheat crop on Jowar fodder.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Wheat. (c) As per treatments. (ii) (a) Loam. (b) Refer soil analysis, Varanasi. (iii) 5.7.1954. (iv) (a) 2 ploughings and 1 planking. (b) Broadcast. (c) to (e) N.A. (v) and (vi) N.A. (vii) Unirrigated. (viii) N.A. (ix) 20.09%. (x) 20 and 21.9.1954.

2. TREATMENTS :

Main-plot treatments :

2 levels of N : $N_0=0$ and $N_1=30$ lb./ac.

Sub-plot treatments :

All combinations of (1) and (2) + a control (No P_2O_5)

(1) 2 levels of P_2O_5 : $P_1=60$ and $P_2=120$ lb./ac.

(2) 2 sources of P_2O_5 : $S_1=$ Super and $S_2=B.M.$

3. DESIGN :

(i) Split-plot. (ii) (a) 2 main-plots/replication ; 5 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) and (b) 23' x 47½'. (v) Nil. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of fodder. (iv) (a) 1954—1955. (b) Yes. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 4629 lb./ac. (ii) (a) 2454 lb./ac. (b) 833 lb./ac. (iii) Main effect of S and interaction N x P are significant. (iv) Av. yield of fodder in lb./ac.

$$N_0 P_0 = 3326 \text{ and } N_1 P_0 = 4878 \text{ lb./ac.}$$

	P ₁	P ₂	Mean	S ₁	S ₂
N ₀	4899	3906	4402	4238	4566
N ₁	4761	5476	5118	4606	5631
Mean	4830	4691	4760	4422	5099
S ₁	4631	4214			
S ₂	5029	5169			

S.E. of difference of two

1. N marginal means = 868 lb./ac.
 2. P or S marginal means = 294 lb./ac.
 3. P or S means at the same level of N = 416 lb./ac.
 4. N means at the same level of P or S = 916 lb./ac.
- S.E. of body of P x S table = 294 lb./ac.

Crop :- Jowar Fodder (Kharif).

Ref :- U.P. 55(188).

Site :- Reg. Res. Sta., Varanasi.

Type :- 'M'.

Object :- To study the residual effect of different sources of P applied to previous wheat crop on the yield of Jowar fodder.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Wheat. (c) As per treatments. (ii) (a) Loam. (b) Refer soil analysis, Varanasi. (iii) 22.6.1955. (iv) (a) Hot weather cultivation and 2 ploughings. (b) Sown in lines. (c) N.A. (d) Rows 9" apart. (e) N.A. (v) 15 lb./ac. of N as A/S. (vi) to (viii) N.A. (ix) 34.76". (x) N.A.

2. TREATMENTS and 3. DESIGN :

Same as in expt. no. 54 (206) on page 1524.

GENERAL :

(i) Unsatisfactory. (ii) Nil. (iii) Yield of fodder. (iv) (a) 1954—1955. (b) Yes. (c) Nil. (v) (a) and (b) Nil. (vi) The crop growth was affected badly due to continuous rains and water logging. (vii) Nil.

5. RESULTS :

(i) 7083 lb./ac. (ii) (a) 2017 lb./ac. (b) 1505 lb./ac. (iii) Main effect of S alone is significant. (iv) Av. yield of fodder in lb./ac.

$$N_0 P_0 = 6192 \text{ and } N_1 P_0 = 7972 \text{ lb./ac.}$$

	P ₁	P ₂	Mean	S ₁	S ₂
N ₀	6337	6937	6637	6322	6952
N ₁	7817	7242	7529	6457	8602
Mean	7077	7089	7083	6389	7777
S ₁	6914	5864			
S ₂	7240	8315			

S.E. of difference of two

1. N marginal means	= 713 lb./ac.
2. P or S marginal means	= 532 lb./ac.
3. P or S means at the same level of N	= 752 lb./ac.
4. N means at the same level of P or S	= 889 lb./ac.
S.E. of body of P × S table	= 532 lb./ac.

Crop :- Jowar Fodder (Kharif).

Ref :- U.P. 56(155).

Site :- Reg. Res. Stn., Varanasi.

Type :- 'M'.

Object :—To study the residual effect of different sources of P applied to previous wheat crop on the yield of Jowar fodder.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Wheat. (c) As per treatments + G.M. (*sanai + moong*). (ii) (a) Loam. (b) Refer soil analysis, Varanasi. (iii) 8.6.1956 and resown on 19.6.1956. (iv) (a) 2 ploughings. (b) Broadcast. (c) 10 srs./ac. (d) and (e) N.A. (v) 15 lb./ac. of N as A/S. (vi) N.A. (vii) Unirrigated. (viii) Nil. (ix) 30.62". (x) 4 to 22.9.1956.

2. TREATMENTS :

Same as in expt. no. 58(192) on page 1523.

3. DESIGN :

(i) R.B.D. (ii) (a) 6. (b) N.A. (iii) 6. (iv) (a) and (b) 26' × 42'. (v) Nil. (vi) Yes.

4. GENERAL :

(i) N.A. (ii) Nil. (iii) Yield of fodder. (iv) (a) 1956—1957. (b) Yes. (c) Nil. (v) (a) and (b) Nil. (vi) Due to rains from 9 to 12.6.1956 the crop was resown. (vii) Nil.

5. RESULTS :

(i) 7.40 tons/ac. (ii) 0.82 tons/ac. (iii) None of the effects is significant. (iv) Av. yield of fodder in tons/ac.

$$E_2 = 7.02 \text{ and } E_1 = 7.29 \text{ tons/ac.}$$

	P ₁	P ₂	Mean
S ₁	7.61	7.05	7.33
S ₂	7.62	7.83	7.72
Mean	7.62	7.44	7.53

S.E. of any marginal mean = 0.23 tons/ac.

S.E. of body of table or E mean = 0.33 tons/ac.

Crop :- Jowar Fodder (*Kharif*).

Ref :- U.P. 57(245).

Site :- Reg. Res. Stn., Varanasi.

Type :- 'M'.

Object :- To study the residual effect of different sources of P applied to previous wheat crop on the yield of Jowar fodder.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Wheat. (c) As per treatments. (ii) (a) Loam. (b) Refer soil analysis, Varanasi. (iii) 25.6.1957 and resown on 16.7.1957. (iv) (a) 1 ploughing by Victory plough and 1 ploughing by *desi* plough. (b) Behind the plough. (c) 35 srs./ac. (d) Rows 9' apart. (e) N.A. (v) 15 lb./ac. of N as A/S. (vi) N.A. (vii) Nil. (viii) 1 weeding. (ix) N.A. (x) 14 to 19.9.1957.

2. TREATMENTS :

Same as in expt. no. 58(192) on page 1523.

3. DESIGN :

(i) R.B.D. (ii) (a) 6. (b) N.A. (iii) 6. (iv) (a) and (b) 26' x 42'. (v) Nil. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of fodder. (iv) (a) 1956—1957. (b) Yes. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 3.84 tons/ac. (ii) 0.68 tons/ac. (iii) 'E vs. others' alone is significant. (iv) Av. yield of fodder in tons/ac.

$$E_0 = 3.35 \text{ and } E_1 = 3.53 \text{ tons/ac.}$$

	P ₁	P ₂	Mean
S ₁	4.18	3.76	3.97
S ₂	4.26	3.96	4.11
Mean	4.22	3.86	4.04

S.E. of any marginal mean = 0.20 tons/ac.
S.E. of body of table or E mean = 0.28 tons/ac.

Crop :- Jowar Fodder (*Kharif*).

Ref :- U.P. 57(276).

Site :- Allahabad Agri. Instt., Allahabad.

Type :- 'C'.

Object :- To study the effect of intercropping on the yield of Jowar fodder.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) (a) Fine sandy loam. (b) Refer soil analysis, Allahabad. (iii) 24.7.1957. (iv) (a) to (c) N.A. (d) 4' between rows. (e) N.A. (v) 32 lb./ac. of P₂O₅ as Super + 20 lb./ac. of N as A/S. (vi) N.A. (vii) Irrigated. (viii) to (x) N.A.

2. TREATMENTS :

4 intercrops with *jowar* : C₁=Cowpea, C₂=Guara, C₃=Velvet bean and C₄=Soyabean.

3. DESIGN :

(i) R.B.D. (ii) (a) 4. (b) 65' x 56'. (iii) 4. (iv) (a) N.A. (b) 65' x 14'. (v) N.A. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of fodder. (iv) (a) 1957—1958. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 13.76 tons/ac. (ii) 1.98 tons/ac. (iii) Treatment differences are significant. (iv) Av. yield of fodder in tons/ac.

Treatment	C ₁	C ₂	C ₃	C ₄
Av. yield	16.13	15.03	12.53	11.33

S.E./mean = 0.99 tons/ac.

Crop :- Jowar (Kharif).

Ref :- U.P. 58(244).

Site :- Allahabad Agri. Instt., Allahabad.

Type :- 'C'.

Object :- To study the effect of intercropping on the yield of Jowar fodder.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) (a) Fine sandy loam. (b) Refer soil analysis, Allahabad. (iii) 15.7.1958. (iv) (a) to (c) N.A. (d) 2' between rows. (e) N.A. (v) 32 lb./ac. of P₂O₅ as Super + 20 lb./ac. of N as A/S. (vi) to (x) N.A.

2. TREATMENTS :

3 inter crops with jowar : C₁=Cowpea, C₂=Guara and C₃=Velvet bean.

3. DESIGN :

(i) R.B.D. (ii) (a) 3. (b) 81'×76'. (iii) 4. (iv) (a) N.A. (b) 81'×19'. (v) N.A. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of fodder. (iv) (a) 1957—1958. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 10.40 tons/ac. (ii) 0.84 tons/ac. (iii) Treatment differences are highly significant. (iv) Av. yield of fodder in tons/ac.

Treatment	C ₁	C ₂	C ₃
Av. yield	13.56	8.98	8.66

S.E./mean = 0.42 tons/ac.

Crop :- Jowar Fodder.

Ref :- U.P. 54(2).

Site :- Vivekananda Lab., Almora.

Type :- 'C'.

—To find out the best spacing between rows and method of sowing for Jowar fodder.

BASAL CONDITIONS :

(i) (a) Nil. (b) Fallow. (c) Nil. (ii) (a) Sandy loam. (b) Refer soil analysis, Almora. (iii) 3.7.1954. (iv) (a) N.A. (b) As per treatments. (c) N.A. (d) As per treatments. (e) N.A. (v) 200 mds./ac. of compost + ½ md./ac. of A/S. (vi) Hegari. (vii) Unirrigated. (viii) 1 weeding. (ix) 42.05°. (x) 9.10.1954.

2. TREATMENTS :

Main-plot treatments :

2 spacings between rows : S₁=1' and S₂=1.5'.

Sub-plot treatments :

2 methods of sowing : M₁=Dibbling 6" apart and M₂=Behind the kutela.

3. DESIGN :

(i) Split-plot. (ii) (a) 2 main-plots/replication ; 2 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) and (b) 13'×6'. (v) Nil. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Nil. (iii) Yield of fodder. (iv) (a) and (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 3540 lb./ac. (ii) (a) 214.0 lb./ac. (b) 448.0 lb./ac. (iii) Only S effect is highly significant. (iv) Av. yield of fodder in lb./ac.

	M ₁	M ₂	Mean
S ₁	3913	3949	3931
S ₂	2872	3428	3150
Mean	3392	3688	3540

S.E. of difference of two

- | | |
|-----------------------------------|-----------------|
| 1. S marginal means | = 107.0 lb./ac. |
| 2. M marginal means | = 224.0 lb./ac. |
| 3. M means at the same level of S | = 316.8 lb./ac. |
| 4. S means at the same level of M | = 248.3 lb./ac. |

Crop :- Jowar fodder (Kharif).

Ref :- U.P. 54(366).

Site :- Sugarcane Res. Sub-Stn., Muzaffarnagar.

Type :- 'CV'.

Object :- To study the fertility exhausting capacity of important sugarcane varieties by taking Jowar fodder after plant cane.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Sugarcane. (c) 80 lb./ac. of N as compost+20 lb./ac. of N as A/S+20 lb./ac. of N as castor cake+G.M. (*guar*). (ii) (a) Sandy loam. (b) Refer soil analysis, Muzaffarnagar. (iii) 14.6.1954. (iv) (a) 4 ploughings and 1 roller application. (b) to (c) N.A. (v) Nil. (vi) N.A. (vii) Irrigated. (viii) Nil. (ix) 21.57". (x) 3 to 9.10.1954.

2. TREATMENTS :

Main-plot treatments :

2 times of planting of cane : T₁=Autumn planting (25.9.1952) and T₂=Spring planting (13.2.1953).

Sub-plot treatments :

10 varieties of sugarcane : V₁=CO. 312 (medium), V₂=CO. 313 (early), V₃=CO. 421 (medium), V₄=CO. 453 (medium late), V₅=CO. 650 (medium), V₆=CO. 737, V₇=CO.S. 245 (medium), V₈=CO.S. 321 (early), V₉=CO.S. 466 and V₁₀=CO.S. 469 (medium early).

Treatments applied during 1952—1954. Sugarcane harvested from 12.12.1953 to 2.4.1954.

3. DESIGN :

(i) Split-plot. (ii) (a) 2 main-plots/replication ; 10 sub-plots/main-plot. (b) 180'×91.5'. (iii) 4. (iv) (a) and (b) 44'×18'. (v) Nil. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of fodder. (iv) (a) 1954—1955. (b) No. (c) Nil. (v) to (vii) Nil

5. RESULTS :

(i) 10.36 tons/ac. (ii) (a) 0.27 tons/ac. (b) 1.40 tons/ac. (iii) Main effect of T alone is significant. (iv) Av. yield of fodder in tons/ac.

	V ₁	V ₂	V ₃	V ₄	V ₅	V ₆	V ₇	V ₈	V ₉	V ₁₀	Mean
T ₁	10.48	10.18	10.61	9.52	10.65	9.98	10.40	10.76	9.57	9.82	10.20
T ₂	10.60	10.15	10.05	12.08	11.07	9.50	10.18	10.60	10.65	10.30	10.52
Mean	10.54	10.16	10.33	10.80	10.86	9.74	10.29	10.68	10.11	10.06	10.36

S.E. of difference of two

1. T marginal means = 0.06 tons/ac.
2. V marginal means = 0.70 tons/ac.
3. V means at the same level of T = 0.99 tons/ac.
4. T means at the same level of V = 0.94 tons/ac.

Crop :- Jowar Fodder (Kharif).

Ref :- U.P. 55(396).

Site :- Sugarcane Res. Sub-Stn., Muzaffarnagar.

Type :- 'CV'.

Object :- To study the fertility exhausting capacity of important sugarcane varieties by taking Jowar fodder after plant cane.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Sugarcane. (c) 60 lb./ac. of N as compost+20 lb./ac. of N as G.N.C.+50 lb./ac. of N as A/S. (ii) (a) Sandy loam. (b) Refer soil analysis, Muzaffarnagar. (iii) to (viii) N.A. (ix) 47.48". (x) N.A.

2. TREATMENTS :

Main-plot treatments :

2 times of planting of cane : T_1 =Autumn (12.10.1953) and T_2 =Spring planting (11.3.1954).

Sub-plot treatments :

10 varieties of sugarcane : V_1 =CO. 312 (medium), V_2 =CO. 313 (early), V_3 =CO. 421 (medium), V_4 =CO. 453 (medium late), V_5 =CO. 650 (medium), V_6 =CO. 758, V_7 =CO.S. 245 (medium), V_8 =CO.S. 321 (early), V_9 =CO.S. 469 (medium early) and V_{10} =CO.S. 470.

Treatments applied during 1953—1955. Sugarcane harvested from December, 1954 to April, 1955.

3. DESIGN :

(i) Split-plot. (ii) (a) 2 main-plots/replication ; 10 sub-plots/main-plot. (b) 180'×86'. (iii) 4. (iv) (a) and (b) 40'×18'. (v) Nil. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of fodder. (iv) (a) 1954—1955. (b) No. (c) Nil. (v) and (vi) Nil. (vii) Originally the experiment was to study the ratooning capacity of different varieties sown at 2 different periods of the plant cane expt. of 1953—1955, but the ratoon could not be kept due to bad condition of stubbles after the harvest of plant cane. Jowar fodder was taken after harvest of plant cane.

5. RESULTS :

(i) 10.13 tons/ac. (ii) (a) 2.33 tons/ac. (b) 1.62 tons/ac. (iii) None of the effects is significant. (iv) Av. yield of fodder in tons/ac.

	V_1	V_2	V_3	V_4	V_5	V_6	V_7	V_8	V_9	V_{10}	Mean
T_1	9.21	9.56	10.85	10.07	9.81	9.12	8.38	9.78	9.02	9.67	9.55
T_2	11.57	10.77	10.12	10.20	11.73	10.13	9.67	10.36	10.82	11.77	10.71
Mean	10.39	10.16	10.48	10.14	10.77	9.62	9.02	10.07	9.92	10.72	10.13

S.E. of difference of two

1. T marginal means = 0.52 tons/ac.
2. V marginal means = 0.81 tons/ac.
3. V means at the same level of T = 1.14 tons/ac.
4. T means at the same level of V = 1.20 tons/ac.

Crop :- Jowar Fodder (Kharif).

Ref :- U.P. 59(476).

Site :- Old Dairy Farm, Govt. Agri. College, Kanpur. Type :- 'D'.

Object :—To study the effect of insecticides against Jowar stem borer.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) (a) Loam. (b) Refer soil analysis, Kanpur. (iii) 28.7.1959. (iv) and (v) N.A. (vi) 8 B. (vii) to (ix) N.A. (x) 24 and 25.11.1959.

2. TREATMENTS :

6 insecticidal treatments : T_0 =Control (2 plots), T_1 =2 lb. of actual Endrin at 80 gallons/ac., T_2 =2 lb. of actual Endrin+1 % Ovicide at 80 gallons/ac., T_3 =0.075 % Diazinon+0.25 % D.D.T. (W.P.) at 80 gallons/ac., T_4 =0.1 % Diazinon at 80 gallons/ac. and T_5 =0.1 % Lindane+0.25 % D.D.T. (W.P.) at 80 gallons/ac.

Insecticides sprayed thrice from July to Sept. one after each month.

3. DESIGN :

(i) R.B.D. (ii) (a) 7. (b) N.A. (iii) 4. (iv) (a) and (b) 36'×30' 3". (v) Nil. (vi) Yes.

4. GENERAL :

(i) N.A. (ii) Under study. (iii) Height of plants, yield of fodder and infection of stem borer. (iv) (a) 1959—N.A. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

% infection of stem borer

(i) 28.21 degrees. (ii) 3.60 degrees. (iii) Treatment differences are significant. (iv) Mean % of affected plants in degrees.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5
Mean angle	32.00	24.73	23.29	27.91	28.28	29.28

S.E./mean = 1.80 degrees.

Transformed back %	T_0	T_1	T_2	T_3	T_4	T_5
	25.00	17.83	15.98	22.19	22.72	24.17

Fodder yield

(i) 4.16 tons/ac. (ii) 0.298 tons/ac. (iii) Treatment differences are not significant. (iv) Av. yield of fodder in tons/ac.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5
Av. yield	4.00	4.22	4.50	4.11	4.16	4.11

S.E./mean = 0.15 tons/ac.

Crop :- Lucerne (Rabi).

Ref :- U.P. 55(219).

Site :- Allahabad Agri. Instt., Allahabad.

Type :- 'C'.

Object :—To study the effect of different methods of sowing and spacings on the yield of Lucerne.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) (a) Fine sandy loam. (b) Refer soil analysis, Allahabad. (iii) 20.10.1955. (iv) (a) N.A. (b) As per treatments. (c) 10 lb./ac. (d) As per treatments. (e) N.A. (v) and (vi) N.A. (vii) Irrigated. (viii) 3 weedings. (ix) and (x) N.A.

2. TREATMENTS :

All combinations of (1) and (2)+one extra treatment

(1) 2 methods of sowing : M_1 =Line sowing and M_2 =Ridge sowing.

(2) 3 spacings between rows : S_1 =2', S_2 =1.5' and S_3 =1'.

Extra treatment : E=Sown by broadcast.

3. DESIGN :

(i) R.B.D. (ii) (a) 7. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 58'×10'. (v) N.A. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of fodder. (iv) (a) 1955—N.A. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 20.10 tons/ac. (ii) 0.68 tons/ac. (iii) Main effects of S and M and 'E vs. others' are highly significant.
(iv) Av. yield of fodder in tons/ac.

$$E = 23.25 \text{ tons/ac.}$$

	S ₁	S ₂	S ₃	Mean
M ₁	16.35	20.13	24.61	20.36'
M ₂	15.77	17.82	22.74	18.78
Mean	16.06	18.97	23.67	19.57

S.E. of S marginal mean = 0.24 tons/ac.
S.E. of M marginal mean = 0.20 tons/ac.
S.E. of body of table or E mean = 0.34 tons/ac.

Crop :- Oats (Rabi).

Ref :- U.P. 57(271).

Site :- Allahabad Agri. Instt., Allahabad.

Type :- 'M'.

Object :—To study the effect of N and P alone and in combinations on the yield of Oats fodder.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Fallow. (c) N.A. (ii) (a) Fine sandy loam. (b) Refer soil analysis, Allahabad. (iii) 15.11.1957. (iv) (a) and (b) N.A. (c) 45 srs /ac. (d) 1' between rows. (e) N.A. (v) and (vi) N.A. (vii) Irrigated. (viii) to (x) N.A.

2. TREATMENTS :

Main-plot treatments :

2 levels of P₂O₅ as Super : P₀=0 and P₁=60 lb./ac.

Sub-plot treatments :

5 levels of N as A/S and G.N.C. in 1 : 1 ratio : N₀=0, N₁=30, N₂=40, N₃=50 and N₄=60 lb./ac.

3. DESIGN :

(i) Split-plot. (ii) (a) 2 main-plots/replication ; 5 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 25' × 20'. (v) N.A. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of fodder. (iv) (a) and (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 11.31 tons/ac. (ii) (a) 0.76 tons/ac. (b) 0.37 tons/ac. (iii) Main effect of N alone is highly significant.
(iv) Av. yield of fodder in tons/ac.

	N ₀	N ₁	N ₂	N ₃	N ₄	Mean
P ₀	7.87	10.76	12.75	13.33	12.55	11.45
P ₁	8.54	10.73	10.93	12.17	13.45	11.16
Mean	8.20	10.74	11.84	12.75	13.00	11.31

S.E. of difference of two

1. P marginal means = 0.24 tons/ac.
2. N marginal means = 0.18 tons/ac.
3. N means at the same level of P = 0.26 tons/ac.
4. P means at the same level of N = 0.36 tons/ac.

Crop :- Sanai (Kharif).**Ref :- U.P. 57(402).****Site :- Govt. Agri. Farm, Kalai.****Type :- 'M'.**

Object :—To study the residual effect of N, P and K applied to previous crop of wheat of the yield of Sanai.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Wheat. (c) As per treatments. (ii) (a) Loam. (b) Refer soil analysis, Kalai. (iii) to (ix) N.A. (x) 4 and 5.8.1957.

2. TREATMENTS :

All combinations of (1), (2) and (3)

(1) 2 levels of N as A/S : $N_0=0$ and $N_1=30$ lb./ac.

(2) 2 levels of P_2O_5 as Super : $P_0=0$ and $P_1=40$ lb./ac.

(3) 2 levels of K_2O as Pot. Chloride : $K_0=0$ and $K_1=60$ lb./ac.

Treatments applied to previous wheat crop.

3. DESIGN :

(i) Fact. in R.B.D. (ii) (a) 8. (b) $85' \times 106'$. (iii) 4. (iv) (a) and (b) $41' \times 26.5'$. (v) Nil. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of *sanai* green matter. (iv) (a) and (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 3.68 tons/ac. (ii) 0.34 tons/ac. (iii) Main effect of P and interaction $N \times P$ are highly significant. Interactions $N \times K$ and $N \times P \times K$ are significant. (iv) Av. yield of fodder in tons/ac.

	K_0	K_1	Mean	P_0	P_1
N_0	3.79	3.38	3.59	2.34	4.84
N_1	3.69	3.85	3.77	3.35	4.19
Mean	3.74	3.61	3.68	2.84	4.52
P_0	2.88	2.79			
P_1	4.60	4.43			

S.E. of any marginal mean

= 0.08 tons/ac.

S.E. of body of any table

= 0.12 tons/ac.

Crop :- Sanai (Kharif).**Ref :- U.P. 54(156).****Site :- Govt. Res. Farm, Kanpur.****Type :- 'M'.**

Object :—To study the effect of P on the yield of Sanai.

1. BASAL CONDITIONS :

(i) (a) Wheat—*Sanai*. (b) Wheat. (c) N.A. (ii) (a) Loam. (b) Refer soil analysis, Kanpur. (iii) 22.7.1954. (iv) (a) and (b) N.A. (c) 50 srs./ac. (d) and (e) N.A. (v) to (ix) N.A. (x) 26.8.1954.

2. TREATMENTS :

4 levels of P_2O_5 as Super : P_0 =Control (4 plots), $P_1=75$, $P_2=100$ and $P_3=125$ lb./ac.

3. DESIGN :

(i) R.B.D. (ii) (a) 7. (b) N.A. (iii) 4. (iv) (a) and (b) $37.5' \times 28.5'$. (v) Nil. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of green material. (iv) (a) 1949—1954. (b) Yes. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 4111 lb./ac. (ii) 1275.0 lb./ac. (iii) Treatment differences are not significant. (iv) Av. yield of green matter in lb./ac.

Treatment	P ₀	P ₁	P ₂	P ₃
Av. yield	4320	3098	3780	4616
S.E./mean (excluding P ₀) = 637.5 lb./ac.				
S.E. of P ₀ mean = 318.7 lb./ac.				

Crop :- Sanai (*Kharif*).

Ref :- U.P. 54(295).

Site :- Govt. Res. Farm, Pura.

Type :- 'M'.

Object :- To study the residual effect of N, P and K applied to previous wheat crop on the yield of Sanai.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Wheat (c) As per treatments. (ii) (a) Sandy loam. (b) Refer soil analysis, Pura. (iii) 7.6.1954. (iv) (a) 1 ploughing by *Mesta* plough and 1 ploughing by *desi* plough. (b) to (e) N.A. (v) to (ix) N.A. (x) 24 and 25.8.1954.

2. TREATMENTS :

All combinations of (1), (2) and (3)

(1) 2 levels of N as A/S : N₀=0 and N₁=30 lb./ac.

(2) 2 levels of P₂O₅ as Super : P₀=0 and P₁=60 lb./ac.

(3) 3 levels of K₂O as Pot. Sul. : K₀=0, K₁=60 and K₂=120 lb./ac.

Treatments applied to previous wheat crop.

3. DESIGN :

(i) 3 × 2² partially balanced. (ii) (a) 6 plots/block ; 2 blocks/replication. (b) 47.33' × 143'. (iii) (iv) (a) and (b) 47'4" × 23'. (v) Nil. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of green matter (iv) (a) and (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 4.89 tons/ac. (ii) 1.24 tons/ac. (iii) Only main effect of P is significant. (iv) Av. yield of green matter in tons/ac.

	K ₀	K ₁	K ₂	Mean	P ₀	P ₁
N ₀	4.88	4.91	5.25	5.01	4.61	5.41
N ₁	3.78	5.93	4.61	4.77	4.34	5.21
Mean	4.33	5.42	4.93	4.89	4.48	5.21
P ₀	4.14	4.90	4.39			
P ₁	4.52	5.94	5.47			

S.E. of N or P marginal mean	= 0.25 tons/ac.
S.E. of K marginal mean	= 0.31 tons/ac.
S.E. of body of N × K or P × K table	= 0.44 tons/ac.
S.E. of body of N × P table	= 0.36 tons/ac.

Crop :- Grass and Legume.

Ref :- U.P. 59(363).

Site :- State Soil Cons. Res. Demons. and Trg. Centre, Rehmankhara. Type :- 'M'.

Object :- To study the response of grass and legume mixture to Fertilizers.

1. BASAL CONDITIONS :

(i) N.A. (ii) (a) Loamy sand. (b) Refer soil analysis, Rehmankhara. (iii) By means of root slips. (iv) Grass: *panicum antidoliate*, legume: *dolichos lab lab*. (v) 15.7.1957 by *khurpi* at 1' x 9" spacing. (vi) Two years old tussocks were taken. (vii) Nil. (viii) and (ix) N.A. (x) Unirrigated. (xi) and (xii) N.A.

2. TREATMENTS :

All combinations of (1) and (2) + control (3 plots)

(1) 7 manurial treatments: $M_1=30$ lb./ac. of N, $M_2=30$ lb./ac. of P_2O_5 , $M_3=60$ lb./ac. of K_2O , $M_4=M_1+M_2$, $M_5=M_2+M_3$, $M_6=M_1+M_3$ and $M_7=M_1+M_2+M_3$.

(2) 3 durations of application: $T_1=$ Every year, $T_2=$ Once in 2 years and $T_3=$ Once in 3 years.

3. DESIGN :

(i) R.B.D. (ii) (a) 24. (b) N.A. (iii) 4. (iv) (a) 24' x 24'. (b) 22' x 22'. (v) 1' x 1'. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of mixture of grass and legume. (iv) and (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 1836 lb./ac. (ii) 434.8 lb./ac. (iii) Main effect of M and interaction T x M are significant. (iv) Av. yield of grass and legume mixture in lb./ac.

Control = 1732 lb./ac.

	M ₁	M ₂	M ₃	M ₄	M ₅	M ₆	M ₇	Mean
T ₁	2167	1386	1626	2392	1397	1990	2566	1932
T ₂	2097	1608	1423	1802	1744	1773	2285	1819
T ₃	2346	1637	1559	2005	1420	1649	2005	1803
Mean	2203	1544	1536	2066	1520	1804	2285	1851

S.E. of T marginal mean = 82.2 lb./ac.

S.E. of control or M marginal mean = 125.5 lb./ac.

S.E. of body of table = 217.4 lb./ac.

Crop :- Grass.

Ref :- U.P. 59(489).

Site :- Soil Cons. Res. Stn., Selakui.

Type :- 'MV'.

Object :- To study the response of different varieties of grass to micro-nutrients.

1. BASAL CONDITIONS :

(i) The area was under scrub forest before this experiment was laid out. (ii) (a) Alluvial soil. (b) Refer soil analysis, Selakui. (iii) V₁ and V₂ by seed; V₃ by root stock. (iv) As per treatments. (v) 30.7.1959 to 4.8.1959, other details—N.A. (vi) N.A. (vii) Nil. (viii) 2 weedings. (ix) Nil. (x) Unirrigated. (xi) 90.5". (xii) 30.10.1959 to 15.1.1960.

2. TREATMENTS :

All combinations of (1) and (2)

(1) 3 varieties of grass: V₁=Rhodes grass (*Chloris gayana*), V₂=Para grass (*Bracharia plectostachyum*).

(2) 10 micro-nutrient treatments: M₀=Control, M₁=40 lb./ac. of N+60 lb./ac. of P₂O₅, M₂=40 lb./ac. of N+60 lb./ac. of P₂O₅+20 lb./ac. of Cu as C/S+2 ozs./ac. of M₀ as Ammo. Molybdate+10 lb./ac. of Zn as ZnSO₄+2 lb./ac. of B as Borax+5 lb./ac. of Mn as MnSO₄+25 lb./ac. of Mg as Mg SO₄, M₃=M₂ excluding Cu, M₄=M₂ excluding M₀, M₅=M₂ excluding Zn, M₆=M₂ excluding B, M₇=M₂ excluding Mn, M₈=M₂ excluding Mg and M₉=M₁+2 ozs./ac. of M₀ as Ammo. Molybdate.

Micro-nutrients broadcast and mixed in the soil on 30.7.1959. N and P₂O₅ applied on 30.7.1959.

3. DESIGN :

(i) Fact. in R B.D. (ii) (a) 30. (b) N.A. (iii) 3. (iv) (a) and (b) 48'×18'. (v) Nil. (vi) Yes.

4. GENERAL :

(i) Normal. (ii) Nil. (iii) Yield of grass. (iv) (a) 1959—1962. (b) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 3.61 tons/ac. (ii) 0.90 tons/ac. (iii) Main effect of V alone is highly significant. (iv) Av. yield of grass in tons/ac.

	M ₀	M ₁	M ₂	M ₃	M ₄	M ₅	M ₆	M ₇	M ₈	M ₉	Mean
V ₁	4.82	5.02	4.82	5.77	4.71	4.17	4.71	5.20	4.99	4.82	4.90
V ₂	4.57	3.70	3.97	5.63	3.97	3.94	3.60	3.79	4.51	3.50	4.12
V ₃	1.87	1.13	1.82	1.53	1.65	2.27	1.59	1.81	2.03	2.41	1.81
Mean	3.75	3.28	3.54	4.31	3.44	3.46	3.30	3.60	3.84	3.58	3.61

S.E. of M marginal mean = 0.30 tons/ac.
 S.E. of V marginal mean = 0.16 tons/ac.
 S.E. of body of table = 0.52 tons/ac.

Crop :- Cyrodon dactylon (Doob grass).**Ref :- U.P. 56(102).****Site :- Govt. Hort. Res. Instt., Saharanpur.****Type :- 'D'.****Object :-** To eradicate low weeds from grass lawn.**1. BASAL CONDITIONS :**

(i) It was a grass lawn. (ii) (a) Sndy loam. (b) Refer soil analysis, Saharanpur. (iii) N.A. (iv) Ordinary doob. (v) to (vii) N.A. (viii) and (ix) Nil. (x) Irrigated. (xi) N.A. (xii) Nil.

2. TREATMENTS :8 weedicidal treatments : T₀=Control, T₁=Dicotex 3%, T₂=2, 4-D sodium salt 0.2%, T₃=Dicotex 0.45%, T₄=2, 4-D amine salt 0.2%, T₅=2, 4-D amine salt 0.2% in 3% geon latex, T₆=2, 4-D sodium salt 0.2% in 3% geon latex and T₇=2, 4-D amine salt 0.0245% in 3% latex.**3. DESIGN :**

(i) L. sq. (ii) (a) 8. (b) N.A. (iii) 8. (iv) Indefinite. (v) N.A. (vi) Yes.

4. GENERAL :

(i) N.A. (ii) No. (iii) Counts of weeds. (iv) 1956 only. (b) and (c) Nil. (v) and (vi) Nil. (vii) Results of weeds counts on different weeds is given for observations taken 15 days after application of treatments and 45 days after application of treatments.

5. RESULTS :*D. Pratifolium***Observation after 15 days :**

(i) 0.33 weed shoots/sq. yd. (ii) 1.14 weed shoots/sq. yd. (iii) Treatment differences are not significant. (iv) Av. number of weed shoots/sq. yd.

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄	T ₅	T ₆	T ₇
Av. number	0.33	0.25	0.50	0.00	0.00	0.00	0.00	1.50

S.E. mean = 0.40 weed shoots/sq. yd.

Observation after 30 days :

- (i) 0.36 weed shoots/sq. yd. (ii) 1.16 weed shoots/sq. yd. (iii) Treatment differences are not significant. (iv) Av. number of weed shoots/sq. yd.

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄	T ₅	T ₆	T ₇
Av. number	0.63	0.25	0.50	0.00	0.00	0.00	0.00	1.50

S.E./mean = 0.41 weed shoots/sq. yd.

Euphorbia hirta

Observation after 15 days :

- (i) 0.86 weed shoots/sq. yd. (ii) 1.20 weed shoots/sq. yd. (iii) Treatment differences are significant. (iv) Av. number of weed shoots/sq. yd.

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄	T ₅	T ₆	T ₇
Av. number	2.00	1.00	0.88	0.00	1.38	0.25	0.13	1.25

S.E./mean = 0.42 weed shoots/sq. yd.

Observation after 45 days :

- (i) 0.65 weed shoots/sq. yd. (ii) 1.04 weed shoots/sq. yd. (iii) Treatment differences are not significant. (iv) Av. number of weed shoots/sq. yd.

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄	T ₅	T ₆	T ₇
Av. number	2.38	0.88	0.13	0.38	0.13	0.00	0.00	1.38

S.E./mean = 0.37 weed shoots/sq. yd.

E. thymifolia

Observation after 15 days :

- (i) 57.33 weed shoots/sq. yd. (ii) 27.77 weed shoots/sq. yd. (iii) Treatment differences are significant. (iv) Av. number of weed shoots/sq. yd.

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄	T ₅	T ₆	T ₇
Av. number	77.50	91.25	63.75	2.13	52.75	24.25	57.75	89.25

S.E./mean = 9.82 weed shoots/sq. yd.

Observation after 45 days :

- (i) 30.42 weed shoots/sq. yd. (ii) 23.95 weed shoots/sq. yd. (iii) Treatment differences are significant. (iv) Av. number of weed shoots/sq. yd.

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄	T ₅	T ₆	T ₇
Av. number	81.63	72.88	0.50	6.13	0.00	0.00	2.13	80.13

S.E./mean = 8.47 weed shoots/sq. yd.

Cyperus spp.

Observation after 15 days :

- (i) 81.08 weed shoots/sq. yd. (ii) 28.77 weed shoots/sq. yd. (iii) Treatment differences are significant. (iv) Av. number of weed shoots/sq. yd.

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄	T ₅	T ₆	T ₇
Av. number	104.00	121.87	67.40	88.63	76.88	51.00	51.38	87.50

S.E./mean = 10.17 weed shoots/sq. yd.

Observation after 45 days :

- (i) 18.83 weed shoots/sq. yd. (ii) 21.23 weed shoots/sq. yd. (iii) Treatment differences are significant. (iv) Av. number of weed shoots/sq. yd.

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄	T ₅	T ₆	T ₇
Av. number	105.25	8.38	1.13	8.63	0.38	2.00	1.25	23.63

S.E./mean = 7.50 weed shoots/sq. yd.

Oldenlandia corymbosa

Observation after 15 days :

(i) 0.09 weed shoots/sq. yd. (ii) 0.28 weed shoots/sq. yd. (iii) Treatment differences are significant. (iv) Av. number of weed shoots/sq. yd.

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄	T ₅	T ₆	T ₇
Av. number	0.63	0.13	0.00	0.00	0.00	0.00	0.00	0.00

S.E./mean = 0.10 weed shoots/sq. yd.

Observation after 45 days :

(i) 0.14 weed shoots/sq. yd. (ii) 0.28 weed shoots/sq. yd. (iii) Treatment differences are significant. (iv) Av. number of weed shoots/sq. yd.

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄	T ₅	T ₆	T ₇
Av. number	0.88	0.13	0.00	0.13	0.00	0.00	0.00	0.00

S.E./mean = 0.10 weed shoots/sq. yd.

Gomphrena celosioides

Observation after 15 days :

(i) 1.72 weed shoots/sq. yd. (ii) 2.97 weed shoots/sq. yd. (iii) Treatment differences are not significant. (iv) Av. number of weed shoots/sq. yd.

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄	T ₅	T ₆	T ₇
Av. number	1.38	1.25	0.38	1.63	1.50	1.13	1.13	5.38

S.E./mean = 1.05 weed shoots/sq. yd.

Observation after 45 days :

(i) 0.92 weed shoots/sq. yd. (ii) 1.93 weed shoots/sq. yd. (iii) Treatment differences are not significant. (iv) Av. number of weed shoots/sq. yd.

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄	T ₅	T ₆	T ₇
Av. number	0.75	0.13	0.00	1.88	0.38	0.63	0.00	3.63

S.E./mean = 0.68 weed shoots/sq. yd.

Digitaria granularis

Observation after 15 days :

(i) 13.50 weed shoots/sq. yd. (ii) 15.55 weed shoots/sq. yd. (iii) Treatment differences are not significant. (iv) Av. number of weed shoots/sq. yd.

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄	T ₅	T ₆	T ₇
Av. number	24.00	14.75	8.88	9.13	10.13	13.38	17.25	10.50

S.E./mean = 5.50 weed shoots/sq. yd.

Observation after 45 days :

(i) 11.05 weed shoots/sq. yd. (ii) 14.90 weed shoots/sq. yd. (iii) Treatment differences are not significant. (iv) Av. number of weed shoots/sq. yd.

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄	T ₅	T ₆	T ₇
Av. number	24.00	14.63	10.25	8.13	7.50	6.75	6.75	10.38

S.E./mean = 5.27 weed shoots/sq. yd.

D. bicornis

Observation after 15 days :

(i) 1.39 weed shoots/sq. yd. (ii) 1.80 weed shoots/sq. yd. (iii) Treatment differences are not significant. (iv) Av. number of weed shoots/sq. yd.

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄	T ₅	T ₆	T ₇
Av. number	1.50	1.75	1.75	0.25	0.63	1.50	1.00	2.75

S.E./mean = 0.64 weed shoots/sq. yd.

Observation after 45 days :

- (i) 1.33 weed shoots/sq. yd. (ii) 1.82 weed shoots/sq. yd. (iii) Treatment differences are not significant.
(iv) Av. number of weed shoots/sq. yd.

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄	T ₅	T ₆	T ₇
Av. number	1.50	2.00	1.50	1.38	0.13	1.25	0.25	2.63

S.E./mean = 0.64 weed shoots/sq. yd.

Panicum spp.

Observation after 15 days :

- (i) 0.92 weed shoots/sq. yd. (ii) 1.26 weed shoots/sq. yd. (iii) Treatment differences are not significant. (iv) Av. number of weed shoots/sq. yd.

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄	T ₅	T ₆	T ₇
Av. number	0.63	0.75	1.13	1.50	0.25	1.38	0.50	1.25

S.E./mean = 0.44 weed shoots/sq. yd.

Observation after 45 days :

- (i) 0.55 weed shoots/sq. yd. (ii) 0.71 weed shoots/sq. yd. (iii) Treatment differences are not significant. (iv) Av. number of weed shoots/sq. yd.

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄	T ₅	T ₆	T ₇
Av. number	0.63	0.75	0.75	0.25	0.63	0.38	0.00	1.00

S.E./mean = 0.25 weed shoot/sq. yd.

Eragrostis spp.

Observation after 15 days :

- (i) 0.81 weed shoots/sq. yd. (ii) 1.92 weed shoots/sq. yd. (iii) Treatment differences are not significant. (iv) Av. number of weed shoots/sq. yd.

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄	T ₅	T ₆	T ₇
Av. number	0.88	0.88	0.63	1.38	0.38	0.50	0.25	1.63

S.E./mean = 0.68 weed shoots/sq. yd.

Observation after 45 days :

- (i) 0.80 weed shoots/sq. yd. (ii) 1.93 weed shoots/sq. yd. (iii) Treatment differences are not significant. (iv) Av. number of weed shoots/sq. yd.

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄	T ₅	T ₆	T ₇
Av. number	1.00	0.88	0.50	1.38	0.63	0.13	0.25	1.63

S.E./mean = 0.68 weed shoots/sq. yd.

Sporobolus diander

Observation after 15 days :

- (i) 2.42 weed shoots/sq. yd. (ii) 3.60 weed shoots/sq. yd. (iii) Treatment differences are not significant. (iv) Av. number of weed shoots/sq. yd.

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄	T ₅	T ₆	T ₇
Av. number	1.38	1.13	1.50	4.63	1.50	4.00	3.25	2.00

S.E./mean = 1.27 weed shoots/sq. yd.

Observation after 45 days :

- (i) 2.30 weed shoots/sq. yd. (ii) 3.23 weed shoots/sq. yd. (iii) Treatment differences are not significant. (iv) Av. number of weed shoots/sq. yd.

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄	T ₅	T ₆	T ₇
Av. number	1.38	1.13	1.50	4.25	1.50	3.88	2.75	2.00

S.E./mean = 1.14 weed shoots/sq. yd.

Eleusine indica

Observation after 15 days :

- (i) 0.09 weed shoots/sq. yd. (ii) 0.96 weed shoots/sq. yd. (iii) Treatment differences are not significant.
 (iv) Av. number of weed shoots/sq. yd.

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄	T ₅	T ₆	T ₇
Av. number	0.13	0.13	0.13	0.00	0.13	0.25	0.00	0.00

S.E./mean = 0.34 weed shoots/sq. yd.

Observation after 45 days :

- (i) 0.08 weed shoots/sq. yd. (ii) 0.28 weed shoots/sq. yd. (iii) Treatment differences are not significant.
 (iv) Av. number of weed shoots/sq. yd.

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄	T ₅	T ₆	T ₇
Av. number	0.13	0.13	0.13	0.00	0.13	0.13	0.00	0.00

S.E./mean = 0.10 weed shoots/sq. yd.

Imperata arundinacea

Observation after 15 days :

- (i) 5.41 weed shoots/sq. yd. (ii) 18.25 weed shoots/sq. yd. (iii) Treatment differences are not significant.
 (iv) Av. number of weed shoots/sq. yd.

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄	T ₅	T ₆	T ₇
Av. number	7.50	16.88	3.50	1.38	7.75	0.00	6.25	0.00

S.E./mean = 6.45 weed shoots/sq. yd.

Observation after 45 days :

- (i) 4.67 weed shoots/sq. yd. (ii) 16.04 weed shoots/sq. yd. (iii) Treatment differences are not significant.
 (iv) Av. number of weed shoots/sq. yd.

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄	T ₅	T ₆	T ₇
Av. number	7.50	16.88	3.30	1.50	7.75	0.25	0.00	0.00

S.E./mean = 5.67 weed shoots/sq. yd.

Setaria glauca

Observation after 15 days :

- (i) 0.13 weed shoots/sq. yd. (ii) 0.48 weed shoots/sq. yd. (iii) Treatment differences are not significant.
 (iv) Av. number of weed shoots/sq. yd.

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄	T ₅	T ₆	T ₇
Av. number	0.13	0.00	0.00	0.00	0.13	0.25	0.28	0.25

S.E./mean = 0.17 weed shoots/sq. yd.

Observation after 45 days :

- (i) 0.11 weed shoots/sq. yd. (ii) 0.51 weed shoots/sq. yd. (iii) Treatment differences are not significant.
 (iv) Av. number of weed shoots/sq. yd.

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄	T ₅	T ₆	T ₇
Av. number	0.13	0.00	0.00	0.00	0.13	0.00	0.38	0.25

S.E./mean = 0.18 weed shoots/sq. yd.

Desmodium triflorum

Observation after 15 days :

- (i) 8.95 weed shoots/sq. yd. (ii) 25.27 weed shoots/sq. yd. (iii) Treatment differences are not significant.
 (iv) Av. number of weed shoots/sq. yd.

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄	T ₅	T ₆	T ₇
Av. number	7.75	8.25	0.88	0.25	7.00	0.13	17.88	29.50

S.E./mean = 8.93 weed shoots/sq. yd.

Observation after 45 days :

- (i) 7.92 weed shoots/sq. yd. (ii) 23.13 weed shoots/sq. yd. (iii) Treatment differences are not significant.
 (iv) Av. number of weed shoots/sq. yd.

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄	T ₅	T ₆	T ₇
Av. number	7.75	8.13	0.75	0.13	2.88	0.00	14.88	28.88

S.E./mean = 8.18 weed shoots/sq. yd.

Bothriochloa pertusa

Observation after 15 days :

- (i) 6.31 weed shoots/sq. yd. (ii) 6.63 weed shoots/sq. yd. (iii) Treatment differences are not significant.
 (iv) Av. number of weed shoots/sq. yd.

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄	T ₅	T ₆	T ₇
Av. number	7.00	7.75	8.13	10.63	2.13	2.25	5.75	6.88

S.E./mean = 2.34 weed shoots/sq. yd.

Observation after 45 days :

- (i) 6.17 weed shoots/sq. yd. (ii) 6.66 weed shoots/sq. yd. (iii) Treatment differences are not significant.
 (iv) Av. number of weed shoots/sq. yd.

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄	T ₅	T ₆	T ₇
Av. number	7.25	7.50	8.00	10.75	1.88	1.75	5.25	7.00

S.E./mean = 2.35 weed shoots/sq. yd.

Crop :- Wheat and Gram.

Ref :- U P. 54(309).

Site :- Reg. Res. Stn., Amrukh.

Type :- 'X'.

Object :- To study the effect of sowing Wheat mixed with Gram on their yield.

1. BASAL CONDITIONS :

- (i) to (iv) N.A. (v) 45 mds./ac. of F.Y.M. applied 2 to 3 weeks before sowing + 1½ mds./ac. of Super just before sowing. (vi) to (x) N.A.

2. TREATMENTS :

7 ratios of wheat and gram seeds : R₁=100 : 0, R₂=80 : 20, R₃=60 : 40, R₄=50 : 50, R₅=40 : 60, R₆=20 : 80 and R₇=0 : 100.

3. DESIGN :

- (i) R.B.D. (ii) (a) 7. (b) N.A. (iii) 4. (iv) (a) 42' × 33'. (b) 39' × 30'. (v) 1½' × 1½'. (vi) Yes.

4. GENERAL :

- (i) and (ii) N.A. (iii) Yield of grain. (iv) (a) 1954—contd. (b) No. (c) Nil. (v) (a) At many centres. (b) Nil. (vi) and (vii) Nil.

5. RESULTS :

- (i) 162.69 Rs./ac. (ii) 23.71 Rs./ac. (iii) Treatment differences are not significant. (iv) Av. value of produce in Rs./ac.

Treatment	R ₁	R ₂	R ₃	R ₄	R ₅	R ₆	R ₇
Av. value	216.77	194.34	176.19	166.88	139.61	140.64	104.43

S.E./mean = 11.86 Rs./ac.

Crop :- Wheat and Gram.**Ref :- U.P. 55(356).****Site :- Reg. Res. Stn., Amrukh.****Type :- 'X'.**

Object :—To study the effect of sowing Wheat mixed with Gram on their yield.

1. BASAL CONDITIONS :(i) (a) to (c) N.A. (ii) (a) *Parwa* and *kabar* soil. (b) N.A. (iii) 12.12.1955. (iv) (a) to (e) N.A. (v) 3 C.L./ac. of F.Y.M. applied before sowing. (vi) Wheat : Pb.—591 and Gram—T₁. (vii) Irrigated. (viii) and (ix) N.A. (x) 9.4.1956.**2. TREATMENTS :**

Same as in expt. no. 54(309) on page 1541.

3. DESIGN :

(i) R.B.D. (ii) (a) 7. (b) N.A. (iii) 4. ((iv) (a) 36'×37'. (b) 33'×34'. (v) 1.5'×1.5'. (vi) Yes.

4. GENERAL :

Same as in expt. no. 54(309) on page 1541.

5. RESULTS :

(i) 201.97 Rs./ac. (ii) 18.85 Rs./ac. (iii) Treatment differences are highly significant. (iv) Av. value of produce in Rs./ac.

Treatment	R ₁	R ₂	R ₃	R ₄	R ₅	R ₆	R ₇
Av. value	285.33	330.84	253.69	217.78	169.16	127.23	29.79

S.E./mean = 9.42 Rs./ac.

Crop :- Wheat and Gram.**Ref :- U.P. 56(476).****Site :- Reg. Res. Stn., Amrukh.****Type :- 'X'.**

Object :— To study the effect of sowing Wheat mixed with Gram on their yield.

1. BASAL CONDITIONS :(i) (a) to (c) N.A. (ii) (a) *kabar* soil. (b) N.A. (iii) to (x) N.A.**2. TREATMENTS :**

Same as in expt. no. 54(309) on page 1541.

3. DESIGN :

(i) R.B.D. (ii) (a) 7. (b) N.A. (iii) 4. (iv) (a) 36'×37'. (b) 33'×34'. (v) 1.5'×1.5'. (vi) Yes.

4. GENERAL :

Same as in expt. no. 54(309) on page 1541.

5. RESULTS :

(i) 196.36 Rs./ac. (ii) 12.04 Rs./ac. (iii) Treatment differences are highly significant. (iv) Av. value of produce in Rs./ac.

Treatment	R ₁	R ₂	R ₃	R ₄	R ₅	R ₆	R ₇
Av. value	263.62	239.84	208.78	184.91	183.07	179.77	114.55

S.E./mean = 6.02 Rs./ac.

Crop :- Wheat and Gram.**Ref :- U.P. 58(473).****Site :- Reg. Res. Stn., Amrukh.****Type :- 'X'.**

Object :—To study the effect of different ratios of rows of Wheat and Gram on their yield.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) and (c) N.A. (ii) (a) *Kabar* soil. (b) N.A. (iii) 22.10.1958. (iv) (a) 3 *bakharings*. (b) Sown in lines. (c) Wheat at 40 srs./ac. and gram—N.A. (d) and (e) N.A. (v) Nil. (vi) Wheat—Pb. 591 and gram—T₁. (vii) Irrigated. (viii) Nil. (ix) N.A. (x) Gram on 14.3.1959 and wheat on 8.4.1959.

2. TREATMENTS :

6 ratios of rows of wheat and gram : R₁=1 : 0, R₂=0 : 1, R₃=1 : 1, R₄=1 : 2, R₅=2 : 1 and R₆=2 : 3.

3. DESIGN :

(i) R B.D. (ii) (a) 6. (b) N.A. (iii) 4. (iv) (a) and (b) 47' × 23'. (v) Nil. (vi) Yes.

4. GENERAL :

(i) Poor. (ii) Nil. (iii) Yield of grain. (iv) to (vii) N.A.

5. RESULTS :

(i) 105.37 Rs./ac. (ii) 25.03 Rs./ac. (iii) Treatment differences are highly significant. (iv) Av. value of produce in Rs./ac.

Treatment	R ₁	R ₂	R ₃	R ₄	R ₅	R ₆
Av. value	148.30	69.82	125.13	79.79	115.56	93.60

S.E./mean = 12.52 Rs./ac.

Crop :- Wheat and Gram.

Ref :- U.P. 58(475).

Site :- Reg. Res. Stn., Amrukh.

Type :- 'X'.

Object :—To study the effect of direction of sowing on Wheat and Gram.

SAL CONDITIONS :

(i) (a) Nil. (b) and (c) N.A. (ii) (a) *Kabar* soil. (b) N.A. (iii) 25.10.1958. (iv) (a) 2 *bakharings*. (b) Line sowing. (c) Wheat at 40 srs./ac. and gram—N.A. (d) and (e) N.A. (v) 40 lb./ac. of N as A/S and 40 lb./ac. of P₂O₅ as Super. (vi) Wheat—Pb. 591 and gram—T₁. (vii) Irrigated. (viii) Nil. (ix) N.A. (x) 7.4.1959.

2. TREATMENTS :

Main-plot treatments :

2 directions of sowing : D₁—North to South and D₂—East to West.

Sub-plot treatments :

2 crops : C₁—Wheat and C₂—Gram.

Each treatment has been tried on 4 sub-plots.

3. DESIGN :

(i) Split-plot. (ii) (a) 2 main-plots/replication ; 8 sub-plots/main-plot. (b) N.A. (iii) 2. (iv) (a) and (b) 28' × 19½'. (v) Nil. (vi) Yes.

4. GENERAL :

(i) Normal. (ii) N.A. (iii) Yield of grain. (iv) to (vii) N.A.

5. RESULTS :

(i) 129.42 Rs./ac. (ii) (a) 64.45 Rs./ac. (b) 32.91 Rs./ac. (iii) Main effect of C alone is highly significant. (iv) Av. value of produce in Rs./ac.

	C ₁	C ₂	Mean
D ₁	213.91	35.10	124.50
D ₂	229.47	39.19	134.33
Mean	221.69	37.14	129.42

S.E. of difference of two

1. D marginal means	= 22.79 Rs./ac.
2. C marginal means	= 11.64 Rs./ac.
3. C means at the same level of D	= 16.45 Rs./ac.
4. D means at the same level of C	= 25.58 Rs./ac.

Crop :- Maize and Moong.**Ref :- U.P. 58(472).****Site :- Reg. Res. Stn., Amrukh.****Type :- 'X'.**

Object :—To study the effect of inter cropping of Maize sown at different spacings with Moong.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) and (c) N.A. (ii) (a) *Kabar* soil. (b) N.A. (iii) 13.7.1958. (iv) (a) 1 *bakharing* and 1 ploughing. (b) Line sowing. (c) Maize at 2.5 srs./ac. and *moong* at 1.25 srs./ac. (d) As per treatments. (e) N.A. (v) 35 mds./ac. of F.Y.M. and 70 lb./ac. of A/S. (vi) Maize—Hybrid and *Moong*— T_1 . (vii) Un-irrigated. (viii) and (ix) N.A. (x) *Moong* : 6, 22.9.1958 and Maize : 10.10.1958.

2. TREATMENTS :

3 spacings between rows for maize : $S_1=3'$, $S_2=4'$ and $S_3=5'$.
Moong sown in all the plots uniformly 1' apart.

3. DESIGN :

(i) R.B.D. (ii) (a) 3. (b) N.A. (iii) 8. (iv) (a) and (b) $30' \times 36'$. (v) Nil. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of maize and *moong*. (iv) (a) and (b) No. (c) Nil. (v) to (vii) Nil.

RESULTS :

(i) 38.65 Rs./ac. (ii) 11.29 Rs./ac. (iii) Treatment differences are not significant. (iv) Av. value of produce in Rs./ac.

Treatment	S_1	S_2	S_3
Av. value	39.02	36.30	40.63

S.E./mean = 3.99 Rs./ac.

Crop :- Bajra and Arhar.**Ref :- U.P. 57(509).****Site :- Reg. Res. Stn., Amrukh.****Type :- 'X'.**

Object :—To study the effect of different seed proportions of Bajra and Arhar on the yield.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Wheat. (c) Nil. (ii) (a) *Kabar* soil. (b) N.A. (iii) 5.8.1957. (iv) (a) 1 *bakharing*. (b) Behind the plough. (c) N.A. (d) *Bajra* 1' apart and *arhar* 9" apart. (e) N.A. (v) 123 lb./ac. of Super. (vi) *Arhar*— T_1 and *bajra*—N.A. (vii) Irrigated. (viii) 1 weeding. (ix) 14.66". (x) *Bajra* : 12.11.1957 and *arhar* : 16.3.1958.

2. TREATMENTS :

5 proportions of mixture : T_1 =*Bajra* alone, T_2 =*Arhar* alone, T_3 =6 rows of *bajra* after every row of *arhar*, T_4 =7 rows of *bajra* after every row of *arhar* and T_5 =8 rows of *bajra* after every row of *arhar*.

3. DESIGN :

(i) R.B.D. (ii) (a) 5. (b) N.A. (iii) 4. (iv) (a) and (b) $66' \times 30'$. (v) Nil. (vi) Yes.

4. GENERAL :

(i) Poor. (ii) Nil. (iii) Yield of grain. (iv) to (vii) N.A.

5. RESULTS :

(i) 50.14 Rs./ac. (ii) 11.69 Rs./ac. (iii) Treatment differences are highly significant. (iv) Av. value of produce in Rs./ac.

Treatment	T ₁	T ₂	T ₃	T ₄	T ₅
Av. value	39.08	30.73	65.76	49.67	65.46

S.E./mean = 5.84 Rs./ac.

Crop :- Gram and Linseed.

Site :- Reg. Res. Stn., Amrukh.

Ref :- U.P. 57(506).

Type :- 'X'.

Object :- To study the effect of different arrangements of rows of Gram and Linseed on their yield.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Barley. (c) Nil. (ii) (a) *Parwa* and *kabar* soil. (b) N.A. (iii) 21.10.1957. (iv) (a) 1 ploughing by *desi* plough and 2 *bakherings*. (b) Behind the plough in lines. (c) Gram at 30 to 35 srs./ac. and linseed at 8 to 10 srs./ac. (d) Rows 9' apart. (e) N.A. (v) N.A. (vi) Gram : T-1 and Linseed : T-1. (vii) Irrigated. (viii) Nil. (ix) N.A. (x) Gram : 16.2.1958 and Linseed : 14.3.1958.

2. TREATMENTS :

8 arrangements of rows of gram and linseed : T₁=Gram alone, T₂=Linseed alone, T₃=Alternate rows of gram and linseed, T₄=Two rows of gram and two rows of linseed, T₅=Three rows of gram and two rows of linseed, T₆=Two rows of gram and three rows of linseed, T₇=Three rows of gram and three rows of linseed and T₈=Three rows of gram and four rows of linseed.

3. DESIGN :

(i) R.B.D. (ii) (a) 8. (b) N.A. (iii) 4. (iv) (a) and (b) 42'×26'. (v) Nil. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Nil. (iii) Yield of grain. (iv) (a) 1957-1959. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 151.63 Rs./ac. (ii) 24.94 Rs./ac. (iii) Treatment differences are highly significant. (iv) Av. value of produce in Rs./ac.

Treatment	T ₁	T ₂	T ₃	T ₄	T ₅	T ₆	T ₇	T ₈
Av. value	91.45	186.29	153.58	166.14	144.50	164.55	146.80	159.76

S.E./mean = 12.47 Rs./ac.

Crop :- Gram and Linseed.

Site :- Reg. Res. Stn., Amrukh.

Ref :- U.P. 58(474).

Type :- 'X'.

Object :- To study the effect of different arrangements of rows of Gram and Linseed on their yield.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) and (c) N.A. (ii) (a) *Kabar* soil. (b) N.A. (iii) 22.10.1958. (iv) (a) 3 *bakherings*. (b) N.A. (c) Gram at 30 to 35 srs./ac. and Linseed at 8 to 10 srs./ac. (d) and (e) N.A. (v) N.A. (vi) Gram : T-1 and Linseed : T-1. (vii) Irrigated. (viii) Nil. (ix) N.A. (x) Gram : 14.3.1959 and Linseed : 23.3.1959.

2. TREATMENTS :

8 arrangements of rows of gram and linseed : T₁=Gram alone, T₂=Linseed alone, T₃=Alternate rows of gram and linseed, T₄=Two rows of gram and one row of linseed, T₅=One row of gram and two rows of linseed, T₆=Two rows of gram and two rows of linseed and T₇=Mixed sowing.

3. DESIGN :

(i) R B D. (ii) (a) 7. (b) N.A. (iii) 4. (iv) (a) and (b) 46' × 23'. (v) Nil. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Nil. (iii) Yield of grain. (iv) (a) 1957--1959. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 148.55 Rs./ac (ii) 52.84 Rs./ac. (iii) Treatment differences are not significant. (iv) Av. value of produce in Rs./ac.

Treatment	T ₁	T ₂	T ₃	T ₄	T ₅	T ₆	T ₇
Av. value	80.18	173.94	155.00	145.54	171.27	171.58	142.34

S.E./mean = 26.42 Rs./ac.

Crop :- Gram and Linseed.

Ref :- U.P. 59(433).

Site :- Reg. Res. Stn., Amrukh.

Type :- 'X'.

Object :—To study the effect of different arrangements of rows of Gram and Linseed on their yield.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) *Jowar*. (c) N.A. (ii) (a) *Kabar* soil. (b) N.A. (iii) 24.10.1959. (iv) (a) 4 *bakherings* and planking. (b) N.A. (c) Gram at 25 srs./ac. and Linseed at 15 srs./ac. (d) Rows 1' apart. (e) N.A. (v) N.A. (vi) Gram : T—1 and linseed : T—1. (vii) Irrigated. (viii) to (x) N.A.

2. TREATMENTS :

Same as in expt. no. 58(474) on page 1545.

3. DESIGN :

(i) R.B.D. (ii) (a) 7. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 27' × 40'. (v) N.A. (vi) Yes.

4. GENERAL :

Same as in expt. no. 58(474) on page 1545.

5. RESULTS :

(i) 203.39 Rs./ac. (ii) 35.96 Rs./ac. (iii) Treatment differences are highly significant. (iv) Av. value of produce in Rs./ac.

Treatment	T ₁	T ₂	T ₃	T ₄	T ₅	T ₆	T ₇
Av. value	120.50	251.48	206.51	208.12	200.74	212.15	224.25

S.E./mean = 17.98 Rs./ac.

Crop :- Wheat and Gram.

Ref :- U.P. 54(310).

Site :- Govt. Agri. Farm. Atarra.

Type :- 'X'.

Object :—To study the effect of sowing Wheat mixed with Gram on their yield.

1. BASAL CONDITIONS :

(i) (a) Paddy—Gram+Wheat. (b) Paddy. (c) N.A. (ii) (a) Light *kabar*. (b) N.A. (iii) 12.11.1954. (iv) (a) 1 ploughing and 2 harrowings. (b) Drilling. (c) to (e) N.A. (v) N.A. (vi) Wheat : Pb—591 and Gram : T—87. (vii) Unirrigated. (viii) and (ix) N.A. (x) 11 and 12.4.1955.

2. TREATMENTS :

Same as in expt. no. 54(309) on page 1541.

3. DESIGN :

(i) R.B.D. (ii) (a) 7. (b) N.A. (iii) 4. (iv) (a) 38'×36'. (b) 35'×33'. (v) 1.5'×1.5'. (vi) Yes.

4. GENERAL :

(i) N.A. (ii) N.I. (iii) Yield of grain. (iv) (a) and (b) No. (c) Nil. (v) (a) At many centres. (b) Nil. (vi) and (vii) Nil.

5. RESULTS :

(i) 234.99 Rs./ac. (ii) 10.43 Rs./ac. (iii) Treatment differences are highly significant. (iv) Av. value of produce in Rs./ac.

Treatment	R ₁	R ₂	R ₃	R ₄	R ₅	R ₆	R ₇
Av. value	217.02	233.80	265.61	315.92	225.69	217.96	168.85

S.E./mean = 5.22 Rs./ac.

Crop :- Barley and Pea.

Ref :- U.P. 55(355).

Site :- Govt. Agri. Farm, Atarra.

Type :- 'X'.

Object :—To study the effect of different proportions of Barley and Pea seed on the yield.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) (a) *Parwa* soil. (b) N.A. (iii) 21.11.1955. (iv) (a) 2 ploughings by Watt's plough and 1 planking. (b) Behind the plough. (c) Barley and Pea 20 chks./plot. (d) and (e) N.A. (v) 3 C.L./ac. of F.Y.M. and 1½ mds./ac. of Super applied to whole field. (vi) Barley : K—12 and Pea : T—163. (vii) Irrigated. (viii) to (x) N.A.

2. TREATMENTS :

7 proportions of seed of barley and pea : R₁=100 : 0, R₂=80 : 20, R₃=60 : 40, R₄=50 : 50, R₅=40 : 60, R₆=20 : 80 and R₇=0 : 100.

3. DESIGN :

(i) R.B.D. (ii) (a) 7. (b) N.A. (iii) 4. (iv) (a) 37'×37'. (b) 34'×34'. (v) 1.5'×1.5'. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of grain. (iv) (a) 1955—1956. (b) No. (c) Nil. (v) (a) At many centres. (b) Nil. (vi) and (vii) Nil.

5. RESULTS :

(i) 130.81 Rs./ac. (ii) 9.21 Rs./ac. (iii) Treatment differences are highly significant. (iv) Av. value of produce in Rs./ac.

Treatment	R ₁	R ₂	R ₃	R ₄	R ₅	R ₆	R ₇
Av. value	165.33	173.99	135.75	149.03	124.63	117.19	49.74

S.E./mean = 4.60 Rs./ac.

Crop :- Barley and Pea.**Ref :- U.P. 56(377).****Site :- Govt. Agri. Farm, Atarra.****Type :- 'X'.**

Object :—To study the effect of different proportions of Barley and Pea seed rate on the yield.

1. BASAL CONDITIONS :

(i) (a) Paddy—Barley+Pea (b) Paddy. (c) N.A. (ii) (a) *Parwa* soil. (b) N.A. (iii) 5.12.1956. (iv) (a) 2 ploughings by Watt's plough. (b) Behind the plough in alternate lines. (c) Barley and pea at 20 chks./plot. (d) and (e) N.A. (v) 3 C.L. of F.Y.M. + 1½ mds. of Super applied to whole field. (vi) Barley : C 84 and Pea : I.P. 29. (vii) Irrigated. (viii) and (ix) N.A. (x) 10.4.1957.

2. TREATMENTS and 3. DESIGN :

Same as in expt. no. 55(355) on page 1547.

4. GENERAL :

(i) N.A. (ii) Barley was attacked by rust. (iii) Yield of grain. (iv) (a) 1955—1956. (b) No. (c) Nil. (v) (a) At many centres. (b) Nil. (vi) and (vii) Nil.

5. RESULTS :

(i) 84.58 Rs./ac. (ii) 39.60 Rs./ac. (iii) Treatment differences are significant. (iv) Av. value of produce in Rs./ac.

Treatment	R ₁	R ₂	R ₃	R ₄	R ₅	R ₆	R ₇
Av. value	113.99	105.70	82.15	85.73	111.91	80.73	11.87

S.E./mean = 19.80 Rs./ac.

Crop :- Bajra and Arhar.**Ref :- U.P. 56(386).****Site :- Govt. Agri. Farm, Atarra.****Type :- 'X'.**

Object :—To study the effect of different proportions of Bajra and Arhar seed rate on the yield.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) (a) Light *kobar* soil. (b) N.A. (iii) N.A. (iv) (a) and (b) N.A. (c) 20 chks./plot. for both the crops. (d) and (e) N.A. (vi) 100 to 150 mds./ac. of F.Y.M. + 60 srs./ac. of Super. (vi) to (x) N.A.

2. TREATMENTS :

7 proportions of *bajra* and *arhar* seed rate : R₁=0 : 100, R₂=20 : 80, R₃=40 : 60, R₄=50 : 50, R₅=60 : 40, R₆=80 : 20 and R₇=100 : 0.

3. DESIGN :

(i) R.B.D. (ii) (a) 7. (b) N.A. (iii) 4. (iv) (a) 42' × 33'. (b) 39' × 30'. (v) 1.5' × 1.5'. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of grain. (iv) (a) and (b) No. (c) Nil. (v) (a) At many centres. (b) Nil. (vi) Nil. (vii) *Bajra* crop failed. Only the results of *arhar* crop, for which the number of effective treatments is six, are given.

5. RESULTS :

(i) 1643 lb./ac. (ii) 47.6 lb./ac. (iii) Treatment differences are highly significant. (iv) Av. yield of *arhar* grain in lb./ac.

Treatment	R ₁	R ₂	R ₃	R ₄	R ₅	R ₆
Av. yield	1748	1685	1599	1953	1679	1194

S.E./mean = 23.8 lb./ac.

Crop :- Wheat and Gram.
Site :- Govt. Agri. Farm, Bahraich.

Ref :- U.P. 54(124).
Type :- 'X'.

Object :—To study the effect of different proportions of Wheat and Gram seed rate on the yield.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) (a) Sandy loam. (b) Refer soil analysis, Bahraich. (iii) 31.10.1954. (iv) (a) 2 ploughings. (b) N.A. (c) Wheat at 50 srs./ac. and gram at 30 srs./ac. (d) and (e) N.A. (v) N.A. (vi) Wheat : C. 13 and gram : N.A. (vii) Unirrigated. (viii) 2 weedings. (ix) N.A. (x) 6.4.1954.

2. TREATMENTS and 3. DESIGN :

Same as in expt. no. 54(309) on page 1541.

4. GENERAL :

(i) N.A. (ii) Attack of yellow rust. (iii) Yield of grain. (iv) 1954 only. (b) N.A. (c) Nil. (v) (a) At ma centres. (b) Nil. (vi) and (vii) Nil.

5. RESULTS :

(i) 121.42 Rs./ac. (ii) 42.24 Rs./ac. (iii) Treatment differences are significant. (iv) Av. value of produce in Rs./ac.

Treatment	R ₁	R ₂	R ₃	R ₄	R ₅	R ₆	R ₇
Av. value	130.26	145.57	141.71	142.04	140.82	107.22	42.32

S.E./mean = 21.12 Rs./ac.

Crop :- Wheat and Gram.
Site :- Govt. Agri. Farm, Bahraich.

Ref :- U.P. 55(358).
Type :- 'X'.

Object — To study the effect of fertilizers on mixed cropping of Wheat and Gram.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) (a) Sandy loam. (b) Refer soil analysis, Bahraich. (iii) 7.11.1955. (iv) (a) N.A. (b) Line sowing at 1 row of wheat and 2 rows of gram alternately. (c) Wheat at 13 srs./ac. and gram at 20 srs./ac. (d) and (e) N.A. (v) Nil. (vi) Wheat : N.P. 760 and gram : T—83. (vii) Unirrigated. (viii) and (ix) N.A. (x) 1.4.1956.

2. TREATMENTS :

T₀=Control (no manure), T₁=40 lb./ac. of N as A/S, T₂=50 lb./ac. of P₂O₅ as Super, T₃=40 lb./ac. of K₂O as Mur. Pot., T₄=60 lb./ac. of CaO as Gypsum, T₅=40 lb./ac. of N as A/S+50 lb./ac. of P₂O₅ as Super, T₆=40 lb./ac. of N as A/S+40 lb./ac. of K₂O as Mur. Pot., T₇=40 lb./ac. of N as A/S+60 lb./ac. of CaO as Gypsum, T₈=40 lb./ac. of N as A/S+50 lb./ac. of P₂O₅ as Super+40 lb./ac. of K₂O as or Mur. Pot., T₉=40 lb./ac. of N as A/S+50 lb./ac. of P₂O₅ as Super+60 lb./ac. of CaO as Gypsum, T₁₀=40 lb./ac. of N as A/S+40 lb./ac. of K₂O as Mur. Pot.+60 lb./ac. of CaO as Gypsum and T₁₁=40 lb./ac. of N as A/S+50 lb./ac. of P₂O₅ as Super+40 lb./ac. of K₂O as Mur. Pot.+60 lb./ac. of CaO Gypsum.

3. DESIGN :

(i) R.B.D. (iii) (a) 12. (b) N.A. (iii) 3. (iv) (a) 28'×37'. (b) 25'×34'. (v) 1.5'×1.5'. (vi) Yes.

4. GENERAL :

(i) N.A. (ii) Attack of rust. (iii) Yield of grain. (iv) (a) 1955—1956. (b) No. (c) Nil. (v) (a) At many centres. (b) Nil. (vi) and (vii) Nil.

5. RESULTS :

(i) 147.3 Rs./ac. (ii) 30.16 Rs./ac. (iii) Treatment differences are highly significant. (iv) Av. value of produce in Rs./ac.

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄	T ₅	T ₆	T ₇	T ₈	T ₉	T ₁₀	T ₁₁
Av. value	92.93	96.52	190.82	184.67	143.67	159.90	154.09	124.54	216.44	147.26	133.76	123.68

S.E./mean = 17.41 Rs./ac.

Crop :- Wheat and Gram.

Ref :- U.P. 56(381).

Site :- Govt. Agri. Farm, Bahraich.

Type :- 'X'.

Object :- To study the effect of fertilizers on mixed cropping of Wheat and Gram.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) (a) Sandy loam. (b) Refer soil analysis, Bahraich. (iii) 15.11.1956. (iv) (a) N.A. (b) Line sowing at one row of wheat and 2 rows of gram alternately. (c) Wheat at 13 srs./ac. and gram at 20 srs./ac. (d) and (e) N.A. (v) N.A. (vi) Wheat : N.P. 710 and gram : T-87. (vii) Unirrigated. (viii) and (ix) N.A. (x) 19.4.1957.

2. TREATMENTS and 3. DESIGN :

Same as in expt. no. 55(358) on page 1549.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of grain. (iv) (a) 1955-1956. (b) No. (c) Nil. (v) (a) At many centres. (b) Nil. (vi) Nil. (viii) Gram crop failed and therefore results of wheat yield are given.

5. RESULTS :

(i) 524 lb./ac. (ii) 128.4 lb./ac. (iii) Treatment differences are not significant. (iv) Av. yield of wheat grain in lb./ac.

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄	T ₅	T ₆	T ₇	T ₈	T ₉	T ₁₀	T ₁₁
Av. yield	505	558	468	431	549	562	404	516	404	615	602	668

S.E./mean = 74.2 lb./ac.

Crop :- Barley and Pea.

Ref :- U.P. 56(378).

Site :- Govt. Agri. Farm, Bahraich.

Type :- 'X'.

Object :- To study the effect of different proportions of Barley and Pea seed rate on the yield.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) (a) Sandy loam. (b) Refer soil analysis, Bahraich. (iii) 17.11.1956. (iv) (a) N.A. (b) Sown in alternate lines. (c) Barley and pea at 20 chks./plot. (d) and (e) N.A. (v) 3 C.L. of F.Y.M. + 1½ mds. of Super to whole field. (vi) Barley : K-12 and pea : T-163. (vii) Unirrigated. (viii) 2 weedings and 2 hoeings. (ix) N.A. (x) 14.4.1947.

2. TREATMENTS :

Same as in expt. no. 55(355) on page 1547.

3. DESIGN :

(i) R.B.D. (ii) (a) 7. (b) N.A. (iii) 4. (iv) (a) 41'×33'. (b) 38'×30'. (v) 1.5'×1.5'. (vi) Yes.

4. GENERAL :

(i) N.A. (ii) Attack of rust on barley. (iii) Yield of grain. (iv) (a) and (b) No. (c) Nil. (v) (a) At many centres. (b) Nil. (vi) and (vii) Nil.

5. RESULTS :

(i) 99.01 Rs./ac. (ii) 29.43 Rs./ac. (iii) Treatment differences are significant. (iv) Av. value of produce in Rs./ac.

Treatment	R ₁	R ₂	R ₃	R ₄	R ₅	R ₆	R ₇
Av. value	134.12	104.98	119.69	99.25	95.05	116.64	23.31

S.E./mean = 14.71 Rs./ac.

Crop :- Wheat and Gram.

Ref :- U.P. 54(308).

Site :- State Mechanised Farm, Bharari.

Type :- 'X'.

Object :—To study the effect of different proportions of Wheat and Gram seed rate on the yield.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) *Sanai*. (c) N.A. (ii) (a) *Parwa* soil. (b) Refer soil analysis, Bharari. (iii) 24.10.1954. (iv) (a) Ploughing with tractor disc plough and 2 harrowings by tractor. (b) to (e) N.A. (v) 3 C.L. of F.Y.M. + 1½ mds. of Super to whole field. (vi) Wheat : Pb.—571 and gram : T—87. (vii) Irrigated. (viii) and (ix) N.A. (x) 7.4.1955.

2. TREATMENTS :

7 ratios of wheat and gram seed rate : R₁=100 : 0, R₂=80 : 20, R₃=60 : 40, R₄=50 : 50, R₅=40 : 60, R₆=20 : 80 and R₇=0 : 100.

3. DESIGN :

(i) R.B.D. (ii) (a) 7. (b) N.A. (iii) 4. (iv) (a) 42'×33'. (b) 39'×30'. (v) 1.5'×1.5'. (vi) Yes.

4. GENERAL :

(i) N.A. (ii) (a) Slight attack of ant at later stage of crop. (iii) Yield of grain. (iv) (a) 1954—contd. (b) No. (c) Nil. (v) (a) At many centres. (b) Nil, (vi) and (vii) Nil.

5. RESULTS :

(i) 216.40 Rs./ac. (ii) 81.82 Rs./ac. (iii) Treatment differences are not significant. (iv) Av. value of produce in Rs./ac.

Treatment	R ₁	R ₂	R ₃	R ₄	R ₅	R ₆	R ₇
Av. value	257.63	209.60	204.02	244.23	234.74	180.75	183.82

S.E./mean = 40.91 Rs./ac.

Crop :- Wheat and Gram.

Ref :- U.P. 55(357).

Site :- State Mechanised Farm, Bharari.

Type :- 'X'.

Object :—To study the effect of different proportions of Wheat and Gram seed rate on the yield.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) (a) *Parwa* soil. (b) Refer soil analysis, Bharari. (iii) 16.11.1955. (iv) 2 ploughings and 2 harrowings. (b) By seed drill. (c) Wheat 25 at chks./plot and gram at 15 chks./plot. (d) and (e) N.A. (v) 3 C.L. of F.Y.M. and 1½ mds. of Super to whole field. (vi) Wheat : Pb.—591 and gram : T—1. (vii) Irrigated. (viii) and (ix) N.A. (x) 14.4.1956.

2. TREATMENTS :

Same as in expt. no. 54(308) above.

3. DESIGN :

(i) R.B.D. (ii) (a) 7. (b) N.A. (iii) 4. (iv) (a) 41'×33'. (b) 38'×30'. (v) 1.5'×1.5'. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of grain. (iv) (a) 1954—contd. (b) No. (c) Nil. (v) (a) At many centres. (b) Nil. (vi) and (vii) Nil.

5. RESULTS :

(i) 233.03 Rs./ac. (ii) 62.95 Rs./ac. (iii) Treatment differences are highly significant. (iv) Av. value of produce in Rs./ac.

Treatment	R ₁	R ₂	R ₃	R ₄	R ₅	R ₆	R ₇
Av. value	306.44	201.75	233.37	252.47	252.19	338.92	46.04

S.E./mean = 31.48 Rs./ac.

Crop :- Wheat and Gram.

Ref :- U.P. 56(385).

Site :- State Mechanised Farm, Bharari.

Type :- 'X'.

Object :- To study the effect of different proportions of Wheat and Gram seed on their yield.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) *Sanai*. (c) N.A. (ii) (a) *Parwa* soil. (b) Refer soil analysis, Bharari. (iii) 1.11.1956. (iv) (a) 3 principal cultivations. (b) Line sowing. (c) Wheat at 50 srs./ac. and gram at 30 srs./ac. (d) and (e) N.A. (v) G.M. (*sanai*) + 3 C.L. of F.Y.M. + 1½ mds. of Super to whole field. (vi) N.A. (vii) Irrigated. (viii) and (ix) N.A. (x) Wheat : 6.4.1957 and gram : 10.4.1957.

2. TREATMENTS :

Same as in expt. no. 54(308) on page 1551.

3. DESIGN :

(i) R.B.D. (ii) (a) 7. (b) N.A. (iii) 4. (iv) (a) 41'×33'. (b) 38'×30'. (v) 1.5'×1.5'. (vi) Yes.

4. GENERAL :

(i) N.A. (ii) Rust attack. (iii) Yield of grain. (iv) (a) 1954—contd. (b) No. (c) Nil. (v) (a) At many centres. (b) Nil. (vi) and (vii) Nil.

5. RESULTS :

(i) 269.15 Rs./ac. (ii) 64.77 Rs./ac. (iii) Treatment differences are highly significant. (iv) Av. value of produce in Rs./ac.

Treatment	R ₁	R ₂	R ₃	R ₄	R ₅	R ₆	R ₇
Av. value	319.91	319.05	325.84	231.46	271.39	284.86	131.54

S.E./mean = 32.38 Rs./ac.

Crop :- Wheat and Mustard.

Ref :- U.P. 56(210).

Site :- B.R. College Insttl. Res. Farm, Bichpuri.

Type :- 'X'.

Object :- To study the effect sowing of Wheat mixed with different varieties of Mustard on their yield.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) *Sanai*. (c) Nil. (ii) (a) Light loam. (b) Refer soil analysis, Bichpuri. (iii) 2 and 3.11.1956. (iv) (a) 3 ploughings. (b) In furrows. (c) Wheat at 30 srs./ac. and mustard at 12 chks./ac. (d) 9" between rows for wheat. (e) N.A. (v) G.M. (*sanai*). (vi) Wheat : Pb. 591 (late) and mustard : as per treatments. (vii) Irrigated. (viii) 1 weeding. (ix) 4.98". (x) Mustard : 24.3.1957 and wheat : 21.4.1957.

2. TREATMENTS :

All combinations of (1) and (2) + one extra treatment

(1) 3 varieties of mustard : V_1 = Y.S. 151, V_2 = Laha 101 and V_3 = R.T.H.

(2) 2 spacings between mustard lines : D_1 = 6' and D_2 = 9' apart.

Extra treatment : W = Pure wheat.

Wheat seedlings were sown in furrows 9' apart with the help of indigenous seed drill in all the 7 plots immediately after the wheat sowing and mustard was planted in rows perpendicular to the wheat rows.

3. DESIGN :

(i) R.B.D. (ii) (a) 7. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 36' × 15'. (v) N.A. (vi) Yes.

4. GENERAL :

(i) Satisfactory. (ii) Nil. (iii) Height of plant, tiller counts and yield of grain. (iv) (a) and (b) No. (c) Nil. (v) and (vi) Nil. (vii) Results as available are furnished. No raw data is available.

5. RESULTS :

Wheat

(a) 1278 lb./ac. (ii) 123.33 lb./ac. (iii) Pure wheat vs. mixed, and V effects are highly significant. (iv) Av. yield of wheat in lb./ac.

Treatment	Wheat pure	Wheat mixed with mustard			
Av. yield	1679	1211			
S.E. of the difference of above two means = 66.6 lb./ac.					
Treatment	V_1	V_2	V_3	D_1	D_2
Av. yield	1367	1044	1223	1259	1163
S.E./mean = 43.6 lb./ac.		35.6 lb./ac.			

Mustard

(i) 261 lb./ac. (ii) 69.8 lb./ac. (iii) V effect is highly significant while D effect is significant. (iv) Av. yield of mustard in lb./ac.

Treatment	V_1	V_2	V_3	D_1	D_2
Av. yield	194	377	253	228	293
S.E./mean = 24.7 lb./ac.		20.2 lb./ac.			

Crop :- Jowar and Guar (Kharif).

Ref :- U.P. 57(266).

Site :- B.R. College Insttl. Res. Farm, Bichpuri.

Type :- 'X'.

Object :- To study the effect of method of sowing and manures on fodder yield of Jowar and Guar.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) (a) Sandy loam. (b) Refer soil analysis, Bichpuri. (iii) 19.7.1957. (iv) (a) 2 ploughings by tractor with disc harrow. (b) Behind *desi* plough in lines. (c) Jowar and guar each at 15 srs./ac. (d) Rows 12' apart. (e) N.A. (v) Nil. (vi) Local. (vii) N.A. (viii) Nil. (ix) 25". (x) 12 to 14.10.1957.

2. TREATMENTS :

All combinations of (1) and (2)

(1) 4 methods of sowing : S_1 = Pure sowing broadcast—plots divided in two parts and sown separately with each crop, S_2 = Pure sowing in lines—plots divided into two parts and sown in lines separately with each crop, S_3 = Seeds mixed and sown in whole plot in lines and S_4 = Seeds mixed and broadcast in whole plot.

(2) 5 levels of manuring : M_0 = No manuring, M_1 = 40 lb./ac. of N, M_2 = 40 lb./ac. of P_2O_5 , M_3 = 20 lb./ac. of N + 20 lb./ac. of P_2O_5 and M_4 = $M_1 + M_2$.

N applied as A/S and P_2O_5 as Super.

3. DESIGN :

(i) Fact. in R.B.D. (ii) (a) 20. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 36' × 15'. (v) 2' × 2'. (vi) Yes.

4. GENERAL :

(i) Normal. (ii) Nil. (iii) Fodder yield. (iv) (a) and (b) No. (c) Nil. (v) and (vi) Nil. (vii) Two way tables are N.A.

5. RESULTS :

Jowar fodder

(i) 6.40 tons/ac. (ii) 4.39 tons/ac. (iii) Main effect of S alone is significant. (iv) Av. yield of *jowar* fodder in tons/ac.

Treatment	S ₁	S ₂	S ₃	S ₄	M ₁	M ₂	M ₃	M ₄	M ₅
Av. yield	4.99	4.77	7.50	8.31	5.52	6.67	5.95	6.96	6.91

S.E. of S mean = 0.98 tons/ac. S.E. of M mean = 1.10 tons/ac.

Guar fodder

(i) 0.97 tons/ac. (ii) 0.57 tons/ac. (iii) Main effect of S alone is highly significant. (iv) Av. yield of *guar* fodder in tons/ac.

Treatment	S ₁	S ₂	S ₃	S ₄	M ₁	M ₂	M ₃	M ₄	M ₅
Av. yield	1.31	1.75	0.39	0.46	0.94	0.76	1.19	0.99	0.94

S.E. of S mean = 0.13 tons/ac. S.E. of M mean = 0.14 tons/ac.

Crop :- Jowar and Guar (*Kharif*).

Ref :- U.P. 59(240).

Site :- B.R. College Insttl. Res. Farm, Bichpuri.

Type :- 'X'.

Object :- To study the effect of method of sowing and levels of N on Jowar and Guar mixture.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Gram. (c) N.A. (ii) (a) (a) Sandy loam. (b) Refer soil analysis, Bichpuri. (iii) 18.6.1959. (iv) (a) 1 ploughing by a tractor driven disc harrow. (b) As per treatments. (c) *Jowar* at 20 srs./ac and *guar* at 25 srs./ac. (d) and (e) N.A. (v) 30 lb./ac. of P₂O₅ as Super. (vi) Local. (vii) N.A. (viii) Nil. (ix) 25". (x) 3.9.1959.

2. TREATMENTS :

Main-plot treatments :

2 methods of sowing : S₁=Line sowing and S₂=Broadcast.

Sub-plot treatments :

All combinations of (1) and (2)

(1) 3 levels of N as A/S : N₀=0, N₁=30 and N₂=60 lb./ac.

(2) 3 seed rate ratios of *jowar* and *guar* : R₁=1 : 2, R₂=1 : 1 and R₃=2 : 1.

3. DESIGN :

(i) Split-plot. (ii) (a) 2 main-plots/replication ; 9 sub-plots/main-plot. (b) N.A. (iii) 3. (iv) (a) N.A. (b) 35'×14'. (v) N.A. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Nil. (iii) Fodder yield. (iv) (a) and (b) No. (c) Nil. (v) and (vi) Nil. (vii) Two way table are N.A.

5. RESULTS :

Jowar fodder

(i) 14.98 tons/ac. (ii) (a) 1.50 tons/ac. (b) 1.61 tons/ac. (iii) Main effects of N and R are highly significant. (iv) Av. yield of *jowar* fodder in tons/ac.

Treatment	S ₁	S ₂	N ₀	N ₁	N ₂	R ₁	R ₂	R ₃
Av. yield	15.29	14.67	13.18	15.52	16.25	13.81	15.02	16.12

S.E. of S mean = 0.29 tons/ac. S.E. of N or R mean = 0.38 tons/ac.

Guar fodder

(i) 0.97 tons/ac. (ii) (a) 0.22 tons/ac. (b) 0.30 tons/ac. (iii) Main effects of N and R are highly significant. Main effect of S is significant. (iv) Av. yield of guar fodder in tons/ac.

Treatment	S ₁	S ₂	N ₀	N ₁	N ₂	R ₁	R ₂	R ₃
Av. yield	0.83	1.11	1.06	1.11	0.74	1.54	0.90	0.47

S.E. of S mean = 0.04 tons/ac. S.E. of N or R mean = 0.07 tons/ac.

Crop :- Jowar and Maize (Kharif).

Ref :- U.P. 59(243).

Site :- B. R. College Insttl. Res. Farm, Bichpuri.

Type :- 'X'.

Object :- To study the effect of sewage effluents of different dilutions on equal N basis on Jowar and Maize.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Wheat. (c) N.A. (ii) (a) Light loam. (b) Refer soil analysis, Bichpuri. (iii) 24.5.1959. (iv) (a) 1 ploughing with a tractor driven disc harrow. (b) Line sowing. (c) Maize at 10 srs./ac. and jowar at 15 srs./ac. (d) Rows 1' apart for jowar and 2' apart for maize. (e) N.A. (v) N.A. (vi) Jowar—Local and maize—T-4111. (vii) Irrigated. (viii) 1 thinning. (ix) 25". (x) Jowar on 22.8.1959 and maize on 26.8.1959.

2. TREATMENTS :

5 levels of sewage: S₀ = Tube well water (control), S₁ = Raw sewage to give 69.6 lb./ac. of N, S₂ = $\frac{1}{2}$ raw sewage (46.4 lb./ac. of N) + $\frac{1}{2}$ tube well water + 23.2 lb./ac. of N as A/S, S₃ = $\frac{1}{3}$ raw sewage (34.8 lb./ac. of N) + $\frac{1}{3}$ tube well water + 34.8 lb./ac. of N as A/S and S₄ = Tube well water with 69.6 lb./ac. of N as A/S.

3. DESIGN :

(i) R.B.D. (ii) (a) 5. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 36' × 16'. (v) N.A. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Nil. (iii) Growth, crop stand and yield of fodder and cobs. (iv) (a) and (b) No. (c) Nil. (v) and (vi) Nil. (vii) Two-way tables—N.A.

5. RESULTS :

Jowar fodder

(i) 15.66 tons/ac. (ii) 1.86 tons/ac. (iii) Treatment differences are highly significant. (iv) Av. yield of fodder in tons/ac.

Treatment	S ₀	S ₁	S ₂	S ₃	S ₄
Av. yield	9.66	19.70	16.94	16.43	15.57

S.E./mean = 0.93 tons/ac.

Maize (green cobs)

(i) 6808 lb./ac. (ii) 829.5 lb./ac. (iii) Treatment differences are highly significant. (iv) Av. yield of green cobs in lb./ac.

Treatment	S ₀	S ₁	S ₂	S ₃	S ₄
Av. yield	4323	8270	7488	7274	6687

S.E./mean = 414.7 lb./ac.

Crop :- Cowpea and Bajra.

Ref :- U.P. 58(469).

Site :- Soil Cons. Res. Demons. and Trg. Farm, Chhalesar.

Type :- 'X'.

Object :- To study the strip cropping in conservation of soil and moisture and to find out the economic width of erosion permitting (Bajra) and erosion resisting (Cowpea) crops.

1. BASAL CONDITIONS:

(i) (a) N.A. (b) *Bajra*. (c) Nil. (ii) (a) Sandy to sandy loam with patches of *kankar*. (b) Refer soil analysis, Chhalesar. (iii) 9.8.1958. (iv) (a) 3 ploughings. (b) By seed drill. (c) *Bajra* at 8 lb./ac. and cowpea at 15 lb./ac. (d) and (e) N.A. (v) F.Y.M. at 5 C.L./ac. (vi) *Bajra*—isolated and cowpea—Russian giant. (vii) Unirrigated. (viii) 1 weeding. (ix) 19.87". (x) *Bajra* on 14.11.1958 and cowpea from 28.11.1958 to 8.12.1958.

2. TREATMENTS:

6 lengths strips: T₁=36' long strip of *bajra*, T₂=72' long strip of *bajra*, T₃=36' long strip of *bajra* and 18' long strip of cowpea, T₄=48' long strip of *bajra* and 24' long strip of cowpea, T₅=54' long strip of *bajra* and 24' long strip of cowpea and T₆=72' long strip of *bajra* and 24' long strip of cowpea.

24' wide strips are taken along the slope.

3. DESIGN:

(i) R.B.D. (ii) (a) 6. (b) N.A. (iii) 4. (iv) (a) and (b) As per treatments. (v) N.A. (vi) Yes.

4. GENERAL:

(i) and (ii) N.A. (iii) Yield of grain. (iv) (a) 1958—contd. (b) Yes. (c) Nil. (v) (a) and (b) Nil. (vi) Weather remained abnormal. Heavy showers at the time of sowing and flowering of *bajra* damaged the crop. (vii) Nil.

5. RESULTS:

(i) 33.96 Rs./ac. (ii) 13.49 Rs./ac. (iii) Treatment differences are significant. (iv) Av. value of produce in Rs./ac.

Treatment	T ₁	T ₂	T ₃	T ₄	T ₅	T ₆
Av. value	27.98	11.41	51.09	32.58	43.17	37.54

S.E./mean = 6.75 Rs./ac.

Crop :- Cowpea and Bajra.

Ref :- U.P. 59(521).

Site :- Soil Cons. Res. Demons. and Trg. Farm, Chhalesar.

Type :- 'X'.

Object :— To study the strip cropping in conservation of soil and moisture and to find out the economic width of erosion permitting (*Bajra*) and erosion resisting (*Cowpea*) crop.

1. BASAL CONDITIONS:

(i) (a) to (c) N.A. (ii) (a) Sandy to sandy loam with patches of *kankar*. (b) Refer soil analysis, Chhalesar. (iii) 24.7.1959. (iv) (a) 2 to 4 ploughings and 1 harrowing. (b) By seed drill. (c) *Bajra* at 8 lb./ac. and cowpea at 18 lb./ac. (d) and (e) N.A. (v) F.Y.M. at 5 C.L./ac. (vi) *Bajra*—isolated and cowpea—Russian giant. (vii) Unirrigated. (viii) N.A. (ix) 11.92". (x) *Bajra* on 22.10.1959 and cowpea on 29.10.1959.

2. TREATMENTS and 3. DESIGN:

Same as in expt. no. 58(469) on page 1555.

4. GENERAL:

(i) and (ii) N.A. (iii) Yield of grain. (iv) (a) 1958—contd. (b) Yes. (c) Nil. (v) to (vii) Nil.

5. RESULTS:

(i) 17.72 Rs./ac. (ii) 10.29 Rs./ac. (iii) Treatment differences are not significant. (iv) Av. value of produce in Rs./ac.

Treatment	T ₁	T ₂	T ₃	T ₄	T ₅	T ₆
Av. value	30.04	11.71	18.90	17.71	19.14	8.84

S.E./mean = 5.15 Rs./ac.

Crop :- Bajra and Legume (Kharif).

Ref :- U.P. 58(348).

Site :- Soil Cons. Res., Demons. & Trg. Farm, Chhalesar.

Type :- 'X'.

Object :- To find out the best legume to be mixed with Bajra.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) (a) Sandy to sandy loam with patches of *kankar*. (b) Refer soil analysis, Chhalesar. (iii) 8.8.1958. (iv) (a) 3 ploughings with tractor. (b) By seed drill. (c) *Bajra* at 8 lb./ac. and legumes at 2 lb./ac. (d) 9" to 16" between rows. (e) N.A. (v) 5 C.L./ac. of T.C. (vi) *Bajra*—isolated, *arhar*—T-17 and *urd* and *moong*—local. (vii) Unirrigated. (viii) 1 weeding. (ix) N.A. (x) *Arhar* on 26.3.1959 and others on 15.11.1958.

2. TREATMENTS :

4 mixtures : $M_1 = \text{Bajra alone}$, $M_2 = \text{Bajra} + \text{arhar}$, $M_3 = \text{Bajra} + \text{moong}$, and $M_4 = \text{Bajra} + \text{urd}$.

3. DESIGN :

(i) R.B.D. (ii) 4. (b) N.A. (iii) 8. (iv) (a) 39' × 16.2'. (b) 37' × 14.7'. (v) 1' × 0.75'. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of grain. (iv) (a) 1958—contd. (b) Yes. (c) Nil. (v) (a) and (b) N.A. (vi) Heavy showers at sowing and flowering spoiled *bajra* crop. (vii) Nil.

5. RESULTS :

(i) 45.72 Rs./ac. (ii) 37.73 Rs./ac. (iii) Treatment differences are not significant. (iv) Av. value of produce in Rs./ac.

Treatment	M_1	M_2	M_3	M_4
Av. value	31.69	72.78	38.94	39.45

S.E./mean = 13.34 Rs./ac.

Crop :- Bajra and Legume (Kharif).

Ref :- U.P. 59(386).

Site :- Soil Cons. Res., Demons. & Trg. Farm, Chhalesar.

Type :- 'X'.

Object :- To find out the best legume to be mixed with Bajra.

1. BASAL CONDITIONS :

(i) (a) Continuous cropping. (b) As per treatments. (c) 5 C.L./ac. of T.C. (ii) (a) Sandy to sandy loam with patches of *kankar*. (b) Refer soil analysis, Chhalesar. (iii) 17.7.1959. (iv) (a) 2 ploughings and 1 disc harrowing. (b) Drilling. (c) *Bajra* at 8 lb./ac. and legumes at 2 lb./ac. (d) 9" to 12" between rows. (e) N.A. (v) 5 C.L./ac. of compost + 20 lb./ac. of P_2O_5 as Super. (vi) *Bajra*—isolated, *moong*—T-1, *urd*—local and *arhar*—T. 17. (vii) Unirrigated. (viii) 1 weeding. (ix) N.A. (x) *Bajra* on 29.10.1959, *arhar* on 7.3.1960, *urd* and *moong* on 29.10.1959.

2. TREATMENTS to 4. GENERAL :

Same as in expt. no. 58(348) above.

5. RESULTS :

(i) 14.56 Rs./ac. (ii) 21.81 Rs./ac. (iii) Treatment differences are significant. (iv) Av. value of produce in Rs./ac.

Treatment	M_1	M_2	M_3	M_4
Av. value	3.40	37.20	11.00	6.63

S.E./mean = 7.71 Rs./ac.

Crop :- As per treatments.

Ref :- U.P. 58(349).

Site :- Soil Cons. Res., Demons. & Trg. Farm, Chhalesar. Type :- 'X'.

Object :-To find out the most economical crop in relation to soil conservation for ravine lands.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) *Bajra*. (c) Nil. (ii) (a) Sandy to sandy loam with patches of *kankar*. (b) Refer soil analysis, Chhalesar. (iii) 8.8.1959. (iv) (a) 3 ploughings. (b) Seed drill. (c) As given under treatments. (d) Rows 9" to 12" apart. (e) N.A. (v) 5 C.L./ac. of T.C. (vi) *Jowar*—local, *bajra*—isolated, *arhar*—T-17, *guar*—local, *urd*—local, *cowpea*—Russian giant, groundnut—spreading type, tobacco—N.A. and *moong*—local. (vii) Unirrigated. (viii) 1 weeding. (ix) 19.87". (x) T₁, T₂, T₅ and T₉ on 15.11.1958, T₉ on 27.11.1958, T₈ on 26.2.1959, T₁ on 8.12.1958, T₇ on 5.1.1959 and T₈ on 6.2.1959.

2. TREATMENTS :

9 crops : T₁=*Jowar* at 24 lb./ac. T₂=*Bajra* at 8 lb./ac., T₃=*Arhar* at 8 lb./ac. T₄=*Guar* at 15 lb./ac., T₅=*Cowpea* at 15 lb./ac., T₆=*Urad* at 8 lb./ac., T₇=*Moong* at 8 lb./ac., T₈=*Groundnut* and T₉=*Tobacco*.

3. DESIGN :

(i) R.B.D. (ii) (a) 9. (b) N.A. (iii) 4. (iv) (a) 17.5'×34'. (b) 16.01'×32'. (v) Nil. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of grain. (iv) (a) 1958—contd. (b) No. (c) Nil. (v) (a) and (b) Nil. (vi) Heavy showers particularly at the time of sowing and flowering in *bajra* spoiled the crop. (vii) Nil.

5. RESULTS :

(i) 131.49 Rs./ac. (ii) 63.25 Rs./ac. (iii) Treatment differences are highly significant. (iv) Av. value of produce in Rs./ac.

Treatment	T ₁	T ₂	T ₃	T ₄	T ₅	T ₆	T ₇	T ₈	T ₉
Av. value	102.25	46.02	405.80	86.73	156.24	179.83	118.19	35.18	53.14

S.E./mean = 31.62 Rs./ac.

Crop :- As per treatments.

Ref :- U.P. 59(368).

Site :- Soil Cons. Res., Demons. & Trg. Farm, Chhalesar

Type :- 'X'.

Object :-To find out a most economical crop in relation to soil conservation for ravine lands.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) *Bajra*. (c) Nil. (ii) (a) Sandy to sandy loam with patches of *kankar*. (b) Refer soil analysis, Chhalesar. (iii) 17.7.1959. (iv) (a) 2 ploughings and 1 disc harrowing. (b) Drilling. (c) N.A. (d) 9" to 16" between rows. (e) N.A. (v) 5 C.L./ac. of compost (vi) *Jowar*—local; *Bajra*—isolated; *arhar*—T-17; *guar*—local, *urd*—local, *moong*—T-1; *cowpea*—Russian giant, groundnut—spreading type, and tobacco—bidi tobacco. (vii) Unirrigated. (viii) 1 weeding. (ix) N.A. (x) T₁, T₂, T₄, T₆ and T₇ on 29.10.1959, T₃ on 27.3.1960, T₅ on 27.10.1959, T₈ on 4.1.1960 and T₉ on 2.2.1960.

2. TREATMENTS and 3. DESIGN :

Same as in expt. no. 58(349) above.

4. GENERAL .

(i) and (ii) N.A. (iii) Yield of different crops. (iv) (a) 1958—contd. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 47.97 Rs./ac. (ii) 24.66 Rs./ac. (iii) Treatment differences are highly significant. (iv) Av. value of produce in Rs./ac.

Treatment	T ₁	T ₂	T ₃	T ₄	T ₅	T ₆	T ₇	T ₈	T ₉
Av. value	16.58	41.79	181.96	22.55	76.22	22.08	25.08	6.16	39.32

S.E./mean = 12.33 Rs./ac.

Crop :- Barley and Gram (Rabi).

Ref :- U.P. 58(401).

Site :- Instt. of Crop Physiology, Dilkusha.

Type :- 'X'.

Object :- To study the effect of mixed cropping of Barley and Gram on their yield.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) *Jowar* and gram. (c) N.A. (ii) (a) Light sandy loam. (b) Refer soil analysis, Dilkusha. (iii) 3.11.1958. (iv) (a) 8 ploughings. (b) Line sowing. (c) Barley at 35 srs./ac. and gram at 30 srs./ac. (d) and (e) N.A. (v) 2 truck loads of T.C. + 20 lb./ac. of P₂O₅ as Super. (vi) Barley : K-12 and gram—T-87. (vii) Irrigated. (viii) and (ix) N.A. (x) 9 and 10.4.1959.

2. TREATMENTS :

6 arrangements of barley and gram rows : R₁=Barley alone, R₂=Gram alone, R₃=1 and 1, R₄=1 and 2, R₅=2 and 2 and R₆=2 and 3.

3. DESIGN :

(i) R.B.D. (ii) (a) 6. (b) N.A. (iii) 4. (iv) (a) 37'×21'. (b) 34'×18'. (v) 1.5'×1.5'. (vi) Yes.

4. GENERAL :

(i) N.A. (ii) Slight attack of smut. (iii) Yield of grain and straw. (iv) (a) 1958—contd. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 255.32 Rs./ac. (ii) 18.71 Rs./ac. (iii) Treatment differences are highly significant. (iv) Av. value of produce in Rs./ac.

Treatment	R ₁	R ₂	R ₃	R ₄	R ₅	R ₆
Av. value	219.22	255.17	258.01	254.99	263.89	280.61

S.E./mean = 9.36 Rs./ac.

Crop :- Barley and Gram.

Ref :- U.P. 59(432).

Site :- Instt. of Crop Physiology, Dilkusha.

Type :- 'X'.

Object :- To study the effect of mixed cropping of Barley and Gram on their yield.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Fallow. (c) N.A. (ii) (a) Light sandy loam. (b) Refer soil analysis, Dilkusha. (iii) 20.10.1959. (iv) (a) 5 ploughings and 5 plankings. (b) N.A. (c) Barley at 35 srs./ac. and gram at 30 srs./ac. (d) and (e) N.A. (v) N.A. (vi) Barley : K—12 and gram : T—87. (vii) N.A. (viii) 3 weedings. (ix) 2.21". (x) 7.4.1960.

2. TREATMENTS :

Same as in expt. no. 58(401) above.

3. DESIGN :

(i) R.B.D. (ii) (a) 6. (b) N.A. (iii) 4. (iv) (a) 25'×20'. (b) 22'×17'. (v) 1.5'×1.5'. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of grain and straw. (iv) (a) 1958—contd. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 89.30 Rs./ac. (ii) 17.51 Rs./ac. (iii) Treatment differences are not significant. (iv) Av. value of produce in Rs./ac.

Treatment	R ₁	R ₂	R ₃	R ₄	R ₅	R ₆
Av. value	86.77	71.63	90.85	109.19	89.39	87.94

S.E./mean = 8.76 Rs./ac.

Crop :- Barley and Pea.

Ref :- U.P. 57(411).

Site :- Instt. of Crop Physiology, Dilkusha.

Type :- 'X'.

Object :—To study the effect of sowing Barley and Pea mixed in lines on their yield.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) (a) Light sandy. (b) Refer soil analysis, Dilkusha. (iii) to (v) N.A. (vi) Barley : K—12 and pea : T—163. (vii) to (x) N.A.

2. TREATMENTS :

6 arrangements of rows of barley and pea : R₁=Barley alone, R₂=Pea alone, R₃=1 and 1, R₄=1 and 2, R₅=2 and 2 and R₆=3 and 2.

3. DESIGN :

(i) R.B.D. (ii) (a) 6. (b) N.A. (iii) 3. (iv) (a) N.A. (b) 21'×23'. (v) N.A. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of grain and straw. (iv) to (vii) N.A.

5. RESULTS :

(i) 109.38 Rs./ac. (ii) 42.77 Rs./ac. (iii) Treatment differences are significant. (iv) Av. value of produce in Rs./ac.

Treatment	R ₁	R ₂	R ₃	R ₄	R ₅	R ₆
Av. value	134.08	30.06	143.40	80.87	116.34	151.51

S.E./mean = 24.69 Rs./ac.

Crop :- Wheat and Gram.

Ref :- U.P. 55(361).

Site :- Instt. of Crop Physiology, Dilkusha.

Type :- 'X'.

Object :—To find out the physiological response of mixed crops to fertilizers.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Paddy. (c) N.A. (ii) (a) Sandy loam. (b) Refer soil analysis, Dilkusha. (iii) 1.11.1955. (iv) (a) N.A. (b) Behind *desi* plough. (c) 3 srs./ac. (d) Wheat row after every two rows of gram. (e) N.A. (v) N.A. (vi) Wheat : N.P. 710 and gram : T-87. (vii) Irrigated. (viii) and (ix) N.A. (x) 30 and 31.3.1956.

2. TREATMENTS :

7 manurials treatments : T₀=Control (2 plots), T₁=40 lb./ac. of N (2 plots), T₂=50 lb./ac. of P₂O₅ (1 plot) T₃=60 lb./ac. of CaO (1 plot), T₄=40 lb./ac. of N+50 lb./ac. of P₂O₅ (2 plots), T₅=40 lb./ac. of N+60 lb./ac. of CaO (2 plots) and T₆=40 lb./ac. of N+50 lb./ac. of P₂O₅+60 lb./ac. CaO (2 plots).

3. DESIGN :

(i) R.B.D. (ii) (a) 12 (7 distinct treatments). (b) N.A. (iii) 3. (iv) (a) 36'×20'. (b) 32'×16'. (v) 2'×2'. (vi) Yes.

4. GENERAL :

(i) N.A. (ii) Attack of yellow rust on wheat. (iii) Yield of grain. (iv) (a) 1955—1956 (treatments changed in 1955 as K_2O not applied). (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 304.99 Rs./ac. (ii) 65.28 Rs./ac. (iii) Treatment differences are highly significant. (iv) Av. value of produce in Rs./ac.

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄	T ₅	T ₆
Av. value	209.01	283.60	341.74	268.57	291.26	317.98	392.79

S.E./mean (except T₂ and T₃) = 26.65 Rs./ac.

S.E. of T₂ or T₃ mean = 37.69 Rs./ac.

Crop :- Wheat and Gram.

Ref :- U.P. 56(383).

Site :- Instt. of Crop Physiology, Dilkusha.

Type :- 'X'.

Object :- To study the effect of fertilizers on mixed cropping of Wheat and Gram.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) (a) Sandy loam. (b) Refer soil analysis, Dilkusha. (iii) 28.10.1956. (iv) (a) N.A. (b) Line sowing 2 rows of gram between 2 rows of wheat. (c) Wheat at 13 srs./ac and gram at 20 srs./ac. (d) and (e) N.A. (v) N.A. (vi) Wheat : C-13 and gram : T-87. (vii) to (ix) N.A. (x) 11.4.1957.

2. TREATMENTS :

12 manurial treatments: T₀=Control (no manure), T₁=40 lb./ac. of N as A/S, T₂=50 lb./ac of P₂O₅ as Super, T₃=40 lb./ac. of K₂O as Pot. Sul., T₄=60 lb./ac. of CaO as Gypsum, T₅=T₁+T₂, T₆=T₁+T₃, T₇=T₁+T₄, T₈=T₁+T₂+T₃, T₉=T₁+T₂+T₄, T₁₀=T₁+T₃+T₄ and T₁₁=T₁+T₂+T₃+T₄.

3. DESIGN :

(i) R.B.D. (ii) (a) 12. (b) N.A. (iii) 3. (iv) (a) 36'×20'. (b) 32'×16'. (v) 2'×2'. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of grain. (iv) (a) 1955—1956 (treatments changed in 1955 as K_2O was not applied). (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 250.16 Rs./ac. (ii) 12.36 Rs./ac. (iii) Treatment differences are highly significant. (iv) Av. value of produce in Rs./ac.

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄	T ₅	T ₆	T ₇	T ₈	T ₉	T ₁₀	T ₁₁
Av. value	200.22	243.33	262.90	256.09	237.09	244.18	246.45	249.85	267.72	270.27	248.72	275.09

S.E./mean = 7.14 Rs./ac.

Crop :- Maize and Til.

Ref :- U.P. 57(413).

Site :- Instt. of Crop Physiology, Dilkusha.

Type :- 'X'.

Object :- To study the effect of mixed sowing of crops of Maize and Til on their yield.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Gram and linseed. (c) N.A. (ii) (a) Light sandy. (b) Refer soil analysis, Dilkusha. (iii) 19.7.1957. (iv) (a) N.A. (b) Line sowing. (c) Maize at 6 srs./ac. and til at 2 srs./ac. (d) Rows 1½' apart. (e) N.A. (v) N.A. (vi) Maize : C-41 and til : N.A. (vii) to (ix) N.A. (x) 18 and 19.10.1957.

2. TREATMENTS :

5 mixed cropping treatments : T_1 =Maize alone, T_2 =*Til* alone, T_3 =Maize and *till* in alternate rows, T_4 = One row of maize and 2 rows of *till*, T_5 =1 row of maize and 3 rows of *till*.

3. DESIGN :

(i) R.B.D. (ii) (a) 5. (b) N.A. (iii) 3. (iv) (a) N.A. (b) 42'×55'. (v) N.A. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of grain and fodder. (iv) (a) to (c) N.A. (v) to (vii) Nil.

5. RESULTS :

(i) 59.88 Rs./ac. (ii) 5.00 Rs./ac. (iii) Treatment differences are significant. (iv) Av. value of produce in Rs./ac.

Treatment	T_1	T_2	T_3	T_4	T_5
Av. value	65.69	54.31	53.49	61.03	64.87

S.E./mean = 2.89 Rs./ac.

Crop :- Wheat and Berseem.

Ref :- U.P. 57(412).

Site :- Instt. of Crop Physiology, Dilkusha.

Type :- 'X'.

Object :-To study the effect of sowing mixed crops of Wheat and Berseem on their yield.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Paddy. (c) Nil. (ii) (a) Sandy loam. (b) Refer soil analysis, Dilkusha. (iii) Wheat, 6.11.1957 and *berseem* : 8.12.1957. (iv) (a) 2 ploughings. (b) Wheat by dibbling and *berseem* by broadcast. (c) Each at 10 srs./ac. (d) 9"×6" for wheat. (e) N.A. (v) N.A. (vi) Wheat : N.P.—710 and *berseem* : N.A. (vii) Irrigated. (viii) and (ix) N.A. (x) Wheat : 6.4.1958 and *berseem* : 4, 25.2.1958 and 17.3.1958.

2. TREATMENTS :

5 mixed sowing treatments : T_1 =Wheat alone, T_2 =*Berseem* alone, T_3 =Wheat 1 ft. wide + *berseem* 2 ft. wide, T_4 =Wheat 2 ft. wide + *berseem* 2 ft. wide and T_5 =Wheat 2 ft. wide + *berseem* 1 ft. wide.

Wheat was sown on raised seed bed by dibbling while *berseem* was broadcasted. In treatment T_3 , wheat was sown in 2 rows adjusted in 1 ft. width and *berseem* was broadcasted in a width of 2'. In treatments T_4 and T_5 in which 2' width was maintained for wheat, only 3 rows were adjusted and *berseem* was broadcasted in 2' and 1' respectively.

3. DESIGN :

(i) R.B.D. (ii) (a) 5. (b) N.A. (iii) 3. (iv) (a) N.A. (b) 24'×19.5'. (v) N.A. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Grain and fodder yield. (iv) (a) to (c) No. (v) to (vii) Nil.

5. RESULTS :

(i) 439.01 Rs./ac. (ii) 234.46 Rs./ac. (iii) Treatment differences are not significant. (iv) Av. value of produce in Rs./ac.

Treatment	T_1	T_2	T_3	T_4	T_5
Av. value	313.36	796.12	387.20	405.19	293.01

S.E./mean = 135.37 Rs./ac.

Crop :- Barley and Pea.

Ref :- U.P. 54(303).

Site :- Govt. Agri. Farm, Etawah.

Type :- 'X'.

Object :-To study the effect of different seed rate proportions of Barley and Pea on their yield.

1. BASAL CONDITIONS :

(i) (a) Wheat—Barley+Pea. (b) Wheat. (c) N.A. (ii) (a) Light loam. (b) N.A. (iii) 6.11.1954. (iv) (a) N.A. (b) Sown in alternate lines. (c) Each at 40 srs./ac. (d) and (e) N.A. (v) 3 C.L./ac. of F.Y.M. + $1\frac{1}{2}$ mds./ac. of Super to whole field. (vi) Pea : T—163 and barley : C—251. (vii) Irrigated. (viii) and (ix) N.A. (x) 22.3 1955.

2. TREATMENTS :

7 ratios of barley and pea seed : $R_1=100 : 0$, $R_2=80 : 20$, $R_3=60 : 40$, $R_4=50 : 50$, $R_5=40 : 60$, $R_6=20 : 80$ and $R_7=0 : 100$.

3. DESIGN :

(i) R.B.D. (ii) (a) 7. (b) N.A. (iii) 4. (iv) (a) $42' \times 33'$. (b) $39' \times 30'$. (v) $1.5' \times 1.5'$. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of grain. (iv) (a) 1954—1956. (b) No. (c) Nil. (v) (a) At many centres. (b) Nil. (vi) and (vii) Nil.

5. RESULTS :

(i) 239.63 Rs./ac. (ii) 39.74 Rs./ac. (iii) Treatment differences are not significant. (iv) Av. value of produce in Rs./ac.

Treatment	T ₁	T ₂	T ₃	T ₄	T ₅	T ₆	T ₇
Av. value	255.78	240.98	279.23	233.62	247.58	222.64	197.60

S.E./mean = 19.87 Rs./ac.

Crop :- Barely and Pea (Rabi).

Ref :- U.P. 55(353).

Site :- Govt. Agri. Farm, Etawah.

Type :- 'X'.

Object :—To study the effect of different seed rate proportions of Barley and Pea on their yield.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) (a) Light loam. (b) N.A. (iii) N.A. (iv) (a) and (b) N.A. (c) Each at 40 srs./ac. (d) and (e) N.A. (v) 3 C.L./ac. of F.Y.M. + $1\frac{1}{2}$ mds./ac. of Super to whole field. (vi) to (x) N.A.

2. TREATMENTS :

Same as in expt. no. 54(303) on page 1562.

3. DESIGN :

(i) R.B.D. (ii) (a) 7. (b) N.A. (iii) 4. (iv) (a) $24' \times 56'$. (b) $21' \times 53'$. (v) $1.5' \times 1.5'$. (vi) Yes.

4. GENERAL :

Same as in expt. no. 54(303) on page 1562.

5. RESULTS :

(i) 250.40 Rs./ac. (ii) 23.98 Rs./ac. (iii) Treatment differences are highly significant. (iv) Av. value of produce in Rs./ac.

Treatment	T ₁	T ₂	T ₃	T ₄	T ₅	T ₆	T ₇
Av. value	270.25	283.55	290.99	222.20	211.73	224.55	249.50

S.E./mean = 11.99 Rs./ac.

Crop :- Barley and Pea (Rabi).

Ref :- U.P. 56(380).

Site :- Govt. Agri. Farm, Etawah.

Type :- 'X'.

Object :—To study the effect of different seed rate proportions of Barley and Pea on their yield.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) (a) Light loam. (b) N.A. (iii) N.A. (iv) (a) and (b) Behind the plough. (c) Each at 40 srs./ac. (d and (e) N.A. (v) to (x) N.A.

2. TREATMENTS :

Same as in expt. no. 54(303) on page 1562.

3. DESIGN :

(i) R.B.D. (ii) (a) 7. (b) N.A. (iii) 4. (iv) (a) 24' × 56'. (b) 21' × 53'. (v) 1.5' × 1.5'. (vi) Yes.

4. GENERAL :

Same as in expt. no. 54(303) on page 1562.

5. RESULTS :

(i) 147.83 Rs./ac. (ii) 12.43 Rs./ac. (iii) Treatment differences are significant. (iv) Av. value of produce in Rs./ac.

Treatment	T ₁	T ₂	T ₃	T ₄	T ₅	T ₆	T ₇
Av. value	159.09	146.67	137.47	142.36	139.13	143.15	166.92

S.E./mean = 6.22 Rs./ac.

Crop :- Barley and Pea (Rabi).

Ref :- U.P. 54(302).

Site :- Govt. Agri. Farm, Faizabad.

Type :- 'X'.

Object :—To study the effect of different seed rate proportions of Barley and Pea on their yield.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) (a) loam. (b) Refer soil analysis, Faizabad. (iii) 20.11.1954. (iv) (a) N.A. (b) Sown in alternate lines behind the plough. (c) Each at 40 srs./ac. (d) and (e) N.A. (v) 3 C.L./ac. of F.Y.M. to whole field. (vi) Barley : K. 12 and Pea : T. 163. (vii) Irrigated. (viii) and (ix) N.A. (x) 30.4.1955.

2. TREATMENTS to 4. GENERAL :

Same as in expt. no. 54(303) on page 1562.

5. RESULTS :

(i) 88.12 Rs./ac. (ii) 10.92 Rs./ac. (iii) Treatment differences are significant. (iii) Av. value of produce in Rs./ac.

Treatment	T ₁	T ₂	T ₃	T ₄	T ₅	T ₆	T ₇
Av. value	79.02	84.61	93.82	94.94	91.59	101.73	71.11

S.E./mean = 5.46 Rs./ac.

Crop :- Barley and Pea (Rabi).

Ref :- U.P. 56(379).

Site :- Govt. Agri. Farm, Faizabad.

Type :- 'X'.

Object :—To study the effect of different seed rate proportions of Barley and Pea on their yield.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Barley and Pea. (c) 3 C.L./ac. of compost + 1½ mds./ac. of Super to whole field. (ii) (a) Clayey loam. (b) Refer soil analysis, Faizabad. (iii) 10.11.1956. (iv) (a) N.A. (b) Behind the plough in alternate lines. (c) Each at 20 srs./ac. (d) and (e) N.A. (v) 3 C.L./ac. of compost + 1½ mds./ac. of Super to whole field. (vi) N.A. (vii) Irrigated. (viii) and (ix) N.A. (x) 7.4.1957 to 12.4.1957.

2. TREATMENTS:

Same as in expt. no. 54(303) on page 1362.

3. DESIGN:

(i) R.B.D. (ii) (a) 7. (b) N.A. (iii) 4. (iv) (a) 37'×36'. (b) 34'×33'. (v) 1.5'×1.5'. (vi) Yes.

4. GENERAL:

(i) N.A. (ii) Yellow rush on barley crop. (iii) Yield of grain. (iv) (a) 1954—1956 (expt. failed in 1955). (b) No. (c) Nil. (v) (a) At many centres. (b) Nil. (vi) and (vii) Nil.

5. RESULTS:

(i) 182.51 Rs./ac. (ii) 28.14 Rs./ac. (iii) Treatment differences are significant. (iv) Av. value of produce in Rs./ac.

Treatment	T ₁	T ₂	T ₃	T ₄	T ₅	T ₆	T ₇
Av. value	183.05	184.51	236.73	190.72	181.89	170.92	129.77

S.E./mean = 14.07 Rs./ac.

Crop :- Potato and Wheat (Rabi).

Ref :- U.P. 59(499).

Site :- Govt. Potato Res. Stn., Farrukhabad.

Type :- 'X'.

Object :—To study the effect of sowing Wheat in between Potato lines on their yield.

1. BASAL CONDITIONS:

(i) (a) N.A. (b) Bajra. (c) Nil. (ii) (a) Sandy loam. (b) Refer soil analysis, Farrukhabad. (iii) Potato on 18.10.1959. and wheat on 22.11.59. (iv) (a) 3 ploughings. (b) N.A. (c) Potato at 24 srs./plot and wheat at 1.5 chks/plot for T₁ and T₃. Potato at 46 srs./plot and wheat at 0.75 chks/plot for T₂ and T₄. (d) Wheat 9"×4", potato as per treatments. (e) N.A. (v) 300 lb./ac. of N as compost, G.N.C. and Urea in 1 : 1 : 1 ratio. (vi) Potato : B.N. 2236 (medium) and wheat : N.P. 720. (vii) irrigated. (viii) 2 weedings. (ix) N.A. (x) Potato on 25.2.1960 and wheat on 19.4.1960.

2. TREATMENTS:

6 cultural treatments : T₁=Potato alone at 1.5'×6" spacing, T₂=Potato alone at 2'×6" spacing, T₃=T₁+2 rows of wheat in between potato rows, T₄=T₂+2 rows of wheat in between potato rows.

3. DESIGN:

(i) R.B.D. (ii) (a) 4. (b) N.A. (iii) 6. (iv) (a) and (b) 24'9"×8'9". (v) Nil. (vi) Yes.

4. GENERAL:

(i) Good. (ii) 2 sprayings with Fytalon at 3 lb./ac. in 100 gallons of water. (iii) Yield of wheat and potato. (iv) (a) 1955 only. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS:

(i) 1097 Rs./ac. (ii) 69.88 Rs./ac. (iii) Treatment differences are highly significant. (iv) Av. value of produce in Rs./ac.

Treatment	T ₁	T ₂	T ₃	T ₄
Av. value	1145	1081	1071	891

S.E./mean = 28.53 Rs./ac.

Crop :- Wheat and Gram (Rabi).

Ref :- U.P. 54(306).

Site :- Reg. Res. Stn., Hardoi.

Type :- 'X'.

Object :—To study the physiological response of mixed crops to fertilizers.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) (a) Loam. (b) Refer soil analysis, Hardoi. (iii) 8.11.1954. (iv) (a) 8 ploughings. (b) Behind the plough. (c) Wheat at 25 srs./ac. and gram at 30 srs./ac. (d) and (e) N.A. (v) and (vi) N.A. (vii) Irrigated. (viii) to (x) N.A.

2. TREATMENTS :

12 manurial treatments : T_0 =Control (no manure), T_1 =40 lb./ac. of N as A/S, T_2 =50 lb./ac. of P_2O_5 as Super, T_3 =40 lb./ac. of K_2O as Pot. Sul., T_4 =60 lb./ac. of CaO as Gypsum, T_5 = T_1+T_2 , T_6 = T_1+T_3 , T_7 = T_1+T_4 , T_8 = $T_1+T_2+T_3$, T_9 = $T_1+T_2+T_4$, T_{10} = $T_1+T_3+T_4$ and T_{11} = $T_1+T_2+T_3+T_4$.

3. DESIGN :

(i) R.B.D. (ii) (a) 12. (b) N.A. (iii) 4. (iv) (a) $31' \times 25'$. (b) $28' \times 22'$. (v) $1.5' \times 1.5'$. (vi) Yes.

4. GENERAL :

(i) N.A. (ii) Nil. (iii) Yield of grain. (iv) (a) 1954—1955. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 305.12 Rs./ac. (ii) 15.08 Rs./ac. (iii) Treatment differences are not significant. (iv) Av. value of produce in Rs./ac.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5	T_6	T_7	T_8	T_9	T_{10}	T_{11}
Av. value	296.27	380.37	287.61	290.62	286.91	296.27	303.17	300.34	302.82	303.70	308.65	304.76

S.E./mean = 7.54 Rs./ac.

Crop :- Wheat and Gram (Rabi).

Ref :- U.P. 55(360).

Site :- Reg. Res. Stn., Hardoi.

Type :- 'X'.

Object :—To study the physiological response of mixed crops to fertilizers.

1. BASAL CONDITIONS :

(i) (a) *Moong*—Wheat. (b) *Moong*. (c) N.A. (ii) (a) Loam. (b) Refer soil analysis, Hardoi. (iii) 8.11.1955. (iv) (a) and (b) N.A. (c) Wheat at 25 srs./ac. and gram at 30 srs./ac. (d) and (e) N.A. (v) Nil. (vi) Wheat : N.P. 710 and gram : T. 87. (vii) Irrigated. (viii) and (ix) N.A. (x) 7.4.1956.

2. TREATMENTS :

Same as in expt. no. 54(306) on page 1565.

3. DESIGN :

(i) R.B.D. (ii) (a) 12. (b) N.A. (iii) 3. (iv) (a) $45' \times 23'$. (b) $42' \times 20'$. (v) $1.5' \times 1.5'$. (vi) Yes.

4. GENERAL :

Same as in expt. no. 54(306) on page 1565.

5. RESULTS :

(i) 300.04 Rs./ac. (ii) 24.37 Rs./ac. (iii) Treatment differences are highly significant. (iv) Av. value of produce in Rs./ac.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5	T_6	T_7	T_8	T_9	T_{10}	T_{11}
Av. value	206.92	247.03	233.02	228.53	225.42	379.62	298.89	271.92	447.21	343.31	320.50	398.11

S.E./mean = 14.07 Rs./ac.

Crop :- Wheat and Gram (Rabi).

Ref :- U.P. 59(6).

Site :- Reg. Res. Stn., Hardoi.

Type :- 'X'.

Object :—To find out the effect of mixed sowing of Wheat and Gram on their yield.

1. BASAL CONDITIONS:

(i) (a) N.A. (b) Fallow. (c) Nil. (ii) (a) Loam. (b) Refer soil analysis, Hardoi. (iii) 25.10.1959. (iv) (a) and (b) N.A. (c) Wheat at 25 srs./ac. and gram at 30 srs./ac. (d) and (e) N.A. (v) Nil. (vi) Wheat : N.P. 710 and gram : N.A. (vii) Irrigated. (viii) Weeding by *khurpi*. (ix) N.A. (x) 27.3.1960.

2. TREATMENTS :

8 treatments : T_1 =Wheat alone, T_2 =Gram alone, T_3 =Wheat and gram in alternate rows, T_4 =1 row of wheat and 2 rows of gram, T_5 =2 rows of wheat and 1 row of gram, T_6 =2 rows of wheat and 2 rows of gram, T_7 =Wheat and gram mixed in the same row and T_8 =Wheat and gram mixed and broadcast.

3. DESIGN :

(i) R.B.D. (ii) (a) 8. (b) N.A. (iii) 4. (iv) (a) and (b) $37' \times 26'$. (v) Nil. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Nil. (iii) Yield of gram. (iv) (a) 1959—contd. (b) Yes. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 281.46 Rs. (ii) 34.14 Rs./ac. (iii) Treatment differences are highly significant. (iv) Av. value of produce in Rs./ac.

Treatment	T_1	T_2	T_3	T_4	T_5	T_6	T_7	T_8
Av. value	202.36	304.86	287.95	303.37	282.23	292.40	312.05	266.43

S.E./mean = 17.07 Rs./ac.

Crop :- Maize and Moong.

Ref :- U.P. 58(12).

Site :- Reg. Res. Stn., Hardoi.

Type :- 'X'.

Object :—To study the effect of mixed sowing of Maize and Moong on their yield.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) (a) Loam. (b) Refer soil analysis, Hardoi. (iii) 30.6.1958. (iv) (a) N.A. (b) Sown in lines. (c) N.A. (d) Rows 1' apart. (e) N.A. (v) N.A. (vi) Maize : T. 41 and Moong : T. 1. (vii) to (ix) N.A. (x) 1 to 11.9.1958.

2. TREATMENTS :

5 mixture treatments : T_1 =Maize alone, T_2 =Moong alone, T_3 =Maize and moong in alternate lines, T_4 = 2 lines of moong after every row of maize and T_5 =3 lines of moong after every row of maize.

3. DESIGN :

(i) R.B.D. (ii) (a) 5. (b) N.A. (iii) 4. (iv) (a) and (b) $49' \times 37'$. (v) Nil. (vi) Yes.

4. GENERAL :

(i) an J (ii) N.A. (iii) Yield of grain. (iv) (a) and (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 125.83 Rs./ac. (ii) 38.49. (iii) Treatment differences are highly significant. (iv) Av. value of produce in Rs./ac.

Treatment	T_1	T_2	T_3	T_4	T_5
Av. value	229.24	7.51	202.33	116.95	73.12

S.E./mean = 19.24 Rs./ac.

Crop :- Maize, Urid, Moong and Lobia.

Ref :- U.P. 59(10).

Site :- Reg. Res. Stn., Hardoi.

Type :- 'X'.

Object :-To study the effect of mixed cropping of Maize with Urid, Moong and Lobia on their yield.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) (a) Loam. (b) Refer soil analysis, Hardoi. (iii) to (vi) N.A. (vii) Irrigated. (viii) 2 weedings. (ix) and (x) N.A.

2. TREATMENTS :

All combinations of (1) and (2) + a control

(1) 3 pulses for mixing with maize : $P_1=Urid$, $P_2=Moong$ and $P_3=Lobia$.

(2) 2 methods of sowing : $M_1=Alternate$ rows 1' apart and $M_2=Mixed$ sowing.

Control=Maize alone 2' apart.

3. DESIGN :

(i) R.B.D. (ii) (a) 7. (b) N.A. (iii) 4. (iv) (a) and (b) 26' x 18'. (v) Nil. (vi) Yes.

4. GENERAL :

(i) N.A. (ii) Nil. (iii) Yield of grain. (iv) (a) 1959—contd. (b) N.A. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 146.47 Rs./ac. (ii) 23.62 Rs./ac. (iii) "Control vs. others" alone is highly significant. (iv) Av. value of produce in Rs./ac.

Control = 195.52 Rs./ac.

	P_1	P_2	P_3	Mean
M_1	145.87	132.38	145.06	141.10
M_2	122.59	137.65	146.25	135.50
Mean	134.23	135.02	145.65	138.30

S.E. of P marginal mean = 8.35 lb./ac.

S.E. of M marginal mean = 6.82 lb./ac.

S.E. of body of table or control mean = 11.81 lb./ac.

Crop :- Barley and Maize (Rabi).

Ref :- U.P. 59(8).

Site :- Reg. Res. Stn., Hardoi.

Type :- 'X'.

Object :-To find out a suitable mixture of Barley and Gram under unirrigated conditions.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) (a) Loam. (b) Refer soil analysis, Hardoi. (iii) 19.10.1959. (iv) to (vi) N.A. (vii) Unirrigated. (viii) Weeding by *khurpi*. (ix) N.A. (x) 27 and 28.3.1960.

2. TREATMENTS :

9 treatments : $T_1=Barley$ alone, $T_2=Gram$ alone, $T_3=Barley$ one row and gram one row, $T_4=Barley$ one row and gram two rows, $T_5=Barley$ two rows and gram one row, $T_6=Barley$ two rows and gram two rows, $T_7=Barley$ and gram broadcast, $T_8=Barley$ and gram mixed in the same row and $T_9=Barley$ 5 rows and gram 5 rows.

3. DESIGN :

(i) R.B.D. (ii) (a) 9. (b) N.A. (iii) 3. (iv) (a) and (b) 29' x 24'. (v) Nil. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Grain yield. (iv) (a) 1959—contd. (b) N.A. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 267.89 Rs./ac. (ii) 62.03 Rs./ac. (iii) Treatment differences are significant. (iv) Av. value of produce in Rs./ac.

Treatment	T ₁	T ₂	T ₃	T ₄	T ₅	T ₆	T ₇	T ₈	T ₉
Av. value	176.43	356.30	325.67	359.25	216.52	222.76	210.33	248.67	295.03

S.E./mean = 35.81 Rs./ac.

Crop :- Barley and Gram.

Ref :- U.P. 59(7).

Site :- Reg. Res. Stn., Hardoi.

Type :- 'X'.

Object :- To find out a suitable mixture of Barley and Gram under irrigated conditions.

1. BASAL CONDITIONS :

(i) G.M.—Barley+Gram. (b) *Sanai*. (c) Nil. (ii) (a) Loam. (b) Refer soil analysis, Hardoi. (iii) 19.10.1959. (iv) (a) 6 to 7 ploughings. (b) Line sowing. (c) N.A. (d) As per treatments. (e) N.A. (v) G.M. *sanai*. (vi) Local (improved late), gram : T₁ and barley : K-12. (vii) Irrigated. (viii) Weeding by *khurpi*. (ix) N.A. (x) 27 and 28.3.1960.

2. TREATMENTS to 4. GENERAL :

Same as in expt. no 59(8) on page 1568.

5. RESULTS :

(i) 318.39 Rs./ac. (ii) 44.07 Rs./ac. (iii) Treatment differences are significant. (iv) Av. value of produce in Rs./ac.

Treatment	T ₁	T ₂	T ₃	T ₄	T ₅	T ₆	T ₇	T ₈	T ₉
Av. value	249.63	269.82	307.95	348.98	313.38	322.92	401.02	318.99	332.84

S.E./mean = 25.44 Rs./ac.

Crop :- Maize and Urd.

Ref :- U.P. 56(390).

Site :- Govt. Agri. Farm, Kalai.

Type :- 'X'.

Object :- To study the effect of different seed rate proportions of Maize and Urd on their yield.

1. BASAL CONDITIONS .

(i) (a) Nil. (b) Lentils. (c) N.A. (ii) (a) Loam. (b) Refer soil analysis, Kalai. (iii) 5.7.1956. (iv) (a) 4 ploughings. (b) Behind the plough. (c) Maize at 3.6 chks./plot and *urd* at 2 chks./plot. (d) and (e) N.A. (v) 100 to 150 md./ac. of F.Y.M.+60 srs./ac. of Super. (vi) Maize : T. 41 and *urd* : T. 9. (vii) Unirrigated. (viii) and (ix) N.A. (x) 17.9.1956.

2. TREATMENTS :

7 ratios of seed rates of maize and *urd* : R₁=*Urd* alone, R₂=1 : 4, R₃=2 : 3, R₄=1 : 1, R₅=3 : 2, R₆=4 : 1 and R₇=Maize alone.

3. DESIGN :

(i) R.B.D. (ii) (a) 7. (b) N.A. (iii) 4. (iv) (a) 41'×30'. (b) 38'×27'. (v) 1.5'×1.5'. (vi) Yes.

4. GENERAL :

(i) N.A. (ii) Nil. (iii) Yield of grain. (iv) to (vii) Nil.

5. RESULTS :

(i) 108.97 Rs./ac. (ii) 11.01 Rs./ac. (iii) Treatment differences are highly significant. (iv) Av. value of produce in Rs./ac.

Treatment	R ₁	R ₂	R ₃	R ₄	R ₅	R ₆	R ₇
Av. value.	69.63	90.64	145.09	131.72	96.91	88.41	140.42

S.E./mean = 5.51 Rs./ac.

Crop :- Wheat and Gram (Rabi).

Ref :- U.P. 55(359).

Site :- Govt. Agri. Farm, Kalai.

Type :- 'X'.

Object :- To study the physiological response of mixed crops to fertilizers.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) and (c) N.A. (ii) (a) Loam. (b) Refer soil analysis, Kalai. (iii) 6.11.1955. (iv) (a) N.A. (b) Behind the plough. (c) Wheat at 5 chks./plot and gram at 7½ chks./plot. (d) and (e) N.A. (v) N.A. (vi) Wheat : Pb. 591 and gram : T. 87. (vii) Irrigated. (viii) and (ix) N.A. (x) 3 and 4.4.1956.

2. TREATMENTS :

12 levels of manures : T₀=Control (no manure), T₁=40 lb./ac. of N as A/S, T₂=50 lb./ac. of P₂O₅ as Super, T₃=40 lb./ac. of K₂O as Mur. Pot., T₄=60 lb./ac. of CaO as Gypsum, T₅=T₁+T₂, T₆=T₁+T₃, T₇=T₁+T₄, T₈=T₁+T₂+T₃, T₉=T₁+T₂+T₄, T₁₀=T₁+T₃+T₄ and T₁₁=T₁+T₂+T₃+T₄.

2 rows of gram is sown in between 2 rows of wheat.

3. DESIGN :

(i) R.B.D. (ii) (a) 12. (b) N.A. (iii) 3. (iv) (a) 28'×37'. (b) 25'×34'. (v) 1.5'×1.5'. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of wheat and gram. (iv) (a) 1955—1956. (b) No. (c) Nil. (v) (a) At many centres. (b) Nil. (vi) and (vii) Nil.

5. RESULTS :

(i) 134.53 Rs./ac. (ii) 5.93 Rs./ac. (iii) Treatment differences are highly significant. (iv) Av. value of produce in Rs./ac.

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄	T ₅	T ₆	T ₇	T ₈	T ₉	T ₁₀	T ₁₁
Av. value	96.35	129.32	115.82	110.02	126.76	140.42	154.43	128.81	139.57	163.66	155.46	153.75

S.E./mean = 3.42 Rs./ac.

Crop :- Wheat and Gram (Rabi).

Ref :- U.P. 56(384).

Site :- Govt. Agri. Farm, Kalai.

Type :- 'X'.

Object :- To study the effect of fertilizers on mixed cropping of Wheat and Gram.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) *Moong* and *Lobia*. (c) N.A. (ii) (a) Loam. (b) Refer soil analysis, Kalai. (iii) 6.11.1956. (iv) (a) 6 ploughings. (b) Line sowing. (c) Wheat at 5 chks./plot and gram at 7½ chks./plot. (d) and (e) N.A. (v) N.A. (vi) Wheat : N.P. 710 and gram : T. 87. (vii) Irrigated. (viii) and (ix) N.A. (x) 15.4.1957.

2. TREATMENTS to 4. GENERAL :

Same as in expt. no.55(359) above

5. RESULTS :

(i) 173.32 Rs./ac. (ii) 5.50 Rs./ac. (iii) Treatment differences are highly significant. (iv) Av. value of produce in Rs./ac.

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄	T ₅	T ₆	T ₇	T ₈	T ₉	T ₁₀	T ₁₁
Av. value	115.31	149.98	163.14	150.15	142.47	176.63	210.46	154.94	190.30	191.15	201.57	233.69

S.E./mean = 3.18 Rs./ac.

Crop :- Barley and Pea.

Ref :- U.P. 54(304).

Site :- Govt. Agri. Res. Farm, Kalianpur.

Type :- 'X'.

Object :—To study the effect of different seed rate proportions of Barley and Pea on their yield.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) (a) Loam. (b) Refer soil analysis, Kalianpur. (iii) 21.10.1954. (iv) (a) 6 ploughings and planking. (b) Behind the plough. (c) Each at 40 srs./ac. (d) and (e) N.A. (v) 3 C.L./ac. of F.Y.M. + 1½ mds./ac. of Super to whole field. (vi) Barley : K—12 and Pea : T 163. (vii) Irrigated. (viii) and (ix) N.A. (x) 23.3.1955.

2. TREATMENTS :

7 ratios of seed rate of barley and pea : R₁=Barley alone, R₂=4 : 1, R₃=3 : 2, R₄=1 : 1, R₅=2 : 3, R₆=1 : 4 and R₇=Pea alone.

3. DESIGN :

(i) R.B.D. (ii) (a) 7. (b) N.A. (iii) 4. (iv) (a) 42'×33'. (b) 39'×30'. (v) 1.5'×1.5'. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of grain. (iv) (a) 1954—N.A. (b) No. (c) Nil. (v) (a) At many centres. (b) Nil. (vi) and (vii) Nil.

5. RESULTS :

(i) 251.88 Rs./ac. (ii) 41.86 Rs./ac. (iii) Treatment differences are not significant. (iv) Av. value of produce in Rs./ac.

Treatment	R ₁	R ₂	R ₃	R ₄	R ₅	R ₆	R ₇
Av. value	297.29	268.71	239.02	196.58	273.55	251.59	236.42

S.E./mean = 20.93 Rs./ac.

Crop :- Arhar and Urd.

Ref :- U.P. 59(500).

Site :- Govt. Agri Res. Farm, Kalianpur.

Type :- 'X'.

Object :—To study the effect of mixed cropping of Arhar and Urd with different spacings.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Fallow. (c) Nil. (ii) (a) Sandy loam. (b) Refer soil analysis, Kalianpur. (iii) 24.7.1959. (iv) (a) N.A. (b) 3 ploughings behind the plough. (c) Each at 11 lb./ac. (d) As per treatments. (e) N.A. (v) Nil. (vi) Arhar : T—1 (early) and urd : T—9 (early). (vii) Unirrigated. (viii) 2 weedings followed by 2 hoeings. (ix) 13.5". (x) Arhar : 24.12.1959 and urd : 28.10.1959.

2. TREATMENTS :

4 mixed cropping treatments : T₁=Arhar alone at 4' spacing, T₂=Arhar alone at 3' spacings, T₃=Arhar at 4' and urd at 2' in between arhar and T₄=Arhar at 3' and urd at 1½' in between arhar.

3. DESIGN :

(i) R.B.D. (ii) (a) 4. (b) 92'×76'. (iii) 4. (iv) (a) and (b) 44'×33'. (v) Nil. (vi) Yes.

4. GENERAL :

(i) Growth and germination poor in 2 replications. (ii) Nil. (iii) Grain yield. (iv) to (vii) Nil.

5. RESULTS :

(i) 158.90 Rs./ac. (ii) 129.26 Rs./ac. (iii) Treatment differences are not significant. (iv) Av. value of produce in Rs./ac.

Treatment	T ₁	T ₂	T ₃	T ₄
Av. value	143.70	108.40	194.78	188.70

S.E./mean = 64.62 Rs./ac.

Crop :- Sarson and Wheat (Rabi).

Ref :- U.P. 58(438).

Site :- Govt. Agri. Res. Farm, Kalianpur.

Type :- 'X'.

Object :- To study the effect of line sowing and broadcasting of Sarson in mixed cropping with Wheat.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) (a) Sandy loam. (b) Refer soil analysis, Kalianpur. (iii) 8.11.1958. (iv) (a) N.A. (b) Wheat : line sowing, sarson : as per treatments. (c) N.A. (d) 6' between rows. (e) N.A. (v) N.A. (vi) Sarson : T 151 (late) and wheat—N.A. (vii) to (ix) N.A. (x) 4.4.1959.

2. TREATMENTS :

4 mixed cropping treatments : S₁=Line sowing of sarson in wheat plot, S₂=Sarson broadcast in wheat plot, S₃=Sarson alone broadcast and S₄=Wheat alone.

For S₁ and S₂ only one fourth of actual seed rate was used.

3. DESIGN :

(i) R.B.D. (ii) (a) 4. (b) 36' × 138'. (iii) 6. (iv) (a) 36' × 30'. (b) 36' × 24'. (v) 3' × 3'. (vi) Yes.

4. GENERAL :

(i) Wheat crop lodged. (ii) Sarson is affected by aphid and alternaria disease. (iii) Yield of grain. (iv) and (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 325.21 Rs./ac. (ii) 34.17 Rs./ac. (iii) Treatment differences are highly significant. (iv) Av. value of produce in Rs./ac.

Treatment	S ₁	S ₂	S ₃	S ₄
Av. value	373.86	367.39	159.66	399.91

S.E./mean = 13.95 Rs./ac.

Crop :- Jowar and Legumes (Kharif).

Ref :- U.P. 58(268).

Site :- Students' Instrl. Farm, Govt. Agri. College, Kanpur.

Type :- 'X'.

Object :- To study the effect of manuring on mixed cropping with Jowar and Legumes for fodder.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Berseem. (c) N.A. (ii) (a) Sandy loam. (b) Refer soil analysis, Kanpur. (iii) 29.7.1958. (iv) (a) 3 ploughings with cultivator followed by planking. (b) Broadcast. (c) Jowar and guar at 20 srs./ac. lobia and moth at 10 srs./ac. (d) and (e) N.A. (v) Nil. (vi) Jowar 8 B, guar, moth and lobia local. (vii) Unirrigated. (viii) Nil. (ix) 20.4". (x) 21.10.1958.

2. TREATMENTS :

All combinations of (1), (2) and (3)

(1) 4 mixtures of seeds in 1 : 1 ratios : M₁=Jowar alone, M₂=Jowar+guar, M₃=Jowar+lobia and M₄=Jowar+moth.

(2) 2 levels of P₂O₅ as Super : P₀=0 and P₁=30 lb./ac.

(3) 3 levels of N as A/S : N₀=0, N₁=30 and N₂=60 lb./ac.

Full dose of P₂O₅ and ½ dose of N applied before sowing. The remaining half dose of A/S applied on 6.9.1958.

3. DESIGN :

(i) R.B.D. (ii) (a) 24. (b) N.A. (iii) 3. (iv) (a) 35.5' × 12.5'. (b) 33.5' × 10.5'. (v) 1' × 1'. (vi) Yes.

4. GENERAL :

(i) N.A. (ii) Light attack of stem borer and leaf spot disease on *Jowar*. (iii) Shoot height, germination % and fodder yield. (iv) (a) and (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 5.56 tons/ac. (ii) 4.46 tons/ac. (iii) Only N effect is highly significant. (iv) Av. yield of fodder in tons/ac.

	P ₀	P ₁	Mean	N ₀	N ₁	N ₂
M ₁	5.61	5.63	5.62	4.17	5.54	7.15
M ₂	5.58	5.61	5.59	4.64	5.70	6.45
M ₃	5.41	5.47	5.44	4.45	5.52	6.35
M ₄	5.57	5.59	5.58	4.62	5.68	6.43
Mean	5.54	5.57	5.56	4.47	5.61	6.59
N ₀	4.46	4.48				
N ₁	5.60	5.62				
N ₂	6.57	6.62				

S.E. of N marginal mean	= 0.91 tons/ac.
S.E. of P marginal mean	= 0.74 tons/ac.
S.E. of M marginal mean	= 1.05 tons/ac.
S.E. of body of N × M table	= 1.32 tons/ac.
S.E. of body of N × P table	= 1.29 tons/ac.
S.E. of body of P × M table	= 1.49 tons/ac.

Crop :- *Jowar and Legumes (Kharif)*.

Ref :- U.P. 59(306).

Site :- Student's Instrl. Farm, Govt. Agri. College, Kanpur. Type :- 'X'.

Object :- To study the effect of different levels of N on mixed cropping with *Jowar* and *Legumes* for fodder.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Wheat. (c) N.A. (ii) (a) Sandy loam. (b) Refer soil analysis, Kanpur. (iii) 30.7.1959. (iv) (a) 2 cultivations with cultivator followed by planking. (b) Broadcast. (c) *Jowar* and *guar* at 42 lb./ac. *Moth* and *Lobia* at 21 lb./ac. (d) and (e) N.A. (v) Nil. (vi) *Jowar*—8. B., *guar* and *moth*—Local and *Lobia*—Russian Giant. (vii) Irrigated. (viii) Nil. (ix) 15.67". (x) 22.10.1959.

2. TREATMENTS :

All combinations of (1) and (2)

(1) 4 mixtures of seeds in 1 : 1 ratio : M₁ = *Jowar* alone, M₂ = *Jowar* + *guar*, M₃ = *Jowar* + *moth* and M₄ = *Jowar* + *lobia*.

(2) 3 levels of N as A/S : N₀ = 0, N₁ = 30 and N₂ = 60 lb./ac.

Half dose of N applied at sowing. The remaining dose applied on 16.8.1959.

3. DESIGN :

(i) R.B.D. (ii) (a) 12. (b) N.A. (iii) 4. (iv) (a) 26' × 15'. (b) 23' × 12'. (v) 1.5 × 1.5'. (vi) Yes.

4. GENERAL :

(i) N.A. (ii) Nil. (iii) Shoot height and yield of dry fodder. (iv) (a) and (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 4053 lb./ac. (ii) 678.3 lb./ac. (iii) Only N effect is highly significant. (iv) Av. yield of dry fodder in lb./ac.

	M ₁	M ₂	M ₃	M ₄	Mean
N ₀	2933	3121	3347	3347	3187
N ₁	4088	3742	4177	4276	4071
N ₂	5036	4562	4979	5027	4901
Mean	4019	3808	4168	4217	4053

S.E. of M marginal mean = 195.8 lb./ac.
 S.E. of N marginal mean = 169.6 lb./ac.
 S.E. of body of table = 339.2 lb./ac.

Crop :- As per treatments.

Ref :- U.P. 57(485).

Site :- Govt. Agri. Res. Farm, Keserwa.

Type :- 'X'.

Object :- To study the advantage of mixed cropping of Til with other crops.

1. BASAL CONDITIONS :

(i) and (ii) N.A. (iii) 1st week of August, 1957. (iv) (a) to (c) N.A. (d) 1½' between rows. (e) N.A. (v) to (x) N.A.

2. TREATMENTS :

7 arrangements of mixtures in rows : T₁=9 rows of *til* and 8 rows of *jowar*, T₂=13 rows of *til* and 4 rows of *arhar*, T₃=9 rows of *til* and 8 rows of *maize*, T₄=9 rows of *til* and 8 rows of *groundnut*, T₅=9 rows of *til* and 8 rows of *bajra*, T₆=12 rows of *til*+5 rows of *bajra* and T₇=17 rows of *til* only.

3. DESIGN :

(i) R.B.D. (ii) (a) 7. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 46'×24'. (v) N.A. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of grain. (iv) to (vi) N.A. (vii) In treatment T₃ *maize* crop failed totally on account of delayed sowing, damage by water logging and stray cattle. Hence T₃ has been dropped from analysis.

5. RESULTS :

(i) 160.45 Rs./ac. (ii) 79.80 Rs./ac. (iii) Treatment differences are highly significant. (iv) Av. value of produce in Rs./ac.

Treatment	T ₁	T ₂	T ₃	T ₄	T ₅	T ₆	T ₇
Av. value	138.28	408.34	—	84.74	130.54	128.16	72.62

S.E./mean = 39.90 Rs./ac.

Crop :- Paddy + Maize + Arhar + Kodo.

Ref :- U.P. 54(359).

Site :- Rice Res. Sub-Strn., Kunraghat.

Type :- 'X'.

Object :- To find out the effect of mixed sowing of early Paddy with others crops.

1. BASAL CONDITIONS :

(i) (a) and (b) N.A. (c) 40 lb./ac. of N as village compost+20 srs./ac. of A/S. (ii) (a) Light loam. (b) Refer soil analysis, Kunraghat. (iii) 2.7.1954. (iv) (a) 4 ploughings. (b) Broadcast for paddy and *kodo*. Dibbling for maize and *arhar*. (c) Paddy at 37 srs./ac., *arhar* at 6 lb./ac., maize at 8 lb./ac. and *kodo* at 4 lb./ac. (d) Maize at 1.5'×1'. (e) 1 seedling/hole for maize and *arhar*. (v) 2 C.L./ac. of village compost+20 lb./ac. of N as A/S. (vi) Paddy : N. 22 (early) and other crops : local. (vii) Unirrigated. (viii) 2 weedings. (ix) 29.34". (x) 6 and 8.10.1954.

2. TREATMENTS :

5 mixed cropping treatments : T_1 =Paddy, T_2 =Paddy+*arhar*, T_3 =Paddy+maize, T_4 =Paddy+*kodo* and T_5 =Paddy+*arhar*+maize+*kodo*.

3. DESIGN :

(i) R.B.D. (ii) (a) 5. (b) N.A. (iii) 5. (iv) (a) 29'×26'4". (b) 27'×24'4". (v) 1'×1'. (vi) Yes.

4. GENERAL :

(i) Growth of paddy not uniform. Satisfactory in other crops. (ii) Nil. (iii) Height, tillering and yield. (iv) (a) 1552—1954. (b) No. (c) Nil. (v) (a) and (b) N.A. (vi) Due to continuous rains maize, though germinated, could not survive. (vii) Nil.

5. RESULTS :

(i) 159.19 Rs./ac. (ii) 60.91 Rs./ac. (iii) Treatment differences are highly significant. (iv) Av. value of produce in Rs./ac.

Treatment	T_1	T_2	T_3	T_4	T_5
Av. value	125.21	243.63	103.12	122.28	201.72

S.E./mean = 27.24 Rs./ac.

Crop :- Barley and Pea (Rabi).

Ref :- U.P. 54(301).

Site :- Groundnut Res. Stn., Mainpuri.

Type :- 'X'.

Object :- To study the effect of different ratios of seed rate of Barley and Pea on their yield.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) (a) Sandy loam. (b) Refer soil analysis, Mainpuri. (iii) 12 and 13.11.1954. (iv) (a) 7 ploughings. (b) Behind the plough. (c) to (e) N.A. (v) N.A. (vi) Barley : K. 12 and pea : T. 163. (vii) Irrigated. (viii) and (ix) N.A. (x) 7 and 8.4.1955.

2. TREATMENTS :

7 ratios of seed rate of barley and pea : R_1 =Barley alone, R_2 =4 : 1, R_3 =3 : 2, R_4 =1 : 1, R_5 =2 : 3, R_6 =1 : 4 and R_7 =Pea alone.

3. DESIGN :

(i) R.B.D. (ii) (a) 7. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 1/37.0 ac. (v) N.A. (vi) Yes.

4. GENERAL :

(i) N.A. (ii) Nil. (iii) Yield of grain. (iv) (a) and (b) No. (c) Nil. (v) (a) At many centres. (b) Nil. (vi) and (vii) Nil.

5. RESULTS :

(i) 261.54 Rs./ac. (ii) 32.04 Rs./ac. (iii) Treatment differences are highly significant. (iv) Av. value of produce in Rs./ac.

Treatment	R_1	R_2	R_3	R_4	R_5	R_6	R_7
Av. value	343.36	282.13	236.99	239.02	269.82	238.28	221.17

S.E./mean = 16.02 Rs./ac.

Crop :- Maize and Urd (*Kharif*).

Ref :- U.P. 54(316).

Site :- Groundnut Res. Stn., Mainpuri.

Type :- 'X'.

Object :—To study the effect of different ratios of seed rate of Maize and Urd on their yield.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) (a) Sandy loam. (b) Refer soil analysis, Mainpuri. (iii) N.A. (iv) (a) and (b) N.A. (c) Maize at 8 srs./ac. and *urd* at 4 srs./ac. (d) and (e) N.A. (v) N.A. (vi) Maize : T 41 and *Urd* : T-9. (vii) N.A. (viii) Hand hoeing. (ix) and (x) N.A.

2. TREATMENTS :

7 ratios of seed rate of maize and *urd* : $R_1 = \text{Urd alone}$, $R_2 = 1 : 4$, $R_3 = 2 : 3$, $R_4 = 1 : 1$, $R_5 = 3 : 2$, $R_6 = 4 : 1$ and $R_7 = \text{Maize alone}$.

3. DESIGN :

(i) R.B.D. (ii) (a) 7. (b) N.A. (iii) 4. (iv) $41' \times 30'$. (b) $38' \times 27'$. (v) $1.5' \times 1.5'$. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of grain. (iv) (a) and (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 159.84 Rs./ac. (ii) 59.60 Rs./ac. (iii) Treatment differences are not significant. (iv) Av. value of produce in Rs./ac.

Treatment	R_1	R_2	R_3	R_4	R_5	R_6	R_7
Av. value	126.24	145.74	184.73	176.26	152.06	144.39	189.43

S.E./mean = 29.80 Rs./ac.

Crop :- Maduwa and Urd (*Kharif*).

Ref :- U.P. 59(523).

Site :- Reg. Res. Stn., Majhera.

Type :- 'X'.

Object :—To study the effect of mixed sowing of Maduwa and Urd on their yield.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Wheat. (c) N.A. (ii) (a) Sandy loam. (b) Refer soil analysis, Majhera. (iii) 9.6 1959 and 24.7.1959. (iv) (a) 2 ploughings. (b) Line sowing. (c) *Maduwa* at 6 srs./ac. and *urd* at 9 srs./ac. (d) 9" between rows. (e) N.A. (v) 6 srs./ac. of N as Urea and F.Y.M.+20 lb./ac. of P_2O_5 as Super. (vi) *Maduwa* : T-28 B and *urd* : local. (vii) Unirrigated. (viii) 2 hoeings and 1 weeding. (ix) N.A. (x) *Maduwa* on 27.9.1959 and *urd* on 13.10.1959.

2. TREATMENTS :

7 mixed cropping treatments : $T_1 = \text{Maduwa alone}$, $T_2 = \text{Urd alone}$, $T_3 = 1 \text{ line of } \textit{maduwa} \text{ and } 1 \text{ line of } \textit{urd}$, $T_4 = 2 \text{ lines of } \textit{maduwa} \text{ and } 1 \text{ line of } \textit{urd}$, $T_5 = 2 \text{ lines of } \textit{maduwa} \text{ and } 2 \text{ lines of } \textit{urd}$, $T_6 = 2 \text{ lines of } \textit{maduwa} \text{ and } 3 \text{ lines of } \textit{urd}$ and $T_7 = \text{Urd and } \textit{maduwa} \text{ mixed and broadcast}$.

3. DESIGN :

(i) R.B.D. (ii) (a) 7. (b) N.A. (iii) 4. (iv) (a) and (b) $13\frac{1}{2}' \times 10'$. (v) Nil. (vi) Yes.

4. GENERAL :

(i) *Maduwa* growth normal and *urd* poor. (ii) Nil. (iii) Yield of grain. (iv) (a) 1959—contd. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 230.60 Rs./ac. (ii) 36.22 Rs./ac. (iii) Treatment differences are highly significant. (iv) Av. value of produce in Rs./ac.

Treatment	T_1	T_2	T_3	T_4	T_5	T_6	T_7
Av. value	212.96	258.14	172.63	180.70	277.50	258.94	253.30

S.E./mean = 18.11 Rs./ac.

Crop :- Wheat and Sarson (*Rabi*).

Ref :- U.P. 58(470).

Site :- Reg. Res. Stn., Majhera.

Type :- 'X'.

Object :—To study the effect of mixed sowing of Wheat and Sarson on their yield.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) *Maduwa*. (c) Nil. (ii) (a) Sandy loam. (b) Refer soil analysis, Majhera. (iii) 8.11.1958. (iv) (a) 2 ploughings. (b) Line sowing. (c) 4.5 srs./ac. of *sarson* and 40 srs./ac. of wheat. (d) 12" between rows. (e) N.A. (v) Nil. (vi) Wheat : ridley and *sarson* : yellow (medium). (vii) Unirrigated. (viii) 1 hoeing and 1 weeding. (ix) N.A. (x) *Sarson* on 30.3.1959 and wheat on 30.4.1959.

2. TREATMENTS :

7 mixed cropping treatments : T₁=Wheat alone, T₂=*Sarson* alone, T₃=Wheat and *sarson* in alternate lines, T₄=2 lines of wheat and 1 line of *sarson*, T₅=2 lines of wheat and 2 lines of *sarson*, T₆=2 lines of wheat and 3 lines of *sarson* and T₇=Both mixed and broadcast.

3. DESIGN :

(i) R.B.D. (ii) (a) 7. (b) N.A. (iii) 4. (iv) (a) and (b) 12' × 10'. (v) Nil. (vi) Yes.

4. GENERAL :

(i) Normal. (ii) Aphis attack on *sarson*. Powdery mildew and rust attack on wheat crop. (iii) Height of plant, germination % and yield. (iv) (a) 1958—1960. (b) N.A. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 152.46 Rs./ac. (ii) 42.49 Rs./ac. (iii) Treatment differences are highly significant. (iv) Av. value of produce in Rs./ac.

Treatment	T ₁	T ₂	T ₃	T ₄	T ₅	T ₆	T ₇
Av. value	279.51	163.35	98.01	159.72	137.03	117.98	111.62

S.E./mean = 21.24 Rs./ac.

Crop :- Wheat and Sarson (*Rabi*).

Ref :- U.P. 59(522).

Site :- Reg. Res. Stn., Majhera.

Type :- 'X'.

Object :—To study the effect of mixed sowing of Wheat and Sarson on their yield.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) *Maduwa*. (c) Nil. (ii) (a) Sandy loam. (b) Refer soil analysis, Majhera. (iii) 14.11.1959. (iv) (a) 2 ploughings. (b) Line sowing. (c) *Sarson* at 4.5 srs./ac. and wheat at 40 srs./ac. (d) 9" between rows. (e) N.A. (v) Nil. (vi) Wheat : ridley and *sarson* : yellow. (vii) Unirrigated (viii) and (ix) N.A. (x) 25.4.1960.

2. TREATMENTS :

Same as in expt. no. 58(470) above.

3. DESIGN :

(i) R.B.D. (ii) (a) 7. (b) 88' × 66'. (iii) 4. (iv) (a) and (b) 13½' × 10'. (v) Nil. (vi) Yes.

4. GENERAL :

(i) Normal. (ii) Nil. (iii) Germination % and yield. (iv) (a) 1958—1960. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 173.20 Rs./ac. (ii) 22.36 Rs./ac. (iii) Treatment differences are significant. (iv) Av. value of produce in Rs./ac.

Treatment	T ₁	T ₂	T ₃	T ₄	T ₅	T ₆	T ₇
Av. value	190.38	162.95	203.28	149.23	157.30	172.63	176.66

S.E./mean = 11.18 Rs./ac.

Crop :- Wheat and Gram (Rabi).**Ref :- U.P. 57(495).****Site :- Reg. Res. Stn., Meerut.****Type :- 'X'.**

Object :—To study the effect of mixed sowing of Wheat and Gram on their yield.

1. BASAL CONDITIONS .

(i) (a) Nil. (b) *Jowar*. (c) Nil. (ii) (a) Silt loam. (b) Refer soil analysis. Meerut. (iii) 4.11.1957. (iv)(a) 5 to 6 ploughings. (b) Line sowing. (c) Wheat at 25 to 30 srs./ac. and gram at 35 to 40 srs./ac. (d) Rows 9" apart. (e) N.A. (v) Nil. (vi) Wheat : Pb. 591 (medium) and gram : T.87 (early). (vii) Irrigated. (viii) 1 weeding. (ix) 1.31". (x) 7.5.1958.

2. TREATMENTS :

8 arrangements of wheat and gram in rows : T₁=Wheat alone, T₂=Gram alone, T₃=Wheat and gram in alternate lines, T₄=1 line of wheat and 2 lines of gram, T₅=2 lines of wheat and 2 lines of gram, T₆=3 lines of wheat and 2 lines of gram, T₇=2 lines of wheat and 3 lines of gram, and T₈=3 lines of wheat and 3 lines of gram.

3. DESIGN :

(i) R.B.D. (ii) (a) 8. (b) 85'×114'. (iii) 4. (iv) (a) 41'×27'. (b) 38'×25'. (v) 1.5'×1'. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Nil. (iii) Yield of grain and fodder. (iv) (a) and (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 250.01 Rs./ac. (ii) 35.88 Rs./ac. (iii) Treatment differences are highly significant. (iv) Av. value of produce in Rs./ac.

Treatment	T ₁	T ₂	T ₃	T ₄	T ₅	T ₆	T ₇	T ₈
Av. value	163.22	251.03	284.27	264.55	276.48	239.11	239.00	282.44

S.E./mean = 17.94 Rs./ac.

Crop :- Wheat and Gram (Rabi).**Ref :- U.P. 58(455).****Site :- Reg. Res. Stn., Meerut.****Type :- 'X'.**

Object :—To study the effect of mixed sowing of Wheat and Gram on their yield.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) *Jowar* and *guar*. (c) Nil. (ii) (a) Silt loam. (b) Refer soil analysis, Meerut. (iii) 2.11 1958. (iv) (a) 4 to 5 ploughings. (b) Line sowing. (c) Each at 35 srs./ac. (d) Rows 1' apart. (e) N.A. (v) Nil. (vi) Wheat : N.P. 718 (early) and gram : T. 87 (early). (vii) Irrigated. (viii) 1 weeding. (ix) 8.84". (x) 20.4.1959.

2. TREATMENTS :

8 mixed cropping treatments : T₁=Wheat alone, T₂=Gram alone, T₃=1 row of wheat and 1 row of gram, T₄=2 rows of wheat and 1 row of gram, T₅=2 rows of wheat and 2 rows of gram, T₆=2 rows of wheat and 3 rows of gram, T₇=Mixture of wheat and gram sown in lines and T₈=Mixture of wheat and gram broadcast.

3. DESIGN :

(i) R.B.D. (ii) (a) 8. (b) N.A. (iii) 4. (iv) (a) 26'×20'. (b) 24'×18'. (v) 1'×1'. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Nil. (iii) Germination % and yield of grain. (iv) (a) and (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 504.31 Rs./ac. (ii) 35.43 Rs./ac. (iii) Treatment differences are highly significant. (iv) Av. value of produce in Rs./ac.

Treatment	T ₁	T ₂	T ₃	T ₄	T ₅	T ₆	T ₇	T ₈
Av. value	543.47	394.50	483.48	585.07	495.83	506.42	510.45	515.24

S.E./mean = 17.72 Rs./ac.

Crop :- Wheat and Gram (Rabi).

Ref :- U.P. 58(457).

Site :- Reg. Res. Stn., Meerut.

Type :- 'X'.

Object:—To study the effect of mixed sowing of Wheat and Gram on their yield.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) *Jowar* and *guar*. (c) Nil. (ii) (a) Silt loam. (b) Refer soil analysis, Meerut. (iii) N.A. (iv) (a) 3 ploughings by *desi* plough. (b) Line sowing. (c) 35 srs./ac. for both. (d) 1' between rows. (e) N.A. (v) Nil. (vi) Wheat : Pb. 591 (medium) and gram : T. 87 (early). (vii) Irrigated. (viii) 1 weeding. (ix) 8.84". (x) 20.4.1958.

2. TREATMENTS and 3. DESIGN:

Same as in expt. no. 58(455) on page 1578.

4. GENERAL :

(i) Good. (ii) Sight attack of rust and smut. (iii) Germination % and yield of grain. (iv) (a) and (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 412.34 Rs./ac. (ii) 16.93 Rs./ac. (iii) Treatment differences are highly significant. (iv) Av. value of produce in Rs./ac.

Treatment	T ₁	T ₂	T ₃	T ₄	T ₅	T ₆	T ₇	T ₈
Av. value	448.44	324.67	404.08	443.15	421.22	413.91	425.50	417.18

S.E./mean = 8.6 Rs./ac.

Crop :- Wheat and Gram (Rabi).

Ref :- U.P. 58(456).

Site :- Reg. Res. Stn., Meerut.

Type :- 'X'.

Object:—To study the economy of mixed cropping of Wheat and Gram.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) *Dhaincha*. (c) Nil. (ii) (a) Silt loam. (b) Refer soil analysis, Meerut. (iii) 22.11.1958. (iv) (a) 5 to 6 ploughings. (b) Behind the plough. (c) Wheat at 35 srs./ac. and gram at 40 srs./ac. (d) Rows 1' apart. (e) N.A. (v) G.M. by *dhaincha*. (vi) Wheat : Pb. 591 (medium) and gram : T. 87 (early). (vii) Irrigated. (viii) 1 weeding. (ix) 8.84". (x) 23.4.1959.

2. TREATMENTS :

4 mixed cropping treatments : T₁=Gram alone, T₂=Wheat alone, T₃=Mixture of wheat and gram sown in lines and T₄=5 rows of gram and 10 rows of wheat.

3. DESIGN :

(i) L. Sq. (ii) (a) 4. (b) 26' × 177'. (iii) 4. (iv) (a) and (b) 42.75' × 26'. (v) 2' × 2'. (vi) Yes.

4. GENERAL :

(i) Poor growth in treatment T₁ and fair in others. (ii) Nil. (iii) Germination % and yield of grain and straw. (iv) (a) 1958—1959. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 245.28 Rs./ac. (ii) 20.38 Rs./ac. (iii) Treatment differences are highly significant. (iv) Av. value of produce in Rs./ac.

Treatment	T ₁	T ₂	T ₃	T ₄
Av. value	98.27	333.12	271.29	278.44

S.E./mean = 10.19 Rs./ac.

Crop :- Wheat and Gram (Rabi).

Ref :- U.P. 59(512).

Site :- Reg. Res. Stu., Meerut.

Type :- 'X'.

Object :- To study the economy of mixed cropping of Wheat and Gram.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) *Dhatncha*. (c) Nil. (ii) (a) Silt loam. (b) Refer soil analysis, Meerut. (iii) 6.11.1959. (iv) (a) 5 to 6 ploughings. (b) Behind the plough. (c) Wheat at 35 srs./ac. and gram at 40 srs./ac. (d) Rows 9" apart. (e) N.A. (v) G.M. (*dhatncha*). (vi) Gram : T-87 (early) and wheat : Pb.-591 (medium). (vii) Irrigated. (viii) 1 weeding. (ix) 1.01". (x) 24.4.1960.

2. TREATMENTS :

Same as in expt. no. 58(456) on page 1579.

3. DESIGN :

(i) R.B.D. (ii) (a) 4. (b) 24' x 150'. (iii) 4. (iv) (a) and (b) 16' x 24'. (v) 2' x 2'. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Nil. (iii) Germination % and yield of grain. (iv) (a) 1958-1959. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 337.66 Rs./ac. (ii) 35.74 Rs./ac. (iii) Treatment differences are highly significant. (iv) Av. value of produce in Rs./ac.

Treatment	T ₁	T ₂	T ₃	T ₄
Av. value	175.46	434.62	355.08	385.46

S.E./mean = 17.78 Rs./ac.

Crop :- Wheat and Gram (Rabi).

Ref :- U.P. 54(305).

Site :- Reg. Res. Stn., Meerut.

Type :- 'X'.

Object :- To study the effect of different ratios of seed rate of Wheat and Gram on their yield.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) *Moong*. (c) N.A. (ii) (a) Loam soil. (b) Refer soil analysis, Meerut. (iii) 30.10.1954. (iv) (a) 4 ploughings. (b) Drilling. (c) to (e) N.A. (v) 3 C.L./ac. of F.Y.M. + 1½ mds./ac. of Super to whole field. (vi) Wheat : Pb.-591 and gram : T.-87. (vii) Irrigated. (viii) and (ix) N.A. (x) 11 and 12.4.1955.

2. TREATMENTS :

7 ratios of seed rate of wheat and gram : R₁=Wheat alone, R₂=4 : 1, R₃=3 : 2, R₄=1 : 1, R₅=2 : 3, R₆=1 : 4 and R₇=Gram alone.

3. DESIGN :

(ii) R.B.D. (ii) (a) 7. (b) N.A. (iii) 4. (iv) (a) 42' x 33'. (b) 39' x 30'. (v) 1.5' x 1.5'. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of grain. (iv) (a) 1954-1956. (b) No. (c) Nil. (v) (a) At many centres. (b) Nil. (vi) and (vii) Nil.

5. RESULTS :

(i) 164.56 Rs./ac. (ii) 16.02 Rs./ac. (iii) Treatment differences are significant. (iv) Av. value of produce in Rs./ac.

Treatment	R ₁	R ₂	R ₃	R ₄	R ₅	R ₆	R ₇
Av. value	254.93	160.00	129.56	145.29	108.34	117.18	236.60

S.E./mean = 8.01 Rs./ac.

Crop :- Wheat and Gram (Rabi).

Ref :- U.P. 55(362).

Site :- Reg. Res. Sta., Meerut.

Type :- 'X'.

Object :- To study the effect of different ratios of seed rate of Wheat and Gram on their yield.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) (a) Loam. (b) Refer soil analysis, Meerut. (iii) 22.11.1955. (iv) (a) N.A. (b) Line sowing. (c) Wheat at 50 srs./ac. and gram at 30 srs./ac. (d) and (e) N.A. (v) 3 C.L./ac. of F.Y.M.+ 1½ mds./ac. of Super to whole field. (vi) Wheat : Pb.—591 and gram : T.—87. (vii) Irrigated. (viii) and (ix) N.A. (x) 19.4.1956.

2. TREATMENTS :

7 ratios of seed rate of wheat and gram : R₁=Wheat alone, R₂=4 : 1, R₃=3 : 2, R₄= 1 : 1, R₅=2 : 3, R₆= 1 : 4 and R₇= Gram alone.

3. DESIGN :

(i) R.B.D. (ii) (a) 7. (b) N.A. (iii) 4. (iv) (a) 50'×26'. (b) 47'×23'. (v) 1.5'×1.5'. (vi) Yes.

4. GENERAL :

(i) N.A. (ii) Crop affected by yellow rust. (iii) Yield of grain. (iv) (a) 1954—1956. (b) No. (c) Nil. (v) (a) At many centres. (b) Nil. (vi) and (vii) Nil.

5. RESULTS :

(i) 121.79 Rs./ac. (ii) 5.77 Rs./ac. (iii) Treatment differences are highly significant. (iv) Av. value of produce in Rs./ac.

Treatment	R ₁	R ₂	R ₃	R ₄	R ₅	R ₆	R ₇
Av. value	223.16	132.79	103.87	98.23	84.73	83.92	125.84

S.E./mean = 2.89 Rs./ac.

Crop :- Wheat and Gram (Rabi).

Ref :- U.P. 56(382).

Site :- Reg. Res. Sta., Meerut.

Type :- 'X'.

Object :- To study the effect of different ratios of seed rate of Wheat and Gram on their yield.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) (a) Loam. (b) Refer soil analysis, Meerut. (iii) 17.11.1956. (iv) (a) N.A. (b) Wheat and gram sown in alternate lines behind the plough. (c) Wheat at 24 chks./plot and gram at 14 chks./plot. (d) and (e) N.A. (v) 3 C.L./ac. of F.Y.M.+1½ mds./ac. of Super to whole field. (vi) Wheat : Pb.—591 and gram : T.—87. (vii) Irrigated. (viii) and (ix) N.A. (x) 1.5.1957.

2. TREATMENTS to 4. GENERAL :

Same as in expt. no. 55(362) above.

5. RESULTS :

(i) 218.45 Rs./ac. (ii) 25.04 Rs./ac. (iii) Treatment differences are highly significant. (iv) Av. value of produce in Rs./ac.

Treatment	R ₁	R ₂	R ₃	R ₄	R ₅	R ₆	R ₇
Av. value	261.82	209.84	218.51	228.28	224.35	217.90	168.44

S.E./mean = 12.52 Rs./ac.

Crop :- Maize and Urd (Kharif).

Ref :- U.P. 59(513).

Site :- Reg. Res. Stn., Meerut.

Type :- 'X'.

Object :—To study the economy of mixed cropping of Maize and Urd.

1. BASAL CONDITIONS :

(i) (a) No. (b) Wheat. (c) N.A. (ii) (a) Silt loam. (b) Refer soil analysis, Meerut. (iii) 11.7.1959. (iv) (a) 3 ploughings. (b) Behind the plough. (c) Maize at 10 srs./ac. and urd at 6 srs./ac. (d) 2' × 9". (e) 1. (v) F.Y.M. applied at 20 lb./ac. of N before sowing. (vi) Maize : T-41 (medium) and urd : T-9 (late). (vii) Unirrigated. (viii) 2 weedings by *khurpi*, 1 thinning of maize and 1 hoeing by cultivator. (ix) 18.50". (x) Maize : 3.10.1959 and urd : 29.9.1959.

2. TREATMENTS :

7 arrangements of rows : T₁=Maize alone, T₂=Urd alone, T₃=1 lines of maize + 1 line of urd, T₄=2 lines of maize + 1 line of urd, T₅=2 lines of maize + 2 lines of urd, T₆=1 line of maize + 2 lines of urd and T₇=Maize and urd sown mixed.

3. DESIGN :

(i) R.B.D. (ii) (a) 7. (b) 45' × 85'. (iii) 4. (iv) (a) and (b) 45' × 10'. (v) Nil. (vi) Yes.

4. GENERAL :

(i) Poor. (ii) Nil. (iii) Germination % and yield of grain. (iv) (a) 1959—contd. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 132.86 Rs./ac. (ii) 26.20 Rs./ac. (iii) Treatment differences are highly significant. (iv) Av. value of produce in Rs./ac.

Treatment	T ₁	T ₂	T ₃	T ₄	T ₅	T ₆	T ₇
Av. value	210.30	22.51	113.01	139.88	146.17	85.91	212.23

S.E./mean = 13.10 Rs./ac.

Crop :- Wheat and Berseem (Rabi).

Ref :- U.P. 58(451).

Site :- Reg. Res. Stn., Meerut.

Type :- 'X'.

Object :—To study the economy of sowing Berseem mixed with Wheat.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Paddy. (c) 15 lb./ac. of N as A/S. (ii) (a) Silt loam. (b) Refer soil analysis, Meerut. (iii) 5.11.1958. (iv) (a) 5 to 6 ploughings. (b) Wheat sown behind the plough and berseem by broadcast. (c) Wheat at 35 srs./ac. and berseem at 10 srs./ac. (d) Wheat rows 9" apart. (e) N.A. (v) Nil. (vi) Wheat: Pb.—591 (medium) and berseem—Egyptian clover. (vii) Irrigated. (viii) 1 weeding in wheat only. (ix) 8.84". (x) Berseem cuttings from 4.2.1959 to 21.4.1959 and wheat—N.A.

2. TREATMENTS :

T₁=Wheat alone (5 rows of wheat) and T₂=Berseem + wheat (3 rows of wheat).

3. DESIGN :

(i) R.B.D. (ii) (a) 2. (b) 50' × 10'. (iii) 23. (iv) (a) and (b) 50' × 4'. (v) Nil. (vi) Yes.

4. GENERAL :

(i) Not satisfactory. (ii) Nil. (iii) Yield of wheat grain and berseem fodder. (iv) (a) and (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 687.24 Rs./ac. (ii) 93.13 Rs./ac. (iii) Treatment difference is highly significant. (iv) Av. value of produce in Rs./ac.

Treatment	T ₁	T ₂
Av. value	498.78	875.69

S.E./mean = 19.42 Rs./ac.

Crop :- Cotton and Arhar (Kharif).

Ref :- U.P. 58(452).

Site :- Reg. Res. Stn., Meerut.

Type :- 'X'.

Object :- To study the effect of sowing mixed crops of Cotton and Arhar on growth and yield.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Pea. (c) Nil. (ii) (a) Silt loam. (b) Refer soil analysis, Meerut. (iii) 10.6.1958. (iv) (a) 2 ploughings. (b) Line sowing. (c) N.A. (d) Cotton rows 2' apart and arhar as per treatments. (e) 1. (v) 50 mds./ac. of F.Y.M. + 40 srs./ac. of A/S. (vi) Arhar : T-17 (medium) and cotton : 35/1+ (early). (vii) Irrigated. (viii) 3 weedings, 1 interculture by cultivator and thinning. (ix) 51.66". (x) Arhar : 12.5.1959 and cotton : 13, 26.10.1958, 11 and 18.11.1958.

2. TREATMENTS:

5 arrangements of rows : T₁=Cotton alone, T₂=Arhar alone in rows 9' apart, T₃=Alternate rows of cotton and arhar 4½' apart, T₄=2 rows of cotton in between 2 rows of arhar 3' apart and T₅=3 rows of cotton in between 2 rows of arhar each row 2¼' apart.

3. DESIGN :

(i) R.B.D. (ii) (a) 5. (b) 47' × 177'. (iii) 4. (iv) (a) 44' × 33'. (b) 41' × 30'. (v) 1.5' × 1.5'. (vi) Yes.

4. GENERAL :

(i) Poor. (ii) Nil. (iii) Germination %, yield of arhar and cotton. (iv) (a) and (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 274.39 Rs./ac. (ii) 14.49 Rs./ac. (iii) Treatment differences are highly significant. (iv) Av. value of produce in Rs./ac.

Treatment	T ₁	T ₂	T ₃	T ₄	T ₅
Av. value	47.36	314.26	327.36	343.83	339.14

S.E./mean = 7.24 Rs./ac.

Crop :- Arhar and Groundnut (Kharif).

Ref :- U.P. 58(453).

Site :- Reg. Res. Stn., Meerut.

Type :- 'X'.

Object :- To study the effect of P on mixed cropping of Arhar and Groundnut.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) and (c) N.A. (ii) (a) Silt loam. (b) Refer soil analysis, Meerut. (iii) 3.7.1956. (iv) (a) 4 ploughings. (b) Behind the plough. (c) Arhar at 8 to 10 srs/ac. and groundnut at 20 srs/ac. (d) Arhar rows 9' apart and groundnut 2' apart. (e) N.A. (v) Nil. (vi) Arhar : T. 1 (early) and groundnut : T.M. V. 2. (vii) Irrigated. (viii) 2 weedings by khurpi, intercultures and 1 thinning. (ix) 51.66". (x) Groundnut : 9.12.1958 and arhar : 2.1.1959.

2. TREATMENTS :

4 levels of P_2O_5 as Super : $P_0=0$; $P_1=15$; $P_2=30$ and $P_3=45$ lb./ac.
 P_2O_5 applied by placement 3" to 4" deep in bands before sowing.

3. DESIGN :

(i) R.B.D. (ii) (a) 4. (b) $36' \times 98'$. (iii) 4. (iv) (a) and (b) $36' \times 20'$. (v) Nil. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Nil. (iii) Germination %, yield of *arhar* and groundnut. (iv) (a) and (b) No. (e) Nil.
 (v) to (vii) Nil.

5. RESULTS :

(i) 103.19 Rs./ac. (ii) 43.81 Rs./ac. (iii) Treatment differences are not significant. (iv) Av. value of produce in Rs./ac.

Treatment	P_0	P_1	P_2	P_3
Av. value	125.08	74.72	98.16	114.80

S.E./mean = 21.90 Rs./ac.

Crop :- Moong and Maize (Kharif).

Ref :- U.P. 50(454).

Site :- Reg. Res. Stn., Meerut.

Type :- 'X'.

Object :—To study the effect of sowing Maize with wider spacing and mixed with Moong on their yield.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) (a) Silt loam. (b) Refer soil analysis, Meerut. (iii) 18 and 19.7.1958. (iv) (a) 3 ploughings. (b) Dibbling. (c) Maize at 8 srs./ac. and moong at 4 srs./ac. (d) As per treatments. (e) 1 seed/hole for maize and 2 for moong. (v) 1 md./ac. of A/S. (vi) Moong : T-1 and Maize : Hybrid. (vii) Irrigated. (viii) 3 weedings by *khurpi*, 1 thinning and 1 hoeing. (ix) 51.66%. (x) 25.10.1958.

2. TREATMENTS :

3 arrangements of rows : $T_1=2$ rows of moong in between maize rows 3' apart, $T_2=3$ rows of moong in between maize rows 4' apart and $T_3=4$ rows of moong in between maize rows 5' apart.

3. DESIGN :

(i) R.B.D. (ii) (a) 3. (b) $116' \times 40'$. (iii) 8. (iv) (a) and (b) $40' \times 36'$. (v) Nil. (vi) Yes.

4. GENERAL :

(i) Moong : poor and maize : satisfactory. (ii) Nil. (iii) Germination %, yield of maize and moong. (iv) (a) and (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 48.85 Rs./ac. (ii) 10.79 Rs./ac. (iii) Treatment differences are not significant. (iv) Av. value of produce in Rs./ac.

Treatment	T_1	T_2	T_3
Av. value	52.41	47.15	47.00

S.E./mean = 3.82 Rs./ac.

Crop :- Barley and Pea.

Ref :- U.P. 57(498).

Site :- Reg. Res. Stn., Nawabganj.

Type :- 'X'.

Object :—To study the effect of sowing Barley and Pea mixture on growth and yield.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) (a) Clayey loam. (b) Refer soil analysis, Nawabganj. (iii) 10.11.1957. (iv) (a) N.A. (b) Behind the plough in lines. (c) Barley at 30 to 35 srs./ac. and pea at 30 srs./ac. (d) 9" between rows. (e) N.A. (v) N.A. (vi) Barley : K—12 and pea : T—19. (vii) Irrigated. (viii) and (ix) N.A. (x) Barley on 30.3.1958 and pea on 9.3.1958.

2. TREATMENTS :

8 arrangements of barley and pea in lines : T_1 =Barley alone, T_2 =Pea alone, T_3 =Barley and pea in alternate lines, T_4 =1 line of barley+2 lines of pea, T_5 =2 lines of barley+2 lines of pea, T_6 =3 lines of barley+2 lines of pea, T_7 =2 lines of barley+3 lines of pea and T_8 =3 lines of barley+3 lines of pea.

3. DESIGN :

(i) R.B.D. (ii) (a) 8. (b) N.A. (iii) 4. (iv) (a) 28'×41'. (b) 25'×35'. (v) 1.5'×1.5'. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Germination %, date of flowering and yield of grain. (iv) (a) 1957—contd. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 189.07 Rs./ac. (ii) 41.54 Rs./ac. (iii) Treatment differences are highly significant. (iv) Av. value of produce in Rs./ac.

Treatment	T_1	T_2	T_3	T_4	T_5	T_6	T_7	T_8
Av. value	198.25	73.05	205.84	160.04	209.70	223.01	237.33	205.34

S.E./mean = 20.77 Rs./ac.

Crop :- Barley and Pea (Rabi).

Ref :- U.P. 58(458).

Site :- Reg. Res. Stn., Nawabganj.

Type :- 'X'.

Object :- To study the effect of sowing of Barley and Pea on growth and yield.

1. BASAL CONDITIONS :

(i) (a) Paddy—Barley+Pea. (b) Paddy. (c) N.A. (ii) (a) Clayey loam. (b) Refer soil analysis, Nawabganj. (iii) 15.11.1958. (iv) (a) N.A. (b) Behind the plough in rows. (c) Each at 40 srs./ac. (d) Rows 9" apart. (e) N.A. (v) Nil. (vi) Barley : K—12 and pea : T—19. (vii) 18.12.1958. (viii) and (ix) N.A. (x) 28 and 29.3.1959.

2. TREATMENTS :

7 mixed cropping treatments : T_1 =Barley alone, T_2 =Pea alone, T_3 =Alternate rows of barley and pea. T_4 =2 rows of barley+1 row of pea, T_5 =2 rows of barley+2 rows of pea, T_6 =2 rows of barley+3 rows of pea and T_7 =Barley and pea sown mixed by broadcast.

3. DESIGN :

(i) R.B.D. (ii) (a) 7. (b) N.A. (iii) 4. (iv) (a) and (b) 30'×36'. (v) Nil. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Germination %, number of tillers, height of plant and yield of grain. (iv) (a) 1957—contd. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 139.62 Rs./ac. (ii) 16.79 Rs./ac. (iii) Treatment differences are highly significant. (iv) Av. value of produce in Rs./ac.

Treatment	T_1	T_2	T_3	T_4	T_5	T_6	T_7
Av. value	163.54	103.24	128.05	165.55	149.73	128.35	138.84

S.E./mean = 8.39 Rs./ac.

Crop :- Barley and Pea (Rabi).**Ref :- U.P. 59(516).****Site :- Reg. Res. Stn., Nawabganj.****Type :- 'X'.**

Object :—To study the effect of mixed sowing of Barley and Pea on growth and yield.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Paddy. (c) N.A. (ii) (a) Clayey loam. (b) Refer soil analysis, Nawabganj. (iii) 25 and 26.11.1959. (iv) (a) N.A. (b) Behind the plough. (c) Each at 40 srs./ac. (d) Rows 9" apart. (e) N.A. (v) B.M. at 3 mds./ac.+A/S at 25 srs./ac. (vi) Barley : K.12 and pea : T.19. (vii) Irrigated. (viii) and (ix) N.A. (x) Pea on 24.3.1960 and barley on 3.4.1960.

2. TREATMENTS :

Same as in expt. no. 58(458) on page 1585.

3. DESIGN :

(i) R.B.D. (ii) (a) 7. (b) N.A. (iii) 4. (iv) (a) and (b) 21' x 51'. (v) Nil. (vi) Yes.

4. GENERAL :

(i) N.A. (ii) Slight attack of yellow rust in barley. (iii) Germination %, growth characters and yield of grain. (iv) (a) 1957—contd. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 117.00 Rs./ac. (ii) 19.72 Rs./ac. (iii) Treatment differences are highly significant. (iv) Av. value of produce in Rs./ac.

Treatment	T ₁	T ₂	T ₃	T ₄	T ₅	T ₆	T ₇
Av. value	145.80	22.37	151.60	136.85	119.57	116.62	126.18

S.E./mean = 9.86 Rs./ac.

Crop :- Gram and Pea (Rabi).**Ref :- U.P. 59(514).****Site :- Reg. Res. Stn., Nawabganj.****Type :- 'X'.**

Object :—To study the effect of P on the yield of Legumes.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Paddy. (c) N.A. (ii) (a) Clayey loam. (b) Refer soil analysis, Nawabganj. (iii) 22.11.1959. (iv) (a) and (b) N.A. (c) 30 srs./ac. (d) Rows 1' apart. (e) N.A. (v) Nil. (vi) Gram : T—87 and pea : T—163. (vii) Irrigated. (viii) and (ix) N.A. (x) Gram : 15 to 18.4.1960. and pea 15 to 18.3.1960.

2. TREATMENTS :

All combinations of (1) and (2)

(1) 3 levels of P₂O₅ : P₀=0, P₁=40, and P₂=80 lb./ac.(2) 2 legumes : L₁=Gram and L₂=Pea.**3. DESIGN :**

(i) Fact. in R.B.D. (ii) (a) 6. (b) N.A. (iii) 3. (iv) (a) and (b) 24' x 30'. (v) Nil. (vi) Yes.

4. GENERAL :

(i) Satisfactory. (ii) N.A. (iii) Yield of grain and straw. (iv) (a) and (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 175.83 Rs./ac. (ii) 19.24 Rs./ac. (iii) Main effects of L and P are highly significant. (iv) Av. value of produce in Rs./ac.

	P ₀	P ₁	P ₂	Mean
L ₁	199.55	223.89	244.32	222.59
L ₂	115.78	112.95	158.47	129.07
Mean	157.66	168.42	201.40	175.83

S.E. of L marginal mean = 6.41 Rs./ac.

S.E. of P marginal mean = 7.85 Rs./ac.

S.E. body of table = 11.1 Rs./ac.

Crop :- Wheat and Hubum Clover (Rabi).

Ref :- U.P. 57(422).

Site :- Reg. Res. Stn., Nawabganj.

Type :- 'X'.

Object :— To find out the effect of mixed sowing of Wheat with Hubum Clover on their yield.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) (a) Clayey loam. (b) Refer soil analysis, Nawabganj. (iii) 23.11.1957. (iv) (a) N.A. (b) Behind the plough. (c) Wheat at 80 lb./ac. and hubum clover at 5 lb./ac. (d) Rows 9" apart. (e) N.A. (v) A/S at 1 lb./bed on 2.1.1958. (vi) Wheat : C—13 (early). (vii) 12.2.1958. (viii) 1 weeding. (ix) N.A. (x) Wheat on 18.4.1958 and hubum clover on 18.5.1958.

2. TREATMENTS :

T₁=Wheat alone and T₂=Wheat+hubum clover in alternate rows.

3. DESIGN :

(i) Paired-plot. (ii) (a) 2. (b) N.A. (iii) 12. (iv) (a) and (b) 18'×30'. (v) Nil. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of grain and straw. (iv) (a) and (b) N.A. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 166.81 Rs./ac. (ii) 13.29 Rs./ac. (iii) Treatment difference is highly significant. (iv) Av. value of produce in Rs./ac.

Treatment	T ₁	T ₂
Av. value	177.20	156.43

S.E./mean = 3.84 Rs./ac.

Crop :- Arhar and Cotton (Kharif).

Ref :- U.P. 54(315).

Site :- Govt. Cotton Res. Sub-Stn., Raya.

Type :- 'X'.

Object :— To study the effect of different ratios of seed rates of Arhar and Cotton on their yield.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) (a) Loam to sandy loam. (b) Refer soil analysis, Raya. (iii) N.A. (iv) (a) and (b) N.A. (c) Arhar at 2 srs./ac. and cotton at 6 srs./ac. (d) and (e) N.A. (v) 100 to 150 mds./ac. of F.Y.M.+ 30 srs./ac. of Super+15 srs./ac. of A/S. (vi) to (x) N.A.

2. TREATMENTS :

7 seed rate ratios of arhar and cotton : R₁=Cotton alone, R₂=1 : 4, R₃=2 : 3, R₄=1 : 1, R₅=3 : 2, R₆=4 : 1 and R₇=Arhar alone.

3. DESIGN :

(i) R.B.D. (ii) (a) 7. (b) N.A. (iii) 4. (iv) (a) 32'×28'. (b) 29'×25'. (v) 1.5'×1.5'. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of grain. (iv) (a) to (c) N.A. (v) to (vii) Nil.

5. RESULTS :

(i) 91.93 Rs./ac. (ii) 89.34 Rs./ac. (iii) Treatment differences are not significant. (iv) Av. value of produce in Rs./ac.

Treatment	R ₁	R ₂	R ₃	R ₄	R ₅	R ₆	R ₇
Av. value	62.34	91.48	56.03	184.90	56.93	98.54	93.28

S.E./mean = 44.67 Rs./ac.

Crop :- Gram and Barley (Rabi).

Ref :- U.P. 57(359).

Site :- State Soil Cons. Res., Demons. & Trg. Centre, Rehmankhara. Type :- 'X'.

Object :- To determine the effect of levelling and bunding on the moisture content of the soil when green manured or kept bare fallow.

1. BASAL CONDITIONS :

(i) (a) to (c) Nil. (ii) (a) Loamy sand. (b) Refer soil analysis, Rehmankhara. (iii) 9.10.1957. (iv) (a) 1 ploughing by *desi* plough. (b) Line sowing by hand hoe. (c) 40 srs./ac. (d) Rows 9" apart. (e) N.A. (v) G.M. (vi) Barley : K-12 (medium) and gram : T-87 (medium). (vii) Unirrigated. (viii) 1 hoeing and 1 weeding. (ix) and (x) N.A.

2. TREATMENTS :

Main-plot treatments :

2 levels of G.M. : M₀=Fallow and M₁=Green manure.

Sub-plot treatments :

4 cultural treatments : T₁=Unlevelled plot with bund around it, T₂=Levelled plot with bund around it, T₃=Levelled plot with no bund and T₄=Unlevelled with no bund.

3. DESIGN :

(i) Split-plot. (ii) (a) 2 main-plots/replication ; 4 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) 46' × 24'. (b) 44' × 22'. (v) 1' × 1'. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of grain. (iv) (a) 1957—contd. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 520 lb./ac. (ii) (a) 422.7 lb./ac. (b) 128.2 lb./ac. (iii) Main effect of T alone is significant. (iv) Av. yield of grain mixture in lb./ac.

	T ₁	T ₂	T ₃	T ₄	Mean
M ₀	455	477	623	506	515
M ₁	378	644	602	479	525
Mean	416	560	612	492	520

S.E. of difference of two

- | | |
|-----------------------------------|-----------------|
| 1. M marginal means | = 194.4 lb./ac. |
| 2. T marginal means | = 64.1 lb./ac. |
| 3. T means at the same level of M | = 90.7 lb./ac. |
| 4. M means at the same level of T | = 168.8 lb./ac. |

Crop :- Gram, Barley and Rai (Rabi).

Ref :- U.P. 58(322).

Site :- State Soil Cons. Res., Demons. & Trg. Centre, Rehmankhara. Type :- 'X'.

Object :—To determine the effect of levelling and bunding on the moisture content of the soil when green manured or kept bare fallow.

1. BASAL CONDITIONS :

(i) (a) to (c) Nil. (ii) (a) Loamy sand. (b) Refer soil analysis, Rehmankhara. (iii) N.A. (iv) (a) 1 ploughing by *desi* plough. (b) Line sowing by hand hoe. (c) 40 srs./ac. (d) Rows 9" apart. (e) N.A. (v) G.M. (vi) Barley : K—12 (medium) and gram : T—87 (medium). (vii) Unirrigated. (viii) 1 hoeing and 1 weeding. (ix) N.A. (x) 28 to 30.3.1959.

2. TREATMENTS :

Main-plot treatments :

2 levels of G.M. : M_0 = Fallow and M_1 = Green manure.

Sub-plot treatments :

4 cultural treatments : T_1 = Unlevelled plot with bund around it, T_2 = Levelled plot with bund around it, T_3 = Levelled plot with no bund and T_4 = Unlevelled plot with no bund.

3. DESIGN :

(i) Split-plot. (ii) (a) 2 main-plots/replication ; 4 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) 46' x 24'. (b) 42' x 20'. (v) 2' x 2'. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of grain. (iv) (a) 1957—contd. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 1418 lb./ac. (ii) (a) 256.7 lb./ac. (b) 140.1 lb./ac. (iii) None of the effects is significant. (iv) Av. yield of grain mixture in lb./ac.

	T_1	T_2	T_3	T_4	Mean
M_0	1407	1502	1579	1430	1480
M_1	1263	1340	1474	1352	1357
Mean	1335	1421	1526	1391	1418

S.E. of difference of two

- | | |
|-----------------------------------|-----------------|
| 1. M marginal means | = 90.8 lb./ac. |
| 2. T marginal means | = 70.0 lb./ac. |
| 3. T means at the same level of M | = 99.0 lb./ac. |
| 4. M means at the same level of T | = 124.9 lb./ac. |

Crop :- Gram, Barley and Rai (Rabi).

Ref :- U.P. 59(358).

Site :- State Soil Cons. Res., Demons. & Trg. Centre, Rehmankhara. Type :- 'X'.

Object :—To determine the effect of levelling and bunding on the moisture content of the soil when green manured or kept bare fallow.

1. BASAL CONDITIONS :

(i) (a) to (c) Nil. (ii) (a) Loamy sand. (b) Refer soil analysis, Rehmankhara. (iii) 12.7.1959. (iv) (a) to (e) N.A. (v) Nil. (vi) Barley : K—12 (medium) and gram : T—87 (medium). (vii) Unirrigated. (viii) 1 hoeing and 1 weeding. (ix) and (x) N.A.

2. TREATMENTS to 4. GENERAL :

Same as in expt. no. 58(322) above.

5. RESULTS :

(i) 555 lb./ac. (ii) (a) 634.9 lb./ac. (b) 185.8 lb./ac. (iii) Main effect of T alone is highly significant. (iv) Av. yield of grain mixture in lb./ac.

	T ₁	T ₂	T ₃	T ₄	Mean
M ₀	581	702	492	402	544
M ₁	482	846	556	378	566
Mean	532	774	524	390	555

S.E. of difference of two

1. M marginal means = 224.5 lb./ac.
2. T marginal means = 92.9 lb./ac.
3. T means at the same level of M = 131.4 lb./ac.
4. M means at the same level of T = 251.7 lb./ac.

Crop :- Maize and Anjana Grass.

Ref :- U.P. 58(321).

Site :- State Soil Cons. Res., Demons. & Trg. Centre, Rehmankhara. Type :- 'X'.

Object :- To determine the ratio between the width of Maize (erosion permitting) and Anjana grass (erosion resisting) in field stripping as well as the suitable width of strips within the same ratio.

1. BASAL CONDITIONS :

(i) (a) to (c) Nil. (ii) (a) Loamy sand. (b) Refer soil analysis, Rehmankhara. (iii) N.A. (iv) (a) 2 to 3 ploughings by *desi* plough. (b) As per treatments. (c) Maize at 8 srs./ac. (d) 1.5' × 9". (e) N.A. (v) N.A. (vi) T-41. (vii) Unirrigated. (viii) to (x) N.A.

2. TREATMENTS :

8 measurements of maize and anjana grass in row length of 80' : T₁ = Maize 72' + anjana grass 8', T₂ = Maize 36' + anjana grass 4', T₃ = Maize 18' + anjana grass 2', T₄ = Maize 64' + anjana grass 16', T₅ = Maize 32' + anjana grass 8', T₆ = Maize 16' + anjana grass 4', T₇ = Maize alone 80' and T₈ = Anjana grass alone 80'.

In the 80' long row, along the slope, first maize crop and then anjana grass are sown in one set as in T₁ and T₄, in two sets of 40' each as in T₂ and T₅ and in four sets of 20' each as in T₃ and T₆.

3. DESIGN :

(i) R.B.D. (ii) (a) 8. (b) N.A. (iii) 3. (iv) (c) 80' × 22'. (b) 76' × 18'. (v) 2' × 2'. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of maize grain. (iv) (a) 1958—contd. (b) N.A. (c) Nil. (v) and (vi) Nil. (vii) The yield of treatment T₃ in one replication was missing and was calculated by using missing plot technique.

5. RESULTS :

(i) 698 lb./ac. (ii) 353.0 lb./ac. (iii) Treatment differences are not significant. (iv) Av. yield of maize grain in lb./ac.

Treatment	T ₁	T ₂	T ₃	T ₄	T ₅	T ₆	T ₇
Av. yield	601	1008	465	696	631	589	893

S.E./mean (excluding T₃) = 203.8 lb./ac.

S.E. of T₃ mean = 256.4 lb./ac.

Crop :- Maize and Anjana grass (Kharif).

Ref :- U.P. 59(357).

Site :- State Soil Cons. Res., Demons. & Trg. Centre, Rehmankhara. Type :- 'X'.

Object :-To determine the ratio between the width of Maize (erosion permitting) and Anjana grass (erosion resisting) in field stripping as well as the suitable width of strips within the same ratio.

1. BASAL CONDITIONS :

(i) (a) to (c) No. (ii) (a) Loamy sand. (b) Refer soil analysis, Rehmankhara. (iii) 12.7.1959. (iv) (a) 2 to 3 ploughings by *desi* plough. (b) As per treatments. (c) Maize at 8 srs./ac. (d) 1.5' x 9". (e) N.A. (v) 60 lb./ac. of N as compost. (vi) Maize : T-41. (vii) Unirrigated. (viii) Weeding and interculture. (ix) N.A. (x) Maize : 26.9.1959.

2. TREATMENTS and 3. DESIGN :

Same as in expt. no. 58(321) on page 1590.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of maize grain. (iv) (a) 1958—contd. (b) N.A. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 1609 lb./ac. (ii) 335.7 lb./ac. (iii) Treatment differences are not significant. (iv) Av. yield of maize grain in lb./ac.

Treatment	T ₁	T ₂	T ₃	T ₄	T ₅	T ₆	T ₇
Av. yield	1791	1801	1131	1816	1637	1191	1892

S.E./mean = 193.8 lb./ac.

Crop :- Grass, Jowar and Arhar.

Ref :- U.P. 58(325).

Site :- State Soil Cons. Res., Demons. & Trg. Centre, Rehmankhara. Type :- 'X'.

Object :-To study the effect of mixed cropping of Grasses, Jowar and Arhar on their yield.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) (a) Loamy sand. (b) Refer soil analysis, Rehmankhara. (iii) to (v) N.A. (vi) Grasses : as per treatments. Others—N.A. (vii) Unirrigated. (viii) and (ix) N.A. (x) *Jowar* on 1, 8.12.1958 and *arhar* on 16.4.1959.

2. TREATMENTS :

6 mixture crops : M₁=*Anjana* alone, M₂=*Blue panic* alone, M₃=*Anjana*+wild bean, M₄=*Blue panic*+wild bean, M₅=*Barley* alone and M₆=*Jowar*+*arhar*.

3. DESIGN :

(i) R.B.D. (ii) (a) 6. (b) N.A. (iii) 4. (iv) (a) and (b) 50'5" x 36'. (v) Nil. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield and money value of produce. (iv) (a) 1958—contd. (b) N.A. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 53.21 Rs./ac. (ii) 17.69 Rs./ac. (iii) Treatment differences are highly significant. (iv) Av. value of produce in Rs./ac.

Treatment	M ₁	M ₂	M ₃	M ₄	M ₅	M ₆
Av. value	33.88	55.33	25.60	25.96	109.83	68.66

S.E./mean = 8.85 Rs./ac.

Crop :- Grasses, Jowar and Arhar
 Site :- State Soil Cons. Res. Demons. & Trg. Centre, Rehmankhhera

Crop :- Grasses, Jowar and Arhar Ref :- U.P. 59(362).
Site :- State Soil Cons. Res., Demons. & Trg. Centre, Rehmankhhera. Type :- 'X'.

Object :- To study the effect of mixed cropping of Grasses, Jowar and Arhar on their yield.

1. **BASAL CONDITIONS:** (i) (a) to (c) N.A. (ii) (a) Loamy sand. (b) Refer soil analysis, Rehmankhhera. (iii) 30 lb. N.A. (vi) Gram : as per treatments. Others: N.A. (vii) Unirrigated. (viii) and (ix) N.A. (x) 28.8.1959 to 10.5.1960.

2. **TREATMENTS and 3. DESIGN :**
 Same as in expt. no. 58(325) on page 1591.

4. **GENERAL :** (i) and (ii) N.A. (iii) Crop yield and money value. (iv) (a) 1958—contd. (b) N.A. (c) Nil. (v) and (vi) Nil. (vii) Data for M_4 is N.A. and hence it is dropped from analysis.

5. **RESULTS :**
 (i) 23.88 Rs./ac. (ii) 11.24 Rs./ac. (iii) Treatment differences are not significant. (iv) Av. value of produce in Rs./ac.

Treatment	M_1	M_2	M_3	M_4	M_5
Av. value	23.81	21.74	24.22	16.69	32.95

S.E./mean = 5.62 Rs./ac.

Crop :- Grasses, Jowar and Arhar
 Site :- State Soil Cons. Res. Demons. & Trg. Centre, Rehmankhhera. Type :- 'X'

Object :- To study the economics of various rotations under dry farming conditions

Crop :- Jowar and Arhar (Kharif). Ref :- U.P. 59(359).
Site :- State Soil Cons. Res., Demons. & Trg. Centre, Rehmankhhera. Type :- 'X'.

1. **BASAL CONDITIONS :** (i) (a) to (c) As per treatments. (ii) (a) Loamy sand. (b) Refer soil analysis, Rehmankhhera. (iii) N.A. (iv) (a) N.A. (b) Line sowing. (c) Jowar at 7 srs./ac. and arhar at 3 srs./ac. (d) Jowar : 14' line to line and arhar : 9" line to line. (e) N.A. (v) 30 lb./ac. of N as A/S broadcast and mixed with khurpi. (vi) to (x) N.A.

2. **TREATMENTS :**
Main-plot treatments :
 4 levels of manure : M_1 =Cultivated fallow without manure, M_2 =Cultivated fallow with 40 lb./ac. of N as A/S, M_3 =Sanai ploughed in the middle of August and M_4 =Sanai cut and laid uniformly in the middle of August.
Sub-plot treatments :
 4 rotations : R_1 =Jowar+arhar-wheat, R_2 =Jowar+arhar-barley, R_3 =Jowar+arhar-wheat+gram and R_4 =Jowar+arhar-wheat+gram+barley.

3. **DESIGN :** (i) Split-plot. (ii) (a) 4 main-plots/replication and 4 sub-plots/main-plot. (b) N.A. (iii) 3. (iv) (a) 29'x24'. (b) 25'x20'. (v) 2'x2'. (vi) Yes.

4. **GENERAL :** (i) and (ii) N.A. (iii) Yield of grain. (iv) to (vi) N.A. (viii) Farm harvest prices are not available.

5. **RESULTS :**
 (i) 582 lb./ac. (ii) (a) 764.5 lb./ac. (b) 380.0 lb./ac. (iii) None of the effects is significant. (iv) Av. yield of grain mixture in lb./ac.

	R ₁	R ₂	R ₃	R ₄	Mean
M ₁	272	298	754	418	436
M ₂	541	590	1127	600	715
M ₃	660	723	862	400	661
M ₄	683	534	515	336	517
Mean	539	536	815	438	582

S.E. of difference of two

1. M marginal means = 312.1 lb./ac.
2. R marginal means = 155.8 lb./ac.
3. R means at the same level of M = 310.3 lb./ac.
4. M means at the same level of R = 411.9 lb./ac.

Crop :- Maize and Groundnut (Kharif). Ref :- U.P. 57(360).

Site :- State Soil Cons. Res., Demons. & Trg. Centre, Rehmankhara. Type :- 'X'.

Object :- To determine the ratio between width of Maize (row crop) and Groundnut (close growing crop) in the field stripping.

1. BASAL CONDITIONS :

- (i) (a) Nil. (b) and (c) N.A. (ii) (a) Loamy sand. (b) Refer soil analysis, Rehmankhara. (iii) 23 and 24.7.1957.
- (iv) (a) 3 ploughings. (b) Sown in lines. (c) Groundnut at 25 srs./ac. and maize at 8 srs./ac. (d) 1.5' x 1.5'.
- (e) N.A. (v) 8 truck load of T.C. (vi) Maize : T-41 and groundnut : local. (vii) Unirrigated. (viii) Hoeing and weeding. (ix) N.A. (x) Groundnut : 14 to 17.9.1957 and maize : 18.11.1957.

2. TREATMENTS :

7 lengths of strips : S₁=Groundnut 30' and maize 30', S₂=Groundnut 20' and maize 40', S₃=Groundnut 15' and maize 45', S₄=Groundnut 40' and maize 20', S₅=Groundnut 45' and maize 15', S₆=Groundnut 120' and S₇=Maize 120'.

Groundnut always kept at the bottom of the slope.

3. DESIGN :

- (i) R.B.D. (ii) (a) 7. (b) N.A. (iii) 4. (iv) (a) 120' x 22'. (b) 116' x 18'. (v) 2' x 2'. (vi) Yes.

4. GENERAL :

- (i) Good. (ii) Attack of birds and jackals. (iii) Yield of grain. (iv) (a) 1957—contd. (b) N.A. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

- (i) 144.35 Rs./ac. (ii) 51.64 Rs./ac. (iii) Treatment differences are not significant. (iv) Av. value of produce in Rs./ac.

Treatment	S ₁	S ₂	S ₃	S ₄	S ₅	S ₆	S ₇
Av. value	174.57	177.12	142.54	125.90	151.62	102.64	136.08

S.E./mean = 25.82 Rs./ac.

Crop :- Maize and groundnut (Kharif).

Ref :- U.P. 58(320).

Site :- State Soil Cons. Res., Demons. & Trg. Centre, Rehmankhara. Type :- 'X'.

Object :- To determine the ratio between width of Maize (row crops) and Groundnut (close growing crop) in the field stripping.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) (a) Loamy sand. (b) Refer soil analysis, Rehmankhara. (iii) 17.7.1958. (iv) to (vii) N.A. (viii) 1 weeding and hoeing in maize. (ix) and (x) N.A.

2. TREATMENTS to 4. GENERAL :

Same as in expt. no. 57(360) on page 1593.

5. RESULTS :

(i) 213.67 Rs./ac. (ii) 44.92 Rs./ac. (iii) Treatment differences are not significant. (iv) Av. value of produce in Rs./ac.

Treatment	S ₁	S ₂	S ₃	S ₄	S ₅	S ₆	S ₇
Av. value	244.40	218.69	183.95	213.57	202.52	261.35	171.22

S.E./mean = 22.46 Rs./ac.

Crop :- Maize and Groundnut (Kharif).

Ref :- U.P. 59(360).

Site :- State Soil Cons. Res. Demons. & Trg. Centre, Rehmankhara. Type :- 'X'.

Object :—To determine the ratio between width of Maize (row crop) and Groundnut (close growing crop) in field stripping.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) (a) Loamy sand. (b) Refer soil analysis, Rehmankhara. (iii) N.A. (iv) (a) 6 ploughings and planking. (b) Sown in lines. (c) Maize at 10 srs./ac. and groundnut at 26 srs./ac. (d) and (e) N.A. (v) to (ix) N.A. (x) Maize on 29, 30.9.1959 and groundnut on 23 to 28.11.1959.

2. TREATMENTS to 4. GENERAL :

Same as in expt. no. 57(360) on page 1593.

5. RESULTS :

(i) 107.99 Rs./ac. (ii) 49.52 Rs./ac. (iii) Treatment differences are not significant. (iv) Av. value of produce in Rs./ac.

Treatment	S ₁	S ₂	S ₃	S ₄	S ₅	S ₆	S ₇
Av. value	123.66	118.97	106.45	102.75	121.68	83.87	98.52

S.E./mean = 24.76 Rs./ac.

Crop :- Wheat and Gram (Rabi).

Ref :- U.P. 54(307).

Site :- Reg. Res. Stn., Varanasi.

Type :- 'X'.

Object :—To study the effect of different seed rate ratios of Wheat and Gram on their yield.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Paddy. (c) N.A. (ii) (a) Loam soil. (b) Refer soil analysis, Varanasi. (iii) 29 and 30.11.1954. (iv) (a) 4 principal cultivations. (b) By hand. (c) to (e) N.A. (v) N.A. (vi) Wheat : N.P.—52 and Gram : T.—87. (vii) to (ix) N.A. (x) 30.3.1955.

2. TREATMENTS :

7 ratios of seed rate wheat and gram : R₁=Wheat alone, R₂=4 : 1, R₃=3 : 2, R₄=1 : 1, R₅=2 : 3, R₆=1 : 4, and R₇=Gram alone.

3. DESIGN :

(i) R.B.D. (ii) (a) 7. (b) N.A. (iii) 4. (iv) (a) 42'×33'. (b) 39'×30'. (v) 1.5'×1.5'. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of grain. (iv) (a) 1954—1956. (b) N.A. (c) Nil. (v) (a) At many centres. (b) Nil. (vi) and (vii) Nil.

5. RESULTS :

(i) 103.43 Rs./ac. (ii) 12.49 Rs./ac. (iii) Treatment differences are highly significant. (iv) Av. value of produce in Rs./ac.

Treatment	R ₁	R ₂	R ₃	R ₄	R ₅	R ₆	R ₇
Av. value	116.06	119.51	108.71	100.89	108.90	106.38	63.57

S.E./mean = 6.24 Rs./ac.

Crop :- Wheat and Gram (Rabi).

Ref :- U.P. 55(394).

Site :- Reg. Res. Stn., Varanasi.

Type :- 'X'.

Object :—To study the effect of different seed rate ratios of Wheat and Gram on their yield.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) (a) Light loam. (b) Refer soil analysis, Varanasi. (iii) N.A. (iv) (a) N.A. (b) In alternate lines behind the plough. (c) Wheat at 50 srs./ac. and gram at 30 srs./ac. (d) and (e) N.A. (v) F.Y.M. applied 2 to 3 weeks before sowing. Super placed at a depth of 3" to 4" in furrows behind the plough, a couple of days before sowing. (vi) to (x) N.A.

2. TREATMENTS :

Same as in expt. no. 54(307) on page 1594.

3. DESIGN :

(i) R.B.D. (ii) (a) 7. (b) N.A. (iii) 4. (iv) (a) 41' × 33'. (b) 38' × 30'. (v) 1.5' × 1.5'. (vi) Yes.

4. GENERAL :

Same as in expt. no. 54(307) on page 1594.

5. RESULTS :

(i) 158.24 Rs./ac. (ii) 25.96 Rs./ac. (iii) Treatment differences are highly significant. (iv) Av. value of produce in Rs./ac.

Treatment	R ₁	R ₂	R ₃	R ₄	R ₅	R ₆	R ₇
Av. value	186.94	203.28	176.43	175.57	151.41	132.59	81.48

S.E./mean = 12.98 Rs./ac.

Crop :- Wheat and Gram (Rabi).

Ref :- U.P. 56(475).

Site :- Reg. Res. Stn., Varanasi.

Type :- 'X'.

Object :—To study the effect of different seed rate ratios of Wheat and Gram on their yield.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Paddy. (c) N.A. (ii) (a) Light loam. (b) Refer soil analysis, Varanasi. (iii) 23.11.1956. (iv) (a) 4 ploughings. (b) In alternate lines behind the plough. (c) Wheat at 50 srs./ac. and gram at 30 srs./ac. (d) and (e) N.A. (v) N.A. (vi) Wheat : N.P.—52 (early) and gram : T—87. (vii) Irrigated. (viii) and (ix) N.A. (x) 10.4.1957.

2. TREATMENTS :

Same as in expt. no. 54(307) on page 1594.

3. DESIGN :

(i) R.B.D. (ii) (a) 7. (b) N.A. (iii) 4. (iv) (a) 41' × 33'. (b) 38' × 30'. (v) 1.5' × 1.5'. (vi) Yes.

4. GENERAL :

Same as in exp. no. 54(307) on page 1594.

5. RESULTS :

(i) 213.94 Rs./ac. (ii) 44.47 Rs./ac. (iii) Treatment differences are highly significant. (iv) Av. value of produce in Rs./ac.

Treatment	R ₁	R ₂	R ₃	R ₄	R ₅	R ₆	R ₇
Av. value	288.39	257.92	244.45	216.46	207.96	178.35	104.03

S.E./mean = 22.24 Rs./ac.

Crop :- Wheat and Gram (Rabi).

Ref :- U.P. 58(471).

Site :- Reg. Res. Stn., Varanasi.

Type :- 'X'.

Object :—To study the effect of sowing Wheat and Gram mixed in different combinations.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Maize. (c) N.A. (ii) (a) Clayey loam. (b) Refer soil analysis, Varanasi. (iii) 14.11.1958. (iv) (a) 1 tractor harrowing. (b) Behind the plough in lines. (c) 30 srs./ac. (d) Row to row 9". (e) N.A. (v) and (vi) N.A. (vii) Irrigated. (viii) 1 weeding. (ix) N.A. (x) 6.4.1959.

2. TREATMENTS :

8 arrangements of rows : T₁=Wheat alone, T₂=Gram alone, T₃=Wheat and gram in alternate rows, T₄=1 row of wheat and 2 rows of gram, T₅=2 rows of wheat and 2 rows of gram, T₆=3 rows of wheat and 2 rows of gram, T₇=2 rows of wheat and 3 rows of gram and T₈=3 rows of wheat and 3 rows of gram.

3. DESIGN :

(i) R.B.D. (ii) (a) 8. (b) N.A. (iii) 4. (iv) (a) and (b) 40'×13.5'. (v) Nil. (vi) Yes.

4. GENERAL :

(i) Gram crop almost failed due to heavy rains. (ii) N.A. (iii) Yield of grain and straw. (iv) (a) 1957—1958. (b) N.A. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 276.57 Rs./ac. (ii) 35.93 Rs./ac. (iii) Treatment differences are highly significant. (iv) Av. value of produce in Rs./ac.

Treatment	T ₁	T ₂	T ₃	T ₄	T ₅	T ₆	T ₇	T ₈
Av. value	397.50	69.17	318.04	260.36	275.29	299.08	305.13	287.99

S.E./mean = 17.96 Rs./ac.

Crop :- Barley and Pea (Rabi).

Ref :- U.P. 54(300).

Site :- Reg. Res. Stn., Varanasi.

Type :- 'X'.

Object :—To study the effect of different seed rate ratios of Barley and Pea on their yield.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) (a) Loam soil. (b) Refer soil analysis, Varanasi. (iii) 29 and 30.11.1954. (iv) (a) 4 principal cultivations. (b) Behind the plough. (c) Barley at 40 srs./ac. and pea at 40 srs./ac. (d) and (e) N.A. (v) 45 mds. of well decayed F.Y.M. or compost applied 2 to 3 weeks before sowing. (vi) Barley : C—251 and pea : T—163. (vii) Irrigated. (viii) and (ix) N.A. (x) 25.3.1955 and 28.3.1955.

2. TREATMENTS :

7 seed rate ratios of barley and pea : R_1 =Barley alone, $R_2=4:1$, $R_3=3:2$, $R_4=1:1$, $R_5=2:3$, $R_6=1:4$ and R_7 =Pea alone.

3. DESIGN :

(i) R.B.D. (ii) (a) 7. (b) N.A. (iii) 4. (iv) (a) $42' \times 33'$. (b) $39' \times 30'$. (v) $1.5' \times 1.5'$. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of grain. (iv) (a) 1954—1956. (b) N.A. (c) Nil. (v) (a) At many centres. (b) Nil. (vi) and (vii) Nil.

5. RESULTS :

(i) 150.27 Rs./ac. (ii) 21.60 Rs./ac. (iii) Treatment differences are highly significant. (iv) Av. value of produce in Rs./ac.

Treatment	R_1	R_2	R_3	R_4	R_5	R_6	R_7
Av. value	109.09	139.34	157.30	153.76	143.43	169.87	179.08

S.E./mean = 10.80 Rs./ac.

Crop :- Barley and Pea (Rabi).

Ref :- U.P. 55(395).

Site :- Reg. Res. Sta., Varanasi.

Type :- 'X'.

Object :—To study the effect of different seed rate ratios of Barley and Pea on their yield.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Gram. (c) N.A. (ii) (a) Light loam. (b) Refer soil analysis, Varanasi. (iii) 6.11.1955. (iv) (a) 1 ploughing. (b) Behind the plough. (c) Barley at 40 srs./ac. and pea at 40 srs./ac. (d) and (e) N.A. (v) F.Y.M. and Super. (vi) Barley : K—12 (early) and pea : T—163 (medium). (vii) Irrigated. (viii) and (ix) N.A. (x) 24.3.1956.

2. TREATMENTS :

Same as in expt. no. 54(300) on page 1596.

3. DESIGN :

(i) R.B.D. (ii) (a) 7. (b) N.A. (iii) 4. (iv) (a) $41' \times 33'$. (b) $38' \times 30'$. (v) $1.5' \times 1.5'$. (vi) Yes.

4. GENERAL :

Same as in expt. no. 54(300) on page 1596.

5. RESULTS :

(i) 233.46 Rs./ac. (ii) 33.98 Rs./ac. (iii) Treatment differences are significant. (iv) Av. value of produce in Rs./ac.

Treatment	R_1	R_2	R_3	R_4	R_5	R_6	R_7
Av. value	273.58	266.71	222.48	246.74	209.30	217.13	198.31

S.E./mean = 16.99 Rs./ac.

Crop :- Barley and Pea (Rabi).

Ref :- U.P. 56(474).

Site :- Reg. Res. Sta., Varanasi.

Type :- 'X'.

Object :—To study the effect of different seed rate ratios of Barley and Pea on their yield.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) (a) Light loam. (b) Refer soil analysis, Varanasi (iii) 24.11.1956. (iv) (a) 6 ploughings. (b) Behind the plough in alternate lines. (c) Barley at 40 srs./ac. and pea at 40 srs./ac. (d) and (e) N.A. (v) F.Y.M. at 50 mds /ac. + $1\frac{1}{2}$ mds. of Super placed at a depth of 3" to 4" in furrows behind the plough a couple of days before sowing. (vi) Barley : K—12 (early) and pea : T-163 (medium). (vii) Irrigated. (viii) and (ix) N.A. (x) 28.3.1957.

2. TREATMENTS :

Same as in expt. no. 54(300) on page 1596.

3. DESIGN :

(i) R.B.D. (ii) (a) 7. (b) N.A. (iii) 4. (iv) (a) 41'×33'. (b) 38'×30' (v) 1.5'×1.5'. (vi) Yes.

4. GENERAL :

(i) Treatment R₇ lodged. (ii) N.A. (iii) Yield of grain and straw. (iv) (a) 1954—1956. (b) No. (c) Nil. (v) (a) At many centres. (b) N.A. (vi) and (vii) N.A.

5. RESULTS :

(i) 340.65 Rs./ac. (ii) 20.30 Rs./ac. (iii) Treatment differences are highly significant. (iv) Av. value of produce in Rs./ac.

Treatment	R ₁	R ₂	R ₃	R ₄	R ₅	R ₆	R ₇
Av. value	450.40	332.14	386.78	339.78	383.53	266.32	225.63

S.E./mean = 10.15 Rs./ac.

Crop :- Maize and Til (Kharif).

Ref :- U.P. 57(505).

Site :- Res. Reg. Stn., Varanasi.

Type :- 'X'.

Object :—To study the effect of sowing mixed crops of Maize and Til on their growth and yield

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Sugarcane. (c) N.A. (ii) (a) Clayey loam. (b) Refer soil analysis, Varanasi. (iii) 4.8.1957. (iv) (a) 1 ploughing and 1 planking. (b) Behind the plough in lines. (c) Maize at 6 srs./ac. and *til* at 2 srs./ac. (d) Row to row 1½'. (e) N.A. (v) Well decayed F.Y.M. at 100 mds./ac. 3 to 4 weeks before sowing. Super at 60 srs./ac. by placement 3" to 4" deep in soil behind plough 2 to 3 days before sowing. A/S at 30 srs./ac. as top dressing about a fortnight after germination. (vi) Maize : T-41 and *til* : T-10. (vii) Irrigated. (viii) 3 weedings. (ix) N.A. (x) Maize on 27.10.1957 and *til* on 8.11.1957.

2. TREATMENTS :

5 arrangements of rows: T₁=Maize alone, T₂=*Til* alone, T₃=Maize+*til* sown in alternate lines, T₄=2 lines of *til* sown after every row of maize and T₅=3 lines of *til* sown after every row of maize.

3. DESIGN :

(i) R.B.D. (ii) (a) 5. (b) N.A. (iii) 4. (iv) (a) 56'×33'. (b) 53'×30'. (v) 1.5'×1.5'. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of grain. (iv) to (vii) N.A.

5. RESULTS :

(i) 77.63 Rs./ac. (ii) 3.76 Rs./ac. (iii) Treatment differences are highly significant. (iv) Av. value of produce in Rs./ac.

Treatment	T ₁	T ₂	T ₃	T ₄	T ₅
Av. value	50.83	73.98	75.97	107.34	80.01

S.E./mean = 1.88 Rs./ac.

Crop :- Jowar and Arhar (Kharif).

Ref :- U.P. 59(431).

Site :- Reg. Res. Stn., Varanasi.

Type :- 'X'.

Object :— To study the effect of sowing mixed crops of Jowar and Arhar on their growth and yield

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) (a) Loam. (b) Refer soil analysis, Varanasi. (iii) N.A. (iv) (a) N.A. (b) As per treatments. (c) N.A. (d) As per treatments. (e) N.A. (v) to (x) N.A.

2. TREATMENTS :

6 arrangements of mixed crops : $T_1 = \text{Jowar only with spacing } 1\frac{1}{2}' \times 1'$, $T_2 = \text{Arhar only with spacing } 1' \times 2'$, $T_3 = 2 \text{ rows of Jowar} + 1 \text{ row of arhar}$, $T_4 = \text{Jowar} + \text{arhar broadcast}$, $T_5 = \text{Jowar} + \text{arhar mixed in lines}$ and $T_6 = 3 \text{ rows of jowar} + 1 \text{ row of arhar}$.

3. DESIGN :

(i) R.B.D. (ii) (a) 6. (b) N.A. (iii) 4. (iv) (a) N.A. (b) $50' \times 15'$. (v) N.A. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Germination %, height and yield of grain. (iv) (a) N.A. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 171.14 Rs./ac. (ii) 28.30 Rs./ac. (iii) Treatment differences are highly significant. (iv) Av. value of produce in Rs./ac.

Treatment	T_1	T_2	T_3	T_4	T_5	T_6
Av. value	61.56	129.66	148.68	219.25	173.22	294.47

S.E./mean = 14.15 Rs./ac.

Crop :- Apple.

Ref :- U.P. 54(381).

Site :- Govt. Hill Fruit Res. Stn., Chaubattia.

Type :- 'M'.

Object :—To find out the optimum level of P fertilizers and the depth of its application on Apple yield.

1. BASAL CONDITIONS :

(i) The trees were under catch crop trial. (ii) (a) Clayey loam. (b) Refer soil analysis, Chaubattia. (iii) Grafted. (iv) Delicious grown on root stock of Malling type II. (v) 1st week of Dec., 1939 with spacing $20' \times 20'$. (vi) One year after grafting. (vii) Lime was applied according to lime requirements before starting the expt. in 1951. (viii) Digging, preparation of *thalas* and pruning. (ix) No. (x) Unirrigated. (xi) N.A. (xii) August to September.

2. TREATMENTS :

All combinations of (1) and (2)+ a control (2 plots/block)

(1) 2 levels of P_2O_5 as Super : $P_1=4$ and $P_2=6$ lb./tree.

(2) 2 depths of application ; $D_1=9''$ and $D_2=18''$.

Digging trenches $9''$ and $18''$ deep around the tree. Super was sprinkled at the bottom of the trench which was afterward filled with the soil. Treatments applied in March 1951.

3. DESIGN :

(i) R.B.D. (ii) (a) 6. (b) N.A. (iii) 9. (iv) 1. (v) N.A. (vi) Yes.

4. GENERAL :

(i) N.A. (ii) Woolly aphis, stem black, stem brown, apple root borer ; pests and diseases controlled by mechanical methods. (iii) Yield of apples. (iv) (a) 1951—1958. (b) and (c) N.A. (v) to (vii) Nil.

5. RESULTS :

(i) 56.1 lb./tree. (ii) 27.63 lb./tree. (iii) None of the effects is significant. (iv) Av. yield of apple in lb./tree.

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Control = 52.0 lb./tree.

	D ₁	D ₂	Mean
P ₁	56.4	64.5	60.4
P ₂	59.5	52.3	55.9
Mean	58.0	58.4	58.2

S.E. of any marginal mean = 6.51 lb./tree.
S.E. of body of table = 9.21 lb./tree.
S.E. of control mean = 6.51 lb./tree.

Crop :- Apple.

Ref :- U.P. 55(412).

Site :- Govt. Hill Fruit Res. Stn., Chaubattia.

Type :- 'M'.

Object :—To find out the optimum level of P and the depth of its application on Apple yield.

1. BASAL CONDITIONS to 4. GENERAL :

Same as in expt. no. 54(381) on page 1599.

5. RESULTS :

(i) 86.9 lb./tree. (ii) 41.6 lb./tree. (iii) Main effect of D alone is significant. (iv) Av. yield of apple in lb./tree.

Control = 83.9 lb./tree.

	D ₁	D ₂	Mean
P ₁	104.8	85.3	95.0
P ₂	107.1	56.7	81.9
Mean	105.9	70.9	88.4

S.E. of any marginal mean = 9.80 lb./tree
S.E. of body of table = 13.87 lb./tree
S.E. of control mean = 9.80 lb./tree

Crop :- Apple.

Ref :- U.P. 56(505).

Site :- Govt Hill Fruit Res. Stn., Chaubattia.

Type :- 'M'.

Object :—To find out the optimum level of P and the depth of its application on Apple yield.

1. BASAL CONDITIONS to 4. GENERAL :

Same as in expt. no. 54(381) on page 1599.

5. RESULTS :

(i) 59.6 lb./tree. (ii) 28.84 lb./tree. (iii) None of the effects is significant. (iv) Av. yield of apple in lb./tree.

Control = 63.5 lb./tree.

	D ₁	D ₂	Mean
P ₁	56.9	72.3	64.6
P ₂	53.2	48.2	50.7
	55.0	60.2	57.6

S.E. of any marginal mean = 6.80 lb./tree.
 S.E. of body of table = 9.61 lb./tree.
 S.E. of control mean = 6.80 lb./tree.

Crop :- Apple.

Ref :- U.P. 57(526).

Site :- Govt. Hill Fruit Res. Stn., Chaubattia.

Type :- 'M'.

Object :—To find out the optimum level of P and the depth of its application on Apple yield.

1. BASAL CONDITIONS to 4. GENERAL :

Same as in expt. no. 54(381) on page 1599.

5. RESULTS :

(i) 72.2 lb./tree. (ii) 42.97 lb./tree. (iii) None of the effects is significant. (iv) Av. yield of apples in lb./tree.

Control = 73.3 lb./tree.

	D ₁	D ₂	Mean
P ₁	83.1	65.4	74.3
P ₂	88.4	49.8	69.1
Mean	85.8	57.6	71.7

S.E. of any marginal mean = 10.13 lb./tree.
 S.E. of body of table = 14.32 lb./tree.
 S.E. of control mean = 10.13 lb./tree.

Crop :- Apple.

Ref :- U.P. 58(511).

Site :- Govt. Hill Fruit Res. Stn., Chaubattia.

Type :- 'M'.

Object :—To find out the optimum level of P and the depth of its application on Apple yield.

1. BASAL CONDITIONS to 4. GENERAL :

Same as in expt. no. 54(381) on page 1599.

5. RESULTS :

(i) 81.7 lb./tree. (ii) 35.24 lb./tree. (iii) None of the effects is significant. (iv) Av. yield of apple in lb./tree.

Control = 85.7 lb./tree.

	D ₁	D ₂	Mean
P ₁	87.7	87.7	87.7
P ₂	88.3	55.1	71.7
Mean	88.0	71.4	79.7

S.E. of any marginal mean = 8.31 lb./tree.
 S.E. of body of table = 11.75 lb./tree.
 S.E. of control mean = 8.31 lb./tree.

Crop :- Apple.**Ref :- U.P. 54(380).****Site :- Govt. Hill Fruit Res. Stn., Chaubattia.****Type :- 'M'.**

Object :—To evolve methods for the improvement of spent-up land in Kumaon Hills.

1. BASAL CONDITIONS :

(i) After deforestation in 1918 potato crop was taken, after which belladonna was planted. In 1920—1921 apple and cherries were planted. For the last ten years before the experiment, it was covered by gramine grasses, wild roses and other bushes. (ii) (a) Clay loam. (b) Refer soil analysis, Chaubattia. (iii) By budding. (iv) Cox's Orange Pippin on Meston 779. (v) Terracing of about an acre of land done. The pits 4' x 4' x 4' and 20' apart were dug and apple plants planted. One replication planted in 1951, two in 1952 and one in 1953. (vi) 2 years. (vii) 3 lb./ac. of A/S and 0.65 mds./ac. of compost every year per tree in March, by spreading round tree and then digging it in. (viii) Pruning and digging. (ix) Soyabean planted during rains and buried in the soil just before flowering. (x) Unirrigated. (xi) N.A. (xii) No yield of fruits.

2. TREATMENTS :

All combinations of (1) and (2)

(1) 2 doses of lime : L₁=Single (a dose fixed after soil analysis) and L₂=Double of L₁.(2) 4 doses of P₂O₅ as Super : P₀=0, P₁=1½, P₂=3 and P₃=4½ lb./tree.

Actual doses of lime N.A. Lime spread in September every year during turning in of soyabean. Super applied in March by spreading round the tree and then digging in.

3. DESIGN :

(i) Fact. in R.B.D. (ii) (a) 8. (b) N.A. (iii) 4. (iv) Nil. (v) Delicious apple trees from buffer around the field. (vi) Yes.

4. GENERAL :

(i) Good. (ii) (a) Stem borer and application of chloroform. Root borers—mechanical methods of removing it. Test caterpillar spreading of 25% DDT. (iii) Girth measurements taken on 6, 9 and 22.2 1954. (iv) (a) 1952—contd. (b) N.A. (v) (a) and (b) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 4.0 cms./tree. (ii) 0.33 cms./tree. (iii) Main effect of P alone is significant. (iv) Av. girth of tree in cms./tree.

	P ₀	P ₁	P ₂	P ₃	Mean
L ₁	3.7	4.2	4.1	4.0	4.0
L ₂	3.6	4.2	4.0	4.2	4.0
Mean	3.7	4.2	4.1	4.1	4.0

S.E. of L marginal mean	= 0.08 cms./tree.
S.E. of P marginal mean	= 0.12 cms./tree.
S.E. of body of table	= 0.16 cms./tree.

Crop :- Apple.

Ref :- U.P. 55(411).

Site :- Govt. Hill Fruit Res. Stn., Chaubattia.

Type :- 'M'.

Object :—To evolve methods for the improvement of spent-up land in Kumaon Hills.

1. **BASAL CONDITIONS to 3. DESIGN :**

Same as in expt. no. 54(380) on page 1602.

4. **GENERAL :**

(i) Good. (ii) Stem borer—application of chloroform. Root borers—mechanical methods of removing it ; spraying of 0.25% DDT. (iii) Girth measurements taken on 25 and 26.2.1955. (iv) (a) 1952—contd. (b) and (c) N.A. (v) (a) and (b) N.A. (vi) and (vii) Nil.

5. **RESULTS :**

(i) 6.1 cms./tree. (ii) 0.48 cms./tree. (iii) None of the effects is significant. (iv) Av. girth of tree in cms./tree.

	P ₀	P ₁	P ₂	P ₃	Mean
L ₁	5.7	6.0	6.1	5.9	5.9
L ₂	5.9	6.3	6.0	6.4	6.2
Mean	5.8	6.2	6.1	6.2	6.1

S.E. of L marginal mean	= 0.12 cms./tree.
S.E. of P marginal mean	= 0.17 cms./tree.
S.E. of body of table	= 0.24 cms./tree.

Crop :- Apple.

Ref :- U.P. 56(504).

Site :- Govt. Hill Fruit Res. Stn., Chaubattia.

Type :- 'M'.

Object :—To evolve methods for the improvement of spent-up land in Kumaon Hills.

1. **BASAL CONDITIONS to 3. DESIGN :**

Same as in expt. no. 54(380) on page 1602.

4. **GENERAL :**

(i) Good. (ii) Stem borers—application of chloroform. Root borers—mechanical methods of removing it. Test caterpillar—spray of 0.25 % DDT. (iii) Girth measurement taken on 23.2.1956. (iv) (a) 1952. (b) N.A. (c) Nil. (v) (a) and (b) N.A. (vi) and (vii) Nil.

5. **RESULTS :**

(i) 8.3 cms./tree. (ii) 0.85 cms./tree. (iii) None of the effects is significant. (iv) Av. girth of tree in cms./tree.

	P ₀	P ₁	P ₂	P ₃	Mean
L ₁	8.0	8.0	8.3	7.7	
L ₂	8.5	8.6	8.5	8.2	8.5
Mean	8.3	8.3	8.4	8.0	8.3

S.E. of L marginal mean	= 0.21 cms./tree.
S.E. of P marginal mean	= 0.30 cms./tree.
S.E. of body of table	= 0.43 cms./tree.

Crop :- Apple.

Ref :- U.P. 57(525).

Site :- Govt. Hill Fruit Res. Stn., Chaubattia.

Type :- 'M'.

Object :- To evolve methods for the improvement of spent-up land in Kumaon Hills.

1. BASAL CONDITIONS to 3. DESIGN :

Same as in expt. no. 54(380) on page 1602.

4. GENERAL :

(i) Good. (ii) Stem borers—application of chloroform. Root borers—mechanical methods of removing it. Test caterpillar—spray of 0.25 % DDT. (iii) Girth measurement taken on 11.2.1957. (iv) (a) 1952—contd. (b) and (c) N.A. (v) (a) and (b) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 11.7 cms./tree. (ii) 1.32 cms./tree. (iii) None of the effects is significant. (iv) Av. girth of tree in cms./tree.

	P ₀	P ₁	P ₂	P ₃	Mean
L ₁	11.5	11.1	11.9	11.0	11.4
L ₂	11.9	12.1	12.2	11.5	11.9
Mean	11.7	11.6	12.1	11.3	11.7

S.E. of L marginal mean	= 0.33 cms./tree.
S.E. of P marginal mean	= 0.47 cms./tree.
S.E. of body of table	= 0.66 cms./tree.

Crop :- Apple.

Ref :- U.P. 58(510).

Site :- Govt. Hill Fruit Res. Stn., Chaubattia.

Type :- 'M'.

Object :- To evolve methods for the improvement of spent-up land in Kumaon Hills.

1. BASAL CONDITIONS to 3. DESIGN :

Same as in expt. no. 54(380) on page 1602.

4. GENERAL :

(i) Good. (ii) Stem borers—application of chloroform. Root borers—mechanical methods of removing it. Test caterpillar—spraying of 0.25 % DDT. (iii) Girth measurement taken on 14.2.1958. (iv) (a) 1952—contd. (b) and (c) Nil. (v) (a) and (b) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 14.5 cms./tree. (ii) 1.84 cms./tree. (iii) None of the effects is significant. (iv) Av. girth of tree in cms./tree.

	P ₀	P ₁	P ₂	P ₃	Mean
L ₁	14.0	13.9	15.0	13.9	14.2
L ₂	14.3	15.1	15.6	14.0	14.8
Mean	14.2	14.5	15.3	14.0	14.5

S.E. of L marginal mean	= 0.46 cms./tree.
S.E. of P marginal mean	= 0.65 cms./tree.
S.E. of body of table	= 0.92 cms./tree.

Crop :- Apple.

Ref :- U.P. 59(557).

Site :- Govt. Hill Fruit Res. Stn., Chaubattia.

Type :- 'M'.

Object :—To evolve methods for the improvement of spent-up land in Kumaon Hills.

1. BASAL CONDITIONS to 3. DESIGN :

Same as in expt. no. 54(380) on page 1602.

4. GENERAL :

(i) Good. (ii) Stem borer—application of chloroform. Root borers—mechanical methods of removing it. Test caterpillar spray—of 0.25 % DDT. (iii) Girth measurement taken on 14.2.1959. (Some plants have started bearing fruits in Rep. I, II and III. No. of fruits set. (iv) (a) 1952—contd. (b) and (c) N.A. (v) (a) and (b) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 16.8 cms./tree. (ii) 2.20 cms/tree. (iii) None of the effects are significant. (iv) Av. girth of tree in cms./ac.

	P ₀	P ₁	P ₂	P ₃	Mean
L ₁	16.3	16.2	16.9	16.0	16.4
L ₂	16.7	17.7	18.3	16.1	17.2
Mean	16.5	17.0	17.6	16.1	16.8

S.E. of L marginal mean	= 0.55 cms./tree.
S.E. of P marginal mean	= 0.78 cms./tree.
S.E. of body of table	= 1.10 cms./tree.

Crop :- Apple.

Ref :- U.P. 54(374).

Site :- Govt. Hill Fruit Res. Stn., Chaubattia.

Type :- 'C'.

Object :—To find out the effect of mulching on the growth and bearing of apple trees raised on deep and shallow rooted stocks and also to determine if by training trees into different shapes the extent of hail storm damage can be reduced materially.

1. BASAL CONDITIONS :

(i) Under forest. (ii) (a) Clay loam. (b) Refer soil analysis, Chaubattia. (iii) Budding. (iv) Scion variety—delicious. (v) Second week of Dec., 1939 and spacing : 20' × 20'. (vi) One year after budding. (vii) N.A. (viii) Pruning, digging below the trees. (ix) No. (x) Unirrigated. (xi) N.A. (xii) August to September.

2. TREATMENTS :

Main-plot treatments :

3 mulchings : M₀=No mulching (control), M₁=Pine needles and M₂=Oak needles.

Sub-plot treatments :

All combinations of (1) and (2).

(1) 2 shapes of trees : S₁=Pyramid and S₂=Vase.

(2) 2 root stocks : R₁=Crab C (deep rooted) and R₂=Malling type II (shallow rooted).

3. DESIGN :

(i) Split-plot. (ii) (a) 3 main-plots/replication ; 4 sub-plots/main-plot. (b) N.A. (iii) 3. (iv) 6. (v) No. (vi) Yes.

4. GENERAL :

(i) N.A. (ii) Woolly apple, stem black, stem brown, apple root borers—mechanical methods of controlling.
 (iii) Measurement of girth and yield of fruits. (iv) (a) 1939—contd. (b) N.A. (v) (a) and (b) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 26.24 lb./tree. (ii) (a) 42.54 lb./tree. (b) 23.05 lb./tree. (iii) None of the effects is significant.
 (iv) Av. yield of apples in lb./tree.

	M ₀	M ₁	M ₂	Mean	S ₁	S ₂
R ₁	26.0	40.4	22.7	29.7	39.1	20.3
R ₂	32.2	12.1	24.0	22.8	18.1	27.4
Mean	29.1	26.2	23.3	26.2	28.6	23.8
S ₁	26.9	33.3	25.6			
S ₂	31.3	19.2	21.1			

S.E. of difference of two

- | | |
|---|-------------------|
| 1. M marginal means | = 17.36 lb./tree. |
| 2. R or S marginal means | = 7.68 lb./tree. |
| 3. R or S means at the same level of M | = 13.31 lb./tree. |
| 4. M means at the same level of R and S | = 19.8 lb./tree. |
| S.E. of body of R × S table | = 7.68 lb./tree. |

Crop :- Apple.

Ref :- U.P. 55(406).

Site :- Govt. Hill Fruit Res. Stn., Chaubattia.

Type :- 'C'.

Object :- To find out the effect of mulching on the growth and bearing of Apple trees raised on deep and shallow rooted stocks and also to determine if by training trees into different shapes the extent of hail storm damage can be reduced materially.

1. BASAL CONDITIONS to 4. GENERAL :

Same as in expt. no. 54(374) on page 1605.

5. RESULTS :

(i) 60.3 lb./tree. (ii) (a) 57.18 lb./tree. (b) 43.20 lb./tree. (iii) Main effect of R and interaction R × S are significant. (iv) Av. yield of apples in lb./tree.

	M ₀	M ₁	M ₂	Mean	S ₁	S ₂
R ₁	60.5	89.0	78.0	75.8	105.8	45.9
R ₂	37.2	43.4	53.8	44.8	42.1	47.5
Mean	48.9	66.2	65.9	60.3	73.9	46.7
S ₁	56.0	82.8	82.9			
S ₂	41.7	49.5	48.9			

S.E. of difference of two

- | | |
|---|-------------------|
| 1. M marginal means | = 23.34 lb./tree. |
| 2. R or S marginal means | = 14.40 lb./tree. |
| 3. R or S means at the same level of M | = 24.94 lb./tree. |
| 4. M means at the same level of R and S | = 29.25 lb./tree. |
| S.E. of body of R × S table | = 14.40 lb./tree. |

Crop :- Apple.**Ref :- U.P. 56(502).****Site :- Govt. Hill Fruit Res. Stn., Chaubattia.****Type :- 'C'.**

Object :— To find out the effect of mulching on the growth and bearing of Apple trees raised on deep and shallow rooted stocks and also to determine if by training trees into different shapes the extent of hail storm damage can be reduced materially.

1. BASAL CONDITIONS to 4. GENERAL :

Same as in expt. no. 54(374) on page 1605.

5. RESULTS :

(i) 46.9 lb./tree. (ii) (a) 42.98 lb./tree. (b) 17.40 lb./tree. (iii) Interaction R×S alone is highly significant. (iv) Av. yield of apples in lb./tree.

	M ₀	M ₁	M ₂	Mean	S ₁	S ₂
R ₁	54.2	57.5	45.6	52.4	61.5	43.3
R ₂	44.6	38.8	40.9	41.4	33.8	49.0
Mean	49.4	48.2	43.3	46.9	47.7	46.2
S ₁	51.0	48.9	43.2			
S ₂	47.8	47.4	43.3			

S.E. of difference of two

1. M marginal means = 17.55 lb./tree.
 2. R or S marginal means = 5.80 lb./tree.
 3. R or S means at the same level of M = 10.05 lb./tree.
 4. M means at the same level of S or R = 18.93 lb./tree.
- S.E. of body of R×S table = 5.80 lb./tree.

Crop :- Apple.**Ref :- U.P. 57(524).****Site :- Govt. Hill Fruit Res. Stn., Chaubattia.****Type :- 'C'.**

Object :— To find out the effect of mulching on the growth and bearing of Apple trees raised on deep and shallow rooted stocks and also to determine if by training trees into different shapes the extent of hail storm damage can be reduced materially.

1. BASAL CONDITIONS to 4. GENERAL :

Same as in expt. no. 54(374) on page 1605.

5. RESULTS :

(i) 40.0 lb./tree. (ii) (a) 35.29 lb./tree. (b) 23.66 lb./tree. (iii) Interaction R×S alone is significant. (iv) Av. yield of apple in lb./tree.

	M ₀	M ₁	M ₂	Mean	S ₁	S ₂
R ₁	36.0	59.2	40.6	45.3	51.3	39.3
R ₂	33.4	28.1	42.8	34.8	23.6	45.0
Mean	34.7	43.7	41.7	40.0	37.5	42.6
S ₁	29.4	46.4	36.5			
S ₂	40.0	40.9	46.9			

S.E. of difference of two

1. M marginal means	= 14.41 lb./tree.
2. R or S marginal means	= 7.89 lb./tree.
3. R or S means at the same level of M	= 13.66 lb./tree.
4. M means at the same level of R or S	= 17.34 lb./tree.
S.E. of body of R×S table	= 7.89 lb./tree.

Crop :- Apple.**Ref :- U.P. 58(509).****Site :- Govt. Hill Fruit Res. Stn., Chaubattia.****Type :- 'C'.**

Object :- To find out the effect of mulching on the growth and bearing of Apple trees raised on deep and shallow rooted stocks and also to determine if by training trees into different shapes the extent of hail storm damage can be reduced materially.

1. BASAL CONDITIONS to 4. GENERAL :

Same as in expt. no. 54(374) on page 1601.

5. RESULTS :

(i) 76.7 lb./tree. (ii) (a) 61.1 lb./tree. (b) 48.27 lb./tree. (iii) Interaction S×R alone is significant. (iv) Av. yield of apple in lb./tree.

	M ₀	M ₁	M ₂	Mean	S ₁	S ₂
R ₁	90.5	82.3	76.5	83.1	111.8	54.4
R ₂	71.3	50.8	88.8	70.3	65.1	75.5
Mean	80.9	66.6	82.6	76.7	88.4	65.0
S ₁	91.8	81.4	92.0			
S ₂	70.0	51.7	73.2			

S.E. of difference of two

1. M marginal means	= 24.97 lb./tree.
2. S or R marginal means	= 16.09 lb./tree.
3. S or R means at the same level of M	= 27.87 lb./tree.
4. M means at the same level of S or R	= 31.81 lb./tree.
S.E. of body of S×R table	= 16.09 lb./tree.

Crop :- Apple.**Ref :- U.P. 59(554).****Site :- Govt. Hill Fruit Res. Stn., Chaubattia.****Type :- 'C'.**

Object :- To find out the effect of mulching on the growth and bearing of Apple trees raised on deep and shallow rooted stocks and also to determine if by training trees into different shapes the extent of hail storm damage can be reduced materially.

1. BASAL CONDITIONS to 4. GENERAL :

Same as in expt. no. 54(374) on page 1605.

5. RESULTS :

(i) 96.8 lb./tree. (ii) (a) 78.60 lb./tree. (b) 63.84 lb./tree. (iii) Interaction S×R alone is significant. (iv) Av. yield of apple in lb./tree.

	M ₀	M ₁	M ₂	Mean	S ₁	S ₂
R ₁	127.6	148.6	79.2	118.5	155.3	81.7
R ₂	76.1	60.9	88.3	75.1	65.5	84.7
Mean	101.8	104.7	83.8	96.8	110.4	83.2
S ₁	111.4	134.5	85.3			
S ₂	92.3	74.9	82.2			

S.E. of difference of two

1. M marginal means = 32.09 lb./tree.
 2. S or R marginal means = 21.28 lb./tree.
 3. S or R means at the same level of M = 36.86 lb./tree.
 4. M means at the same level of S or R = 41.34 lb./tree.
- S.E. of body of S×R table = 21.28 lb./tree.

Crop :- Apple.

Ref :- U.P. 54(382).

Site :- Govt. Hill Fruit Res. Stn., Chaubattia.

Type :- 'CM'.

Object :-To find out the residual effect of manures on the growth and bearing of Apples.

1. BASAL CONDITIONS :

(i) Under orchard. (ii) (a) Clay loam. (b) Refer soil analysis, Chaubattia. (iii) Budding. (iv) Delicious. (v) Last week of Nov., 1939 and spacing : 20' × 20'. (vi) About 2 years. (vii) Application of lime according to the requirements of soil by spreading and mixing in the soil, given at the time of planting and also in 1951. (viii) Grass is turned under the soil and is not removed. (ix) Nil. (x) Unirrigated. (xi) N.A. (xii) From August to September.

2. TREATMENTS :

All combinations of (1), (2), (3) and (4)

- (1) 2 levels of N as A/S : N₀=0 and N₁=4.4 oz./tree.
- (2) 2 levels of K₂O as Potash : K₀=0 and K₁=2.4 oz./tree.
- (3) 2 levels of P₂O₅ as Super : P₀=0 and P₁=6.9 oz./tree.
- (4) 4 root stocks : R₁=Malling type XIII, R₂=Malling type II, R₃=Meston—779 and R₄=Meston—793.

Treatments applied from 1939 to 1944 and again in 1950.

3. DESIGN :

(i) 2³ × 4 fact. confd., confounding R × N × P × K interaction. (ii) 16 plots/block and 2 blocks/replication. (iii) 1. (iv) 6. (v) A row of trees left around the plot. (vi) Yes.

4. GENERAL :

(i) N.A. (ii) Woolly aphis, stem black, stem brown and apple root borer—mechanical control measures used like pruning etc. (iii) Measurement of girth and yield of fruit. (iv) (a) 1939—cond. (b) N.A. (c) Nil. (v) (a) and (b) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 46.0 lb./tree. (ii) 21.23 lb./tree. (iii) None of the effects is significant. (iv) Av. yield of apple in lb./tree.

	R ₁	R ₂	R ₃	R ₄	K ₀	K ₁	P ₀	P ₁	Mean
N ₀	43.9	46.5	50.0	59.9	49.4	50.8	36.3	63.8	50.1
N ₁	42.2	48.9	41.7	34.7	47.3	36.4	41.2	42.5	41.9
Mean	43.0	47.7	45.8	47.3	48.3	43.6	38.8	53.1	46.9
P ₀	40.3	48.3	37.1	29.4	44.8	32.8			
P ₁	45.7	47.1	54.6	65.2	51.9	54.4			
K ₀	43.8	58.2	48.6	42.8					
K ₁	42.3	37.2	43.0	51.9					

S.E. of N, P or K marginal mean = 5.31 lb./tree.
 S.E. of R marginal mean = 7.51 lb./tree.
 S.E. of body of R×K, R×N or R×P table = 10.61 lb./tree.
 S.E. of body of N×P, N×K or P×K table = 7.51 lb./tree.

Crop :- Apple.

Ref :- U.P. 55(413).

Site :- Govt. Hill Fruit Res. Stn., Chaubattia.

Type :- 'CM'.

Object :- To find out the residual effect of manures on the growth and bearing of Apples.

1. BASAL CONDITIONS to 4. GENERAL :

Same as in expt. no. 54(382) on page 1609.

5. RESULTS :

(i) 52.4 lb./tree. (ii) 27.05 lb./tree. (iii) None of the effects is significant. (iv) Av. yield of apple in lb./tree.

	R ₁	R ₂	R ₃	R ₄	K ₀	K ₁	P ₀	P ₁	Mean
N ₀	31.2	49.1	69.6	54.7	50.6	51.7	48.0	54.3	51.2
N ₁	45.8	52.5	53.1	62.9	59.7	47.4	55.7	51.4	53.6
Mean	38.5	50.8	61.4	58.8	55.2	49.6	51.8	52.8	52.4
P ₀	27.6	58.2	58.6	63.2	60.3	43.5			
P ₁	49.4	43.3	64.1	54.5	50.0	55.7			
K ₀	31.1	48.8	65.1	75.7					
K ₁	45.9	52.7	57.6	42.0					

S.E. of N, P or K marginal mean = 6.76 lb./tree.
 S.E. of R marginal mean = 9.56 lb./tree.
 S.E. of body of R×N, R×P or R×K table = 13.52 lb./tree.
 S.E. of body of N×P, N×K or P×K table = 9.56 lb./tree.

Crop :- Apple.

Ref :- U.P. 56(501).

Site :- Govt. Hill Fruit Res. Stn., Chaubattia.

Type :- 'CM'.

Object :- To find out the residual effect of manures on the growth and bearing of Apples.

1. BASAL CONDITIONS to 4. GENERAL :

Same as in expt. no. 54(382) on page 1609.

5. RESULTS :

(i) 57.32 lb./tree. (ii) 22.79 lb./tree. (iii) None of the effects is significant. (iv) Av. yield of apple in lb./tree.

	R ₁	R ₂	R ₃	R ₄	K ₀	K ₁	P ₀	P ₁	Mean
N ₀	37.4	66.7	68.4	62.2	55.3	62.1	51.2	66.2	58.7
N ₁	57.3	62.1	62.5	41.9	60.4	51.5	53.6	58.3	56.0
Mean	47.4	64.4	65.4	52.0	57.9	56.8	52.4	62.2	57.3
P ₀	45.8	68.6	56.4	38.7	54.5	50.2			
P ₁	48.9	60.2	74.5	65.5	61.2	63.3			
K ₀	48.6	67.1	61.5	54.2					
K ₁	46.2	61.7	69.3	49.9					

S.E. of N, P or K marginal mean = 5.70 lb./tree.

S.E. of R marginal mean = 8.06 lb./tree.

S.E. of body of R×N, R×P or R×K table = 11.39 lb./tree.

S.E. of body of N×P, N×K or P×K table = 8.06 lb./tree.

Crop :- Apple.

Ref :- U.P. 57(523).

Site :- Govt. Hill Fruit Res. Stn., Chaubattia.

Type :- 'CM'.

Object :- To find out the residual effect of manures on the growth and bearing of Apples.

1. BASAL CONDITIONS to 4. GENERAL :

Same as in expt. no. 54(382) on page 1609.

5. RESULTS :

(i) 46.5 lb./tree. (ii) 16.37 lb./tree. (iii) None of the effects is significant. (iv) Av. yield of apple in lb./tree.

	R ₁	R ₂	R ₃	R ₄	K ₀	K ₁	P ₀	P ₁	Mean
M ₀	32.2	45.0	58.2	58.7	49.0	48.0	48.4	48.6	48.5
M ₁	37.6	44.9	59.1	35.9	42.0	46.8	38.1	50.7	44.4
Mean	34.9	44.9	58.6	47.3	45.5	47.4	43.3	49.7	46.5
P ₀	26.9	46.6	60.3	39.2	43.2	43.4			
P ₁	43.0	43.3	56.9	55.4	47.8	51.5			
K ₀	34.2	42.4	61.6	43.8					
K ₁	35.6	47.5	55.7	50.8					

S.E. of N, P or K marginal mean = 4.09 lb./tree.

S.E. of R marginal mean = 5.79 lb./tree.

S.E. of body of R×N, R×P or R×K table = 8.18 lb./tree.

S.E. of body of N×P, P×K or K×N table = 5.79 lb./tree.

Crop :- Apple**Ref :- U.P. 58(508).****Site :- Govt. Hill Fruit Res. Stn., Chaubattia.****Type :- 'CM'.**

Object :—To find out the residual effect of manures on the growth and bearing of Apple.

1. BASAL CONDITIONS to 4. GENERAL :

Same as in expt. no. 54(382) on page 1609.

5. RESULTS :

(i) 78.6 lb./tree. (ii) 25.26 lb /tree. (iii) None of the effects is significant. (iv) Av. yield of apple in lb./tree.

	R ₁	R ₂	R ₃	R ₄	K ₀	K ₁	P ₀	P ₁	Mean
N ₀	59.8	85.0	87.1	101.1	81.9	84.6	70.2	96.3	83.3
N ₁	50.0	92.8	87.2	65.6	83.6	64.2	70.2	77.6	73.9
Mean	54.9	88.9	87.1	83.4	82.8	74.4	70.2	86.9	78.6
P ₀	54.1	92.8	67.3	66.6	70.2	70.3			
P ₁	55.7	85.0	106.9	100.1	95.4	78.5			
K ₀	61.5	99.1	90.4	78.2					
K ₁	46.3	78.7	83.9	88.6					

S.E. of N, P or K marginal mean = 6.13 lb./tree.

S.E. of R marginal mean = 8.93 lb./tree.

S.E. of body of R×N, R×P or R×K table = 12.63 lb./tree.

S.E. of body of N×P, P×K or K×N table = 8.93 lb./tree.

Crop :- Apple.**Ref :- U.P. 59(553).****Site :- Govt. Hill Fruit Res. Stn., Chaubattia.****Type :- 'CM'.**

Object :—To find out the residual effect of manures on the growth and bearing of Apple.

1. BASAL CONDITIONS to 4. GENERAL :

Same as in expt. no. 54(382) on page 1609.

5. RESULTS :

(i) 106.9 lb./tree. (ii) 32.98 lb /tree. (iii) None of the effects is significant. (iv) Av. yield of apple in lb./tree.

	R ₁	R ₂	R ₃	R ₄	K ₀	K ₁	P ₀	P ₁	Mean
N ₀	87.8	105.7	115.3	135.0	118.3	103.5	97.2	124.7	110.9
N ₁	79.5	96.9	132.4	103.0	107.1	98.8	96.5	109.4	102.9
Mean	83.6	101.3	123.9	119.0	112.7	101.2	96.9	117.0	106.9
P ₀	91.8	84.4	111.4	99.9	100.0	93.7			
P ₁	75.5	118.2	136.3	138.1	125.4	108.6			
K ₀	95.7	118.7	126.4	110.1					
K ₁	71.6	83.9	121.4	127.9					

S.E. of N, P or K marginal mean	= 8.24 lb./tree.
S.E. of R marginal mean	= 11.66 lb./tree.
S.E. of body of R×N, R×P or R×K table	= 16.49 lb./tree.
S.E. of body of N×P, P×K or K×N table	= 11.66 lb./tree.

Crop :- Apple.

Ref :- U.P. 54(77).

Site :- Govt. Hill Fruit Res. Stn., Chaubattia.

Type :- 'D'.

Object :- To study the effect of modern insecticides against woolly aphid in winter on root part of Apple tree.

1. BASAL CONDITIONS :

(i) N.A. (ii) (a) Clay loam. (b) Refer soil analysis, Chaubattia. (iii) Grafting. (iv) Delicious. (v) Planting during February at 20'×20' spacing in pits of 4'×4'×4'. (vi) 2 years. (vii) Nil. (viii) Pruning during winter and ringing around the base of tree during February. (ix) Nil. (x) Unirrigated. (xi) N.A. (xii) Plucking fruits from July to August.

2. TREATMENTS :

7 insecticidal treatments: T₀=Control (no treatment), T₁=B.H.C. dust 10% at ½ lb./plant, T₂=B.H.C. dust 10% at 1 lb./plant, T₃=Aldrin 40% emulsion at ½ oz./plant, T₄=Aldrin 40% emulsion at 1oz./plant, T₅=Chlordane 5% dust at ½ lb./plant and T₆=Chlordane 5% dust at ¼ lb./plant.

Insecticides were applied on 3.11.1954. Insecticidal dust was mixed in the soil and emulsions sprinkled over the exposed soil around the base of tree. The soil was then replaced.

3. DESIGN :

(i) R.B.D. (ii) (a) 7. (b) N.A. (iii) 4. (iv) 2. (v) Nil. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Aphids varying from 500 to 1050/tree were present on the roots. (iii) Mean % reduction in adults and nymph of aphids. (iv) (a) 1955—contd. (b) N.A. (v) (a) and (b) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 77.04%. (ii) 10.48%. (iii) Treatment differences are highly significant. (iv) Mean % reduction in adults and nymph of aphids in population.

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄	T ₅	T ₆
Mean %	18.70	88.73	97.02	78.16	93.83	79.49	83.34

S.E./mean = 5.24 % reduction in population.

Crop :- Apple.

Ref :- U.P. 55(154).

Site :- Govt. Hill Fruit Res. Stn., Chaubattia

Type :- 'D'.

Object :- To study the effect of modern insecticides against woolly aphid on Apple.

1. BASAL CONDITIONS :

(i) N.A. (ii) (a) Clay loam. (b) Refer soil analysis, Chaubattia. (iii) N.A. (iv) Improved. (v) and (vi) N.A. (vii) Nil. (viii) and (ix) N.A. (x) Unirrigated. (xi) and (xii) N.A.

2. TREATMENTS :

9 insecticidal treatments: T₀=Control (no manure), T₁=Parathion emulsion 0.05% (1:400), T₂=Endrin emulsion 0.25% (1:77), T₃=Basudin emulsion 0.25% (1:400), T₄=Systox emulsion 0.5% (1:800), T₅=DDT emulsion 0.5% (1:50), T₆=Lime sulphur (1:15), T₇=Lindane (6.5% Gama 1%) (1:64) and T₈=Ordinary water.

Insecticides were sprayed on 18.11.1955.

3. DESIGN :

(i) R.B.D. (ii) (a) 9. (b) N.A. (iii) 4. (iv) 1. (v) Nil. (vi) Yes.

4. GENERAL :

(i) N.A. (ii) Under study. (iii) Population of woolly aphis. (iv) (a) 1955—N.A. (b) N.A. (v) N.A. (vi) Nil. (vii) The total population was estimated before and after one week of treatment application. Aphis infested portions under ground were scraped by brush and counted and its population per linear inch were taken out. Average population per linear inch on 10 observations were recorded and another a week later recorded and % mortality due to insecticides were calculated.

5. RESULTS:

(i) 8.13. (ii) 5.33. (iii) Treatment differences are not significant. (iv) Mean value of $\sqrt{x+0.5}$ where x is the population of woolly aphis per plot.

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄	T ₅	T ₆	T ₇	T ₈
Mean value	14.86	9.62	3.06	6.46	6.85	12.44	8.28	4.11	7.52

S.E./mean = 2.66.

Crop :- Apple.

Ref :- U.P. 56(119).

Site :- Govt. Hill Fruit Res. Stn., Chaubattia.

Type :- 'D'.

Object :—To find out a suitable insecticide against the Apple root borer.

1. BASAL CONDITIONS :

(i) N.A. (ii) (a) Clay loam. (b) Refer soil analysis, Chaubattia. (iii) N.A. (iv) Improved. (v) and (vi) N.A. (vii) Nil. (viii) Unirrigated. (ix) to (xii) N.A.

2. TREATMENTS :

7 insecticidal treatments : T₀=Control, T₁=DDT dust 10% at 8 ozs./tree, T₂=B.H.C. dust 10% at 8 ozs./tree, T₃=Lindane dust 1.3% at 8 ozs./tree, T₄=Aldrin dust 5% at 8 ozs./tree, T₅=Chlordane dust 5 % at 8 ozs./tree and T₆=Dieldrin emulsion 18 % at 1½ ozs./tree.

Dust applied to the soil around the base of the tree within a radius of 1½' upto a depth of 9". Emulsion diluted 60 times with water and applied to the soil so as to soak it to a depth of 9" in a radius of 1½'. Insecticides were sprayed on 15.7.1956.

3. DESIGN :

(i) R.B.D. (ii) (a) and (b) N.A. (iii) 4. (iv) 6. (v) Nil. (vi) Yes.

4. GENERAL :

(i) N.A. (ii) Under study. (iii) Soil temperature, moisture %, soil texture, girth and spread/tree. (iv) (a) 1955—contd. (modified in 1957). (b) N.A. (v) and (vi) Nil. (vii) The insecticides were mixed in half of the total quantity of soil dug. The treated soil was applied close to the base of the tree and untreated soil round about the outer ring. The age of the plants were 4 to 5 years.

5. RESULTS :

(i) 0.86. (ii) 0.26. (iii) Treatment differences are not significant. (iv) Mean value of $\sqrt{x+0.5}$ where x is the population of root borer/plot.

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄	T ₅	T ₆
Mean value	0.84	0.84	0.84	0.71	0.84	0.97	0.97

S.E./mean = 0.13

Crop :- Apple.**Ref :- U.P. 57(17).****Site :- Govt. Hill Fruit Res. Sta., Chaubattia.****Type :- 'D'.**

Object :- To find out a suitable control measure against Apple root borer.

1. BASAL CONDITIONS :

(i) N.A. (ii) (a) Clay loam. (b) Refer soil analysis, Chaubattia. (iii) Grafting during March. (iv) Delicious, Jonathan and *Spitzenberg*. (v) Planting in a pit of 4' x 4' x 4' at a spacing of 20' x 20' during winter. The pits were filled with soil before planting. (vi) N.A. (vii) to (viii) Nil. (ix) Nil. (x) Irrigated. (xi) and (xii) N.A.

2. TREATMENTS :

7 insecticidal treatments : T₀=Control, T₁=DDT dust 10% at 8 ozs./plant. T₂=Aldrin dust 5% at 8 ozs./plant. T₃=Chloradane dust 5% at 8 ozs./plant, T₄=B.H.C. dust 10% at 8 ozs./plant, T₅=Lindane dust 1.3% at 8 ozs./plant and T₆=Dieldrin emulsion 18% at 8 ozs./plant diluted with 90 ozs. of water.

The insecticides were mixed in half of the total quantity of soil dug. The treated soil was applied close to the base of tree and untreated soil round about the outer ring. The soil was dug for the base of tree within radius of 1½ feet to a depth of 9" on 21, 22.7.1956.

3. DESIGN :

(i) R.B.D. (ii) (a) 7. (b) N.A. (iii) 4. (iv) 6. (v) N.A. (vi) Yes.

4. GENERAL :

(i) Stunted growth. (ii) Damaging apple roots by boring into them and checking growth of plants. (iii) % of diseased free plants on 29.6.1957, 11 months after the application of treatments. (iv) (a) 1955—1957 (b) N.A. (v) to (vii) Nil.

5. RESULTS :

(i) 96.36 %. (ii) 6.43 %. (iii) Treatment differences are not significant. (iv) Mean % of diseased free plants/plot.

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄	T ₅	T ₆
Mean %	87.25	100.00	100.00	100.00	95.75	95.75	95.75

S.E./mean = 3.21%

Crop :- Apple.**Ref :- U.P. 56(5).****Site :- Govt. Hill Fruit Res. Sta., Chaubattia.****Type :- 'D'.**

Object :- To study the effect of different fungicide for the control of Apple leaf spot disease.

1. BASAL CONDITIONS :

(i) Orchard. (ii) (a) Clay loam. (b) Refer soil analysis, Chaubattia. (iii) Grafted. (iv) Mixed. (v) and (vi) N.A. (vii) and (viii) Nil. (ix) No. (x) Unirrigated. (xi) and (xii) N.A.

2. TREATMENTS :

5 fungicidal treatments : T₀=Control, T₁=Copperzan 0.3%, T₂=Copper sandoz 0.3%, T₃=Perenox 0.3% and T₄=Lime sulphur 1 : 30 (sp. gravity 1.33).

Treatments applied on 13.9.1956.

3. DESIGN :

(i) R.B.D. (ii) (a) 5. (b) N.A. (iii) 5. (iv) 1. (v) Distances between trees 18' to 20'. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Leaves were affected by leaf spots. Spraying of fungicides as per treatments for the control of apple leaf spot disease. (iii) Percentage of infection by leaf spots was determined. (iv) (a) 1956—contd. (b) N.A. (v) to (vii) Nil.

5. RESULTS :

(i) 8.40%. (ii) 2.34%. (iii) Treatment differences are highly significant. (iv) Mean % of infection.

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄
Mean %	10.60	8.80	10.20	8.20	4.20

S.E./mean = 1.05%

Crop :- Apple**Ref :- U.P. 57(4).****Site :- Govt. Hill Fruit Res. Stn., Chaubattia.****Type :- 'D'.**

Object :—To study the effect of different fungicides for the control of Apple leaf spot disease.

1. BASAL CONDITIONS to 4. GENERAL :

Same as in expt. no. 56(5) on page 1615.

Treatments applied on 27.7.1957.

5. RESULTS :

(i) 13.32 %. (ii) 2.04 %. (iii) Treatment differences are highly significant. (iv) Mean % of infection.

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄
Mean %	16.40	12.40	15.60	12.40	9.80

S.E./mean = 0.91 %

Crop :- Apple.**Ref :- U.P. 54(368).****Site :- Govt. Hill Fruit Res. Stn., Chaubattia.****Type :- 'D'.**

Object :—To study the effect of insecticides against defoliated beetles.

1. BASAL CONDITIONS :

(i) N.A. (ii) (a) Clay loam. (b) Refer soil analysis, Chaubattia, (iii) N.A. (iv) Improved. (v) and (vi) N.A. (vii) Nil. (viii) and (ix) N.A. (x) Unirrigated. (xi) and (xii) N.A.

2. TREATMENTS :6 insecticidal treatments : T₀=Control, T₁=DDT emulsion 0.25%, T₂=DDT emulsion 0.5%, T₃=DDT suspension 0.5 %, T₄=Lead arsenate+lime 1 % and T₅=Calcium arsenate.

Treatments were applied on 31.5.1954.

3. DESIGN :

(i) R.B.D. (ii) (a) 6. (b) N.A. (iii) 4. (iv) 2. (v) Nil. (vi) Yes.

4. GENERAL :

(i) N.A. (ii) Under study. (iii) % of damaged leaves. (iv) (a) 1950—1954. (b) N.A. (v) to (vii) Nil.

5. RESULTS :

(i) 36.45 degrees. (ii) 3.95 degrees. (iii) Treatment differences are not significant. (iv) Mean % of damaged leaves in degrees.

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄	T ₅
Mean angle	34.48	42.30	34.99	35.74	35.89	35.28

S.E./mean = 1.97 degrees.

Transformed back %	32.46	45.67	33.29	34.53	34.78	33.78
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Crop :- Apple.

Ref :- U.P. 54(72).

Site :- Govt. Hill Fruit Res. Stn., Chaubattia.

Type :- 'D'.

Object :- To find out an insecticidal control measure against defoliating beetles.

1. BASAL CONDITIONS :

(i) N.A. (ii) (a) Clay loam. (b) Refer soil analysis, Chaubattia. (iii) Grafting. (iv) Delicious. (v) Planting during February at a spacing of 20' x 20' in pits filled during January. (vi) 2 years. (vii) Nil. (viii) Pruning during winter and ringing around the base of trees during February. (ix) Nil. (x) Unirrigated. (xi) N.A. (xii) Plucking fruits from July to August.

2. TREATMENTS :

6 insecticidal treatments : T₀=Control, T₁=DDT emulsion 0.5 %, T₂=DDT suspension 0.5 %, T₃=DDT emulsion 0.25 %, T₄=Lead arsenate 0.4 % and T₅=Calcium arsenate 0.4 %.

Treatments applied on 1.6.1954.

3. DESIGN :

(i) R.B.D. (ii) (a) 6. (b) N.A. (iii) 4. (iv) 2. (v) Nil. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Defoliating leaves of trees and control measures as per treatments. (iii) Percentage of defoliated leaves 1 month after application of treatments on 1.7.1954. (iv) (a) 1950-1954. (b) N.A. (v) to (vii) Nil.

5. RESULTS :

(i) 51.67 %. (ii) 8.07 %. (iii) Treatment differences are highly significant. (iv) Mean % of defoliated leaves/plot.

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄	T ₅
Mean % of defoliated leaves	81.75	35.00	40.00	41.75	50.50	61.00

S.E./mean = 4.03 %

Crop :- Apple.

Ref :- U.P. 56(1).

Site :- Govt. Hill Fruit Res. Stn., Chaubattia.

Type :- 'D'.

Object :- To study the effect of different hormones and fungicidal pastes for promoting callus formation in pruned Apple twigs.

1. BASAL CONDITIONS :

(i) Orchard. (ii) (a) Clay loam. (b) Refer soil analysis, Chaubattia. (iii) Grafted. (iv) Mixed varieties of apple. (v) Distance between trees 18' to 20'. (vi) N.A. (vii) and (viii) Nil. (ix) No. (x) Unirrigated. (xi) and (xii) N.A.

2. TREATMENTS :

11 fungicidal treatments : T₀=Control, T₁=Naphthlene acetic acid 0.1 %, T₂=Naphthlene acetic acid 0.05 %, T₃=Indolye acetic acid 0.1 %, T₄=Indolye acetic acid 0.05 %, T₅=Indolye propionic acid 0.1 %, T₆=Indolye propionic acid 0.05 %, T₇=Indolye butyric acid 0.1 %, T₈=Indolye butyric acid 0.05 %, T₉=Chaubattia paste 2 : 2 : 2½ (copper carbonate+red lead in lanoline) and T₁₀=Lanoline alone.

Treatments applied on 15 to 17.1.1956.

3. DESIGN :

(i) R.B.D. (ii) (a) 11. (b) N.A. (iii) 9. (iv) 3 pruned twigs of ½" size. (v) N.A. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Hormones and fungicide pastes as per treatments were applied to seal off the wounds and to prevent infection by disease organism (as stem brown, stem black and pink). (iii) % of callus formation on 17.2.1956, 17 and 18.5.1956. (iv) (a) 1956-contd. (b) N.A. (v) to (vii) Nil.

5. RESULTS :

(i) 20.72 %. (ii) 16.73 %. (iii) Treatment differences are highly significant. (iv) Av. % of callus formation.

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄	T ₅	T ₆	T ₇	T ₈	T ₉	T ₁₀
Mean % of callus formation	0.00	20.22	28.33	18.11	18.11	24.44	34.11	30.00	24.11	0.67	29.78
S.E./mean = 5.58 %.											

Crop :- Apple.

Ref :- U.P. 57(1).

Site :- Govt. Hill Fruit Res. Stn., Chaubattia.

Type :- 'D'.

Object :- To study the effect of different hormones and fungicidal pastes for promoting callus formation in pruned Apple twigs.

1. BASAL CONDITIONS :

(i) Orchard. (ii) (a) Clay loam. (b) Refer soil analysis, Chaubattia. (iii) Grafted. (iv) Mixed. (v) and (vi) N.A. (vii) and (viii) Nil. (ix) No. (x) Unirrigated. (xi) and (xii) N.A.

2. TREATMENTS :

Same as in expt. no. 56(1) on page 1617.

Treatments applied on 7 to 13.3.1957.

3. DESIGN :

(i) R.B.D. (ii) (a) 11. (b) N.A. (iii) 10. (iv) 1; 3 pruned twigs of apple ($\frac{1}{2}$ " diameter). (v) N.A. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Fungicides sprayed to prevent infection by diseased organism. (iii) The percentage of callus formation was determined. (iv) (a) 1956—contd. (b) No. (v) to (vii) Nil.

5. RESULTS :

(i) 38.19 %. (ii) 24.16 %. (iii) Treatment differences are highly significant. (iv) Av. % of callus formation.

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄	T ₅	T ₆	T ₇	T ₈	T ₉	T ₁₀
Mean % of callus formation	0.00	19.10	25.10	42.80	36.40	53.40	73.60	64.20	57.90	24.30	23.30
S.E./mean = 7.64 %											

Crop :- Apple.

Ref :- U.P. 58(20).

Site :- Govt. Hill Fruit Res. Stn., Chaubattia.

Type :- 'D'.

Object :- To study the effect of various hormones and fungicidal pastes for promoting callus formation in pruned Apple twigs.

1. BASAL CONDITIONS :

(i) Under orchard. (ii) (a) Clay loam. (b) Refer soil analysis, Chaubattia. (iii) Grafted. (iv) Mixed. (v) and (vi) N.A. (vii) Nil. (viii) No. (ix) Nil. (x) Unirrigated. (xi) and (xii) N.A.

2. TREATMENTS :

9 hormonal and fungicidal treatments : T₀=Control, T₁=Indolyle acetic acid 0.1 %, T₂=Indolyle acetic acid 0.05 %, T₃=Indolyle propionic acid 0.1 %, T₄=Indolyle propionic acid 0.05%, T₅=Indolyle butyric acid 0.1%, T₆=Indolyle butyric acid 0.05 %, T₇=Chaubattia paste 2 : 2 : 2½ (copper carbonate, red lead with lanoline) and T₈=Lanoline alone.

3. DESIGN :

(i) R.B.D. (ii) (a) 9. (b) N.A. (iii) 10. (iv) 1. (v) N.A. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Under study. (iii) Observation on callus formation on individual twigs between 1st to 15th September, 1958. (iv) (a) 1956—contd. (b) N.A. (v) to (vii) Nil.

5. RESULTS :

(i) 35.82 degrees. (ii) 10.16 degrees. (iii) Treatment differences are highly significant. (iv) Mean % of callus formation in degrees.

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄	T ₅	T ₆	T ₇	T ₈
Mean angle	13.47	36.64	36.75	31.49	38.30	54.73	47.26	32.53	31.22

S.E./mean = 3.21 degrees.

Transformed back %	5.87	35.74	35.94	27.53	38.52	66.48	53.91	29.11	27.10
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Crop :- Apple.**Ref :- U.P. 59(441).****Site :- Govt. Hill Fruit Res. Stn., Chaubattia.****Type :- 'D'.****Object :-**To study the effect of various hormones and fungicidal paste for promoting callus formation in pruned Apple.

1. BASAL CONDITIONS :

(i) N.A. (ii) (a) Sandy loam. (b) Refer soil analysis, Chaubattia. (iii) to (viii) N.A. (ix) Nil. (x) Unirrigated. (xi) and (xii) N.A.

2. TREATMENTS :

7 hormonal and fungicidal treatments : T₀=Control, T₁=Indolyle propionic acid 0.1 %, T₂=Indolyle propionic acid 0.05 %, T₃=Indolyle butyric acid 0.1 %, T₄=Indolyle butyric acid 0.05 %, T₅=Lanoline alone and T₆=Chaubattia paste.

3. DESIGN :

(i) R.B.D. (ii) (a) 7. (b) N.A. (iii) 5. (iv) 1. (v) N.A. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) % of callus formation. (iv) (a) 1956—contd. (b) N.A. (v) to (vii) Nil.

5. RESULTS :

(i) 28.16 degrees. (ii) 6.21 degrees. (iii) Treatment differences are highly significant. (iv) % of callus formation in degrees.

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄	T ₅	T ₆
Mean angle	10.76	34.77	31.33	35.94	30.92	27.35	26.08

S.E./mean = 2.78 degrees.

Transformed back %	3.95	32.60	27.26	34.61	26.64	21.39	19.64
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Crop :- Apple.**Ref :- U.P. 55(59).****Site :- Govt. Hill Fruit Res. Stn., Chaubattia.****Type :- 'D'.****Object :-**To study the effect of fungicides to control powdery mildew of Apple.

1. BASAL CONDITIONS :

(i) Orchard. (ii) (a) Sandy loam. (b) Refer soil analysis, Chaubattia. (iii) By seed. (iv) Jonathan. (v) N.A. (vi) About two years. (vii) to (ix) Nil. (x) Unirrigated. (xi) and (xii) N.A.

TREATMENTS :

7 fungicidal sprayings : T₀=Control, T₁=Lime sulphur 1 : 30 sp. gravity 1.33, T₂=Thiovit 0.25 %, T₃=Ultra sulphur 0.25 %, T₄=Sulphur dust I.C.I., T₅=Sandolin 0.25 % and T₆=Dithane Z—780.25 %.

Sprayings done on 14.8.1955.

3. DESIGN :

(i) R.B.D. (ii) (a) 7. (b) N.A. (iii) 4. (iv) One bed (8'×5') accommodating 150 to 200 seedlings approximately. (v) 4'. (vi) Yes.

4. GENERAL :

(i) Normal. (ii) Spraying of fungicides as per treatments against powdery mildew of apple. (iii) All the healthy and diseased leaves were counted from each unit of a plot and the percentage of diseased portion (infection) was noted on 3 and 4.9.1955. (iv) (a) 1955—contd. (b) N.A. (v) and (vi) Nil. (vii) During the observation the treatment of Sandolin 0.25 % was rejected as it had defoliated the leaves from all treated plants.

5. RESULTS :

(i) 41.21 %. (ii) 7.62 %. (iii) Treatment differences are highly significant. (iv) Av. % of infection.

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄	T ₅
Av. % infection/plot	61.25	28.50	40.00	43.25	29.00	45.25

S.E./mean = 3.81 %.

Crop :- Apple.

Ref :- U.P. 56(3).

Site :- Govt. Hill Fruit Res. Stn., Chaubattia.

Type :- D'.

Object :— To study the direct effect of fungicides to control powdery mildew of Apple.

1. BASAL CONDITIONS :

(i) Under orchard. (ii) (a) Clay loam. (b) Refer soil analysis, Chaubattia. (iii) Grafted. (iv) Jonathan. (v) Distance between trees 18' to 20'. (vi) N.A. (vii) to (ix) Nil. (x) Unirrigated. (xi) and (xii) N.A.

2. TREATMENTS :

15 fungicidal treatments : T₀=Control, T₁=Dithane 2.78-0.25%, T₂=Lime sulphur 1 : 50 sp. gravity 1.33, T₃=Lime Sulphur 1 : 30 sp. gravity 1.33, T₄=DDT emulsion 0.25%, T₅=Spersal 0.25%, T₆=Thiovit 0.25%, T₇=Ultra sulphur 0.25%, T₈=Geigy mango spray 0.25%, T₉=Potassium permanganate solution 0.01%, T₁₀=DDI dispersal powder 0.25%, T₁₁=Xylol emulsion 0.01%, T₁₂=Kerosine oil emulsion 0.01%, T₁₃=Linseed oil emulsion 0.06% and T₁₄=Alboleum emulsion 0.01%.

Spraying done on 17 and 18.4.1956.

3. DESIGN :

(i) R.B.D. (ii) (a) 15. (b) N.A. (iii) 4. (iv) 1. (v) Distance between trees is 18' to 20'. (vi) Yes.

4. GENERAL :

(i) Normal. (ii) Powdery mildew of Apple ; spraying of fungicides. (iii) The total number of healthy and diseased twigs were counted from each unit of a plot and thus the percentage of infection was determined on 22 and 23.6.1956. (iv) (a) 1955—contd. (b) N.A. (v) to (vii) Nil.

5. RESULTS :

(i) 46.52 %. (ii) 8.29 %. (iii) Treatment differences are highly significant. (iv) Av. % infection.

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄	T ₅	T ₆	T ₇
Av. % infection	72.25	34.50	38.25	23.75	34.50	32.00	30.75	29.50
Treatment	T ₈	T ₉	T ₁₀	T ₁₁	T ₁₂	T ₁₃	T ₁₄	
Av. % infection	27.50	73.25	64.25	65.50	70.75	43.00	58.00	

S.E./mean = 4.14 %.

Crop :- Apple.

Ref :- U.P. 57(2).

Site :- Govt. Hill Fruit Res. Stn., Chaubattia.

Type :- 'D'.

Object :- To study the effect of fungicides against powdery mildew.

1. BASAL CONDITIONS :

(i) Under orchard. (ii) (a) Clay loam. (b) Refer soil analysis, Chaubattia. (iii) Grafted. (iv) Jonathan. (v) and (vi) N.A. (vii) to (ix) Nil. (x) Unirrigated. (xi) and (xii) N.A.

2. TREATMENTS :

10 fungicidal treatments : T₀=Control, T₁=Lime Sulphur 1 : 30 sp. gravity 1.33, T₂=Lime sulphur 1 : 50 sp. gravity 1.33, T₃=Geigy mango spray 0.25%, T₄=Ultra sulphur 0.25%, T₅=Thiovit 0.25%, T₆=Spersal 0.25%, T₇=Dithane 2.78-0.25%, T₈=DDT emulsion 0.25% and T₉=Kerathane 0.14%.

Fungicides applied on 26 and 27.4.1957.

3. DESIGN :

(i) R.B.D. (ii) (a) 10. (b) N.A. (iii) 5. (iv) 1. (v) Distance between trees 18' to 20'. (vi) Yes.

4. GENERAL :

(i) Normal. (ii) Spraying of fungicides for the control of powdery mildew disease. (iii) Percentage of infection was determined. (iv) (a) 1954—contd. (b) N.A. (v) to (vii) Nil.

5. RESULTS :

(i) 38.28 %. (ii) 5.10 %. (iii) Treatment differences are highly significant. (iv) Av. % of infection.

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄	T ₅	T ₆	T ₇	T ₈	T ₉
Av. % infection	53.80	27.40	38.20	39.80	42.80	34.40	39.00	28.80	35.20	43.40

S.E./mean = 2.28 %.

Crop :- Apple.

Ref :- U.P. 58(23).

Site :- Govt. Hill Fruit Res. Stn., Chaubattia.

Type :- 'D'.

Object :- To study the effect of fungicides against powdery mildew of Apple.

1. BASAL CONDITIONS :

(i) Under orchard. (ii) (a) Clay loam. (b) Refer soil analysis, Chaubattia. (iii) Grafted. (iv) Jonathan. (v) and (vi) N.A. (vii) to (ix) Nil. (x) Unirrigated. (xi) and (xii) N.A.

2. TREATMENTS :

10 fungicidal treatments : T₀=Control, T₁=Lime Sulphur 1 : 30 sp. gravity 1.33, T₂=Geigy mango spray 0.25 %, T₃=Spersal 0.25 %, T₄=Ultra Sulphur 0.25 %, T₅=Thiovit 0.25 %, T₆=Dithane Z. 78-0.25 %, T₇=DDT emulsion 0.25 %, T₈=Kerathane 0.1 % and T₉=Poltiglia cunese 1%.

Treatments applied on 19 to 21.5.1958.

3. DESIGN :

(i) R.B.D. (ii) (i) 10. (b) N.A. (iii) 5. (iv) 10. (v) Nil. (vi) Yes.

4. GENERAL :

(i) Normal. (ii) Under study. (iii) During the second week of August, 1958 four hundred healthy and diseased leaves were picked at random from each unit of a plot and in this way the percentage of mildewed to non-mildewed leaves were determined. (iv) (a) 1954—contd. (b) N.A. (v) to (vii) Nil.

5. RESULTS :

(i) 43.06 degrees. (ii) 2.74 degrees. (iii) Treatment differences are highly significant. (iv) Mean % of powdery mildew infection in degrees.

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄	T ₅	T ₆	T ₇	T ₈	T ₉
Mean angle	55.58	36.55	39.70	42.70	46.49	41.43	41.78	42.82	41.20	42.35

S.E./mean = 1.22 degrees.

Transformed back %	67.87	35.61	40.89	46.04	52.57	43.86	44.46	46.24	43.47	45.45
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Crop :- Apple.

Ref :- U.P. 59(438).

Site :- Govt. Hill Fruit Res. Stn., Chaubattia.

Type :- 'D'.

Object :- To find out a suitable control measure for powdery mildew of Apple.

1. BASAL CONDITIONS :

(i) N.A. (ii) (a) Sandy loam. (b) Refer soil analysis, Chaubattia. (iii) N.A. (iv) Jonathan. (v) to (xii) N.A.

2. TREATMENTS :

11 insecticidal treatments : T₀=Control, T₁=Kerathane W.D. (lb. in 100 gallon with Triton 2 ozs), T₂=Kerathane W.D. combination with Dithane Z-78, 0.25 %, T₃=Lime sulphur 1 : 30 sp. gravity 1.33, T₄=Geigy mango spray 0.25 %, T₅=Poltiglica cunnesse 1 % (cuncon mixture) an Italian fungicide, T₆=Thiovit 0.25 %, T₇=DDT emulsion 0.25 %, T₈=Spersal 0.25 %, T₉=Dithane Z-78 at 0.25 % and T₁₀=Ultra sulphur 0.25 %.

3. DESIGN :

(i) R.B.D. (ii) (a) 11. (b) N.A. (iii) 4. (iv) 1. (v) N.A. (vi) Yes.

4. GENERAL :

(i) N.A. (ii) Under study. (iii) % of infection was determined from healthy and diseased leaves/plot. (iv) (a) 1959 only. (b) N.A. (v) to (vii) Nil.

5. RESULT :

(i) 47.73 degrees. (ii) 3.33 degrees. (iii) Treatment differences are highly significant. (iv) Av. % of infection in degrees.

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄	T ₅	T ₆	T ₇	T ₈	T ₉	T ₁₀
Mean angle	68.34	38.78	39.08	36.21	44.28	45.03	53.76	55.72	49.26	43.30	51.31

S.E./mean = 1.66 degrees.

Crop :- Apple.

Ref :- U.P. 57(18).

Site :- Govt. Gardens, Chaubattia.

Type :- 'D'.

Object :- To study the effect of modern insecticides as a protective measure against the root colonies of woolly aphis.

1. BASAL CONDITIONS :

(i) N.A. (ii) (a) Clay loam. (b) Refer soil analysis. Chaubattia. (iii) Grafting during March. (iv) Delicious, Spitzenberg and Jonathan. (v) Planting in pits 4' x 4' x 4' duly filled with soil during winter at a spacing of 20' x 20'. (vi) N.A. (vii) to (ix) Nil. (x) Unirrigated. (xi) N.A. (xii) August to September.

2. TREATMENTS :

6 insecticidal treatments : T₀=Control, T₁=Metasystox (1 : 500) sprayed, T₂=Ekatin (1 : 500) sprayed, T₃=Parathion emulsion 0.05%, T₄=Diazinon emulsion 0.05% and T₅=Malathion emulsion 0.01%.

The insecticides in liquid forms were applied at 1 lb. to the base of each tree by exposing the roots upto a depth of 6" in a radius of 1 foot on 30.12.1957.

3. DESIGN :

(i) R.B.D. (ii) (a) 6. (b) N.A. (iii) 5. (iv) 4. (v) Nil. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Woolly covering and gall formation on roots. (iii) % diseased free apple trees and the population of aphis on roots per 4 trees on 18.4.1958, 15 weeks after the treatments. (iv) (a) 1957-1958. (b) N.A. (v) and (vi) Nil.

5. RESULTS :

(i) 80.00%. (ii) 13.69%. (iii) Treatment differences are highly significant. (iv) Av. % of disease free trees.

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄	T ₅
Av. % of disease free trees	45.00	100.00	95.00	95.00	85.00	60.00
	S.E./mean = 6.12%					

Crop :- Apple.

Ref :- U.P. 58(24).

Site :- Govt. Hill Fruit Res. Stn., Chaubattia.

Type :- 'D'.

Object :- To find out suitable control measures against patch fungus in Apple trees.

1. BASAL CONDITIONS :

(i) Under orchard. (ii) (a) Clay. (b) Refer soil analysis, Chaubattia. (iii) Grafted. (iv) Mixed. (v) and (vi) N.A. (vii) and (viii) Nil. (ix) No. (x) Unirrigated. (xi) and (xii) N.A.

2. TREATMENTS :

8 insecticidal treatments : T₀=Control, T₁=DDT emulsion 0.3% sprayed, T₂=Thin Chaubattia paste in raw linseed oil and painted, T₃=Lime sulphur 1 : 15 sp. gravity 1.33 sprayed, T₄=Thin Chaubattia paste with 0.3% DDT emulsion painted, T₅=Thin Copper carbonate paste and 0.3% DDT emulsion painted, T₆=Cuprous oxide 0.3%+DDT emulsion 0.3% sprayed and T₇=Copper oxychloride (Coppesan) 0.3%+DDT emulsion 0.3% sprayed.

3. DESIGN :

(i) R.B.D. (ii) (a) 8. (b) N.A. (iii) 4. (iv) 1. (v) Nil. (vi) Yes.

4. GENERAL :

(i) Normal. (ii) Under study. (iii) Mean percentage of patch fungus infection was determined. (iv) (a) 1958- contd. (b) N.A. (v) to (vii) Nil.

5. RESULTS :

(i) 59.42 degrees. (ii) 5.60 degrees. (iii) Treatment differences are highly significant. (iv) Mean % of patch fungus infection in degrees.

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄	T ₅	T ₆	T ₇
Mean angle	60.32	43.70	52.87	38.41	52.35	57.59	41.53	48.63
S.E./mean = 2.80 degrees.								
Transformed back %	75.25	47.75	63.43	38.71	62.57	71.06	44.02	56.24

Crop :- Apple.

Ref :- U.P. 59(439).

Site :- Govt. Hill Fruit Res. Stn., Chaubattia.

Type :- 'D'.

Object :- To study the effect of different seed dressings on Apple seedlings.

1. BASAL CONDITIONS :

(i) N.A. (ii) (a) Sandy loam. (b) Refer soil analysis, Chaubattia. (iii) to (xii) N.A.

2. TREATMENTS :

6 seed dressing treatments : T₀=Control, T₁=Flit 406 for use as seed protectant at 2.5 ozs per 100 lb. of seed, T₂=P.C.N.B. Hoechst 75% dust for seed treatment at 1.5 ozs. per hundred seeds (.015 gms. for 7 gms.), T₃=Hexasan—Mercury seed dressing at 1 lb. per 10 lb. of seed, T₄=Agrosan—G.N. at 4 lb./cwt and T₅=Tillex at about 3½ ozs./cwt.

3. DESIGN :

(i) R.B.D. (ii) (a) 6. (b) N.A. (iii) 5. (iv) One row each accommodating two hundred apple seeds. Distance between line to line is 8" to 1' and seeds ½" apart. (v) N.A. (vi) Yes.

4. GENERAL :

(i) N.A. (ii) Under study. (iii) Germination % of apple seedlings. (iv) (a) 1958—contd. (b) N.A. (v) to (vii) Nil.

5. RESULTS :

(i) 24.98 degrees. (ii) 3.11 degrees. (iii) Treatment differences are significant. (iv) Mean % of apple seedlings in degrees.

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄	T ₅
Mean angle	22.49	23.90	23.45	23.82	27.14	29.08

S.E./mean = 1.39 degrees.

Crop :- Apple.

Ref :- U.P. 55(399).

Site :- Govt. Hill Fruit Res. Stn., Chaubattia.

Type :- 'D'.

Object :- To study the effect of insecticides against woolly aphis.

1. BASAL CONDITIONS :

(i) N.A. (ii) (a) Clay loam. (b) Refer soil analysis, Chaubattia. (iii) N.A. (iv) Improved. (v) and (vi) N.A. (vii) Nil. (viii) and (ix) N.A. (x) Unirrigated. (xi) and (xii) N.A.

2. TREATMENTS :

14 insecticidal treatments : T₀=Control, T₁=Tetrox (30% bis-dimethyl amino phosphorus emulsion) at 1 : 600 (0.5%) applied to root zone only, T₂=T₁ applied to aerial zone only, T₃=T₁ applied to root and aerial zones only, T₄=Systox (42.4% Ethyl mercapto ethyl diethyl thio phosphate emulsion) at 1 : 800 (0.5%) applied to root zone only, T₅=T₄ applied to aerial zone only, T₆=T₄ applied to root and aerial zones only, T₇=Parathion (20% emulsion) at 1 : 400 (0.5%) applied to root zone only, T₈=T₇ applied to aerial zone only, T₉=T₇ applied to root and aerial zones only, T₁₀=Basudin (20% Diazinon emulsion) at 1 : 600 (0.033%) applied to root zone only, T₁₁=T₁₀ applied to aerial zone only, T₁₂=T₁₀ applied to root and aerial zones and T₁₃=Nicotine Sulphur soap and water solution (1 : 6 : 690) applied to aerial part only.

3. DESIGN :

(i) R.B.D. (ii) (a) 14. (b) N.A. (iii) 4. (iv) 1. (v) N.A. (vi) Yes.

4. GENERAL :

(i) N.A. (ii) Under study. (iii) Counts of population of apple woolly aphid on 2.11.1955. (iv) (a) 1958—only. (b) No. (v) and (vi) N.A. (vii) There was heavy reduction in population of apple woolly aphid in the treated plants both due to heavy rainfall and the effective insecticides.

5. RESULTS :

(i) 3.82. (ii) 6.70. (iii) Treatment differences are significant. (iv) Av. value of \sqrt{x} where x is the count of apple woolly aphid population/plot.

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄	T ₅	T ₆
Mean value	14.94	12.56	2.19	0.00	0.00	0.00	0.00
Transformed back counts	223.2	157.8	4.8	0.0	0.0	0.0	0.0
Treatment	T ₇	T ₈	T ₉	T ₁₀	T ₁₁	T ₁₂	T ₁₃
Mean value	7.06	7.14	0.00	9.57	0.00	0.00	0.00
Transformed back counts	49.8	51.0	0.0	9.16	0.0	0.0	0.0

S.E./mean = 3.35

Crop :- Apple.**Ref :- U.P. 55(153).****Site :- Govt. Hill Fruit Res. Stn., Chaubattia.****Type :- 'D'.**

Object :—To study the effect of modern insecticides against Apple woolly aphid.

1. BASAL CONDITIONS :

(i) N.A. (ii) (a) Clay loam. (b) Refer soil analysis, Chaubattia. (iii) Grafting. (iv) Improved delicious. (v) and (vi) N.A. (vii) Nil. (viii) and (ix) N.A. (x) Unirrigated. (xi) and (xii) N.A.

2. TREATMENTS :

5 insecticidal treatments : T₀=Control, T₁=Fish oil rosin soap 3 % 5 chtk. in 2 gallons, T₂=DDT emulsion 0.5 % 1 : 50, T₃=Parathion emulsion 0.05 % 1 : 400 and T₄=Basudin emulsion 1 : 530.

Insecticides were applied on 17.11.1955.

3. DESIGN :

(i) R.B.D. (ii) (a) 5. (b) N.A. (iii) 4. (iv) 2 grafted plants. (v) Nil. (vi) Yes.

4. GENERAL :

(i) N.A. (ii) Under study. (iii) Population of apple woolly aphid recorded before and after the application of treatments. (iv) (a) 1955—N.A. (b) N.A. (v) and (vi) Nil. (vii) Av. height of plant is 5'. Flit pump used. Heavily infested plants were selected and labelled. The total population was estimated before and after the application of treatments. Av. population on one linear inch spread of the aphid colony on plant was measured in inch and multiplied by the average population.

5. RESULTS :

(i) 65.66 degrees. (ii) 13.15 degrees. (iii) Treatment differences are highly significant. (iv) Mean % of reduction in degrees.

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄
Mean angle	0.00	90.00	69.53	78.75	90.00
S.E./mean = 6.57 degrees					
Transformed back %	0.00	99.50	87.40	95.73	99.50

Crop :- Apple.**Ref :- U.P. 54(78).****Site :- Govt. Hill Fruit Res. Sta., Chaubattia.****Type :- 'D'.**

Object :—To study the effect of modern insecticides as sprays against Apple woolly aphis.

1. BASAL CONDITIONS .

(i) N.A. (ii) (a) Clay loam. (b) Refer soil analysis, Chaubattia. (iii) Grafting. (iv) Delicious. (v) Planting during February at a spacing of 20' x 20' in pits filled during January (pits were dug 4' x 4' x 4'). (vi) 2 years. (vii) Nil. (viii) Pruning during winter and ringing around the base of tree during Feb. (ix) Nil. (x) Unirrigated. (xi) N.A. (xii) Plucking fruits from July to August.

2. TREATMENTS :

5 insecticidal treatments : T_0 =Control, T_1 =Parathion emulsion 0.05 %, T_2 =DDT emulsion 0.5 %, T_3 =B.H.C. suspension 0.5 % and T_4 =Fish oil rosin soap 3 %.

Insecticides were applied on 6.12.1954.

3. DESIGN :

(i) R.B.D. (ii) (a) 5. (b) N.A. (iii) 5. (iv) 2. (v) Nil. (vi) Yes.

4. GENERAL :

(i) Good (ii) Spraying with insecticides to control woolly aphis. (iii) % reduction in population of woolly aphis on 7.1.1955. (iv) (a) 1954—contd. (b) N.A. (v) to (vii) Nil.

5. RESULTS :

(i) 74.62 %. (ii) 7.02 %. (iii) Treatment differences are highly significant. (iv) Av. % of reduction of woolly aphis population.

Treatment	T_0	T_1	T_2	T_3	T_4
Av. % reduction	18.24	97.34	91.92	85.08	80.52

S.E./mean = 3.14%

Crop :- Apple.**Ref :- U.P. 55(62).****Site :- Govt. Hill Fruit Res. Sta., Chaubattia.****Type :- 'D'.**

Object :—To find out a suitable insecticidal control measure against aerial colonies of Apple woolly aphis.

1. BASAL CONDITIONS :

Same as in expt. no. 4(78) above.

2. TREATMENTS :

5 insecticidal treatments : T_0 =Control, T_1 =Basudin emulsion 20%, T_2 =DDT emulsion 0.5%, T_3 =Parathion emulsion 0.05% and T_4 =Fish oil rosin soap 3%.

Treatments applied on 25.11.1955.

3. DESIGN :

(i) R.B.D. (ii) (a) 5. (b) N.A. (iii) 4. (iv) 2. (v) Nil. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Under study. (iii) Observation of % reduction in aphis taken on 19.12.1955. (iv) (a) 1954—contd. (b) No. (v) and (vi) Nil. (vii) The observation for residual effect indicates that all the trees in all the treatments except in two replications of DDT emulsion 5% remains free for reinfection. The observation was taken on 26.6.1956.

5. RESULTS :

(i) 86.12 %. (ii) 9.36 %. (iii) Treatment differences are highly significant. (iv) Av. % reduction in aphis.

Treatment	T_0	T_1	T_2	T_3	T_4
Av. % reduction in aphis	39.48	99.85	99.25	97.82	94.22

S.E./mean = 4.68%.

Crop :- Apple.**Ref :- U.P. 56(493).****Site :- Govt. Hill Fruit Res. Stn., Chaubattia.****Type :- 'D'.**

Object :—To find out a suitable insecticidal control measure against aerial colonies of Apple woolly aphis.

1. BASAL CONDITIONS :

(i) N.A. (ii) (a) Clay loam. (b) Refer soil analysis, Chaubattia. (iii) Grafting during March. (iv) Delicious and Pix pleasant. (v) and (vi) N.A. (vii) Nil. (viii) Pruning trees and applying manure to root zone by exposing soil during winter. (ix) Peas. (x) Unirrigated. (xi) N.A. (xii) From Aug. to Sept., 1956.

2. TREATMENTS:8 insecticidal treatments : T_0 =Control, T_1 =Malathion emulsion 0.1%, T_2 =Parathion emulsion 0.05%, T_3 =DDT emulsion 0.5%+parathion emulsion 0.5%, T_4 =Metasystox (1 : 800), T_5 =Diazinon emulsion 0.05%, T_6 =Fish oil rosin soap 3% and T_7 =DDT emulsion 0.5%.

Insecticides sprayed on 15.11.1956.

3. DESIGN :

(i) R.B.D. (ii) (a) 8. (b) N.A. (iii) 4. (iv) 4 branches of apple each 1' long. (v) Nil. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Woolly curling and formation of galls on aerial parts of trees. Branches were sprayed with filter-pump at 5 c.c./branch. (iii) Population of aphis before and after treatments. (iv) (a) 1956—N.A. (b) N.A. (v) 01 (vii) N.A.

5. RESULTS :**Observation on 17.11.1956**

(i) 86.77 %. (ii) 2.02 %. (iii) Treatment differences are highly significant. (iv) Av. % of reduction in aphis population.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5	T_6	T_7
Mean % of reduction	0.30	99.97	99.92	99.75	99.57	98.69	98.27	97.72

S.E./mean = 1.01%.

Observation on 17.12.1956.

(i) 87.88 %. (ii) 57.54 %. (iii) Treatment differences are not significant. (iv) Av. % of reduction in aphis population.

Mean % of reduction	27.09	99.76	99.48	98.77	99.64	99.72	96.28	82.34
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S.E./mean = 28.77%.

Crop :- Apple.**Ref :- U.P. 57(27).****Site :- Govt. Hill Fruit Res. Stn., Chaubattia.****Type :- 'D'.**

Object :— To study the effect of modern insecticides against root colonies of Apple woolly aphis.

1. BASAL CONDITIONS :

(i) N.A. (ii) (a) Clay loam. (b) Refer soil analysis, Chaubattia. (iii) Grafting during March. (iv) Delicious, Spitzenberg and Jonathan. (v) Planting in pits of 4'×4'×4' duly filled with soil during winter at a spacing of 20'×20'. (vi) N.A. (vii) to (ix) Nil. (x) Unirrigated. (xi) N.A. (xii) Plucking fruits from August to September.

2. TREATMENTS :

6 insecticidal treatments : T_0 =Control, T_1 =B.H.C. 10% dust, T_2 =Metasystox 1 : 1000, T_3 =Parathion emulsion 0.05%, T_4 =Diazinon 0.05% and T_5 =Endrin emulsion 0.25%.

All insecticides were applied at 1 lb./tree on 30.3.1957. The insecticides were sprayed on the exposed roots and collar and the soil was then replaced.

3. DESIGN :

(i) R.B.D. (ii) (a) 6. (b) N.A. (iii) 4. (iv) 1. (v) Nil. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Woolly covering and gall formation on roots. (iii) Observation on the population of aphid on roots before and after treatments were recorded to assess the results on the % reduction in population on 17.7.1957. (iv) (a) and (b) No. (v) and (vi) Nil.

5. RESULTS :

(i) 76.91 degrees. (ii) 6.24 degrees. (iii) Treatment differences are highly significant. (iv) Mean % of reduction in population of aphid in degrees.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5
Mean angle	33.92	90.00	90.00	90.00	90.00	67.56
S.E./mean = 3.12 degrees.						
Transformed back %	31.33	99.50	99.50	99.50	99.50	85.07

Crop :- Apple.

Ref :- U.P. 58(406).

Site :- Govt. Hill Fruit Res. Stn., Chaubattia.

Type :- 'D'.

Object :- To study the effect of modern insecticides against aerial colonies of Apple woolly aphid.

1. BASAL CONDITIONS :

(i) N.A. (ii) (a) Clay loam. (b) Refer soil analysis, Chaubattia. (iii) Grafting during March. (iv) Delicious, Spitzenberg and Jonathan. (v) Planting in pits of 4' x 4' x 4' duly filled with the soil at a spacing of 20' x 20'. (vi) N.A. (vii) to (ix) Nil. (x) Unirrigated. (xi) N.A. (xii) August to September.

2. TREATMENTS :

6 insecticidal treatments : T_0 =Control, T_1 =Parathion emulsion 0.05%, T_2 =Diazinon emulsion 0.05%, T_3 =Ekatin (1 : 800), T_4 =Malathion emulsion 0.1% and T_5 =Fish oil rosin soap 3%. Insecticides were sprayed on 20.1.1958.

3. DESIGN :

(i) R.B.D. (ii) (a) 1. (b) N.A. (iii) 5. (iv) 2. (v) Nil. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Woolly covering and gall formation in branches and roots. (iii) % reduction in population of aphid. (iv) (a) and (b) No. (v) to (vii) Nil.

5. RESULTS :

(i) 90.73 %. (ii) 5.50 %. (iii) Treatment differences are highly significant. (iv) Av. % of reduction in population of woolly aphid.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5
Mean % of reduction	53.60	100.00	100.00	99.76	95.82	95.18
S.E./mean = 2.46 %.						

Crop :- Apple.**Ref :- U.P. 58(407).****Site :- Govt. Hill Fruit Res. Stn., Chaubattia.****Type :- 'D'.**

Object :—To study the effect of modern insecticides in extermination of aerial colonies of woolly Apple aphid.

1. BASAL CONDITIONS :

(i) N.A. (ii) (a) Clay loam. (b) Refer soil analysis, Chaubattia. (iii) Grafting during March. (iv) Improved. (v) Planting in pits of 4' x 4' x 4' duly filled with soil during winter at a spacing of 20' x 20'. (vi) N.A. (vii) to (ix) Nil. (x) Unirrigated. (xi) N.A. (xii) Plucking from August to September.

2. TREATMENTS :6 insecticidal treatments : T₀=Control, T₁=Parathion emulsion 0.05 %, T₂=Ekatin 0.125 %, T₃=Diazinon emulsion 0.05 %, T₄=Malathion emulsion 0.1 % and T₅=Fish oil rosin soap 3 %.

Insecticides were sprayed to achieve 95 to 100 % coverage.

3. DESIGN :

(i) R.B.D. (ii) (a) 6. (b) N.A. (iii) 5. (iv) 2. (v) Nil. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Under study. (iii) % reduction in the population of apple woolly aphid. (iv) (a) 1958—1959. (b) N.A. (v) to (vii) Nil.

5. RESULTS :

(i) 71.84 degrees. (ii) 5.7 degrees. (iii) Treatment differences are highly significant. (iv) Av. % of reduction in degrees.

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄	T ₅
Mean angle	32.56	90.00	90.00	81.07	68.82	68.62

S.E./mean = 2.34 degrees.

Crop :- Apple.**Ref :- U.P. 56(122).****Centre :- Jilling Estate (Nainital, c.f.).****Type :- 'D'.**

Object :—To test the efficacy of Basudin emulsion against san jose scab.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Apple. (c) N.A. (ii) Clay loam. (iii) Nil. (iv) Improved. (v) (a) Pruning of aerial part. (b) to (e) N.A. (vi) N.A. (vii) Unirrigated. (viii) to (x) N.A.

2. TREATMENTS :3 insecticidal treatments : T₀=Control, T₁=Basudin emulsion 20 % (1 : 300) and T₂=Basudin emulsion 20% (1 : 400).

Treatments applied on 2.5.1956.

3. DESIGN :

(i) and (ii) Survey selection ; R.B.D. with 5 replications and 2 trees/plot. (iii) (a) and (b) 400 sq. ft. (iv) N.A.

4. GENERAL :

(i) N.A. (ii) Under study. (iii) The number of dead and alive scab recorded before and 15 days after the application of treatments (iv) (a) 1956—N.A. (b) and (c) N.A. (v) to (vii) Nil.

5. RESULTS :

(i) 83.30 %. (ii) 5.80 %. (iii) Treatment differences are highly significant. (iv) Av. % of mortality.

Treatment	T ₀	T ₁	T ₂
Mean %	53.0	99.2	97.6

S.E./mean = 2.90 %.

Crop :- Apple.**Ref :- U.P. 56(120).****Centre :- Jilling Estate (Nainital, c.f.).****Type :- 'D'.**

Object :—To find out the efficiency of insecticides against san jose scab in dormant stage.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Apple. (c) N.A. (ii) Clay loam. (iii) N.A. (iv) Improved. (v) (a) Pruning during winter. (b) to (e) N.A. (vi) N.A. (vii) Unirrigated. (viii) to (x) N.A.

2. TREATMENTS :5 insecticidal treatments : T_0 =Control, T_1 =Spraying with Basudin e.c 20 % (1 : 550), T_2 =Spraying with Basudin e.c. 20 % (1 : 400), T_3 =Spraying with Diesel oil emulsion 4 % (Diesel oil soap diluted $6\frac{1}{2}$ times 15 : 2 : 14) and T_4 =Spraying with Diesel oil emulsion 5 %.

Insecticides sprayed on 9 and 10.1.1956.

3. DESIGN :

(i) and (ii) Survey selection, R.B.D. with 4 replications and 3 trees/plot. (iii) (a) and (b) 400 sq. ft. (iv) N.A.

4. GENERAL :(i) N.A. (ii) Under study. (iii) % reduction in population observed on 17.2.1956. (iv) (a) 1956 only. (b) and (c) Nil. (v) and (vi) Nil. (vii) Only heavily infested trees were selected and labelled. Due to scarcity of such trees 6 apricots trees were included. Population of living and dead scabs recorded by examining 4 pieces of $\frac{1}{4}'' \times \frac{1}{4}''$ bark from each tree.**5. RESULTS :**

(i) 24.80 degrees. (ii) 33.42 degrees. (iii) Treatment differences are significant. (iv) Av. % of reduction in degrees.

Treatment	T_0	T_1	T_2	T_3	T_4
Mean angle	4.26	50.13	64.94	—25.82	30.50

S.E./mean = 16.7 degrees.

Transformed back %	1.04	58.81	81.74	—19.38	26.00
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Crop :- Apple.**Ref :- U.P. 54(165).****Centre :- Majkhali (Almora, c.f.).****Type :- 'D'.**

Object :—To study the residual effect of insecticides against defoliating beetles.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Apple. (c) N.A. (ii) Clay loam. (iii) Nil. (iv) Improved. (v) (a) Grafting. (b) to (e) N.A. (vi) N.A. (vii) Unirrigated. (viii) to (x) N.A.

2. TREATMENTS :6 insecticidal treatments : T_0 =Control, T_1 =DDT emulsion 1 %, T_2 =DDT emulsion 0.75 %, T_3 =DDT emulsion 0.50%, T_4 =DDT emulsion 0.25 % and T_5 =DDT suspension 0.50 %.

Insecticides sprayed by Maruti sprayer at 1 gallon per tree on 7 and 9.7.1954.

3. DESIGN :

(i) and (ii) Survey selection. R.B.D. with 4 replications and 2 trees/plot. (iii) (a) and (b) 400 sq. ft. (iv) N.A.

4. GENERAL :

(i) Good. (ii) Under study. (iii) % damage of fruits and population of beetles after application of treatments. (iv) (a) 1950—1954. (b) and (c) N.A. (v) to (vii) Nil.

RESULTS :

(i) 20.78 degrees. (ii) 2.28 degrees. (iii) Treatment differences are highly significant. (iv) Av. % of damage of fruits in degrees.

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄	T ₅
Av. % of damage	41.68	7.98	12.02	16.42	26.92	19.60
S.E./mean = 1.14 degrees.						
Transformed back %	44.28	2.41	4.80	8.41	20.83	11.65

Crop :- Apple.

Ref :- U.P. 56(496).

Centre :- Tehri Garhwal (Tehri Garhwal, c.f.).

Type :- 'D'.

Object :-To study the efficiency of Basudin against san jose scab.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Apple. (c) N.A. (ii) Clay loam. (iii) Nil. (iv) Improved. (v) (a) Pruning. (b) to (e) N.A. (vi) N.A. (vii) Unirrigated. (viii) to (x) N.A.

2. TREATMENTS :

2 insecticidal treatments : T₀=Control and T₁=Basudin 20 % (1 : 500).
Treatments applied on 28.1.1956.

3. DESIGN :

(i) Sampling by survey. (ii) 10 samples as replications in R.B.D. (iii) (a) and (b) 400 sq. ft. (iv) N.A.

4. GENERAL :

(i) N.A. (ii) Under study. (iii) Population of scab. (iv) (a) 1956 only. (b) and (c) N.A. (v) to (vii) Nil.

5. RESULTS :

(i) 47.44 degrees. (ii) 30.72 degrees. (iii) Treatment differences are not significant. (iv) Av. % of population in degrees.

Treatment	T ₀	T ₁
Av. % of population	36.57	58.30
S.E./mean = 9.72 degrees.		
Transformed back % after bias correction	35.64	72.17

Crop :- Apple.

Ref :- U.P. 56(29).

Centre :- Ranikhet (Almora, c.f.).

Type :- 'D'.

Object :-To find out a suitable insecticidal control measure against the root colonies of Apple woolly aphis.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Apple. (c) N.A. (ii) Clay loam. (iii) N.A. (iv) Improved. (v) (a) Pruning trees and applying F.Y.M. to the root zone by exposing roots during winter. (b) to (e) N.A. (vi) N.A. (vii) Unirrigated. (viii) to (x) N.A.

2. TREATMENTS :

9 insecticidal treatments : T₀=Control, T₁=Parathion emulsion 0.05 %, T₂=Basudin 20 E (1 : 400), T₃=Systox emulsion (1 : 800), T₄=B.H.C. dust 10 %, T₅=Aldrin dust 5 %, T₆=Sulphur dust, T₇=Endrin emulsion 0.25 % and T₈=Formalin (15 : 85).

The insecticides were applied at 1 lb./tree and mixed in the soil to a depth of 1' in radius of 1½' around the base of tree. Emulsions were sprinkled on the infested parts and on the exposed soil. The soil was then replaced. Treatments applied on 8 to 12.2.1956.

3. DESIGN :

(i) By surveying. (ii) R.B.D. with 4 replications and 1 tree/plot. (iii) (a) and (b) 20' x 20'. (iv) N.A.

4. GENERAL :

(i) Good. (ii) Woolly covering with aphids on roots and gall formation. (iii) Population of aphids on roots was recorded before the application of treatments and after the application. Final observation taken on 23.3.1956. (iv) (a) 1956 only. (b) and (c) N.A. (v) and (vi) N.A. (vii) Nil.

5. RESULTS :

(i) 93.28 % reduction/plot. (ii) 13.24 % reduction/plot. (iii) Treatment differences are highly significant. (iv) Av. % of reduction in population.

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄	T ₅	T ₆	T ₇	T ₈
Av. % of reduction	61.00	100.00	103.00	100.00	99.00	99.00	98.25	97.00	85.25

S.E./mean = 6.62 %.

Crop :- Apple.

Ref :- U.P. 54(74).

Centre :- Majkholi (Almora, c.f.).

Type :- 'D'.

Object :- To find out a suitable insecticidal control measure against defoliating beetles.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Apple. (c) N.A. (ii) Clay loam. (iii) Nil. (iv) Improved. (v) (a) Pruning during winter (b) to (e) N.A. (vi) N.A. (vii) Unirrigated. (viii) to (x) N.A.

2. TREATMENTS :

6 insecticidal treatments: T₀=Control, T₁=DDT emulsion 1 %, T₂=DDT emulsion 0.75 %, T₃=DDT emulsion 0.5 %, T₄=DDT suspension 0.5 % and T₅=DDT emulsion 0.25 %.

Treatments sprayed on 7.7.1954.

3. DESIGN :

(i) and (ii) 4 replications in R.B.D. and 2 trees/plot. (iii) (a) 20' x 20'. (b) N.A. (iv) N.A.

4. GENERAL :

(i) Fair. (ii) Spray of above treatments against defoliating beetles. (iii) % of leaf area damaged. (iv) (a) 1950-1954. (b) and (c) N.A. (v) and (vi) N.A. (vii) Nil.

5. RESULTS ;

(i) 22.46 % of leaf area damaged/plot. (ii) 3.79 % of leaf area damaged/plot. (iii) Treatment differences are highly significant. (iv) Av. % of leaf area damaged.

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄	T ₅
Av. % of leaf area damaged	57.98	3.59	8.20	14.57	17.08	33.31

S.E./mean = 1.89 %.

Crop :- Apple.

Ref :- U.P. 56(39).

Centre :- Jilling Estate (Nainital, c.f.).

Type :- 'D'.

Object :- To test the efficacy of Diazinon in the control of sanjore scale.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Apple. (c) N.A. (ii) Clay loam. (iii) N.A. (iv) Delicious (improved variety). (v) (a) Pruning of aerial parts during winter. (b) to (e) N.A. (vi) N.A. (vii) Unirrigated. (viii) to (x) N.A.

2. TREATMENTS :

4 spraying treatments: T₀=Control, T₁=Diazinon emulsion 0.06 %, T₂=Diazinon emulsion 0.05 % and T₃=Diazinon emulsion 0.04 %.

Spraying done at 2½ lb./plant on 2.5.1956.

3. DESIGN :

(i) By surveying. (ii) R.B.D. with 5 replications. (iii) and (iv) N.A.

4. GENERAL :

(i) Stunted. (ii) Under study. (iii) The population of sanjore scale per 0.4 sq. inch of bark area per replication (5 samples from each tree) was recorded before and after the application of treatments. (iv) (a) 1956 only. (b) and (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 67.04 degrees. (ii) 5.31 degrees. (iii) Treatment differences are highly significant. (iv) Av. % of reduction in the population in degrees.

Treatment	T ₀	T ₁	T ₂	T ₃
Mean % of reduction	23.84	87.28	81.50	75.53
S.E./mean = 2.37 degrees.				
Transformed back %	16.68	99.28	97.34	93.32

Crop :- Apple.

Ref :- U.P. 56(40).

Centre :- Jilling Estate (Nainital, c.f.).

Type :- 'D'.

Object :- To test the efficacy of Diazinon in the control of sanjore scale.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Apple. (c) N.A. (ii) Clay loam. (iii) N.A. (iv) Delicious (Improved). (v) (a) Pruning of aerial parts during winter. (b) to (e) N.A. (vi) N.A. (vii) Unirrigated. (viii) to (x) N.A.

2. TREATMENTS :

5 spraying treatments : T₀=Control, T₁=Diazinon emulsion 0.05%, T₂=Diazinon emulsion 0.45%, T₃=Diesel oil emulsion 5% and T₄=Diesel oil emulsion 4%.

Treatments sprayed on 10.1.1956

3. DESIGN :

(i) By surveying. (ii) R.B.D. with 4 replications. (iii) and (iv) N.A.

4. GENERAL :

(i) Stunted. (ii) Under study. (iii) Four pieces of bark, each $\frac{1}{4}$ sq. inch, were removed from each tree before and after treatment and examined under magnification for the presence of dead and living scales. The population per sq. inch bark area was calculated on 18.2.1956. (iv) (a) 1956 only. (b) and (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 58.23 degrees. (ii) 5.15 degrees. (iii) Treatment differences are highly significant. (iv) Av. % of reduction in population in degrees.

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄
Mean % of reduction	23.27	71.59	68.28	66.03	61.96
S.E./mean = 2.58 degrees.					
Transformed back %	15.95	89.63	85.94	83.16	77.62

Crop :- Mango.

Ref :- U.P. 54(91).

Site :- Govt. Hort. Res. Instt., Saharanpur.

Type :- 'AMV'.

Object :- To study the effect of N on different varieties of Mango.

1. BASAL CONDITIONS :

(i) N.A. (ii) (a) Sandy loam. (b) Refer soil analysis, Saharanpur. (iii) N.A. (iv) As per treatments. (v) July, 1951, 36' x 36', square system. (vi) Two years. (vii) 1 md./pit of F.Y.M. (viii) Hoeing, weeding, ploughing and green manuring. (ix) N.A. (x) Irrigated. (xi) 43.97". (xii) No harvest.

2. TREATMENTS:

Main-plot treatments:

3 scion varieties : $V_1 = \text{Dasher}$, $V_2 = \text{Kelwa Durgilal}$ and $V_3 = \text{Ascjia Deoband}$.

Sub-plot treatments :

2 levels of A/S : $S_0 = 0$ and $S_1 = 3 \text{ lb./tree}$.

3. DESIGN :

(i) Split-plot. (ii) 3 main-plots/replication ; 2 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) 1. (v) Guard row left around the experimental area. (vi) Yes.

4. GENERAL :

(i) Good. (ii) No. (iii) Measurement of circumference of stock, circumference of scion (above the union), height of trees and tree spread. (iv) (a) 1954—contd. (b) Nil. (v) to (vii) N.A.

5. RESULTS :

Girth below the union

(i) 9.0 cms./tree. (ii) (a) 3.19 cms./tree. (b) 1.87 cms./tree. (iii) None of the effects is significant. (iv) Av. girth below the union in cms./tree.

	V_1	V_2	V_3	Mean
S_0	7.4	9.0	10.0	8.8
S_1	7.4	9.2	10.8	9.1
Mean	7.4	9.1	10.4	9.0

S.E. of difference of two

1. V marginal means = 1.60 cms./tree.
2. S marginal means = 0.76 cms./tree.
3. S means at the same level of V = 1.32 cms./tree.
4. V means at the same level of S = 1.85 cms./tree.

Girth above the union

(i) 6.6 cms./tree. (ii) (a) 3.17 cms./tree. (b) 1.79 cms./tree. (iii) None of the effects is significant. (iv) Av. girth above the union in cms./tree.

	V_1	V_2	V_3	Mean
S_0	6.3	5.9	7.4	6.5
S_1	6.2	6.6	7.6	6.8
Mean	6.2	6.2	7.5	6.6

S.E. of difference of two

1. V marginal means = 1.59 cms./tree.
2. S marginal means = 0.73 cms./tree.
3. S means at the same level of V = 1.27 cms./tree.
4. V means at the same level of S = 1.82 cms./tree.

Crop :- Mango.

Site :- Govt. Hort. Res. Instt., Saharanpur.

Ref :- U.P. 55(92).

Type :- 'MV'.

Object :- To study the effect of N on different varieties of Mango.

1. BASAL CONDITIONS :

(i) N.A. (ii) (a) Sandy loam. (b) Refer soil analysis, Saharanpur. (iii) N.A. (iv) As per treatments. (v) July 1951, 36' x 36', square system. (vi) 2 years. (vii) 1 md./pit of F.Y.M. (viii) Hoeing, weeding, ploughing and green manuring. (ix) N.A. (x) Irrigated. (xi) 55.39". (xii) No harvest.

2. TREATMENTS :

Main-plot treatments :

3 scion varieties : $V_1 = \text{Dasher}$, $V_2 = \text{Kelwa Durgi Lal}$ and $V_3 = \text{Asofia Deoband}$.

Sub-plot treatments :

2 levels of A/S : $S_0 = 0$ and $S_1 = 4 \text{ lb./tree}$.

3. DESIGN and 4. GENERAL :

Same as in expt. no. 54(91) on page 1633.

5. RESULTS :

(i) 21.8 cms./tree. (ii) (a) 9.56 cms./tree. (b) 5.72 cms./tree. (iii) None of the effects is significant. (iv) Av. girth of scion above the union in cms./tree.

	V_1	V_2	V_3	Mean
S_0	19.8	24.5	20.5	21.6
S_1	19.8	25.5	20.8	22.0
Mean	19.8	25.0	20.6	21.8

S.E. of difference of two

- 1. V marginal means = 4.78 cms./tree.
- 2. S marginal means = 2.34 cms./tree.
- 3. S means at the same level of V = 4.04 cms./tree.
- 4. V means at the same level of S = 5.57 cms./tree.

Crop :- Mango.

Ref :- U.P. 56(37).

Site :- Govt. Hort. Res. Instt., Saharanpur.

Type :- 'MV'.

Object :- To study the effect of N, P and K fertilizers on different varieties of Mango.

1. BASAL CONDITIONS :

(i) N.A. (ii) (a) Sandy loam. (b) Refer soil analysis, Saharanpur. (iii) N.A. (iv) As per treatments. (v) July 1951, 36' x 36', square system. (vi) Two years. (vii) 1 md./pit of F.Y.M. (viii) and (ix) N.A. (x) Irrigated. (xi) 65.01". (xii) No harvest.

2. TREATMENTS :

Main-plot treatments :

3 varieties : $V_1 = \text{Dasher}$, $V_2 = \text{Kelwa Durgilal}$ and $V_3 = \text{Asofia Deoband}$.

Sub-plot treatments :

2 manurial treatments : $M_0 = \text{Control}$ and $M_1 = 5 \text{ lb./tree of A/S} + 0.75 \text{ lb./tree. of double phos lb./tree of Pot. Sul.}$

3. DESIGN :

Same as in expt. no 54(91) on page 1633.

4. GENERAL :

(i) and (ii) N.A. (iii) Girth of scion above the union. (iv) (a) 1954—contd. (b) Nil. (v) to (vii) N.A.

5. RESULTS :

(i) 27.8 cms./tree. (ii) (a) 9.79 cms./tree. (b) 7.05 cms./tree. (iii) None of the effects is significant. (iv) Av. girth of scion above the union in cms /tree

	V ₁	V ₂	V ₃	Mean
M ₀	24.8	31.0	26.8	27.5
M ₁	25.0	32.0	27.0	28.0
Mean	24.9	31.5	26.9	27.8

S.E. of difference of two

1. V marginal means = 4.89 cms./tree.
2. M marginal means = 2.88 cms./tree.
3. M means at the same level of V = 4.99 cms./tree.
4. V means at the same level of M = 6.03 cms./tree.

Crop :- Mango.

Ref :- U.P. 57(20).

Site :- Govt. Hort. Res. Instt., Saharanpur.

Type :- 'MV'.

Object :- To study the effect of N, P and K fertilizers on different varieties of Mango.

1. BASAL CONDITIONS :

(i) N.A. (ii) (a) Sandy loam. (b) Refer soil analysis, Saharanpur. (iii) N.A. (iv) As per treatments. (v) July, 1951 ; 36' x 36' square system. (vi) Two years. (vii) 1 md./pit of F.Y.M. (viii) Hoeing, weeding and ploughing. (ix) N.A. (x) Irrigated. (xi) 46.74%. (xii) No harvest.

2. TREATMENTS :

Same as in expt. no. 56(37) on page 1635.

3. DESIGN :

(i) Split-plot. (ii) (a) 3 main-plots/replication ; 2 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) 1. (v) Guard row left all round the experimental area. (vi) Yes.

4. GENERAL :

(i) Good. (ii) No. (iii) Girth of scion. (iv) (a) 1954—contd. (b) Nil. (v) to (vii) N.A.

5. RESULTS :

(i) 31.0 cms./tree. (ii) (a) 10.05 cms./tree. (b) 7.22 cms./tree. (iii) None of the effects is significant. (iv) Av. girth of scion in cms./tree.

	V ₁	V ₂	V ₃	Mean
M ₀	28.0	31.5	33.2	30.9
M ₁	28.2	29.8	35.2	31.1
Mean	28.1	30.6	34.2	31.0

S.E. of difference of two

1. V marginal means = 5.02 cms./tree.
2. M marginal means = 2.95 cms./tree.
3. M means at the same level of V = 5.11 cms./tree.
4. V means at the same level of M = 6.19 cms./tree.

Crop :- Mango.

Ref :- U.P. 58(128).

Site :- Govt. Hort. Res. Instt., Saharanpur.

Type :- 'MV'.

Object :- To study the effect of N, P and K fertilizers on different varieties of Mango.

1. BASAL CONDITIONS :

- (i) N.A. (ii) (a) Sandy loam. (b) ~~Refer soil analysis~~ soil analysis, Saharanpur. (iii) N.A. (iv) As per treatments. (v) July, 1951; 36'×36' square system. (vi) Two years. (vii) 1 md./pit of F.Y.M. (viii) and (ix) N.A. (x) Irrigated. (xi) 63.94'. (xii) N.A.

2. TREATMENTS :

Main-plot treatments :

3 varieties : $V_1 = \text{Dasher}$, $V_2 = \text{Kelwa Durgil}$ and $V_3 = \text{Asojia Deoband}$.

Sub-plot treatments :

2 manurial treatments : $M_0 = 0$, and $M_1 = 3$ lb./tree of N as Blood Meal + 2 lb./tree of P_2O_5 as Super + 1 lb./tree of K_2O as Pot. Sul.

3. DESIGN :

Same as in expt. no. 54(91) on page

4. GENERAL :

- (i) and (ii) N.A. (iii) No. of inflorescences and no. of fruits. (iv) (a) 1954—contd. (b) Nil. (v) to (vii) Nil.

5. RESULTS :

Number of inflorescences

- (i) 86.0 inflorescences/tree. (ii) (a) 70.9 inflorescences/tree. (b) 27.3 inflorescences/tree. (iii) None of the effects is significant. (iv) Av. number of inflorescences/tree.

	V_1	V_2	V_3	Mean
M_0	91.8	56.0	98.5	82.1
M_1	88.2	41.5	140.0	89.9
Mean	90.0	48.8	119.2	86.0

S.E. of difference of two

1. V marginal means = 35.5 inflorescences/tree.
2. M marginal means = 11.1 inflorescences/tree.
3. M means at the same level of V = 19.3 inflorescences/tree.
4. V means at the same level of M = 38.0 inflorescences/tree.

Number of fruits

- (i) 129.8 fruits/tree. (ii) (a) 136.7 fruits/tree. (b) 133.8 fruits/tree. (iii) Main effect of V alone is significant. (iv) Av. number of fruits/tree.

	V_1	V_2	V_3	Mean
M_0	51.5	13.2	209.8	91.5
M_1	106.5	2.5	395.5	168.2
Mean	79.0	7.8	302.6	129.8

S.E. of difference of two

1. V marginal means = 68.3 fruits/tree.
2. M marginal means = 54.6 fruits/tree.
3. M means at the same level of V = 94.6 fruits/tree.
4. V means at the same level of M = 95.6 fruits/tree.

Crop :- Mango.

Ref :- U.P. 59(145).

Site :- Govt. Hort. Res. Instt., Saharanpur.

Type :- 'MV'.

Object :- To study the effect of N, P and K fertilizers on different varieties of Mango.

1. BASAL CONDITIONS :

(i) N.A. (ii) (a) Sandy loam. (b) Refer soil analysis, Saharanpur. (iii) N.A. (iv) As per treatments. (v) July, 1951; 36' x 36' square system. (vi) Two years. (vii) 1 md./pit of F.Y.M. (viii) and (ix) N.A. (x) Irrigated. (xi) 62.05°. (xii) N.A.

2. TREATMENTS :

Same as in expt. no. 58(128) on page 1636.

Manures applied two times in a year in equal doses.

3. DESIGN :

(i) Split-plot. (ii) (a) 3 main-plots/replication; 2 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) 1. (v) Guard rows around the experimental area. (vi) Yes.

4. GENERAL :

Same as in expt. no. 58(128) on page 1636.

5. RESULTS :**Number of inflorescences/tree**

(i) 103.7 inflorescences/tree. (ii) (a) 46.8 inflorescences/tree. (b) 62.3 inflorescences/tree. (iii) Main effect of V alone is highly significant. (iv) Av. number of inflorescences/tree.

	V ₁	V ₂	V ₃	Mean
M ₀	176.5	93.0	18.2	95.9
M ₁	191.2	95.8	47.5	111.5
Mean	183.8	94.4	32.8	103.7

S.E. of difference of two

1. V marginal means = 23.4 inflorescences/tree.
2. M marginal means = 25.4 inflorescences/tree.
3. M means at the same level of V = 44.0 inflorescences/tree.
4. V means at the same level of M = 39.0 inflorescences/tree.

Number of fruits

(i) 61.9 fruits/tree. (ii) (a) 76.9 fruits/tree. (b) 45.4 fruits/tree. (iii) None of the effects is significant. (iv) Av. no. of fruits/tree.

	V ₁	V ₂	V ₃	Mean
M ₀	128.5	54.5	1.2	61.4
M ₁	107.0	79.0	1.2	62.4
Mean	117.8	66.8	1.2	61.9

S.E. of difference of two

1. V marginal means = 38.5 fruits/tree.
2. M marginal means = 18.5 fruits/tree.
3. M means at the same level of V = 32.1 fruits/tree.
4. V means at the same level of M = 44.6 fruits/tree.

Crop :- Mango.

Ref :- U.P. 54(92).

Site :- Govt. Hort. Res. Instt., Saharanpur.

Type :- 'CV'.

Object :- To study the effect of blossom thinning on different varieties of Mango.

1. BASAL CONDITIONS :

(i) N.A. (ii) (a) Sandy loam. (b) Refer soil analysis, Saharanpur. (iii) N.A. (iv) As per treatments. (v) July, 1951. (vi) Two years. (vii) 1 md./tree of F.Y.M. (viii) Hoeing and weeding. (ix) N.A. (x) Irrigated. (xi) 43.97". (xii) Measurements taken in April, 1955.

2. TREATMENTS:

Main-plot treatments :

3 scion varieties : V_1 =Fajri Zafrani, V_2 =Fajri white and V_3 =S.B. Chausa.

Sub-plot treatments :

2 thinning treatments : T_0 =Control and T_1 =Removing 75 % of total blossoms in the full 'on' year.

3. DESIGN :

(i) Split-plot. (ii) (a) 3 main-plots/replication ; 2 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) 1. (v) Guard rows around the experimental area. (vi) Yes.

4. GENERAL:

(i) Good. (ii) No. (iii) Measurement of girth of scion above the union and the volume of the tree. (iv) (a) 1952—1959. (b) Nil. (v) and (vi) N.A. (vii) Sub-plot treatments have not been applied this year and hence the girths of the two trees in one main-plot have been added up and analysed as R.B.D.

5. RESULTS :

Girth of scion

(i) 6.4 cm./tree. (ii) 0.66 cm./tree. (iii) Treatment differences are highly significant. (iv) Av. girth of scion in cm./tree.

Treatment	V_1	V_2	V_3
Av. girth	5.0	6.6	7.7

S.E./mean = 0.33 cm./tree.

Girth of stock

(i) 8.7 cm./tree. (ii) 0.76 cm./tree. (iii) Treatment differences are highly significant. (iv) Av. girth of stock in cm./tree.

Treatment	V_1	V_2	V_3
Av. girth	6.9	8.3	11.0

S.E./mean = 0.38 cm./tree.

Crop :- Mango.

Site :- Govt. Hort. Res. Instt., Saharanpur.

Ref :- U.P. 55(93).

Type :- 'CV'.

Object :—To study the effect of blossom thinning on different varieties of Mango.

1. BASAL CONDITIONS :

(i) N.A. (ii) (a) Sandy loam. (b) Refer soil analysis, Saharanpur. (iii) N.A. (iv) As per treatments. (v) July, 1951. (vi) Two years. (vii) 1 md./tree of F.Y.M. (viii) Hoeing and weeding. (ix) N.A. (x) Irrigated. (xi) 55.35". (xii) Measurements taken in April, 1956.

2. TREATMENTS and 3. DESIGN :

Same as in expt. no. 54(92) on page 1638.

4. GENERAL :

(i) Good. (ii) No. (iii) Measurement of girth of scion above the union and the volume of the tree. (iv) (a) 1952—1959. (b) Nil. (v) to (vii) Nil.

5. RESULTS:

(i) 22.5 cm./tree. (ii) (a) 4.52 cm./tree. (b) 3.95 cm./tree. (iii) Main effect of V alone is significant. (iv) Av. girth of scion in cm./tree.

	V ₁	V ₂	V ₃	Mean
T ₀	19.2	22.8	25.2	22.4
T ₁	16.0	22.0	29.8	22.6
Mean	17.6	22.4	27.5	22.5

S.E. of difference of two

1. V marginal means = 2.26 cm./tree.
2. T marginal means = 1.61 cm./tree.
3. T means at the same level of V = 2.79 cm./tree.
4. V means at the same level of T = 3.00 cm./tree.

Crop :- Mango.

Ref :- U.P. 56(36).

Site :- Govt. Hort. Res. Instt., Saharanpur.

Type :- 'CV'.

Object :- To study the effect of blossom thinning on different varieties of Mango.

1. BASAL CONDITIONS :

(i) N.A. (ii) (a) Sandy loam. (b) Refer soil analysis, Saharanpur. (iii) N.A. (iv) As per treatments. (v) July, 1951. (vi) Two years. (vii) 1 md./pit of F.Y.M. (viii) Hoeing and weeding. (ix) N.A. (x) Irrigated. (xi) 65.01%. (xii) No harvest.

2. TREATMENTS :

Main-plot treatments :

3 varieties : V₁=Fajri Zafrani, V₂=Fajri white and V₃=S.B. Chausa.

Sub-plot treatments :

2 thinning treatments : T₀=Control and T₁=Removal of 50 % of total blossom in the full 'on' year.

3. DESIGN :

Same as in expt. no. 54(92) on page 1638.

4. GENERAL :

(i) Good. (ii) No. (iii) Measurement of girth of scion and the volume of the tree. (iv) (a) 1952—1959. (b) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 28.5 cm./tree. (ii) (a) 7.34 cm./tree. (b) 3.03 cm./tree. (iii) None of the effects is significant. (iv) Av. girth of scion in cm./tree.

	V ₁	V ₂	V ₃	Mean
T ₀	25.0	27.8	31.8	28.2
T ₁	21.0	30.5	35.0	28.8
Mean	23.0	29.2	33.4	28.5

S.E. of difference of two

1. V marginal means = 3.67 cm./tree.
2. T marginal means = 1.24 cm./tree.
3. T means at the same level of V = 2.14 cm./tree.
4. V means at the same level of T = 3.96 cm./tree.

Crop :- Mango.

Ref :- U.P. 57(19).

Site :- Govt. Hort. Res. Instt., Saharanpur.

Type :- 'CV'.

Object :- To study the effect of blossom thinning on different varieties of Mango.

1. BASAL CONDITIONS :

(i) N.A. (ii) (a) Sandy loam. (b) Refer soil analysis, Saharanpur. (iii) N.A. (iv) As per treatments. (v) July, 1951, 36' x 36' square system. (vi) Two years. (vii) 1 md./pit of F.Y.M. (viii) Hoeing and weeding. (ix) N.A. (x) Irrigated. (xi) 46.74%. (xii) No. harvest.

2. TREATMENTS :

Same as in expt. no. 56(36) on page 1640.

3. DESIGN :

(i) Split-plot. (ii) (a) 3 main-plots/replication ; 2 sub-plots/main-plot. (iii) 4. (iv) 1. (v) Guard rows left around the experimental area. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Nil. (iii) Girth of scion, the volume of the tree, no. of fruits borne, weights of fruit borne and no. of inflorescences. (iv) (a) 1952—1959. (b) Nil. (v) to (vii) N.A.

5. RESULTS :

(i) 32.3 cm./tree. (ii) (a) 6.86 cm./tree. (b) 4.47 cm./tree. (iii) Main effect of V alone is highly significant. (iv) Av. girth of scion in cm./tree.

	V ₁	V ₂	V ₃	Mean
T ₀	28.8	29.5	37.0	31.8
T ₁	24.5	32.5	41.5	32.8
Mean	26.6	31.0	39.2	32.3

S.E. of difference of two

- | | |
|-----------------------------------|------------------|
| 1. V marginal means | = 3.43 cm./tree. |
| 2. T marginal means | = 1.83 cm./tree. |
| 3. T means at the same level of V | = 4.10 cm./tree. |
| 4. V means at the same level of T | = 3.16 cm./tree. |

Crop :- Mango.

Ref :- U.P. 58(127).

Site :- Govt. Hort. Res. Instt., Saharanpur.

Type :- 'CV'.

Object :- To study the effect of blossom thinning on different varieties of Mango.

1. BASAL CONDITIONS :

(i) N.A. (ii) (a) Sandy loam. (b) Refer soil analysis, Saharanpur. (iii) N.A. (iv) As per treatments. (v) July, 1951, 36' x 36' square system. (vi) 2 years. (vii) 1 md./pit of F.Y.M. (viii) and (ix) N.A. (x) Irrigated. (xi) and (xii) N.A.

2. TREATMENTS :

Same as in expt. no. 56(36) on page 1640.

3. DESIGN :

(i) Split-plot. (ii) (a) 3 main-plots/replication ; 2 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) 1. (v) Guard rows left around the experimental area. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Number of inflorescences and number of fruits. (iv) (a) 1952—1959. (b) Nil. (v) to (vii) Nil.

5. RESULTS :

Number of Inflorescences

(i) 171.6 inflorescences/tree. (ii) (a) 137.7 inflorescences/tree. (b) 90.1 inflorescences/tree. (iii) None of the effects is significant. (iv) Av. number of inflorescences/tree.

	V ₁	V ₂	V ₃	Mean
T ₀	150.2	173.8	195.5	173.2
T ₁	139.0	155.0	216.0	170.0
Mean	144.6	164.4	205.8	171.6

S.E. of difference of two

1. V marginal means = 68.9 inflorescences/tree.
2. T marginal means = 36.8 inflorescences/tree.
3. T means at the same level of V = 63.7 inflorescences/tree.
4. V means at the same level of T = 82.3 inflorescences/tree.

Number of fruits

(i) 60.1 fruits/tree. (ii) (a) 27.5 fruits/tree. (b) 34.3 fruits/tree. (iii) None of the effects is significant. (i) Av. number of fruits/tree.

	V ₁	V ₂	V ₃	Mean
T ₀	65.8	94.0	29.2	63.0
T ₁	27.8	68.8	75.2	57.3
Mean	46.8	81.4	52.2	60.1

S.E. of difference of two

1. V marginal means = 13.8 fruits/tree.
2. T marginal means = 14.0 fruits/tree.
3. T means at the same level of V = 24.2 fruits/tree.
4. V means at the same level of T = 22.0 fruits/tree.

Crop :- Mango.

Ref :- U.P. 59(144).

Site :- Govt. Hort. Res. Instt., Saharanpur.

Type :- 'CV'.

Object :- To study the effect of blossom thinning on different varieties of Mango.

1. BASAL CONDITIONS :

(i) N.A. (ii) (a) Sandy loam. (b) Refer soil analysis, Saharanpur. (iii) N.A. (iv) As per treatments. (v) July 1951, 36'×36' square system. (vi) 2 years. (vii) 1 md./pit of F.Y.M. (viii) and (ix) N.A. (x) Irrigated. (xi) 62.05". (xii) N.A.

2. TREATMENTS :

Same as in expt. no. 56(36) on page 1640.

3. DESIGN :

(i) Split-plot. (ii) (a) 3 main-plots/replication ; 2 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) 1. (v) Guard rows left around the experimental area. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Number of inflorescences and number of fruits. (iv) (a) 1952—1959. (b) Nil. (v) to (vii) Nil.

5. RESULTS :

Number of inflorescences

(i) 199.9 inflorescences/tree. (ii) (a) 190.4 inflorescences/tree. (b) 102.8 inflorescences/tree. (iii) None of the effects is significant. (iv) Av. number of inflorescences/tree

	V ₁	V ₂	V ₃	Mean
T ₀	380.5	110.8	147.2	212.8
T ₁	222.5	19.28	145.5	186.9
Mean	301.5	151.8	146.4	199.9

S.E. of difference of two

1. V marginal means = 95.2 inflorescences/tree.
2. T marginal means = 42.0 inflorescences/tree.
3. T means at the same level of V = 72.7 inflorescences/tree.
4. V means at the same level of T = 108.2 inflorescences/tree.

Number of fruits

(i) 27.9 fruits/tree. (ii) (a) 24.1 fruits/tree. (b) 22.2 fruits/tree. (iii) None of the effects is significant. (iv) Av. number of fruits/tree.

	V ₁	V ₂	V ₃	Mean
T ₀	27.5	15.0	23.5	22.0
T ₁	26.0	52.0	23.2	33.7
Mean	26.8	33.5	23.4	27.9

S.E. of difference of two

1. V marginal means = 12.1 fruits/tree.
2. T marginal means = 9.1 fruits/tree.
3. T means at the same level of V = 15.7 fruits/tree.
4. V means at the same level of T = 16.4 fruits/tree.

Crop :- Mango.

Ref :- U.P. 55(367).

Site :- Govt. Hort. Res. Instt., Saharanpur.

Type :- 'D'.

Object :- To find out control measures against Mango malformation disease.

1. BASAL CONDITIONS :

(i) N.A. (ii) (a) Sandy loam. (b) Refer soil analysis, Saharanpur. (iii) to (xii) N.A.

2. TREATMENTS :

5 spraying treatments : T₀=Control, T₁=2 sprays with 0.064 % Diazinon, T₂=5 sprays with 0.064 % Diazinon, T₃=Chloro Benzine and T₄=Ovotron at 0.125 %.

3. DESIGN :

(i) C.R.D. (ii) 24. (iii) Treatment T₄ has 4 replications while remaining treatments have 5 replications. (iv) N.A. (v) Nil. (vi) Treatment T₄ has been randomly allocated to 4 trees while remaining treatments have been allocated to 5 trees each.

4. GENERAL :

(i) N.A. (ii) Malformation. (iii) % malformation. (iv) (a) 1955-1957. (b) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 28.7 degrees. (ii) 18.10 degrees. (iii) Treatment differences are highly significant. (iv) Av. % of malformation in degrees.

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄
Mean angle	54.2	24.3	11.6	39.1	10.6
	S.E./mean (excluding T ₄) = 8.09 degrees.				
	S.E. of T ₄ mean = 9.05 degrees.				
Transformed back %	65.7	17.3	4.5	39.9	3.8

Crop :- Mango.

Ref :- U.P. 56(132).

Site :- Govt. Hort. Res. Instt., Saha ranpur.

Type :- 'D'.

Object :—To find out chemical control measures against malformation in Mango inflorescences.

1. BASAL CONDITIONS :

(i) N.A. (ii) (a) Sandy loam. (b) Refer soil analysis, Saharanpur. (iii) to (x) N.A. (xi) 65.01%. (xii) N.A.

2. TREATMENTS :

5 spraying treatments : T₀=Control, T₁=2 sprays with 0.064 % Diazinon, T₂=2 sprays with 0.032 % Diazinon, T₃=Chloro Benzine and T₄=Ovotron at 0.125 %.

3. DESIGN :

(i) C.R.D. (ii) (a) 20. (b) N.A. (iii) N.A. (iv) 1. (v) Nil. (vi) Treatments have been applied to groups of 4 trees taken randomly.

4. GENERAL :

(i) N.A. (ii) Malformation. (iii) N.A. (iv) (a) 1956—contd. (b) Nil. (v) to (vii) Nil.

5. RESULTS :

25.9 degrees. (ii) 15.3 degrees. (iii) Treatment differences are not significant. (iv) Av. % of malformed inflorescences in degrees.

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄
Mean angle	22.2	25.3	22.9	29.3	30.0
	S.E./mean = 6.85 degrees.				
Transformed back %	14.6	18.6	14.7	24.3	25.2

Crop :- Mango.

Ref :- U.P. 58(154).

Site :- Govt. Hort. Res. Instt., Saharanpur.

Type :- 'D'.

Object :—To find out the chemical control measures against malformation in Mango inflorescences.

1. BASAL CONDITIONS :

(i) N.A. (ii) (a) Sandy loam. (b) Refer soil analysis, Saharanpur. (iii) to (x) N.A. (xi) 63.94%. (xii) N.A.

2. TREATMENTS :

3 spraying treatments : T₁=Ultra sulphur at 180 gallons in 10 gallons of water fortnightly spraying, T₂=Ekatin 2 ozs. in 10 gallons of water weekly spraying and T₃=Ekatin 4 ozs. in 10 gallons of water fortnightly spraying.

3. DESIGN :

(i) C.R.D. (ii) (a) 15. (b) N.A. (iii) Nil. (iv) 1. (v) Nil. (vi) Yes.

4. GENERAL :

(i) to (iii) N.A. (iv) (a) 1956—contd. (b) Nil. (v) to (vii) N.A.

5. RESULTS :

(i) 13.3 degrees. (ii) 11.07 degrees. (iii) Treatment differences are not significant. (iv) Av. % of malformed inflorescences in degrees.

Treatment	T ₁	T ₂	T ₃
Mean angle	20.3	15.0	4.6
S.E./mean = 4.95 degrees			
Transformed back %	12.5	7.2	1.2

Crop :- Mango.

Ref :- U.P. 59(172).

Site :- Govt. Hort. Res. Instt., Saharanpur.

Type :- 'D'.

Object :- To find out the chemical control measures against malformation in Mango inflorescences.

1. BASAL CONDITIONS :

(i) N.A. (ii) (a) Sandy loam. (b) Refer soil analysis, Saharanpur. (iii) to (ix) N.A. (x) Irrigated. (xi) 62.05%. (xii) N.A.

2. TREATMENTS :

9 spraying treatments : T₀=Control, T₁=0.016 % Basudin+0.05 % sulphur, T₂=0.025 % chlorobenzate+0.05 % sulphur+0.016 % Basudin, T₃=0.025 % Chlorobenzate+0.01 % Ovotron, T₄=2 % Albolinium, T₅=0.04 % Rozor, T₆=0.015 % Kelthene, T₇=0.008% Kelthene+0.016 % Basudin and T₈=0.008 % Kelthene+0.1 % Ovotron.

3. DESIGN :

(i) C.R.D. (ii) and (iii) 9 treatments replicated 4 times. (iv) 1. (v) No border. (vi) Yes.

4. GENERAL :

(i) N.A. (ii) Malformation. (iii) N.A. (iv) (a) 1956—contd. (b) Nil. (v) to (vii) N.A.

5. RESULTS :

(i) 26.8 degrees. (ii) 11.96 degrees. (iii) Treatment differences are significant. (iv) Av. % of malformed inflorescences in degrees.

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄	T ₅	T ₆	T ₇	T ₈
Mean angle	39.6	24.2	34.0	22.6	11.9	38.8	26.2	11.5	32.8
S.E./mean = 5.98 degrees.									
Transformed back %	40.7	17.3	31.6	15.2	4.8	39.4	19.9	4.5	29.6

Crop :- Mango.

Ref :- U.P. 57(428).

Site :- Govt. Hort. Res. Instt., Saharanpur.

Type :- 'D'.

Object :- To find out a suitable control measure for Mango die back disease.

1. BASAL CONDITIONS :

(i) N.A. (ii) (a) Sandy loam. (b) Refer soil analysis, Saharanpur. (iii) Grafting. (iv) *Langra Dashehri*. (v) to (ix) N.A. (x) Irrigated. (xi) and (xii) N.A.

2. TREATMENTS :

4 fungicidal treatments : T₁=Coppersan at 2 lb./ 40 gallons of water, T₂=Dithane at 2 lb./ 100 gallons of water, T₃=Fungi copper at 1½ lb./ 40 gallons of water and T₄=Lime sulphur at 1 lb./ 100 gallons of water.

The dead twigs were first pruned away from all trees and weight was recorded. Sprayings done on 17.12.1956 and 14.3.1957.

3. DESIGN :

(i) C.R.D. (ii) and (iii) 11 trees for T₁, 12 trees for T₂, 15 trees for T₃ and 13 trees for T₄. (iv) 1. (v) Around the experimental area. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Drying of twigs. (iii) Weight of dry twigs. (iv) (a) N.A. (b) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 152 lb./tree. (ii) 68.3 lb./tree. (iii) Treatment differences are not significant. (iv) Av. weight of dry twigs in lb./tree.

Treatment	T ₁	T ₂	T ₃	T ₄
Av. weight	142	159	160	147

S.E. of T₁ mean = 20.6 lb./tree. S.E. of T₂ mean = 19.7 lb./tree.

S.E. of T₃ mean = 17.6 lb./tree. S.E. of T₄ mean = 18.9 lb./tree.

Crop :- Mango.

Ref :- U.P. 59(464).

Site :- Govt. Hort. Res. Instt., Saharanpur.

Type :- 'D'.

Object :-To find out a suitable control measure for Mango die back disease.

1. BASAL CONDITIONS :

(i) N.A. (ii) (a) Sandy loam. (b) Refer soil analysis, Saharanpur. (iii) Grafting. (iv) *Langra Dashehri*. (v) to (ix) N.A. (x) Irrigated. (xi) N.A. (xii) No harvest.

2. TREATMENTS to 4. GENERAL :

Same as in expt. no. 57(428) on page 1645.

5. RESULTS :

(i) 5.7 lb./tree. (ii) 2.62 lb./tree. (iii) Treatment differences are not significant. (iv) Av. weight of dry twigs in lb./tree.

Treatment	T ₁	T ₂	T ₃	T ₄
Av. weight	5.9	5.7	5.1	6.1

S.E. of T₁ mean = 0.79 lb./tree. S.E. of T₂ mean = 0.76 lb./tree.

S.E. of T₃ mean = 0.68 lb./tree. S.E. of T₄ mean = 0.73 lb./tree.

Crop :- Mango.

Ref :- U.P. 59(156).

Site :- Govt. Hort. Res. Instt., Saharanpur.

Type :- 'D'.

Object :-To find out a suitable control measure for Mango die back disease.

1. BASAL CONDITIONS :

(i) N.A. (ii) (a) Sandy loam. (b) Refer soil analysis, Saharanpur. (iii) Grafting. (iv) *Langra Dashehri*. (v) to (ix) N.A. (x) Irrigated. (xi) and (xii) N.A.

2. TREATMENTS :

3 spraying treatments : T₀=Control, T₁=Dithane and T₂=Coppersan.
Spraying done on 23.3.1956 at 2 lb /100 gallons.

3. DESIGN :

(i) R.B.D. (ii) 3. (iii) 4. (iv) and (v) N.A. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Drying of twigs. (iii) Yield of dried twigs. (iv) (a) N.A. (b) Nil. (v) to (vii) N.A.

5. RESULTS :

(i) 21.8 lb./plot. (ii) 6.85 lb./plot. (iii) Treatment differences are significant. (iv) Av. yield of dried twigs in lb./plot.

Treatment	T ₀	T ₁	T ₂
Av. yield	31.2	19.0	15.2

S.E./mean = 3.43 dried twigs/plot.

Crop :- Mango.

Ref :- U.P. 54(59).

Centre :- Jeolikote (Nainital, c.f.).

Type :- 'D'.

Object :—To study the effect of various fungicides against Mango mildew.

1. BASAL CONDITIONS :

(i) (a) to (c) Nil. (ii) Loam. (iii) Nil. (iv) to (vi) N.A. (vii) Unirrigated. (viii) Nil. (ix) N.A. (x) Not required.

2. TREATMENTS :

6 spraying treatments : T₀=Control, T₁=Lime sulphur 1 : 30 sp. gravity 1.33, T₂=Ultra sulphur 0.3%, T₃=Thiovit 0.3%, T₄=Sandolin 0.3% and T₅=Dithane Z.78 0.3%.
Fungicides sprayed on 9 and 10.3.1954.

3. DESIGN :

(i) R.B.D. with 6 replications. (ii) N.A. (iii) (a) One tree. (b) N.A. (iv) Yes.

4. GENERAL :

(i) N.A. (ii) Above fungicides were used for control of mango mildew. (iii) Percentage of infection on 27 and 28.4.1954. (iv) (a) 1952—1954. (b) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 44.0%. (ii) 6.2%. (iii) Treatment differences are highly significant. (iv) Av. % of infection.

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄	T ₅
Mean % of infection	56.0	38.3	45.5	42.5	39.2	42.3

S.E./mean = 2.54%.

Crop :- Mango.

Ref :- U.P. 54(378).

Centre :- Kanpur (Kanpur, c.f.).

Type :- 'D'.

Object :—To study the efficacy of different fungicides against upgoing nymphs of mango mealy bug.

1. BASAL CONDITIONS .

(i) (a) to (c) N.A. (ii) Sandy loam. (iii) to (x) N.A.

2. TREATMENTS :

5 insecticides for spraying of mango trunks : T₀=Control (water spray), T₁=10% emulsion of C—121 (Thanite), T₂=10% emulsion of C—125 (Lethane), T₃=1% emulsion of Ekatox 20 (Parathion 0.2%), T₄=2% suspension of Rhothane W.P.—50 (1% DD suspension).
Spraying on 4 and 19.2.1954 at $\frac{1}{2}$ gallons/trunk.

3. DESIGN :

(i) C.R.D. with 5 treatments, each treatment being tried 2 times. (ii) N.A. (iii) (a) and (b) One tree/plot. (iv) Yes.

4. GENERAL:

(i) N.A. (ii) Mealy bug attack. (iii) Total number of mealy bugs counted below the green band in 3' x 3' area at 5 places before 1st and 2nd sprays and 24, 48 and 72 hours after 1st and 2nd spraying. (iv) (a) No. (b) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 68.0 degrees. (ii) 12.11 degrees. (iii) Treatment differences are not significant. (iv) Mean % reduction of mealy bugs in degrees

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄
Mean angle	66.2	68.4	68.6	70.5	66.4

S.E./mean = 8.56 degrees.

Transformed back %	83.4	86.1	86.3	88.5	83.6
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Crop :- Mango.

Ref :- U.P. 55(408).

Centre :- Kanpur (Kanpur, c.f.).

Type :- 'D'.

Object :- To study the efficacy of different fungicides against upgoing nymphs of mango mealy bug.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Sandy loam. (iii) to (x) N.A.

2. TREATMENTS :

5 spraying of trunks : T₀=Control (water spray), T₁=0.1% Parathion (Folidol E 605 conc. 1 : 465), T₂=0.1% Dieldrin (Dieldrex 1 : 179), T₃=1% DD (2% Rhothane W.P. 50 1 : 48) and T₄=0.2% strength of Nescit W.P. 1 : 499.

Fungicides applied on 21.2. 1955 at $\frac{1}{4}$ gallons/trunk and soil round the base of the tree.

3. DESIGN and 4. GENERAL :

Same as in expt. no. 54(378) on page 1647.

5. RESULTS :

(i) 31.0 degrees. (ii) 8.52 degrees. (iii) Treatment differences are significant. (iv) Mean % of reduction of bugs 72 hours after spraying in degrees.

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄
Mean angle	11.4	42.9	23.7	45.1	32.0

S.E./mean = 6.03 degrees.

Transformed back %	4.4	46.3	16.4	50.1	28.3
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Crop :- Mango.

Ref :- U.P. 54(376).

Centre :- Lucknow (Lucknow, c.f.).

Type :- 'D'.

Object :- To test the effectiveness and suitability of different insecticides against Mango hoppers *Idiocerus* spp. on Mango trees.

1. BASAL CONDITIONS :

(i) to (x) N.A.

2. TREATMENTS:

T_0 =Control, T_1 =Spraying with 0.1% emulsion of Aldrin 40% emulsifiable (1:399), T_2 =Spraying with 0.088% emulsion of Aldrin 40% emulsifiable (1:454), T_3 =Spraying with 0.01% emulsion of Endrin 19.5% emulsifiable 1:199, T_4 =Spraying with 0.028% emulsion of Endrin 19.5% emulsifiable 1:695, T_5 =Spraying with 0.25% emulsion of DDT 25% and T_6 =Spraying with 0.25% suspension of DDT (Guesarol 550).

Spraying done on 27.3.1955 at 4 gallons spray fluid per tree by power sprayer.

3. DESIGN:

(i) C.R.D. with 7 treatments, each treatment being tried 3 times. (ii) N.A. (iii) (a) and (b) One grafted tree/plot. (iv) Yes.

4. GENERAL:

(i) N.A. (ii) Mango hoppers. (iii) No. of mango hoppers captured in 5 sweeps of hand net before spraying and 24, 48 and 72 hours after spraying. (iv) to (vii) Nil.

5. RESULTS:

(i) 4.78. (ii) 0.58. (iii) Treatment differences are highly significant. (iv) Mean value of $\sqrt{y+\frac{1}{3}}$ where y =no. of mango hoppers/tree 72 hours after spraying on 30.3.1954.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5	T_6
Mean value	8.66	5.58	5.68	5.91	4.79	1.27	1.54

S.E./mean 0.33.

Crop :- Citrus.

Ref :- U.P. 54(87).

Site :- Govt. Hort. Res. Instt., Saharanpur.

Type :- 'CV'.

Object :- To find out the compatible root stocks for different varieties of Citrus.

1. BASAL CONDITIONS:

(i) N.A. (ii) (a) Sandy loam. (b) Refer soil analysis, Saharanpur. (iii) Budding. (iv) As per treatments. (v) July 1954; 18' x 18' square system. (vi) Two years. (vii) 10 srs./pjt of F.Y.M. (viii) Hoeing, weeding and ploughing. (ix) Gram. (x) Irrigated. (xi) 43.97%. (xii) No harvest.

2. TREATMENTS:

All combinations of (1) and (2)

(1) 2 scion varieties: V_1 =Mussambi and V_2 =Kaghzi lime.

(2) 4 root stocks: S_1 =Trifoliata, S_2 =Pumelo, S_3 =Karna and S_4 =Galgal.

3. DESIGN:

(i) Fact. in R.B.D. (ii) 8. (iii) 8. (iv) 2. (v) Guard row around the experimental area. (vi) Yes.

4. GENERAL:

(i) Good. (ii) Nil. (iii) Measurement of girth of scion above the union and girth of stock below the union. (iv) (a) 1954—contd. (b) Nil. (v) and (vi) Nil. (vii) No data has been taken for the years 1955 and 1956.

5. RESULTS:

Girth of scion

(i) 1.0 cms. (ii) 0.17 cms. (iii) All the effects are highly significant. (iv) Av. girth of scion in cms.

	S_1	S_2	S_3	S_4	Mean
V_1	0.7	0.9	1.4	1.3	1.1
V_2	0.6	0.7	0.9	1.4	0.9
Mean	0.6	0.8	1.2	1.4	1.0

S.E. of S marginal mean	= 0.04 cms.
S.E. of V marginal mean	= 0.03 cms.
S.E. of body of table	= 0.06 cms.

Girth of stocks

(i) 1.2 cms. (ii) 0.20 cms. (iii) All effects are highly significant. (iv) Av. girth of stock in cms.

	S ₁	S ₂	S ₃	S ₄	Mean
V ₁	1.0	1.3	1.5	1.5	1.3
V ₂	1.0	1.1	1.1	1.5	1.2
Mean	1.0	1.2	1.3	1.5	1.2

S.E. of S marginal mean	= 0.05 cms.
S.E. of V marginal mean	= 0.04 cms.
S.E. of body of table	= 0.07 cms.

Crop :- Citrus.

Ref :- U.P. 57(25).

Site :- Govt. Hort. Res. Instt., Saharanpur.

Type :- 'CV'.

Object : -To find out the competent root stocks for different varieties of Citrus.

1. BASAL CONDITIONS :

(i) N.A. (ii) (a) Sandy loam. (b) Refer soil analysis, Saharanpur. (iii) Budding. (iv) As per treatments. (v) July, 1954; 18' x 18' square system. (vi) Two years. (vii) 10 srs./pit of F.Y.M. (viii) Hoing, weeding and ploughing. (ix) Gram. (x) Irrigated. (xi) 65.01". (xii) No harvest.

2. TREATMENTS and 3. DESIGN :

Same as in expt. no. 54(87) on page 1649.

4. GENERAL :

(i) Good. (ii) Citrus canker ; control measures—N.A. (iii) Girth of stock and scion. (iv) (a) 1954—contd. (b) Nil. (v) and (vi) Nil. (vii) Values of V₂S₁ in Rep. VI and V₂S₃ in Rep. III, V and VIII are missing.

5. RESULTS :**Girth of scion**

(i) 9.4 cms. (ii) 1.97 cms. (iii) All effects are highly significant. (iv) Av. girth of scion in cms.

	S ₁	S ₂	S ₃	S ₄	Mean
V ₁	5.7	9.3	12.2	14.2	10.4
V ₂	6.8	8.4	8.1	10.1	8.4
Mean	6.2	8.8	10.2	12.2	9.4

S.E. of difference of two

- | | |
|---|-------------|
| 1. Any two means (not containing missing value) in the body of table | = 0.98 cms. |
| 2. V ₂ S ₁ and any other mean (not containing missing value) in the body of table | = 1.02 cms. |
| 3. V ₂ S ₃ and any other mean (not containing missing value) in the body of table | = 1.09 cms. |
| 4. V ₂ S ₁ and V ₂ S ₃ means | = 1.14 cms. |

Crop :- Citrus.**Ref :- U.P. 58(2).****Site :- Govt. Hort. Res. Instt., Saharanpur.****Type :- 'CV'.**

Object :—To find out competent root stocks for different varieties of Citrus.

1. BASAL CONDITIONS :

(i) N.A. (ii) (a) Sandy loam. (b) Refer soil analysis, Saharanpur. (iii) Budding. (iv) As per treatments. (v) July, 1954 ; 18' × 18' square system. (vi) 2 years. (vii) 10 srs./pit of F.Y.M. (viii) Hoing, weeding and ploughing. (ix) Gram. (x) Irrigated. (xi) N.A. (xii) No harvest.

2. TREATMENTS and 3. DESIGN :

Same as in expt. no. 54(87) on page 1649.

4. GENERAL :

(i) Good. (ii) Citrus canker ; control measures—N.A. (iii) Girth of scion in cms. (iv) (a) 1954—contd. (b) Nil. (v) and (vi) N.A. (vii) Values of V_1S_1 in replication IV, V_2S_1 in replication VI and V_2S_3 in replication III, V and VIII are missing.

5. RESULTS :

(i) 11.6 cms. (ii) 2.36 cms. (iii) All the effects are highly significant. (iv) Av. girth of scion in cms.

	S_1	S_2	S_3	S_4	Mean
V_1	7.1	11.3	15.5	17.3	12.8
V_2	8.9	11.1	11.4	11.4	10.4
Mean	8.0	11.2	13.0	14.4	11.6

S.E. of difference of

- | | |
|--|-------------|
| 1. Any two means (not containing missing value) in the body of table | = 1.18 cms. |
| 2. V_1S_1 or V_2S_1 and any other mean (not containing missing value) in the body of table | = 1.22 cms. |
| 3. V_2S_3 and any other mean (not containing missing value) in the body of table | = 1.31 cms. |
| 4. V_1S_1 or V_2S_1 and V_2S_3 means | = 1.36 cms. |
| 5. V_1S_1 and V_2S_1 means | = 1.26 cms. |

Crop :- Citrus.**Ref :- U.P. 59(1).****Site :- Govt. Hort. Res. Instt., Saharanpur.****Type :- 'CV'.**

Object :—To find out competent root stocks for different varieties of Citrus.

1. BASAL CONDITIONS :

Same as in expt. no. 58(2) above.

2. TREATMENTS and 3. DESIGN :

Same as in expt. no. 54(87) on page 1649.

4. GENERAL :

(i) Good. (ii) Citrus canker ; Control measures—N.A. (iii) Girth of scion. (iv) (a) 1954—contd. (b) Nil. (v) and (vi) N.A. (vii) Values of V_1S_1 in replications IV, V, VII, V_1S_2 in replication V, V_2S_1 in replication VI and V_2S_3 in replication III, V, VIII are missing.

5. RESULTS :

(i) 13.9 cms. (ii) 2.86 cms. (iii) All effects are highly significant. (iv) Av. girth of scion in cms.

	S ₁	S ₂	S ₃	S ₄	Mean
V ₁	8.6	14.5	17.8	19.8	15.2
V ₂	10.4	14.1	12.6	13.5	12.6
Mean	9.5	14.3	15.2	16.6	13.9

S.E. of difference of two

1. Any two means (not containing missing value) in body of table = 1.43 cms.
2. V₁S₂ or V₂S₁ and any other mean (not containing missing value) in body of table = 1.48 cms.
3. V₁S₁ or V₂S₃ and any other mean (not containing missing value) in body of table = 1.59 cms.
4. V₁S₂ or V₂S₁ and V₁S₁ or V₂S₃ means = 1.65 cms.
5. V₁S₂ and V₂S₁ means = 1.53 cms.
6. V₁S₁ and V₂S₃ means = 1.81 cms.

Crop :- Citrus.

Ref :- U.P. 54(66).

Site :- Govt. Nursery, Bageshwar.

Type :- 'D'.

Object :—To study the effect of different fungicides against Citrus (Grape fruit) spot disease.

1. BASAL CONDITIONS :

(i) Nursery. (ii) (a) Clay l. am. (b) N.A. (iii) Grafted. (iv) to (vii) N.A. (viii) Nil. (ix) No. (x) Un-irrigated. (xi) and (xii) N.A.

2. TREATMENTS :

8 fungicides : T₀=Control, T₁=Lime sulphur 1 : 30 sp. gravity 1.33, T₂=Thiovit, T₃=Coppesan, T₄=Ferenox, T₅=Dithane 2.78, T₆=Ultra sulphur and T₇=Sandolin.
T₂ to T₇ applied at 0.3 %, spraying done on 4 and 5.11.1954.

3. DESIGN :

(i) R.B.D. (ii) 8. (iii) 6. (iv) 1. (v) N.A. (vi) Yes.

4. GENERAL :

(i) Normal. (ii) Fruit spot disease. (iii) Percentage of infection. (iv) (a) 1952—1954. (b) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 27.8 %. (ii) 7.45 %. (iii) Treatment differences are highly significant. (iv) Av. % infection/tree.

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄	T ₅	T ₆	T ₇
Av. percentage	43.0	28.7	18.0	21.0	23.5	32.0	33.2	23.0

S.E./mean = 3.04 %.

Crop :- Citrus.

Ref :- U.P. 54(67).

Site :- Govt. Nursery, Bageshwar.

Type :- 'D'.

Object :—To study the effect of various fungicides for the control of Citrus (lemon) leaf scab disease.

1. BASAL CONDITIONS :

(i) Nursery of fruit plants. (ii) (a) Clay loam. (b) N.A. (iii) By seed. (iv) Local. (v) Spacing 6' to 9'×1'. (vi) Two years. (vii) N.A. (viii) Nil. (ix) No. (x) Irrigated. (xi) and (xii) N.A.

2. TREATMENTS :

8 fungicides : T₀=Control, T₁=Lime sulphur (1 : 30, sp. gravity 1.33), T₂=Perenox, T₃=Coppesan, T₄=Thiovit, T₅=Dithane 2.78, T₆=Ultra sulphur and T₇=Sandolin.

Treatments T₁ to T₇ applied at 0.25 %. Spraying done on 5.11.1954.

3. DESIGN :

(i) R.B.D. (ii) (a) 8. (b) N.A. (iii) 4. (iv) 2 rows of 30' each (28 to 35 plants each 3' high). (v) N.A. (vi) Yes.

4. GENERAL :

(i) Normal. (ii) Citrus leaf scale disease. Control measures as per treatments. (iii) Percentage of infection. (iv) (a) 1952-1954. (b) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 32.3 %. (ii) 5.27 %. (iii) Treatment differences are highly significant. (iv) Av. % of infection.

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄	T ₅	T ₆	T ₇
Av. percentage	46.2	24.0	30.8	28.2	35.8	35.0	32.5	26.2

S.E./mean = 2.63 %.

Crop :- Citrus.

Ref :- U.P. 58(494).

Site :- Govt. Hill Fruit Res. Stn., Chaubattia.

Type :- 'D'.

Object :- To test the efficiency of swing fog machine with DDT 5% in Aromax against Citrus white fly.

1. BASAL CONDITIONS :

(i) N.A. (ii) (a) Clay loam. (b) Refer soil analysis, Chaubattia. (iii) N.A. (iv) Improved. (v) to (ix) N.A. (x) Unirrigated. (xi) and (xii) N.A.

2. TREATMENTS :

4 fogging treatments : T₀=Control, T₁=Fogging with 2 minutes exposure, T₂=Fogging with 5 minutes exposure and T₃=Fogging with 10 minutes exposure.

3. DESIGN :

(i) R.B.D. (ii) (a) 4. (b) N.A. (iii) 16. (iv) 2. (v) Nil. (vi) Yes.

4. GENERAL :

(i) N.A. (ii) Citrus white fly attack. (iii) Percentage of dead white flies. (iv) (a) 1958-N.A. (b) N.A. (v) to (vii) Nil.

5. RESULTS :

(i) 37.2 degrees. (ii) 17.99 degrees. (iii) Treatment differences are highly significant. (iv) Mean % of dead white flies in degrees.

Treatment	T ₀	T ₁	T ₂	T ₃
Mean angle	12.8	42.5	38.4	55.2

S.E./mean = 4.50 degrees.

Transformed back %	5.4	46.0	39.0	67.8
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Crop :- Citrus.

Ref :- U.P. 54(76).

Site :- Hort. Farm, Jeolikote.

Type :- 'D'.

Object :- To find out a suitable insecticidal control measure against Citrus leaf minor.

1. BASAL CONDITIONS :

(i) N.A. (ii) (a) Clay. (b) Refer soil analysis, Jeolikote. (iii) Budding. (iv) Improved. (v) Planting during rainy season at a distance of 20' x 20' in pits before plantation. (vi) 2 years. (vii) Nil. (viii) Hoeing and weeding. (ix) Nil. (x) Unirrigated. (xi) N.A. (xii) Plucking fruits during Oct.—Dec.

2. TREATMENTS :

5 insecticidal treatments: T_0 =Control, T_1 =DDT emulsion 0.5%, T_2 =Parathion emulsion 0.5%, T_3 =Aldrin emulsion 0.2% and T_4 =Aldrin emulsion 0.1%.

Treatments T_1 , T_2 , T_3 and T_4 applied on 8.8.1954, 25.8.1954, 16.9.1954 and 27.9.1954 respectively.

3. DESIGN :

(i) R.B.D. (ii) (a) 5. (b) N.A. (iii) 4. (iv) 2. (v) Nil. (vi) Yes.

4. GENERAL :

(i) Stunted. (ii) Citrus leaf minor attack. (iii) % citrus leaves attacked by citrus leaf minor. (iv) (a) 1950—1954. (b) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 32.0 %. (ii) 13.12 %. (iii) Treatment differences are highly significant. (iv) Mean % of leaf minor attack.

Treatment	T_0	T_1	T_2	T_3	T_4
Mean %	52.1	11.5	18.8	38.0	39.6

S.E./mean = 6.56 %.

Crop :- Citrus.

Ref :- U.P. 59(465).

Site :- Govt. Hort. Res. Instt., Saharanpur.

Type :- 'D'.

Object:—To find out chemical control measures against Citrus psycilla pest.

1. BASAL CONDITIONS :

(i) N.A. (ii) (a) Sandy loam. (b) Refer soil analysis, Saharanpur. (iii) to (xii) N.A.

2. TREATMENTS :

18 insecticidal treatments: T_0 =Control, T_1 =Basudin 20 E (1 : 800), T_2 =BHC 50 % wettable powder (1 : 100), T_3 =Malthion 60 % (1 : 640), T_4 =Nicotin Sul. (1 : 800), T_5 =Endrin 20 E (1 : 640), T_6 =Dieldrin 18 E (1 : 640), T_7 =Parathion (1 : 1000), T_8 =Basudin 20 E (1 : 800) + B.H.C. 50 % wettable powder (1 : 1), T_9 =Malthion 60 % (1 : 640)+B.H.C. 50 % wettable powder (1 : 1), T_{10} =Nicotin sulphate (1 : 800) + B.H.C. 50 % wettable powder (1 : 1), T_{11} =Endrine 20 E (1 : 640) + B.H.C. 50 % wettable powder (1 : 1), T_{12} =Dieldrin 18 E (1 : 640) + B.H.C. 50 % wettable powder (1 : 1), T_{13} =Dieldrin 18 E (1 : 640) + Malthion 60 % (1 : 640), T_{14} =Nicotin sulphate (1 : 800) + Malthion 60 % (1 : 640), T_{15} =Nicotin sulphate (1 : 800) + Endrin 20 E (1 : 640), T_{16} =Parathion (1 : 1000) + B.H.C. 50 % wettable powder (1 : 100) and T_{17} =Nicotin sulphate (1 : 800) + Dieldrin 18 E (1 : 640).

3. DESIGN :

(i) C.R.D. (ii) (a) 180. (b) N.A. (iii) Nil. (iv) 2. (v) N.A. (vi) Yes.

4. GENERAL :

(i) N.A. (ii) Attack of *psycilla* pest. (iii) Percentage of adults alive after 68 hours of application of treatments. (iv) (a) 1959—N.A. (b) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 18.6 degrees. (ii) 10.50 degrees. (iii) Treatment differences are highly significant. (iv) Av. percentage of adults alive in degrees.

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄	T ₅	T ₆	T ₇	T ₈
Mean angle	72.6	14.1	13.5	25.4	22.6	12.4	13.7	7.2	3.4
Transformed back %	90.6	6.3	5.9	18.7	15.1	5.0	6.0	2.1	0.9

Treatment	T ₉	T ₁₀	T ₁₁	T ₁₂	T ₁₃	T ₁₄	T ₁₅	T ₁₆	T ₁₇
Mean angle	14.2	10.9	15.8	20.8	23.0	17.0	16.9	6.3	24.2
Transformed back %	6.5	4.0	7.9	13.0	15.7	9.0	8.9	1.7	17.2

S.E./mean = 3.32 degrees.

Crop :- Citrus.

Centre :- Ranikhet (Almora, c.f.).

Ref :- U.P. 54(95).

Type :- 'D'.

Object : -To study the effect of various fungicides for the control of Citrus sooty mould disease.

1. BASAL CONDITIONS :

(i) Under orchard. (ii) (a) Clay loam. (b) N.A. (iii) N.A. (iv) Citrus *malta* (budded). (v) and (vi) N.A. (vii) and (viii) Nil. (ix) N.A. (x) Unirrigated. (xi) and (xii) N.A.

2. TREATMENTS :

11 fungicides : T₀=Control, T₁=DDT emulsion 0.5 %, T₂=DDT emulsion 0.25 %, T₃=DDT emulsion 0.25 % + Sandolin 0.25 %, T₄=DDT emulsion 0.25 % + Sandolin 0.50 %, T₅=Sandolin 0.5 %, T₆=Sandolin 0.35 %, T₇=Sandolin 0.25 %, T₈=Lime sulphur 1 : 20 sp. gravity 1.33, T₉=Lime sulphur 1 : 15 sp. gravity 1.33 and T₁₀=Lime sulphur 1 : 30.

Spraying done on 30.11.1954.

3. DESIGN :

(i) R.B.D. (ii) (a) 11. (b) N.A. (iii) 4. (iv) One. (v) N.A. (vi) Yes.

4. GENERAL :

(i) Normal. (ii) Spraying of above fungicides for the control of citrus sooty mould disease. (iii) Percentage of infection on 28 and 29.1.1955. (iv) (a) 1951—1954. (b) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 44.3 %. (ii) 5.87 %. (iii) Treatment differences are highly significant. (iv) Av. percentage of infection.

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄	T ₅	T ₆	T ₇	T ₈	T ₉	T ₁₀
Av. %	70.2	38.8	55.2	39.0	28.5	29.8	42.8	54.0	43.8	33.0	52.5

S.E./mean = 2.94 %.

Crop :- Citrus.

Centre :- Ranikhet (Almora, c.f.).

Ref :- U.P. 54(68).

Type :- 'C'.

Object : -To find out a suitable insecticidal control measure against puparia of 2nd generation for Citrus.

1. BASAL CONDITIONS :

(i) N.A. (ii) (a) Clay loam. (b) N.A. (iii) N.A. (iv) Improved. (v) and (vi) N.A. (vii) Nil. (viii) Ringing around the base of main stem of tree. (ix) N.A. (x) Unirrigated. (xi) and (xii) N.A.

2. TREATMENTS :

6 insecticidal treatments : T₀=Control, T₁=DDT emulsion 0.5% + Sandolin 0.5%, T₂=DDT emulsion 0.25% + Sandolin 0.5%, T₃=DDT emulsion 0.5%, T₄=Sandolin 'A' 0.5% and T₅=Lime sulphur (sp. gravity 1.3) 1 : 20.

Spraying of trees on 16.2.1954.

3. DESIGN :

(i) R.B.D. (ii) (a) 6. (b) N.A. (iii) 4. (iv) 2. (v) N.A. (vi) Yes.

4. GENERAL :

(i) Stunted. (ii) Attack of puparia. (iii) % reduction in puparia 6 weeks after spraying. (iv) (a) 1950—contd. (b) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 32.6% reduction. (ii) 3.4% reduction. (iii) Treatment differences are highly significant. (iv) Av. percentage of reduction.

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄	T ₅
Av. percentage	8.2	47.0	43.8	41.5	31.2	23.6

S.E./mean = 1.7% reduction.

Crop :- Citrus.**Ref :- U.P. 54(79).****Centre :- Ranikhet (Almora, c.f.).****Type :- 'D'.**

Object:—To find out a suitable insecticidal control measure against Citrus white fly (nymph stage).

1. BASAL CONDITIONS :

(i) N.A. (ii) (a) Clay loam. (b) N.A. (iii) N.A. (iv) Improved. (v) and (vi) N.A. (vii) Nil. (viii) Ringing around the base of main stem of tree. (ix) N.A. (x) Unirrigated. (xi) and (xii) N.A.

2. TREATMENTS :7 insecticidal treatments : T₀=Control, T₁=DDT emulsion 0.5%, T₂=DDT emulsion 0.375%, T₃=DDT emulsion 0.25%, T₄=Lime sulphur (sp. gravity 1.3) 1 : 15, T₅=Sandolin 'A' 0.5%+Alboleum 0.5% and T₆=Lime sulphur (sp. gravity 1.3) 1 : 20.**3. DESIGN :**

(i) R.B.D. (ii) (a) 7. (b) N.A. (iii) 4. (iv) 2. (v) N.A. (vi) Yes.

4. GENERAL :

(i) Stunted. (ii) Attack of nymphs. (iii) % reduction in nymphs. (iv) (a) 1950—contd. (b) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 37.7 % reduction. (ii) 2.6 % reduction. (iii) Treatment differences are highly significant. (iv) Av. percentage of reduction.

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄	T ₅	T ₆
Av. percentage	17.8	46.9	42.2	40.5	40.2	39.2	36.8

S.E./mean = 1.3% reduction.

Crop :- Citrus.**Ref :- U.P. 54(70).****Centre :- Ranikhet (Almora, c.f.).****Type :- 'D'.**

Object:—To find out a suitable insecticidal control measure against Citrus white fly (egg stage).

1. BASAL CONDITIONS :

(i) N.A. (ii) (a) Clay loam. (b) N.A. (iii) N.A. (iv) Improved. (v) and (vi) N.A. (vii) Nil. (viii) Ringing around the base of main stem of tree. (ix) N.A. (x) Unirrigated. (xi) and (xii) N.A.

2. TREATMENTS :

6 insecticidal treatments : T_0 =Control, T_1 =DDT emulsion 0.5%, T_2 =Lime sulphur 1 : 15, T_3 =DDT emulsion 0.375%, T_4 =Lime sulphur 1 : 20 and T_5 =DDT emulsion 0.25%.

Spraying done on 21.4.1954.

3. DESIGN :

(i) R.B.D. (ii) (a) 6. (b) N.A. (iii) 4. (iv) 2. (v) N.A. (vi) Yes.

4. GENERAL :

(i) Stunted. (ii) Attack of nymphs. (iii) Population of nymphs 3 weeks after spraying per 100 eggs before spraying and % of eggs hatched. (iv) (a) 1950—contd. (b) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 11.1%. (ii) 2.7%. (iii) Treatment differences are highly significant. (iv) Av. percentage of eggs hatched.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5
Av. percentage	25.1	1.6	0.8	2.8	0.9	2.1

S.E./mean = 1.4%.

Crop :- Citrus.

Ref :- U.P. 54(164).

Centre :- Ranikhet (Almora, c.f.).

Type :- 'D'.

Object :—To study the effect of various fungicides against the eggs of Citrus white fly.

1. BASAL CONDITIONS :

(i) N.A. (ii) (a) Clay loam. (b) N.A. (iii) N.A. (iv) Improved. (v) and (vi) N.A. (vii) Nil. (viii) and (ix) N.A. (x) Unirrigated. (xi) and (xii) N.A.

2. TREATMENTS :

6 insecticidal treatments : T_0 =Control, T_1 =DDT emulsion 0.5%, T_2 =Lime Sulphur 1 : 20, T_3 =DDT emulsion 0.375%, T_4 =Lime sulphur 1 : 25 and T_5 =DDT emulsion 0.25%.

Treatments applied on 8.8.1954.

3. DESIGN :

(i) R.B.D. (ii) (a) 6. (b) N.A. (iii) 4. (iv) 4. (v) N.A. (vi) Yes.

4. GENERAL :

(i) N.A. (ii) Incidence of white fly. (iii) Population of eggs and height of trees. (iv) (a) 1954—contd. (b) and (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 528. (ii) 161.8. (iii) Treatment differences are highly significant. (iv) Av. population of eggs/sq. inch.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5
Av. population	1735	188	138	290	260	558

S.E./mean = 80.9.

Crop :- Citrus.

Ref :- U.P. 54(93).

Centre :- Ranikhet (Almora, c.f.).

Type :- 'D'.

Object :—To find out a suitable insecticidal control measure against Citrus white fly (egg stage).

1. BASAL CONDITIONS :

(i) N.A. (ii) (a) Clay loam. (b) N.A. (iii) N.A. (iv) Improved. (v) and (vi) N.A. (vii) Nil. (viii) Ringing around the base of main stem of tree. (ix) N.A. (x) Unirrigated. (xi) and (xii) N.A.

2. TREATMENTS :

6 insecticidal treatments : T_0 = Control, T_1 = Lime sulphur (sp. gravity 1.3) 1 : 20, T_2 = DDT emulsion 0.5 %
 T_3 = Lime sulphur (sp. gravity 1.3) 1 : 25, T_4 = DDT emulsion 0.375 % and T_5 =
 DDT emulsion 0.25 %.

Spraying on 7.8.1954.

3. DESIGN :

(i) R.B.D. (ii) (a) 6. (b) N.A. (iii) 4. (iv) and (v) N.A. (vi) Yes.

4. GENERAL :

(i) Stunted. (ii) Under study. (iii) % reduction in population of nymphs and eggs on 24.8.1954. (iv) (a) 1950—contd. (b) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 69.4 %. (ii) and (iii) N.A. (iv) Av. percentage reduction in population of nymphs and egg.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5
Av. % reduction	0.00	92.1	89.2	85.0	83.2	67.2

Crop :- Citrus.

Ref :- U.P. 56(2).

Centre :- Ranikhet (Almora, c.f.).

Type :- 'D'.

Object :- To study the effect of various fungicides for the control of Citrus leaf blight disease.

1. BASAL CONDITIONS :

(i) Nursery. (ii) (a) Clay loam. (b) N.A. (iii) N.A. (iv) Local lemon. (v) and (vi) N.A. (vii) and (viii) Nil. (ix) N.A. (x) Irrigated. (xi) and (xii) N.A.

2. TREATMENTS :

4 fungicides : T_0 = Control, T_1 = Lime sulphur 1 : 30 (sp. gravity 1.33), T_2 = Perenox 0.3 %, T_3 = Coppessan 0.3 % and T_4 = Thiovit 0.3 %.

Spraying done on 25.2.1956.

3. DESIGN :

(i) R.B.D. (ii) (a) 5. (b) N.A. (iii) 5. (iv) 30 to 40. (v) N.A. (vi) Yes.

4. GENERAL :

(i) Normal. (ii) Spraying of above fungicides against citrus leaf blight disease. (iii) On 21st and 22nd March 1956 the total number of healthy and diseased leaves were counted from each unit of a plot and the percentage of leaf blight infection was noted. (iv) (a) 1955—contd. (b) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 49.3 %. (ii) 9.64 %. (iii) Treatment differences are highly significant. (iv) Av. percentage of infection.

Treatment	T_0	T_1	T_2	T_3	T_4
Mean % of infection	71.2	35.0	51.4	46.8	42.2

S.E./mean = 4.3 %.

Crop :- Citrus.**Ref :- U.P. 56(6).****Centre :- Ranikhet (Almora, c.f.).****Type :- 'D'.**

Object :—To study the effect of various fungicides for the control of Citrus leaf blight disease.

1. BASAL CONDITIONS and 2. TREATMENTS :

Same as in expt. no. 56(2) on page 1658.

3. DESIGN :

(i) R.B.D. (ii) (a) 5. (b) N.A. (iii) 6. (iv) 30 to 35. (v) N.A. (vi) Yes.

4. GENERAL :

(i) Normal. (ii) Spraying of above fungicides against citrus leaf blight disease. (iii) Percentage of infection. (iv) (a) 1954—contd. (b) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 20.1 %. (ii) 7.24 %. (iii) Treatment differences are significant. (iv) Av. percentage of infection.

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄
Mean % of infection	26.8	15.7	19.5	23.5	15.0

S.E./mean = 2.96 %.

Crop :- Citrus.**Ref :- U.P. 56(7).****Centre :- Ranikhet (Almora, c.f.).****Type :- 'D'.**

Object :—To study the effect of various fungicides for the control of Citrus leaf blight disease.

1. BASAL CONDITIONS and 2. TREATMENTS :

Same as in expt. no. 56(2) on page 1658.

3. DESIGN :

(i) R.B.D. (ii) (a) 5. (b) N.A. (iii) 6. (iv) 30 to 35. (v) N.A. (vi) Yes.

4. GENERAL :

(i) Normal. (ii) Spraying of above fungicides against citrus leaf blight disease after picking the effected leaves. (iii) Percentage of infection. (iv) (a) 1954—contd. (b) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 47.7 %. (ii) 5.06 %. (iii) Treatment differences are highly significant. (iv) Av. percentage infection.

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄
Mean % of infection	72.0	32.0	42.0	53.7	38.7

S.E./mean = 2.07 %.

Crop :- Citrus.**Ref :- U.P. 56(395).****Centre :- Ranikhet (Almora, c.f.).****Type :- 'D'.**

Object :—To study the effect of various insecticides against Citrus white fly.

1. BASAL CONDITIONS :

(i) N.A. (ii) (a) Clay loam. (b) N.A. (iii) N.A. (iv) Improved. (v) and (vi) N.A. (vii) Nil. (viii) and (ix) N.A. (x) Unirrigated. (xi) and (xii) N.A.

2. TREATMENTS :

5 insecticidal treatments : T_0 =Control, T_1 =Basudin 1 : 480, T_2 =Basudin 1 : 640, T_3 =Basudin 1 : 800 and T_4 =DDT 0.5%+0.25% Sandolin.

Treatments applied on 14 and 15.2.1956.

3. DESIGN :

(i) R.B.D. (ii) (a) 5. (b) N.A. (iii) 4. (iv) and (v) N.A. (vi) Yes.

4. GENERAL :

(i) N.A. (ii) Attack of puparia. (iii) Population of puparia. (iv) (a) No. (b) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 22.4 degrees. (ii) 4.66 degrees. (iii) Treatment differences are significant. (iv) Mean % of population of puparia in degrees.

Treatment	T_0	T_1	T_2	T_3	T_4
Mean angle	15.6	23.2	23.9	21.5	27.6

S.E./mean = 2.33 degrees.

Transformed back %	T_0	T_1	T_2	T_3	T_4
	7.7	15.9	16.8	13.8	21.8

Crop :- Citrus.

Ref :- U.P. 56(495).

Centre :- Ranikhet (Almora, c.f.).

Type :- 'D'.

Object :- To study the effect of various insecticides against Citrus white fly eggs.

1. BASAL CONDITIONS :

(i) N.A. (ii) (a) Clay loam. (b) N.A. (iii) N.A. (iv) Improved. (v) to (ix) N.A. (x) Unirrigated. (xi) and (xii) N.A.

2. TREATMENTS :

5 insecticidal treatments : T_0 =Control, T_1 =Basudin emulsion 20%—1 : 300, T_2 =Basudin emulsion 20%—1 : 400, T_3 =Basudin emulsion 20%—1 : 500 and T_4 =Lime sulphur (1.3 sp. gravity) 1 : 20.

Treatments applied on 1.5.1956.

3. DESIGN :

(i) R.B.D. (ii) (a) 5. (b) N.A. (iii) 16. (iv) 4. (v) N.A. (vi) Yes.

4. GENERAL :

(i) N.A. (ii) Attack of citrus white fly. (iii) Population of citrus white fly. (iv) (a) No. (b) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 0.05. (ii) 0.22. (iii) Treatment differences are not significant. (iv) Av. count of population/plot after spraying.

Treatment	T_0	T_1	T_2	T_3	T_4
Av. count	0.06	0.00	0.00	0.19	0.06

S.E./mean = 0.055.

Crop :- Citrus.

Ref :- U.P. 56(484).

Centre :- Ranikhet (Almora, c.f.).

Type :- 'D'.

Object :- To study the effect of various insecticides against Citrus white fly eggs.

1. BASAL CONDITIONS :

(i) N.A. (ii) (a) Clay loam. (b) N.A. (iii) N.A. (iv) Improved. (v) and (vi) N.A. (vii) Nil. (viii) and (ix) N.A. (x) Unirrigated. (xi) and (xii) N.A.

2. TREATMENTS :

6 insecticidal treatments : T_0 =Control, T_1 =DDT emulsion 0.25%, T_2 =Basudin 20% emulsion 1 : 300, T_3 =Basudin 20% emulsion 1 : 400, T_4 =Basudin 20% emulsion 1 : 500 and T_5 =Lime Sulphur 1 : 20.

Treatments applied on 7.5.1956.

3. DESIGN :

(i) R.B.D. (ii) (a) 6. (b) N.A. (iii) 16. (iv) 1. (v) N.A. (vi) Yes.

4. GENERAL :

(i) N.A. (ii) Incidence of white fly. (iii) Population of white fly eggs. (iv) (a) No. (b) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 98.4 %. (ii) 7.14 %. (iii) Treatment differences are not significant. (iv) Av. percentage of reduction.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5
Mean %	100.0	93.6	96.9	100.0	100.0	100.0

S.E./mean = 1.78 %.

Crop :- Citrus.

Ref :- U.P. 56(486).

Centre :- Ranikhet (Almora, c.f.).

Type :- 'D'.

Object :—To study the effect of systematic insecticides against Citrus white fly.

1. BASAL CONDITIONS :

(i) N.A. (ii) (a) Clay loam. (b) N.A. (iii) N.A. (iv) Improved. (v) and (vi) N.A. (vii) Nil. (viii) and (ix) N.A. (x) Unirrigated. (xi) and (xii) N.A.

2. TREATMENTS :

5 insecticidal treatments : T_0 =Control, T_1 =Systox 1 : 800 (under surface of 3 leaves), T_2 =Systox 1 : 800 (upper surface of 3 leaves), T_3 =Basudin 1 : 480 (both surfaces of 3 leaves) and T_4 =Systox 1 : 800 (0.05%) (through spraying of both surfaces).

Treatments applied on 14.2.1956.

3. DESIGN :

(i) R.B.D. (ii) (a) 5. (b) N.A. (iii) 3. (iv) 1. (v) N.A. (vi) Yes.

4. GENERAL :

(i) N.A. (ii) Incidence of puparia. (iii) Population of puparia before and after spraying. (iv) (a) 1956—1957. (b) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 32.7 degrees. (ii) 5.24 degrees. (iii) Treatment differences are significant. (iv) Av. % of reduction in population of puparia in degrees.

Treatment	T_0	T_1	T_2	T_3	T_4
Mean angle	24.4	31.8	26.4	43.9	36.9

S.E./mean = 3.03 degrees.

Transformed back %	17.5	28.1	20.2	48.5	36.4
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Crop :- Citrus.**Ref :- U.P. 58(408).****Centre :- Ranikhet (Almora, c.f.).****Type :- 'D'.**

Object :—To test the efficacy of ovicides against the eggs of Malta Citrus white fly during summer.

1. BASAL CONDITIONS :

(i) N.A. (ii) (a) Clay loam. (b) N.A. (iii) N.A. (iv) Improved. (v) and (vi) N.A. (vii) Nil. (viii) Ringing around the base of main stem of trees. (ix) N.A. (x) Unirrigated. (xi) and (xii) N.A.

2. TREATMENTS :

7 ovicides treatment : T_0 =Control, T_1 =Lime sulphur (sp. gravity 1.29) 1 : 20 spray, T_2 =DDT emulsion 0.25%+Parathion emulsion 0.01%, T_3 =Diazinon emulsion 0.05% and T_4 =Dieldrin emulsion 0.05%.

Trees were sprayed on 30.4.1958.

3. DESIGN :

(i) R.B.D. (ii) (a) 5. (b) N.A. (iii) 7. (iv) 8. (v) N.A. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Leaves having eggs of citrus white fly and sooty mould on the upper surface. (iii) Population of eggs before treatment by examining 1 sq. inch leaf area from 16 leaves from each replication and population of nymphs after treatment from the same number of leaves per replication by examining 1 sq. inch leaf area. (iv) (a) No. (b) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 20.0 degrees. (ii) 7.27 degrees. (iii) Treatment differences are highly significant. (iv) Av. population of nymphs after spraying in degrees.

Treatment	T_0	T_1	T_2	T_3	T_4
Mean angle	42.4	8.9	12.0	17.5	19.5

S.E./mean = 2.75 degrees.

Transformed back %	45.4	2.8	4.8	9.5	11.5
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Crop :- Citrus.**Ref :- U.P. 58(497).****Centre :- Ranikhet (Almora, c.f.).****Type :- 'D'.**

Object :—To test the efficacy of swing fog machine with DDT 5% in diesel oil against Citrus White fly eggs.

1. BASAL CONDITIONS :

(i) N.A. (ii) (a) Clay loam. (b) N.A. (iii) N.A. (iv) Improved. (v) and (vi) N.A. (vii) Nil. (viii) and (ix) N.A. (x) Unirrigated. (xi) and (xii) N.A.

2. TREATMENTS :

4 fogging treatments : T_0 =Control, T_1 =Fogging with 2 minute exposure, T_2 =Fogging with 5 minute exposure and T_3 =Fogging with 10 minute exposure.

Fogging on 3.5.1958.

3. DESIGN :

(i) R.B.D. (ii) (a) 4. (b) N.A. (iii) 10. (iv) N.A. (v) N.A. (vi) Yes.

4. GENERAL :

(i) N.A. (ii) Attack of white fly. (iii) Population of eggs and nymphs. (iv) (a) No. (b) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 43.0 degrees. (ii) 12.65 degrees. (iii) Treatment differences are highly significant. (iv) Mean % of reduction in degrees.

Treatment	T ₀	T ₁	T ₂	T ₃
Mean angle	66.8	55.2	33.0	17.1
S.E./mean = 4.0 degrees.				
Transformed back %	84.6	67.8	30.1	9.2

Crop :- Citrus.

Ref :- U.P. 59(446).

Centre :- Ranikhet (Almora, c.f.).

Type :- 'D'.

Object :-To study the comparative suitability of controlling Citrus white fly in puparial stage.

1. BASAL CONDITIONS :

(i) N.A. (ii) (a) Clay loam. (b) N.A. (iii) N.A. (iv) Improved. (v) and (vi) N.A. (vii) Nil. (viii) and (ix) N.A. (x) Unirrigated. (xi) and (xii) N.A.

2. TREATMENTS :

3 insecticidal treatments: T₀=Control, T₁=DDT emulsion 0.5%+Sandolin 0.5% and T₂=DDT emulsion 0.25%+Parathion emulsion 0.05%.

Treatments applied on 28.1.1959.

3. DESIGN :

(i) R.B.D. (ii) (a) 3. (b) N.A. (iii) 12. (iv) 2. (v) N.A. (vi) Yes.

4. GENERAL :

(i) N.A. (ii) Citrus leaves attacked. (iii) % damage. (iv) (a) No. (b) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 57.7 degrees. (ii) 4.98 degrees. (iii) Treatment differences are highly significant. (iv) Av. percentage of damage in degrees.

Treatment	T ₀	T ₁	T ₂
Mean angle	14.4	82.0	76.7
S.E./mean = 1.44 degrees.			
Transformed back %	6.6	97.6	94.2

Crop :- Citrus.

Ref :- U.P. 58(419).

Centre :- Ranikhet (Almora, c.f.).

Type :- 'D'.

Object :-To test the suitability of various insecticides against puparia of Malta Citrus white fly (*D. Citri* Ashmead) during winter.

1. BASAL CONDITIONS :

(i) N.A. (ii) (a) Clay loam. (b) N.A. (iii) N.A. (iv) Improved. (v) and (vi) N.A. (vii) Nil. (viii) Ringing around the base of main stem of trees. (ix) N.A. (x) Unirrigated. (xi) and (xii) N.A.

2. TREATMENTS :

8 insecticidal treatments: T₀=Control, T₁=DDT emulsion 0.5%+Sandolin 0.5%, T₂=DDT emulsion 0.25%+Parathion emulsion 0.05%, T₃=Malthion emulsion 0.2%, T₄=Metasystox 1:250, T₅=Ekatin 1:250, T₆=Ekatin 1:300 and T₇=Metasystox 1:500.

Treatments applied as spray on 7.2.1958.

DESIGN :

(i) R.B.D. (ii) 8. (b) N.A. (iii) 4. (iv) and (v) N.A. (vi) Yes.

4. GENERAL :

(i) Good. (ii) The average population before treatment was 88 living puparia/sq. inch leaf area. (iii) % mortality of puparia on 29.3.58. (iv) (a) No. (b) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 39.4 degrees. (ii) 5.97 degrees. (iii) Treatment differences are highly significant. (iv) Av. % of mortality of puparia in degrees.

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄	T ₅	T ₆	T ₇
Mean angle	16.9	82.9	71.6	43.7	36.6	26.9	18.3	17.9
S.E./mean = 2.98 degrees.								
Transformed back %	8.9	97.0	89.6	47.8	35.7	20.8	10.2	9.9

Crop :- Citrus.

Ref :- U.P. 59(444).

Centre :- Ranikhet (Almora, c.f.).

Type :- 'D'.

Object :- To test the suitability of insecticides in controlling Malta Citrus white fly in pupal stage during winter.

1. BASAL CONDITIONS :

(i) N.A. (ii) (a) Clay loam. (b) N.A. (iii) N.A. (iv) Improved. (v) and (vi) N.A. (vii) Nil. (viii) Ringing around the base of main stem of trees. (ix) N.A. (x) Unirrigated. (xi) and (xii) N.A.

2. TREATMENTS :

3 insecticidal treatments : T₀=Control, T₁=DDT emulsion 0.5 % + Sandolin 'A' 0.5 % and T₂=DDT emulsion 0.5 % + Parathion emulsion 0.25 %.

Treatments applied by spraying trees on 15.2.1959.

3. DESIGN :

(i) R.B.D. (ii) (a) 3. (b) N.A. (iii) 12. (iv) 5 to 6. (v) N.A. (vi) Yes.

4. GENERAL :

(i) N.A. (ii) Presence of puparies after treatment was recorded on 14.5.1959 by examining 3.96 sq. cm. leaf area from a total of 5 leaves collected at random from each plot and the percentage kill was calculated. (iv) (a) No. (b) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 58.6 degrees. (ii) 6.28 degrees. (iii) Treatment differences are highly significant. (iv) Av. percentage kill in degrees.

Treatment	T ₀	T ₁	T ₂
Mean angle	14.2	82.3	79.3
S.E./mean = 1.81 degrees.			
Transformed back %	6.4	97.7	96.1

Crop :- Citrus.

Ref :- U.P. 54(56).

Centre :- Jeolikote (Nainital, c.f.).

Type :- 'D'.

Object :- To study the effect of various insecticides for the control of Malta Citrus sooty mould disease.

1. BASAL CONDITIONS :

(i) N.A. (ii) (a) Sandy loam. (b) N.A. (iii) N.A. (iv) to (ix) N.A. (x) Unirrigated. (xi) and (xii) N.A.

2. TREATMENTS :

6 insecticidal treatments : T_0 =Control, T_1 =DDT emulsion 0.5 %, T_2 =DDT emulsion 0.5 % + Sandolin 0.5 %, T_3 =DDT emulsion 0.25 % + Sandolin 0.25 %, T_4 =Sandolin 0.5 % and T_5 =Lime sulphur 1 : 20.

3. DESIGN :

(i) R.B.D. (ii) (a) 6. (b) N.A. (iii) 4. (iv) 2. (v) N.A. (vi) Yes.

4. GENERAL :

(i) N.A. (ii) Control of citrus sooty mould disease. (iii) Percentage of infection on 5, 7 and 8.2.1954 and on 18.3.1954. (iv) (a) 1951—1955. (b) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 17.2 %. (ii) 2.14 %. (iii) Treatment differences are highly significant. (iv) Av. percentage of infection.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5
Av. percentage	32.8	14.0	10.2	12.1	13.2	21.2

S.E./mean = 1.1 %.

Crop :- Citrus.

Ref :- U.P. 54(163).

Centre :- Jeolikote (Nainital, c.f.).

Type :- 'D'.

Object :— To study the effect of various insecticides against Citrus leaves minor.

1. BASAL CONDITIONS :

(i) N.A. (ii) (a) Clay loam. (b) N.A. (iii) N.A. (iv) Improved. (v) to (xii) N.A.

2. TREATMENTS :

5 insecticidal treatments : T_0 =Control, T_1 =DDT emulsion 0.5% 1 : 50, T_2 =Parathion emulsion 0.05% 1 : 100, T_3 =Alderin emulsion 0.2% 1 : 200 and T_4 =Alderin emulsion 0.1% 1 : 400.

Treatments applied as 2 lb. spray/tree on 9, 25.8.1954, 16 and 27.9.1954.

3. DESIGN :

(i) R.B.D. (ii) (a) 5. (b) N.A. (iii) 4. (iv) N.A. (v) N.A. (vi) Yes.

4. GENERAL :

(i) N.A. (ii) Attack of citrus leaves minor. (iii) Population of leaves and larva. (iv) (a) No. (b) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 51.2 degrees. (ii) 27.59 degrees. (iii) Treatment differences are not significant. (iv) Av. population of larva in degrees.

Treatment	T_0	T_1	T_2	T_3	T_4
Mean angle	58.8	59.0	46.7	58.8	32.6

S.E./mean = 13.79 degrees.

Transformed back %	72.9	73.2	53.0	73.0	29.2
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Crop :- Sweet Oranges.

Ref :- U.P. 54(154).

Site :- Govt. Hort. Res. Instt., Saharanpur.

Type :- 'MV'.

Object :— To find out the amount of N needed by citrus from early stage to full bearing stage.

1. BASAL CONDITIONS :

(i) N.A. (ii) (a) Loam to clay loam. (b) Refer soil analysis, Saharanpur. (iii) By budding. (iv) As per treatments. (v) A square system of planting with spacing 18'×18'. (vi) 1 year. (vii) Cowdung at 40 lb./pit in 1954 only. (viii) Weeding, hoeing and digging. (ix) Nil. (x) Irrigated. (xi) 43.97". (xii) N.A.

2. TREATMENTS :**Main-plot treatments :**

4 varieties : V_1 =Ruby, V_2 =Vanille, V_3 =De clevery and V_4 =Thompson.

Sub-plot treatments :

4 levels of N as A/S : $N_1=2.4$, $N_2=3.6$, $N_3=6.0$ and $N_4=9.6$ ozs./plant.

A/S applied in three equal doses in January, June and October.

3. DESIGN :

(i) Split-plot. (ii) (a) 4 main-plots/replication ; 4 sub-plots/main-plot. (b) N.A. (iii) 2. (iv) 2. (v) N.A. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Nil. (iii) Girth, height and spread of tree. (iv) (a) 1954—1957. (b) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 6.6 cm./tree. (ii) (a) 2.46 cm./tree. (b) 1.56 cm./tree. (iii) None of the effects is significant. (iv) Av. girth in cm./tree.

	V_1	V_2	V_3	V_4	Mean
N_1	6.0	7.4	6.6	6.2	6.6
N_2	5.5	7.0	6.0	7.2	6.4
N_3	7.3	7.4	5.5	6.8	6.8
N_4	5.8	7.9	7.3	5.5	6.6
Mean	6.2	7.4	6.4	6.4	6.6

S.E. of difference of two

- | | |
|-----------------------------------|------------------|
| 1. V marginal means | = 1.23 cm./tree. |
| 2. N marginal means | = 0.78 cm./tree. |
| 3. N means at the same level of V | = 1.56 cm./tree. |
| 4. V means at the same level of N | = 1.83 cm./tree. |

Crop :- Sweet Orange.

Ref :- U.P. 55(144).

Site :- Govt. Hort. Res. Instt., Saharanpur.

Type :- 'MV'.

Object :- To find out the amount of N needed by Citrus from early stage to full bearing stage.

1. BASAL CONDITIONS :

(i) N.A. (ii) (a) Loam to clay loam. (b) Refer soil analysis, Saharanpur. (iii) By budding. (iv) As per treatments. (v) A square system of planting with spacing 18'×18'. (vi) 1 year. (vii) Cowdung at 40 lb./pit in 1954 only. (viii) Weeding, hoeing and digging. (ix) No. (x) Irrigated. (xi) 55.39". (xii) N.A.

2. TREATMENTS :**Main-plot treatments :**

4 varieties : V_1 =Ruby, V_2 =Vanille, V_3 =De clevery and V_4 =Thompson.

Sub-plot treatments :

4 levels of N as A/S : $N_1=4.8$, $N_2=7.2$, $N_3=12.0$ and $N_4=19.2$ ozs./plant.

A/S applied in 3 equal doses in January, June and October.

3. DESIGN and 4. GENERAL :

Same as in expt. no. 54(154) on page 1665.

5. RESULTS :

Girth

(i) 11.9 cm./tree. (ii) (a) 2.46 cm./tree. (b) 2.01 cm./tree. (iii) None of the effects is significant. (iv) Av. girth in cm./tree.

	V ₁	V ₂	V ₃	V ₄	Mean
N ₁	11.6	12.4	12.8	11.4	12.0
N ₂	9.5	11.8	10.4	12.3	11.0
N ₃	14.0	11.2	10.9	12.9	12.2
N ₄	11.8	13.0	14.4	10.4	12.4
Mean	11.7	12.1	12.1	11.8	11.9

S.E. of difference of two

1. V marginal means = 1.23 cm./tree.
2. N marginal means = 1.00 cm./tree.
3. N means at the same level of V = 2.01 cm./tree.
4. V means at the same level of N = 2.13 cm./tree.

Height

(i) 175.7 cm./tree. (ii) (a) 26.29 cm./tree. (b) 17.68 cm./tree. (iii) None of the effects is significant. (iv) Av. height in cm./tree.

	V ₁	V ₂	V ₃	V ₄	Mean
N ₁	180.3	188.0	203.2	172.7	186.0
N ₂	147.3	152.4	182.9	172.7	163.8
N ₃	213.4	165.1	182.9	175.3	184.2
N ₄	182.9	162.6	177.8	152.4	168.9
Mean	181.0	167.0	186.7	168.3	175.7

S.E. of difference of two

1. V marginal means = 13.15 cm./tree.
2. N marginal means = 8.84 cm./tree.
3. N means at the same level of V = 17.68 cm./tree.
4. V means at the same level of N = 20.18 cm./tree.

Crop :- Sweet Orange.

Ref :- U.P. 56(95).

Site :- Govt. Hort. Res. Instt., Saharanpur.

Type :- 'MV'.

Object :-To find out the amount of N needed by Citrus from early stage to full bearing stage.

1. BASAL CONDITIONS :

(i) N.A. (ii) (a) Loam to clay loam. (b) Refer soil analysis, Saharanpur. (iii) By budding. (iv) As per treatments. (v) A square system of planting with spacing 18' x 18'. (vi) 1 year. (vii) Cowdung at 40 lb./p in 1954. (viii) Weeding, hoeing and digging. (ix) Nil. (x) Irrigated. (xi) 65.01%. (xii) N.A.

2. TREATMENTS :

Main-plot treatments :

4 varieties : V₁=Ruby, V₂=Vanille, V₃=De clevery and V₄=Thompson.

Sub-plot treatments :

4 levels of N as A/S : N₁=7.2, N₂=10.8, N₃=18.0 and N₄=28.8 ozs./plant.

A/S applied in 3 equal doses in January, June and October.

3. DESIGN and 4. GENERAL :

Same as in expt. no. 54(154) on page 1665.

5. RESULTS :

(i) 267.0 cm./tree. (ii) (a) 56.03 cm./tree. (b) 23.34 cm./tree. (iii) None of the effects is significant. (iv) Av. height in cm./tree.

	V ₁	V ₂	V ₃	V ₄	Mean
N ₁	279.4	284.5	279.4	269.2	278.1
N ₂	243.8	228.6	264.2	274.3	252.7
N ₃	302.3	248.9	266.7	266.7	271.2
N ₄	266.7	248.9	279.4	269.2	266.1
Mean	273.1	252.7	272.4	269.8	267.0

S.E. of difference of two

1. V marginal means = 28.02 cm./tree.
2. N marginal means = 11.67 cm./tree.
3. N means at the same level of V = 23.34 cm./tree.
4. V means at the same level of N = 34.54 cm./tree.

Crop :- Sweet Orange.

Ref :- U.P. 57(130).

Site :- Govt. Hort. Res. Instt., Saharanpur.

Type :- 'MV'.

Object :—To find out the amount of N needed by Citrus from early stage to full bearing stage.

1. BASAL CONDITIONS :

(i) N.A. (ii) (a) Loam to clay loam. (b) Refer soil analysis, Saharanpur. (iii) By budding. (iv) As per treatments. (v) A square system of planting with spacing 18' × 18'. (vi) 1 year. (vii) Cowdung at 40 lb./pit in 1954. (viii) Weeding, hoeing and digging. (ix) Nil. (x) Irrigated. (xi) 46.74". (xii) N.A.

2. TREATMENTS :

Main-plot treatments :

4 varieties : V₁=Ruby, V₂=Vanille, V₃=De clevery and V₄=Thompson.

Sub-plot treatments :

4 levels of N as A/S : N₁=9.6, N₂=14.4, N₃=24.0 and N₄=38.4 ozs./plant.

A/S applied in 3 equal doses in January, June and October.

3. DESIGN to 4. GENERAL :

Same as in expt. no 54(154) on page 1665.

5. RESULTS :

(i) 292.4 cm./tree. (ii) (a) 45.82 cm./tree. (b) 27.23 cm./tree. (iii) None of the effects is significant. (vi) Av. height in cm./tree.

	V ₁	V ₂	V ₃	V ₄	Mean
N ₁	304.8	304.8	320.0	312.4	310.5
N ₂	271.8	261.6	284.5	307.3	281.3
N ₃	325.1	264.2	294.6	287.0	292.7
N ₄	287.0	266.7	294.6	292.1	285.1
Mean	297.2	274.3	298.4	299.7	292.4

S.E. of difference of two

1. V marginal means	= 22.91 cm./tree.
2. N marginal means	= 13.62 cm./tree.
3. N means at the same level of V	= 27.23 cm./tree.
4. V means at the same level of N	= 32.88 cm./tree.

Crop :- Sweet Orange.

Ref :- U.P. 54(89).

Site :- Govt. Hort. Res. Inst., Saharanpur.

Type :- 'CV'.

Object :—To determine the optimum steonic combination.

1. BASAL CONDITIONS :

(i) N.A. (ii) (a) Loam to clayey loam. (b) Refer soil analysis, Saharanpur. (iii) By budding. (iv) As per treatments. (v) July, 1952. A square system of planting with 18' x 18' spacing. (vi) 2 years. (vii) 20 srs./pit of F.Y.M. (viii) Hoeing and weeding. (ix) Clean cultivation. (x) Irrigated. (xi) 43.97". (xii) No harvest.

2. TREATMENTS :

Main-plot treatments :

3 scion varieties : V_1 = Vanille, V_2 = Navelencia and V_3 = *Mussambi*.

Sub-plot treatments :

7 root stocks : S_1 = *Jamburi*, S_2 = Florida, S_3 = Seville, S_4 = Sweet lime, S_5 = Italian, S_6 = Sylhet and S_7 = *Karna*.

3. DESIGN :

(i) Split-plot. (ii) (a) 3 main-plots/replication; 7 sub-plots/main-plot. (b) N.A. (iii) 3. (iv) 6. (v) N.A. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Nil. (iii) Circumference of scion (above the union), circumference of stock (below the union), height and spread. (iv) (a) 1952—contd. (b) Nil. (v) and (vi) Nil.

5. RESULTS :

Girth of scion

(i) 13.9 cm./tree. (ii) (a) 3.65 cm./tree. (b) 3.06 cm./tree. (iii) Main effect of S is highly significant and interaction $V \times S$ is significant. (iv) Av. girth of scion in cm./tree.

	S_1	S_2	S_3	S_4	S_5	S_6	S_7	Mean
V_1	14.3	16.8	11.3	14.8	20.1	15.0	19.5	16.0
V_2	16.7	12.4	10.1	8.2	14.6	11.3	21.1	13.5
V_3	11.4	13.8	10.6	14.5	10.9	9.4	14.4	12.1
Mean	14.1	14.3	10.7	12.5	15.2	11.9	18.3	13.9

S.E. of difference of two

1. V marginal means	= 1.13 cm./tree.
2. S marginal means	= 1.44 cm./tree.
3. S means at the same level of V	= 2.50 cm./tree.
4. V means at the same level of S	= 2.57 cm./tree.

Girth of stock

(i) 19.8 cm./tree. (ii) (a) 6.01 cm./tree. (b) 3.88 cm./tree. (iii) Main effect of S is highly significant and interaction $V \times S$ is significant. (iv) Av. girth of stock in cm./tree.

	S_1	S_2	S_3	S_4	S_5	S_6	S_7	Mean
V_0	20.5	23.5	15.8	19.8	30.1	20.5	26.5	22.4
V_1	24.0	19.7	15.4	13.5	21.3	15.3	27.2	19.5
V_2	16.7	20.2	15.2	20.2	16.3	12.7	20.3	17.4
Mean	20.4	21.1	15.5	17.8	22.6	16.2	24.7	19.8

S.E. of difference of two

1. V marginal means = 1.85 cm./tree.
2. S marginal means = 1.83 cm./tree.
3. S means at the same level of V = 3.17 cm./tree.
4. V means at the same level of S = 3.47 cm./tree.

Crop :- Sweet Orange.**Ref :- U.P. 55(89).****Site :- Govt. Hort. Res. Instt., Saharanpur.****Type :- 'CV'.**

Object :- To determine the optimum steonic combination.

1. BASAL CONDITIONS :

(i) N.A. (ii) (a) Loam to clayey loam. (b) Refer soil analysis, Saharanpur. (iii) By budding. (iv) As per treatments. (v) July, 1952. A square system of planting with 18' x 18' spacing. (vi) 2 years. (vii) 20 srs./pit of F.Y.M. (viii) Hoeing and weeding. (ix) Clean cultivation. (x) Irrigated. (xi) 55.39%. (xii) No harvest.

2. TREATMENTS to 4. GENERAL :

Same as in expt. no. 54(89) on page 1669.

5. RESULTS :

Girth of stock

(i) 19.1 cm./tree. (ii) (a) 4.32 cm./tree. (b) 3.62 cm./tree. (iii) Main effect of S alone is highly significant. (iv) Av. girth of stock in cm./tree.

	S ₁	S ₂	S ₃	S ₄	S ₅	S ₆	S ₇	Mean
V ₁	19.3	21.7	17.7	16.0	27.0	18.3	23.3	20.7
V ₂	21.0	21.0	15.7	13.0	20.0	16.3	23.0	18.6
V ₃	17.3	21.7	16.0	21.7	18.6	13.0	20.3	18.4
Mean	19.2	21.5	16.5	16.9	21.9	15.9	22.2	19.2

S.E. of difference of two

1. V marginal means = 1.33 cm./tree.
2. S marginal means = 1.71 cm./tree.
3. S means at the same level of V = 2.95 cm./tree.
4. V means at the same level of S = 3.04 cm./tree.

Girth of scion

(i) 15.2 cm./tree. (ii) (a) 3.52 cm./tree. (b) 2.87 cm./tree. (iii) Main effect of S alone is highly significant. (iv) Av. girth of scion in cm./tree.

	S ₁	S ₂	S ₃	S ₄	S ₅	S ₆	S ₇	Mean
V ₁	15.7	18.0	14.3	13.7	21.0	14.7	19.0	16.6
V ₂	17.0	15.7	12.0	9.7	15.3	13.3	20.0	14.7
V ₃	14.0	16.3	13.3	15.3	14.0	11.7	15.7	14.3
Mean	15.6	16.7	13.2	12.9	16.8	13.2	18.2	15.2

S.E. of difference of two

1. V marginal means = 1.09 cm./tree.
2. S marginal means = 1.35 cm./tree.
3. S means at the same level of V = 2.34 cm./tree.
4. V means at the same level of S = 2.43 cm./tree.

Crop :- Sweet Orange.

Ref :- U.P. 56(33).

Site :- Govt. Hort. Res. Instt., Saharanpur.

Type :- 'CV'.

Object :-To determine the optimum steonic combination.

1. BASAL CONDITIONS :

(i) N.A. (ii) (a) Loam to clayey loam. (b) Refer soil analysis, Saharanpur. (iii) By budding. (iv) As per treatments. (v) July, 1952. A square system of planting with 18'×18' spacing. (vi) 2 years. (vii) 20 srs./pit of F.Y.M. (viii) Hoeing and weeding. (ix) Clean cultivation. (x) Irrigated. (xi) 65.01". (xii) Not yet started bearing.

2. TREATMENTS to 4. GENERAL :

Same as in expt. no. 54(89) on page 1669.

5. RESULTS :

Girth of scion

(i) 17.4 cm./tree. (ii) (a) 4.12 cm./tree. (b) 2.70 cm./tree. (iii) Main effect of S is highly significant and interaction V×S is significant. (iv) Av. girth of scion in cm./tree.

	S ₁	S ₂	S ₃	S ₄	S ₅	S ₆	S ₇	Mean
V ₁	19.8	20.5	16.3	14.2	24.7	17.8	20.4	19.1
V ₂	20.5	17.1	14.2	12.4	15.5	13.9	21.3	16.4
V ₃	17.8	17.4	15.3	18.5	15.2	13.2	20.1	16.8
Mean	19.4	18.3	15.3	15.0	18.5	15.0	20.6	17.4

S.E. of difference of two

1. V marginal means = 1.27 cm./tree.
2. S marginal means = 1.27 cm./tree.
3. S means at the same level of V = 2.20 cm./tree.
4. V means at the same level of S = 2.40 cm./tree.

Girth of stock

(i) 21.3 cm./tree. (ii) (a) 5.33 cm./tree. (b) 3.20 cm./tree. (iii) Main effect of S and interaction V×S are highly significant. (iv) Av. girth of stock in cm./tree.

	S ₁	S ₂	S ₃	S ₄	S ₅	S ₆	S ₇	Mean
V ₁	23.4	25.2	19.7	17.4	29.6	21.9	25.0	23.2
V ₂	25.4	23.4	18.4	15.4	18.8	16.9	25.5	20.5
V ₃	21.2	21.7	17.8	23.8	18.5	15.4	23.1	20.2
Mean	23.3	23.4	18.6	18.9	22.3	18.1	24.5	21.3

S.E. of difference of two

1. V marginal means = 1.64 cm./tree.
2. S marginal means = 1.51 cm./tree.
3. S means at the same level of V = 2.61 cm./tree.
4. V means at the same level of S = 2.92 cm./tree.

Crop :- Sweet Orange.

Ref :- U.P. 57(21).

Site :- Govt. Hort. Res. Instt., Saharanpur.

Type :- 'CV'.

Object :-To determine the optimum steonic combination.

1. BASAL CONDITIONS :

(i) N.A. (ii) (a) Loam to clayey loam. (b) Refer soil analysis, Saharanpur. (iii) By budding. (iv) As per treatments. (v) July, 1952. A square system of planting with 18' × 18' spacing. (vi) 2 years. (vii) 20 srs./pit of F.Y.M. (viii) Hoeing and weeding. (ix) Clean cultivation. (x) Irrigated. (xi) 46.74%. (xii) N.A.

2. TREATMENTS and 3. DESIGN :

Same as in expt. no. 54(89) on page 1669.

4. GENERAL :

(i) Good. (ii) Nil. (iii) Girth of stock and scion, number of fruit and weight of fruit. (iv) (a) 1952 - contd. (b) Nil. (v) 0 (vii) Nil.

5. RESULTS :

(i) 5.46 lb./tree. (ii) (a) 9.33 lb./tree. (b) 3.64 lb./tree. (iii) None of the effects is significant. (iv) Av. yield of fruit in lb./tree.

	S ₁	S ₂	S ₃	S ₄	S ₅	S ₆	S ₇	Mean
V ₁	4.17	4.10	6.43	4.40	8.57	3.37	9.87	5.84
V ₂	5.20	3.87	1.73	2.87	2.50	5.50	10.20	4.55
V ₃	5.53	6.13	5.50	10.57	5.40	2.30	6.53	5.99
Mean	4.97	4.70	4.55	5.95	5.49	3.72	8.87	5.46

S.E. of difference of two

1. V marginal means = 2.88 lb./tree.
2. S marginal means = 1.72 lb./tree.
3. S means at the same level of V = 2.97 lb./tree.
4. V means at the same level of S = 3.98 lb./tree.

Crop :- Sweet Orange.

Ref :- U.P. 58(126).

Site :- Govt. Hort. Res. Instt., Saharanpur.

Type :- 'CV'.

Object :- To determine the optimum steonic combination.

1. BASAL CONDITIONS :

(i) N.A. (ii) (a) Sandy loam. (b) Refer soil analysis, Saharanpur. (iii) By budding. (iv) As per treatments. (v) July, 1952. A square system of planting with 18' × 18' spacing. (vi) 2 years. (vii) 20 srs./pit of F.Y.M. (viii) N.A. (ix) Clean cultivation. (x) Irrigated. (xi) 63.94%. (xii) N.A.

2. TREATMENTS and 3. DESIGN :

Same as in expt. no. 54(89) on page 1669.

4. GENERAL :

(i) and (ii) N.A. (iii) Ratio of stock and scion girth and number of fruits borne. (iv) (a) 1952—contd. (b) Nil. (v) to (vii) Nil.

5. RESULTS :

Ratio of scion and stock girth

(i) 0.87. (ii) (a) 0.04. (b) 0.04. (iii) Main effect of S alone is significant. (iv) Av. ratio of scion and stock girth.

	S ₁	S ₂	S ₃	S ₄	S ₅	S ₆	S ₇	Mean
V ₁	0.90	0.89	0.88	0.86	0.87	0.80	0.90	0.87
V ₂	0.87	0.85	0.88	0.84	0.81	0.86	0.89	0.86
V ₃	0.87	0.83	0.88	0.90	0.86	0.84	0.91	0.87
Mean	0.88	0.85	0.88	0.87	0.85	0.83	0.90	0.87

S.E. of difference of two

1. V marginal means = 0.01.
2. S marginal means = 0.02.
3. S means at the same level of V = 0.03.
4. V means at the same level of S = 0.03.

Number of fruits

- (i) 12.4 fruits/tree. (ii) (a) 13.5 fruits/tree. (b) 8.5 fruits/tree. (iii) Main effect of S alone is significant.
 (iv) Av. number of fruits/tree.

	S ₁	S ₂	S ₃	S ₄	S ₅	S ₆	S ₇	Mean
V ₁	8.3	16.3	13.7	5.0	30.3	6.3	23.7	14.8
V ₂	17.7	12.0	9.0	1.7	9.7	5.3	19.0	10.6
V ₃	18.7	10.3	10.3	15.0	16.3	3.3	9.0	11.8
Mean	14.9	12.9	11.0	7.2	18.8	5.0	17.2	12.4

S.E. of difference of two

1. V marginal means = 4.2 fruits/tree.
2. S marginal means = 4.0 fruits/tree.
3. S means at the same level of V = 6.9 fruits/tree.
4. V means at the same level of S = 7.7 fruits/tree.

Crop :- Sweet Orange.

Ref :- U.P. 59(142).

Site :- Govt. Hort. Res. Instt., Saharanpur.

Type :- 'CV'.

Object :- To determine the optimum steonic combination.

1. BASAL CONDITIONS :

(i) N.A. (ii) (a) Loam to clayey loam. (b) Refer soil analysis, Saharanpur. (iii) By budding. (iv) As per treatments. (v) July, 1952. A square system of planting with 18' x 18' spacing. (vi) 2 years. (vii) 20 srs./pit of F.Y.M. (viii) N.A. (ix) Clean cultivation. (x) Irrigated. (xi) 62.05%. (xii) N.A.

2. TREATMENTS to 4. GENERAL :

Same as in expt. no. 54(89) on page 1669.

5. RESULTS :

Ratio of scion and stock girth

(i) 0.87. (ii) (a) 0.02. (b) 0.03. (iii) None of the effects is significant. (iv) Av. ratio of scion and stock girth.

	S ₁	S ₂	S ₃	S ₄	S ₅	S ₆	S ₇	Mean
V ₁	0.88	0.88	0.87	0.86	0.88	0.88	0.88	0.88
V ₂	0.90	0.84	0.88	0.87	0.87	0.86	0.88	0.87
V ₃	0.88	0.87	0.88	0.87	0.87	0.86	0.88	0.87
Mean	0.89	0.86	0.88	0.87	0.87	0.87	0.88	0.87

S.E. of difference of two

1. V marginal means = 0.006.
2. S marginal means = 0.014.
3. S means at the same level of V = 0.025.
4. V means at the same level of S = 0.021.

Number of fruits

(i) 47.25 fruits/tree. (ii) (a) 63.21 fruits/tree. (b) 37.79 fruits/tree. (iii) None of the effects is significant
 (iv) Av. number of fruits/tree.

	S ₁	S ₂	S ₃	S ₄	S ₅	S ₆	S ₇	Mean
V ₁	30.67	41.33	37.67	13.00	92.67	18.67	62.67	42.38
V ₂	35.67	26.00	10.67	8.33	29.33	34.33	69.00	29.52
V ₃	68.67	122.33	41.33	85.00	42.33	27.00	102.33	47.25
Mean	45.00	63.22	29.89	35.44	52.56	26.67	78.00	47.25

S.E. of difference of two

1. V marginal means = 19.50 fruits/tree.
2. S marginal means = 17.81 fruits/tree.
3. S means at the same level of V = 30.86 fruits/tree.
4. V means at the same level of S = 34.59 fruits/tree.

Crop :- Mandarin.

Ref :- U.P. 54(155).

Site :- Govt. Hort. Res. Instt., Saharanpur.

Type :- 'MV'.

Object :- To find out the amount of N needed by Citrus from early stage to full bearing stage.

1. BASAL CONDITIONS :

(i) N.A. (ii) (a) Loam to clay loam. (b) Refer soil analysis, Saharanpur. (iii) By budding. (iv) As per treatments. (v) A square system of planting with spacing 18' x 18'. (vi) 1 year. (vii) Cowdung at 40 lb./pit in 1954. (viii) Weeding, hoeing and digging. (ix) No. (x) Irrigated. (xi) 43.97". (xii) N.A.

2. TREATMENTS :

Main-plot treatments :

4 varieties : V₁=Ruby, V₂=Vanille, V₃=De-clevery and V₄=Thompson.

Sub-plot treatments :

4 levels of N as A/S : N₁=2.4, N₂=3.6, N₃=6.0 and N₄=9.6 ozs./plant.

A/S applied in three equal doses in January, June and October.

3. DESIGN :

(i) Split-plot. (ii) (a) 4 main-plots/replication ; 4 sub-plots/main-plot. (b) N.A. (iii) and (iv) 2. (v) N.A. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Nil. (iii) Girth measurement. (iv) (a) 1954—1957. (b) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 5.5 cm./tree. (ii) (a) 0.74 cm./tree. (b) 0.68 cm./tree. (iii) None of the effects is significant. (iv) Av. girth in cm./tree.

	V ₁	V ₂	V ₃	V ₄	Mean
N ₁	5.2	6.7	6.6	5.8	6.1
N ₂	5.4	5.9	5.2	5.4	5.5
N ₃	5.8	5.6	4.4	5.0	5.2
N ₄	5.6	5.8	4.8	5.3	5.4
Mean	5.5	6.0	5.2	5.4	5.5

S.E. of difference of two

1. V marginal means = 0.37 cm./tree.
2. N marginal means = 0.34 cm./tree.
3. N means at the same level of V = 0.68 cm./tree.
4. V means at the same level of N = 0.69 cm./tree.

Crop :- Mandarin.**Ref :- U.P. 55(145).****Site :- Govt. Hort. Res. Instt , Saharanpur.****Type :- 'MV'.****Object :** To find out the amount of N needed by Citrus from early stage to full bearing stage.**1. BASAL CONDITIONS :**

(i) N.A. (ii) (a) Loam to clay loam. (b) Refer soil analysis, Saharanpur. (iii) By budding. (iv) As per treatments. (v) A square system of planting with spacing 18' x 18'. (vi) 1 year. (vii) Cowdung at 40 lb./pit in 1954. (viii) Weeding, hoeing and digging. (ix) No. (x) Irrigated. (xi) 55.39". (xii) N.A.

2. TREATMENTS :**Main-plot treatments :**4 varieties : V₁=Ruby, V₂=Vanille, V₃=De-clevery and V₄=Thompson.**Sub-plot treatments :**4 levels of N as A/S : N₁=4.8, N₂=7.2, N₃=12.0 and N₄=19.2 ozs./plant.

A/S applied in three equal doses in January, June and October.

3. DESIGN :

(i) Split-plot. (ii) (a) 4 main-plots/replication ; 4 sub-plots/main-plot. (b) N.A. (iii) and (iv) 2. (v) N.A. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Nil. (iii) Girth and height of tree. (iv) (a) 1954-1957. (b) Nil. (v) to (vii) Nil.

5. RESULTS :**Girth**

(i) 11.1 cm./tree. (ii) (a) 1.28 cm /tree. (b) 1.08 cm /tree. (iii) None of the effects is significant. (iv) Av. girth in cm./tree.

	V ₁	V ₂	V ₃	V ₄	Mean
N ₁	11.4	11.6	12.5	11.4	11.8
N ₂	11.0	11.4	10.2	10.8	10.8
N ₃	12.2	11.1	9.6	10.4	10.8
N ₄	11.4	11.6	10.3	10.2	10.9
Mean	11.5	11.4	10.7	10.7	11.1

S.E. of difference of two

1. V marginal means = 0.64 cm./tree.
2. N marginal means = 0.54 cm./tree.
3. N means at the same level of V = 1.08 cm./tree.
4. V means at the same level of N = 1.13 cm./tree.

Height

(i) 191.4 cm./tree. (ii) (a) 21.69 cm./tree. (b) 12.24 cm./tree. (iii) None of the effects is significant. (iv) Av. height in cm./tree.

	V ₁	V ₂	V ₃	V ₄	Mean
N ₁	192.5	161.3	199.4	201.9	188.8
N ₂	218.9	180.3	182.4	199.4	195.3
N ₃	217.2	176.5	204.5	188.5	196.7
N ₄	195.6	171.5	185.9	186.7	184.9
Mean	206.1	172.4	193.1	194.1	191.4

S.E. of difference of two

1. V marginal means = 10.85 cm./tree.
2. N marginal means = 6.12 cm./tree.
3. N means at the same level of V = 12.24 cm./tree.
4. V means at the same level of N = 15.17 cm./tree.

Crop :- Mandarin.**Ref :- U.P. 56(96).****Site :- Govt. Hort. Res. Instt., Saharanpur.****Type :- 'MV'.**

Object :—To find out the amount of N needed by Citrus from early stage to full bearing stage.

1. BASAL CONDITIONS :

(i) N.A. (ii) (a) Loam to clay loam. (b) Refer soil analysis, Saharanpur. (iii) By budding. (iv) As per treatments. (v) A square system of planting with spacing 18'×18'. (vi) 1 year. (vii) Cowdung at 40 lb./pit in 1954. (viii) Weeding, hoeing and digging. (ix) No. (x) Irrigated. (xi) 65.01%. (xii) N.A.

2. TREATMENTS :**Main-plot treatments :**4 varieties : V_1 =Ruby, V_2 =Vanille, V_3 =De-clevery and V_4 =Thompson.**Sub-plot treatments :**4 levels of N as A/S : N_1 =7.2, N_2 =10.8, N_3 =18.0 and N_4 =28.8 ozs./plant.

A/S applied in three equal doses in January, June and October.

3. DESIGN :

(i) Split-plot. (ii) (a) 4 main-plots/replication ; 4 sub-plots/main-plot. (b) N.A. (iii) and (iv) 2. (v) All round the experimental area. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Nil. (iii) Height of tree. (iv) (a) 1954 - 1957. (b) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 287.3 cm./tree. (ii) (a) 24.84 cm./tree. (b) 19.30 cm./tree. (iii) None of the effects is significant. (iv) Av. height in cm./tree.

	V_1	V_2	V_3	V_4	Mean
N_1	294.6	244.3	302.3	306.1	286.8
N_2	304.3	269.2	289.1	281.9	286.1
N_3	310.4	251.0	298.5	294.6	288.6
N_4	311.2	268.7	271.8	299.2	287.7
Mean	305.1	258.3	290.4	295.5	287.3

S.E. of difference of two

1. V marginal means = 12.42 cm./tsee.
2. N marginal means = 9.65 cm./tree.
3. N means at the same level of V = 19.30 cm./tree.
4. V means at the same level of N = 20.82 cm./tree.

Crop :- Mandarin.**Ref :- U.P. 57(131).****Site :- Govt. Hort. Res. Instt., Saharanpur.****Type :- 'MV'.**

Object :—To find out the amount of N needed by Citrus from early stage to full bearing stage.

1. BASAL CONDITIONS :

(i) N.A. (ii) (a) Loam to clay loam. (b) Refer soil analysis, Saharanpur. (iii) By budding. (iv) As per treatments. (v) A square system of planting with spacing 18'×18'. (vi) 1 year. (vii) Cowdung at 40 lb./pit in 1954. (viii) Weeding, hoeing and digging. (ix) No. (x) Irrigated. (xi) 46.74%. (xii) N.A.

2. TREATMENTS :**Main-plot treatments :**4 varieties : V_1 =Ruby, V_2 =Vanille, V_3 =De-clevery and V_4 =Thompson.**Sub-plot treatments :**4 levels of N as A/S : N_1 =9.6, N_2 =14.4, N_3 =24.0 and N_4 =38.4 ozs./plant.

A/S applied in three equal doses in January, June and October.

3. DESIGN and 4. GENERAL :

Same as in expt. no. 56(96) on page 1676.

5. RESULTS :

(i) 302.9 cm./tree. (ii) (a) 9.80 cm./tree. (b) 17.98 cm./tree. (iii) Main effect of V alone is highly significant.
 (iv) Av. height in cm./tree.

	V ₁	V ₂	V ₃	V ₄	Mean
N ₁	304.8	269.7	327.2	308.6	302.6
N ₂	317.0	278.9	305.3	285.8	296.8
N ₃	322.6	266.7	319.5	309.4	304.6
N ₄	322.6	271.3	330.2	305.3	307.4
Mean	316.8	271.7	320.6	302.3	302.9

S.E. of difference of two

1. V marginal means = 4.90 cm./tree.
2. N marginal means = 8.99 cm./tree.
3. N means at the same level of V = 17.98 cm./tree.
4. V means at the same level of N = 16.32 cm./tree.

Crop :- Mandarin.**Ref :- U.P. 54(88).****Site :- Govt. Hort. Res. Instt., Saharanpur.****Type :- 'CV'.****Object :-**To determine the optimum steonic combination.

1. BASAL CONDITIONS :

(i) N.A. (ii) (a) Loam to clayey loam. (b) Refer soil analysis, Saharanpur. (iii) By budding. (iv) As per treatments. (v) July, 1952. A square system of planting with 18' x 18' spacing. (vi) 2 years. (vii) 20 srs./pit of F.Y.M. (viii) Hoeing and weeding. (ix) Clean cultivation. (x) Irrigated. (xi) 43.97%. (xii) No harvest.

2. TREATMENTS :

Main-plot treatments :3 scion varieties : V₁=Hill, V₂=Srinagar and V₃=Rangtara.**Sub-plot treatments :**7 root stocks : S₁=Jamburi, S₂=Florida rough, S₃=Seville orange, S₄=Sweet lime, S₅=Italian, S₆=Sylhet and S₇=Kharna Khatta.

3. DESIGN :

(i) Split-plot. (ii) (a) 3 main-plots/replication ; 7 sub-plots/main-plot. (b) N.A. (iii) 3. (iv) 6. (v) All round the experimental area. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Nil. (iii) Girth of scion (above the union) and girth of stock (below the union). (iv) (a) 1952-1959. (b) Nil. (v) to (vii) Nil.

5. RESULTS :

Girth of scion

(i) 12.0 cm./tree. (ii) (a) 2.85 cm./tree. (b) 3.72 cm./tree. (iii) Main effect of S is highly significant and that of V is significant. (iv) Av. girth of scion in cm./tree.

	S ₁	S ₂	S ₃	S ₄	S ₅	S ₆	S ₇	Mean
V ₁	11.4	16.4	6.3	7.3	13.2	10.8	12.7	11.2
V ₂	16.7	15.5	8.1	12.9	17.7	11.3	18.5	14.4
V ₃	11.3	11.2	8.2	9.6	9.1	10.8	13.2	10.5
Mean	13.1	14.4	7.5	9.9	13.3	11.0	14.8	12.0

S.E. of difference of two

1. V marginal means = 0.88 cm./tree.
2. S marginal means = 1.75 cm./tree.
3. S means at the same level of V = 3.04 cm./tree.
4. V means at the same level of S = 2.95 cm./tree.

Girth of stock

- (i) 17.6 cm./tree. (ii) (a) 9.87 cm./tree. (b) 4.40 cm./tree. (iii) Main effect of S alone is highly significant.
 (iv) Av. girth of stock in cm./tree.

	S ₁	S ₂	S ₃	S ₄	S ₅	S ₆	S ₇	Mean
V ₁	13.8	18.9	8.9	9.9	16.2	14.4	15.7	14.0
V ₂	26.2	24.8	15.3	19.8	27.3	17.3	27.3	22.6
V ₃	17.2	17.8	12.8	17.2	13.7	15.7	18.5	16.1
Mean	19.1	20.5	12.3	15.6	19.1	15.8	20.5	17.6

S.E. of difference of two

1. V marginal means = 3.05 cm./tree.
2. S marginal means = 2.07 cm./tree.
3. S means at the same level of V = 3.59 cm./tree.
4. V means at the same level of S = 4.51 cm./tree.

Crop :- Mandarin.

Ref :- U.P. 55(88)

Site :- Govt. Hort. Res. Instt., Saharanpur.

Type :- 'CV'

Object :- To determine the optimum steonic combination.

1. BASAL CONDITIONS :

(i) N.A. (ii) (a) Loam to clayey loam. (b) Refer soil analysis, Saharanpur. (iii) By budding. (iv) As per treatments. (v) July, 1952. A square system of planting with 18' × 18' spacing. (vi) 2 years. (vii) 20 srs./pit of F.Y.M. (viii) Hoeing and weeding. (ix) Clean cultivation. (x) Irrigated. (xi) 55.39%. (xii) No harvest.

2. TREATMENTS to 4. GENERAL :

Same as in expt. no. 54(88) on page 1677.

5. RESULTS :

Girth of scion

- (i) 14.3 cm./tree. (ii) (a) 3.33 cm./tree. (b) 2.82 cm./tree. (iii) Main effect of S alone is highly significant.
 (iv) Av. girth of scion in cm./tree.

	S ₁	S ₂	S ₃	S ₄	S ₅	S ₆	S ₇	Mean
V ₁	14.3	17.3	10.7	8.0	14.3	12.3	13.7	12.9
V ₂	18.3	18.7	9.7	14.0	20.7	15.0	19.0	16.5
V ₃	12.3	17.0	9.7	12.0	16.3	13.7	14.7	13.7
Mean	15.0	17.7	10.0	11.3	17.1	13.7	15.8	14.4

S.E. of difference of two

1. V marginal means = 1.03 cm./tree.
2. S marginal means = 1.33 cm./tree.
3. S means at the same level of V = 2.30 cm./tree.
4. V means at the same level of S = 2.36 cm./tree.

Girth of stock

(i) 18.2 cm./tree. (ii) (a) 4.22 cm./tree. (b) 3.58 cm./tree. (iii) Main effect of S alone is highly significant.
(iv) Av. girth of stock in cm./tree.

	S ₁	S ₂	S ₃	S ₄	S ₅	S ₆	S ₇	Mean
V ₁	18.7	22.0	14.0	11.3	18.3	16.0	16.7	16.7
V ₂	23.3	23.7	13.0	16.3	25.7	18.0	23.3	20.5
V ₃	15.7	21.7	12.3	16.7	20.3	16.3	18.7	17.4
Mean	19.2	22.5	13.1	14.8	21.4	16.8	19.6	18.2

S.E. of difference of two

1. V marginal means = 1.30 cm./tree.
2. S marginal means = 1.69 cm./tree.
3. S means at the same level of V = 2.92 cm./tree.
4. V means at the same level of S = 3.00 cm./tree.

Crop :- Mandarin.**Ref :- U.P. 56(32).****Site :- Govt. Hort. Res. Instt., Saharanpur.****Type :- 'CV.'****Object :- To determine the optimum steonic combination.****1. BASAL CONDITIONS :**

(i) N.A. (ii) (a) Loam to clayey loam. (b) Refer soil analysis, Saharanpur. (iii) By budding. (iv) As per treatments. (v) July, 1952. A square system of planting with 18'×18' spacing. (vi) 20 srs./pit of F.Y.M. (viii) Hoeing and weeding. (ix) Clean cultivation. (x) Irrigated. (xi) 65.01%. (xii) No harvest.

2. TREATMENTS to 4. GENERAL :

Same as in expt. no. 54(88) on page 1677.

5. RESULTS:**Girth of scion**

(i) 17.0 cm./tree. (ii) (a) 3.38 cm./tree. (b) 3.44 cm./tree. (iii) Main effect of S is highly significant and that of V is significant. (iv) Av. girth of scion in cm./tree.

	S ₁	S ₂	S ₃	S ₄	S ₅	S ₆	S ₇	Mean
V ₁	13.9	18.8	11.0	11.8	20.2	13.8	16.7	15.2
V ₂	18.4	26.0	10.2	16.1	26.4	19.2	24.7	20.1
V ₃	15.4	19.8	13.1	12.4	15.4	17.4	16.5	15.7
Mean	15.9	21.5	11.4	13.4	20.7	16.8	19.3	17.0

S.E. of difference of two

1. V marginal means = 1.04 cm./tree.
2. S marginal means = 1.62 cm./tree.
3. S means at the same level of V = 2.81 cm./tree.
4. V means at the same level of S = 2.80 cm./tree.

Girth of stock

(i) 20.8 cm./tree. (ii) (a) 5.59 cm./tree. (b) 3.77 cm./tree. (iii) Main effect of S alone is highly significant.
(iv) Av. girth of stock in cm./tree.

	S ₁	S ₂	S ₃	S ₄	S ₅	S ₆	S ₇	Mean
V ₁	18.0	23.8	14.6	16.0	25.0	18.6	21.3	19.6
V ₂	23.0	30.8	13.5	17.5	29.3	23.1	27.3	23.5
V ₃	18.7	23.8	15.0	16.5	19.5	21.0	19.9	19.2
Mean	19.9	26.1	14.4	16.7	24.6	20.9	22.8	20.8

S.E. of difference of two

1. V marginal means = 1.73 cm./tree.
2. S marginal means = 1.78 cm./tree.
3. S means at the same level of V = 3.08 cm./tree.
4. V means at the same level of S = 3.33 cm./tree.

Crop :- Mandarin.

Ref :- U.P. 57(24).

Site :- Govt. Hort. Res. Instt., Saharanpur.

Type :- 'CV'.

Object :- To determine the optimum steonic combination.

1. BASAL CONDITIONS :

(i) N.A. (ii) (a) Loam to clayey loam. (b) Refer soil analysis, Saharanpur. (iii) By budding. (iv) As per treatments. (v) July, 1952. A square system of planting with 18' x 18' spacing. (vi) 2 years. (vii) 20 srs./pit. of F.Y.M. (viii) Hoeing and weeding. (ix) Clean cultivation. (x) Irrigated. (xi) 46.74%. (xii) N.A.

2. TREATMENTS and 3. DESIGN :

Same as in expt. no. 54(88) on page 1677.

4. GENERAL :

(i) Good. (ii) Nil. (iii) Yield of fruits. (iv) (a) 1952—1959. (b) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 14.6 lb./tree. (ii) (a) 8.77 lb./tree. (b) 7.48 lb./tree. (iii) Main effect of S alone is highly significant. (iv) Av. yield of fruit in lb./tree.

	S ₁	S ₂	S ₃	S ₄	S ₅	S ₆	S ₇	Mean
V ₁	7.4	26.9	3.8	2.7	16.4	3.8	11.0	10.3
V ₂	11.7	22.0	3.7	17.3	19.7	24.0	26.0	17.8
V ₃	11.4	16.6	8.9	11.5	15.2	20.0	26.2	15.7
Mean	10.2	21.8	5.5	10.5	17.1	15.9	21.1	14.6

S E. of difference of two

1. V marginal means = 2.71 lb./tree.
2. S marginal means = 3.53 lb./tree.
3. S means at the same level of V = 6.11 lb./tree.
4. V means at the same level of S = 6.27 lb./tree.

Crop :- **Mandarin.**Ref :- **U.P. 58(129).**Site :- **Govt. Hort. Res. Instt., Saharanpur.**Type :- **'CV'.**Object :- **To determine the optimum steonic combination.****1. BASAL CONDITIONS :**

(i) N.A. (ii) (a) Loam to clayey loam. (b) Refer soil analysis, Saharanpur. (iii) By budding. (iv) As per treatments. (v) July, 1952. A square system of planting with 18' x 18' spacing. (vi) 2 years. (vii) N.A. (viii) Hoeing and weeding. (ix) Clean cultivation. (x) Irrigated. (xi) 63.94%. (xii) N.A.

2. TREATMENTS and 3. DESIGN :

Same as in expt. no. 54(88) on page 1677.

4. GENERAL :

(i) Good. (ii) N.A. (iii) Ratio of stock and scion girth and number of fruits. (iv) (a) 1952-1959. (b) Nil. (v) to (vii) Nil.

5. RESULTS:**Ratio of scion and stock girth**

(i) 0.88. (ii) (a) 0.07. (b) 0.03. (iii) Main effect of S alone is significant. (iv) Av. ratio of scion and stock girth.

	S ₁	S ₂	S ₃	S ₄	S ₅	S ₆	S ₇	Mean
V ₁	0.84	0.88	0.83	0.83	0.91	0.85	0.87	0.86
V ₂	0.89	0.92	0.87	0.90	0.93	0.91	0.90	0.90
V ₃	0.88	0.90	0.85	0.84	0.88	0.86	0.89	0.87
Mean	0.87	0.90	0.85	0.86	0.91	0.87	0.89	0.88

S.E. of difference of two

1. V marginal means = 0.02.
2. S marginal means = 0.01.
3. S means at the same level of V = 0.03.
4. V means at the same level of S = 0.03.

Number of fruits

(i) 28.1 fruits/tree. (ii) (a) 21.41 fruits/tree. (b) 21.45 fruits/tree. (iii) Main effects of V and S are significant. (iv) Av. number of fruits/tree.

	S ₁	S ₂	S ₃	S ₄	S ₅	S ₆	S ₇	Mean
V ₁	11.7	32.7	7.0	4.0	31.7	6.7	9.0	14.7
V ₂	44.0	59.0	19.0	14.3	71.3	54.3	45.3	43.9
V ₃	16.7	73.0	18.3	16.0	24.0	16.0	16.3	25.8
Mean	24.1	54.9	14.8	11.4	42.3	25.7	23.5	28.1

S.E. of difference of two

1. V marginal means = 6.61 fruits/tree.
2. S marginal means = 10.14 fruits/tree.
3. S means at the same level of V = 17.52 fruits/tree.
4. V means at the same level of S = 17.52 fruits/tree.

Crop :- Mandarin.**Ref :- U.P. 59(143).****Site :- Govt. Hort. Res. Instt., Saharanpur.****Type :- 'CV'.****Object :-**To determine the optimum steonic combinations.**1. BASAL CONDITIONS :**

(i) N.A. (ii) (a) Loam to clayey loam. (b) Refer soil analysis, Saharanpur. (iii) By budding. (iv) As per treatments. (v) July, 1952. A square system of planting with 18' x 18' spacing. (vi) 2 years. (vii) N.A. (viii) Hoeing and weeding. (ix) Clean cultivation. (x) Irrigated. (xi) 62.05". (xii) N.A.

2. TREATMENTS and 3. DESIGN :

Same as in expt. no. 54(88) on page 1677.

4. GENERAL :

(i) Good. (ii) N.A. (iii) Ratio of stock and scion girth and number of fruits. (iv) (a) 1952—1959. (b) Nil. (v) to (vii) Nil.

5. RESULTS :**Ratio of scion and stock girth**

(i) 0.88. (ii) (a) 0.04. (b) 0.03. (iii) Main effects of V and S are significant. (iv) Av. ratio of scion and stock girth.

	S ₁	S ₂	S ₃	S ₄	S ₅	S ₆	S ₇	Mean
V ₁	0.84	0.88	0.79	0.84	0.89	0.84	0.87	0.85
V ₂	0.89	0.90	0.87	0.92	0.94	0.91	0.91	0.90
V ₃	0.89	0.93	0.88	0.89	0.90	0.89	0.89	0.89
Mean	0.87	0.90	0.85	0.88	0.91	0.88	0.89	0.88

S.E. of difference of two

1. V marginal means = 0.012.
2. S marginal means = 0.014.
3. S means at the same level of V = 0.025.
4. V means at the same level of S = 0.026.

Number of fruits

(i) 96.97 fruits/tree. (ii) (a) 131.18 fruits/tree. (b) 75.57 fruits/tree. (iii) None of the effects is significant. (iv) Av. number of fruits/tree.

	S ₁	S ₂	S ₃	S ₄	S ₅	S ₆	S ₇	Mean
V ₁	48.67	274.67	13.33	20.67	126.33	12.33	40.67	76.67
V ₂	178.00	202.33	31.33	80.00	189.67	131.67	218.33	147.33
V ₃	57.33	107.67	44.67	49.67	63.33	39.00	106.67	66.90
Mean	94.67	194.89	29.78	50.11	126.44	61.00	121.89	96.97

S.E. of difference of two

1. V marginal means = 40.48 fruits/tree.
2. S marginal means = 35.62 fruits/tree.
3. S means at the same level of V = 61.70 fruits/tree.
4. V means at the same level of S = 70.01 fruits/tree.

Crop :- Lime.**Ref :- U.P. 54(162).****Site :- Govt. Hort. Res. Instt., Saharanpur.****Type :- 'D'.****Object :-**To find out the control measures for Citrus canker disease.

1. BASAL CONDITIONS :

(i) N.A. (ii) (a) Sandy loam. (b) Refer soil analysis, Saharanpur. (iii) By seeds. (iv) *Kagzi*. (v) and (vi) N.A. (vii) *Sanai* G.M. (viii) N.A. (ix) *Berseem*. (x) Irrigated. (xi) and (xii) N.A.

2. TREATMENTS :

3 fungicidal treatments : T_0 =Control, T_1 =2 lb. of Copperson/40 gallons and T_2 =2 lb. of Dithane/100 gallons.

3. DESIGN :

(i) R.B.D. (ii) (a) 3. (b) N.A. (iii) 5. (iv) 2. (v) Around the experimental area and each treatment. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Incidence of citrus canker disease. (iii) Weight of cranked shoot. (iv) (a) 1954—1957. (b) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 14.2 gms./tree. (ii) 9.77 gms./tree. (iii) Treatment differences are significant. (iv) Av. weight of cranked shoot in gms./tree.

Treatment	T_0	T_1	T_2
Av. weight	24.0	3.0	15.6

S.E./mean = 4.37 gms./tree.

Crop :- Lime.

Ref :- U.P. 55(150).

Site :- Govt. Hort. Res. Instt., Saharanpur.

Type :- 'D'.

Object :- To find out the control measures for citrus canker disease.

1. BASAL CONDITIONS to 4. GENERAL :

Same as in expt. no. 54(162) on page 1682.

5. RESULTS :

(i) 28.7 gms./tree. (ii) 12.62 gms./tree. (iii) Treatment differences are highly significant. (iv) Av. weight of cranked shoots in gms./tree.

Treatment	T_0	T_1	T_2
Av. weight	59.2	4.2	22.6

S.E./mean = 5.64 gms./tree.

Crop :- Lime.

Ref :- U.P. 56(101).

Site :- Govt. Hort. Res. Instt., Saharanpur.

Type :- 'D'.

Object :- To find out the control measures for citrus canker disease.

1. BASAL CONDITIONS to 4. GENERAL :

Same as in expt. no. 54(162) on page 1682.

5. RESULTS :

(i) 51.7 gms./tree. (ii) 37.4 gms./tree. (iii) Treatment differences are highly significant. (iv) Av. weight of cranked shoots in gms./tree.

Treatment	T_0	T_1	T_2
Av. weight	105.7	7.3	42.2

S.E./mean = 16.73 gms./tree.

Crop :- Lime.**Ref :- U.P. 57(143).****Site :- Govt. Hort. Res. Instt., Saharanpur.****Type :- 'D'.**

Object :—To find out the control measures for citrus canker disease.

1. BASAL CONDITIONS to 3. DESIGN :

Same as in expt. no. 54(162) on page 1682.

4. GENERAL :

(i) Good. (ii) Attack of citrus canker. (iii) Weight of dried twigs in gms. (iv) (a) 1954—1957. (b) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 16.6 gms./tree. (ii) 14.96 gms./tree. (iii) Treatment differences are not significant. (iv) Av. weight of dried twigs in gms./tree.

Treatment	T ₀	T ₁	T ₂
Av. yield	28.4	4.7	16.6

S.E./mean = 6.69 gms./tree.

Crop :- Lime.**Ref :- U.P. 59(173).****Site :- Govt. Hort. Res. Instt., Saharanpur.****Type :- 'D'.**

Object :—To study the effect of various fungicides for the control of citrus seed disease.

1. BASAL CONDITIONS :(i) N.A. (ii) (a) Sandy loam. (b) Refer soil analysis, Saharanpur. (iii) By seeds. (iv) *Khatta*. (v) to (vii) N.A. (viii) Hoeing and weeding. (ix) No. (x) Irrigated. (xi) 62.05". (xii) N.A.**2. TREATMENTS :**5 fungicidal treatments : T₀=Control, T₁=Collidal copper 0.4 % or 6.4 ozs. in 10 gallons, T₂=Ferbam 0.5 % or 8 ozs in 10 gallons, T₃=Blitox 0.3 % or 4 ozs in 10 gallons and T₄=Ziram 0.2 % or 3.2 ozs. in 10 gallons.**3. DESIGN :**

(i) R.B.D. (ii) (a) and (b) N.A. (iii) 5. (iv) 3 rows of 10 plants each. (v) One guard row around the experimental area and between each treatment. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Attack of citrus scab. (iii) Percentage of diseased leaves. (iv) (a) No. (b) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 23.8 degrees. (ii) 3.38 degrees. (iii) Treatment differences are highly significant. (iv) Av. % of diseased leaves in degrees.

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄
Mean angle	29.1	21.0	25.2	16.1	27.6

S.E./mean = 1.51 degrees.

Transformed back %	24.0	13.2	18.5	8.2	21.9
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Crop :- Citrus Kagzi lime.

Ref :- U.P. 59(442).

Centre :- Ramnagar (c.f.)

Type :- 'D'.

Object :- To study the effect of various fungicides for the control of citrus canker disease (caused by bacterium).

1. BASAL CONDITIONS :

(i) to (xii) N.A.

2. TREATMENTS :

7 fungicidal treatments : T₀=Control, T₁=Lime Sulphur 1 : 30 (sp. gravity 1.33), T₂=Flit 406 1 lb. in 50 gallons of water, T₃=Dithane Z-78 0.3%, T₄=Perenox 0.3%, T₅=Formalin spray 1 : 100 and T₆=Perenox 0.3%+Dithane Z-78 0.3%.

3. DESIGN :

(i) R.B.D. (ii) (a) 7. (b) N.A. (iii) 10. (iv) 2. (v) Yes.

4. GENERAL :

(i) N.A. (ii) Attack of citrus canker. (iii) % of infection after spraying. (iv) (a) 1959—contd. (b) Nil. (v) and (vi) Nil.

5. RESULTS :

(i) 37.89 degrees. (ii) 29.32 degrees. (iii) Treatment differences are not significant. (iv) Av. % of infection in degrees.

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄	T ₅	T ₆
Mean angle	27.2	39.0	44.0	37.8	43.2	36.6	37.4
	S.E./mean = 9.27 degrees.						
Transformed back %	21.2	39.8	48.2	36.8	46.9	35.7	37.0

Crop :- Anar.

Ref :- U.P. 57(516).

Centre :- Dogra Estate, Ranikhet (Almora, c.f.)

Type :- 'D'.

Object — To study the effectiveness of various types of muslin bags for bagging sound fruits to check the attack of Anar borer.

1. BASAL CONDITIONS :

(i) N.A. (ii) (a) Clay loam. (b) N.A. (iii) N.A. (iv) Improved. (v) Perennial. (vi) to (ix) N.A. (x) Irrigated. (xi) N.A. (xii) Perennial.

2. TREATMENTS :

6 bagging treatments : T₀=Control, T₁=Bagging with lime Sulphur treated bags (1 : 5), T₂=Bagging with muslin bags of size 5½" × 5", T₃=Bagging with loosely woven bags treated with lime sulphur (1 : 5), T₄=Bagging with loosely woven bags of size 5' / 2" × 5", T₅=Removing of stamens and treating calyx cup with DDT suspension 4%+Perenox 0.3%.

Treatments applied on 28.6.1957.

3. DESIGN :

(i) R.B.D. (ii) (a) 6. (b) N.A. (iii) 4. (iv) and (v) N.A. (vi) Yes.

4. GENERAL :

(i) N.A. (ii) (a) Incidence of *anar* borer, control measures as per treatments. (iii) Number of sound, bored, fallen and rotten fruits and diameter of *Anar*. (vi) (a) 1957—contd. (b) N.A. (v) to (vii) Nil.

5. RESULTS :

(i) 32.74 degrees. (ii) 20.05 degrees. (iii) Treatment differences are not significant. (iv) Av. % of sound fruits in degrees.

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄	T ₅
Mean angle	9.81	35.19	51.34	41.83	32.03	26.26
S.E./mean = 10.02 degrees.						
% of sound fruits	4.39	33.62	61.29	44.85	28.55	20.02

Crop :- Anar.

Ref :- U.P. 56(485).

Centre :- Dogra Estate, Ranikhet (Almora, c.f.).

Type :- 'D'.

Object :—To study the effect of DDT and sulphur residue to control the attack of *Anar* borer.

1. BASAL CONDITIONS :

(i) N.A. (ii) Clay loam. (b) N.A. (iii) N.A. (iv) Improved. (v) Perennial. (vi) to (ix) N.A. (x) Irrigated. (xi) N.A. (xii) Perennial.

2. TREATMENTS :

2 insecticidal treatments: T₁=DDT suspension 2% and T₂=DDT suspension 1% + Wett solution 0.2%. Fruits were treated against *anar* borer on 4.6.1956 and on 4.7.1956 for 1st and 2nd replication, 4 *anar* fruits of average diameter from each treatment.

3. DESIGN :

(i) R.B.D. (ii) (a) 2. (b) N.A. (iii) 4. (iv) and (v) N.A. (vi) Yes.

4. GENERAL :

(i) N.A. (ii) Incidence of *anar* borer. Control measures as per treatments. (iii) *Anar* yield, diameter and weight of the individual fruits. (iv) (a) 1956—1957. (b) N.A. (v) to (vii) Nil.

5. RESULTS.

(i) 72.8 gms./fruit. (ii) 14.41 gms./fruits. (iii) Treatment difference is not significant. (iv) Av. wt. in gm./fruit.

Treatment	T ₁	T ₂
Av. wt.	65.8	79.8

S.E./mean = 7.20 gms/fruit.

Crop :- Anar.

Ref :- U.P. 58(409).

Centre :- Dogra Estate, Ranikhet, (Almora, c.f.).

Type :- 'D'.

Object :—To find out a suitable protective measure against *Anar* borer.

1. BASAL CONDITIONS :

(i) N.A. (ii) (a) Clay loam. (b) N.A. (iii) N.A. (iv) Improved. (v) Perennial. (vi) to (ix) N.A. (x) Irrigated. (xi) N.A. (xii) Perennial.

2. TREATMENTS :

6 insecticidal treatments : T₀=Control, T₁=Fruit dipped in DDT suspension 2% + wettable Sulphur 4%, T₂=Fruit dipped in DDT suspension 2% + Blitox 0.5%, T₃=Fruit dipped in DDT suspension 2% + Blitox 1.0%, T₄=Fruit dipped in DDT suspension 2% + Blitox 2% and T₅=Fruit bagged in muslin bags of size 5½" × 5".

Treatments applied by dipping fruits on 7.6.1958., 9.7.1958 and 2.8.1958.

3. DESIGN :

(i) R.B.D. (ii) (a) 6. (b) N.A. (iii) 6. (iv) and (v) N.A. (vi) Yes.

4. GENERAL :

(i) N.A. (ii) Incidence of *anar* borer. Control measures as per treatments. (iii) % of damaged and sound fruits. (iv) (a) 1958—1959. (b) N.A. (v) and (vi) Nil. (vii) Plot wise yield data is N.A.

5. RESULTS :

(i) 26.11%. (ii) 12.59%. (iii) Treatment differences are significant. (iv) Av. % of fruits damaged.

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄	T ₅
Av. %	57.33	12.00	15.33	16.67	21.33	34.00

Crop :- Anar.

Ref :- U.P. 54(73).

Centre :- Badhan (Almora, c.f.).

Type :- 'D'.

Object :—To find out a suitable insecticidal control measure against Anar borer.

1. BASAL CONDITIONS :

(i) N.A. (ii) (a) Clay loam. (b) N.A. (iii) N.A. (iv) Improved. (v) Perennial. (vi) and (vii) N.A. (viii) Ringing around the base of tree. (ix) N.A. (x) Unirrigated. (xi) N.A. (xii) Perennial.

2. TREATMENTS :

6 insecticidal treatments : T₀=Control, T₁=DDT suspension 2%, T₂=DDT emulsion 0.5 %, T₃=B.H.C. suspension 2 %, T₄=B.H.C. suspension 1 % and T₅=Lead arsenate 0.5 %.

Treatments applied by spraying trees bearing fruits on 21.6.1954.

3. DESIGN :

(i) R.B.D. (ii) (a) 6. (b) N.A. (iii) 4. (iv) 2. (v) N.A. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Incidence of *anar* borer. Control measures as per treatments. (iii) % of bored fruits after treatments. (iv) (a) 1950—contd. (b) N.A. (v) to (vii) Nil.

5. RESULTS :

(i) 17.33 %. (ii) 3.26 %. (iii) Treatment differences are highly significant. (iv) Av. % of bored fruits.

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄	T ₅
Av. % of bored fruits	32.00	1.00	6.00	17.00	28.00	20.00

S.E./mean = 1.63 %.

Crop :- Anar.

Ref :- U.P. 54(75).

Centre :- Badhan (Almora, c.f.).

Type :- 'D'.

Object :—To find out a suitable insecticidal control measure against Anar borer.

1. BASAL CONDITIONS :

(i) N.A. (ii) (a) Clay loam. (b) N.A. (iii) N.A. (iv) Improved. (v) Perennial. (vi) and (vii) N.A. (viii) Ringing around the base of tree. (ix) N.A. (x) Unirrigated. (xi) N.A. (xii) Perennial.

2. TREATMENTS :

6 insecticidal treatments : T₀=Control, T₁=DDT suspension 2%, T₂=DDT suspension 1%, T₃=DDT emulsion 1%, T₄=DDT emulsion 0.75% and T₅=DDT emulsion 0.5%.

Treatments applied by spraying on 20.7.1954.

3. DESIGN :

(i) R.B.D. (ii) (a) 6. (b) N.A. (iii) 4. (iv) 2. (v) N.A. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Incidence of *anar* borer. Control measures as per treatments. (iii) % of bored fruits after treatments (a) 1950—contd. (b) N.A. (v) to (vii) Nil.

5. RESULTS :

(i) 5.83 %. (ii) 1.71 %. (iii) Treatment differences are highly significant. (iv) Av. % of bored fruits.

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄	T ₅
Av. % of bored fruits	8.00	8.00	7.00	1.00	4.00	7.00

S.E./mean = 0.86 %.

Crop :- Anar.

Ref :- U.P. 55(61).

Centre :- Dogra Estate, Ranikhet, (Almora c.f.).

Type :- 'D'.

Object :—To find out a suitable insecticidal control measure against Anar borer.

1. BASAL CONDITIONS :

(i) N.A. (ii) (a) Clay loam. (b) N.A. (iii) N.A. (iv) Improved (*Anar* Kandhari). (v) Perennial. (vi) and (vii) N.A. (viii) Holling and weeding during winter around the tree. (ix) N.A. (x) Unirrigated. (xi) N.A. (xii) Perennial.

2. TREATMENTS :

6 insecticidal treatments : T₀=Control, T₁=DDT suspension 4%, T₂=DDT suspension 2%, T₃=DDT emulsion 0.5%, T₄=DDT suspension 4%+Perenox 0.6% and T₅=DDT suspension 4%+Lime sulphur 1 : 10.

Treatments applied by dipping fruits in insecticidal solution on 11 and 14.8.1955.

3. DESIGN :

(i) R.B.D. (ii) (a) 6. (b) N.A. (iii) 4. (iv) and (v) N.A. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Incidence of borer. Control measures as per treatments. (iii) % of sound fruits after treatments. (iv) (a) 1950—contd. (b) N.A. (v) to (vii) Nil.

5. RESULTS :

(i) 84.62 %. (ii) 8.85 %. (iii) Treatment differences are highly significant. (iv) Av. % of sound fruits.

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄	T ₅
% of sound fruits	65.75	92.50	78.75	87.50	89.25	94.00

S.E./mean = 4.42 %.

Crop :- Anar.

Ref :- U.P. 57(29).

Centre :- Dogra Estate, Ranikhet, (Almora c.f.).

Type :- 'D'.

Object :—To find out a suitable protective measure against the Anar borer during the rains.

1. BASAL CONDITIONS :

(i) N.A. (ii) (a) Clay loam. (b) N.A. (iii) N.A. (iv) Improved. (v) Perennial crop. (vi) and (vii) N.A. (viii) Nil. (ix) N.A. (x) Unirrigated. (xi) N.A. (xii) Perennial crop.

2. TREATMENTS :

5 insecticidal treatments : T₀=No treatment (control), T₁=Bagging of sound fruits with muslin bags, T₂=DDT suspension 2%+wettable sulphur 4% dip, T₃=DDT suspension 4%+wettable sulphur 8% dip and T₄=DDT suspension 2%+Perenox 0.3%.

Treatments applied by dipping individual fruits in the insecticidal solution in a mug on 9.6.1957, 11.7.1957 and 11.8.1957.

3. DESIGN :

(i) R.B.D. (ii) (a) 5. (b) N.A. (iii) 4. (iv) and (v) N.A. (vi) Yes.

4. GENERAL :

(i) Good. (ii) The larvae of *anar* butterfly bored into the fruit and caused a serious damage. (iii) Number of sound, bored, bird damaged, dropped, rotten and cracked fruits were observed at fortnightly intervals. The efficacy of the insecticides is based on the % of sound fruits on 30.8.1957. (iv) (a) and (b) N.A. (v) to (vii) Nil.

5. RESULTS :

(i) 40.63 degrees. (ii) 9.53 degrees. (iii) Treatment differences are significant. (iv) Av. % of sound fruits in degrees.

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄
Mean angle	21.79	46.16	45.60	45.09	44.50

S.E./mean = 4.77 degrees.

Transformed back %	14.14	52.00	51.04	50.16	49.14
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Crop :- Anar.

Ref :- U.P. 58(18).

Centre :- Ranikhet (Almora, c.f.).

Type :- 'D'.

Object :- To find out a suitable protective measure against the Anar borer during rains.

1. BASAL CONDITIONS :

(i) N.A. (ii) (a) Clay loam. (b) N.A. (iii) N.A. (iv) Improved. (v) Perennial crop. (vi) and (vii) N.A. (viii) Nil. (ix) N.A. (x) Unirrigated. (xi) N.A. (xii) Perennial crop.

2. TREATMENTS :

T₀=Control, T₁=DDT suspension 2 % + wettable sulphur 4 %, T₂=DDT suspension 2 % + Blitox 0.5 %, T₃=DDT suspension 2 % + Blitox 1 %, T₄=DDT suspension 2 % + Blitox 2% and T₅=Bagging of fruits with muslin cloth of size 5½" × 5".

Treatments applied by dipping individual fruit in the insecticidal solution on 7.6.1958, 9.7.1958 and 2.8.1958.

3. DESIGN :

(i) R.B.D. (ii) (a) 6. (b) N.A. (iii) 6. (iv) and (v) N.A. (vi) Yes.

4. GENERAL :

(i) Good. (ii) The larvae of the pest bored into the fruit and caused a serious damage. (iii) Number of sound, bored, bird damaged, dropped, rotten and cracked fruits was recorded at fortnightly intervals. The efficacy of the treatments is based on the % of fruits bored and rotten. (iv) (a) and (b) No. (v) to (vii) Nil.

5. RESULTS :

(i) 29.73 degrees. (ii) 4.65 degrees. (iii) Treatment differences are highly significant. (iv) Av. % of bored and rotten fruits in degrees.

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄	T ₅
Mean angle	49.29	19.95	22.83	23.70	27.06	35.54

S.E./mean = 1.90 degrees.

Transformed back %	57.39	12.02	15.40	16.50	20.99	33.94
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Crop :- Anar.

Ref :- U.P. 55(86).

Centre :- Ranikhet (Almora, c.f.).

Type :- 'D'.

Object :- To study the effect of insecticides against Anar borer.

1. BASAL CONDITIONS :

(i) N.A. (ii) (a) Clay loam. (b) N.A. (iii) N.A. (iv) Improved. (v) Perennial crop. (vi) and (vii) N.A. (viii) Nil. (ix) N.A. (x) Unirrigated. (xi) N.A. (xii) Perennial crop.

2. TREATMENTS :

T₀=Control, T₁=DDT suspension 4%+Lime sulphur 1:10, T₂=DDT suspension 4%, T₃=DDT suspension 4%+Perenox 0.6%, T₄=DDT emulsion 0.5% and T₅=DDT suspension 2%.
Treatments applied by dipping individual fruit in the insecticidal solution on 11 and 14.8.1955.

3. DESIGN :

(i) R.B.D. (ii) (a) 6. (b) N.A. (iii) 4. (iv) and (v) N.A. (vi) Yes.

4. GENERAL :

(i) Good. (ii) The larvae of the *anar* butterfly bored into the fruit and caused a serious damage. (iii) % of sound fruits on 8.9.1955. (iv) (a) N.A. (b) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 84.62 %. (ii) 8.85 %. (iii) Treatment differences are highly significant. (iv) Av. % of sound fruits.

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄	T ₅
Mean % of sound fruits	65.75	94.00	92.50	89.25	87.50	78.75

S.E./mean = 4.42 %.

Crop :- Anar.

Ref :- U.P. 56(31).

Centre :- Dogra Estate, Ranikhet (Almora, c.f.).

Type :- 'D'.

Object :- To find out a suitable protective measure against Anar borer during rains.

1. BASAL CONDITIONS :

(i) N.A. (ii) (a) Clay loam. (b) N.A. (iii) N.A. (iv) Improved. (v) Perennial crop. (vi) and (vii) N.A. (viii) Nil. (ix) N.A. (x) Unirrigated. (xi) N.A. (xii) Perennial crop.

2. TREATMENTS :

14 insecticidal treatments : T₀=Control, T₁=DDT suspension 2%+Perenox 0.3%, T₂=Bagging of fruits with muslin bags of size 5½"×5", T₃=DDT suspension 2%+wetttable sulphur 4%, T₄=DDT suspension 1%+wetttable sulphur 2%, T₅=Endrin emulsion 0.1%, T₆=DDT suspension 2%+Lime sulphur, T₇=Perenox 0.3%+bagging of fruits of size of 5½"×5", T₈=DDT suspension 2%, T₉=Lime sulphur 1:10, T₁₀=DDT emulsion 1%, T₁₁=Wetttable sulphur 4%, T₁₂=Clipping off calyx cup+Endrin emulsion 0.32% and T₁₃=Clipping off calyx cup.

Treatments applied by dipping individual fruit in the insecticidal solution in a mug on 4.5.1956, 4.7.1956 and 2.8.1956.

3. DESIGN :

(i) R.B.D. (ii) (a) 14. (b) N.A. (iii) 4. (iv) and (v) N.A. (vi) Yes.

4. GENERAL :

(i) Good. (ii) The larvae of the *anar* butterfly bored into the fruits and caused a serious damage. (iii) Number of fruits (sound, bored, rotten, cracked, dropped and damaged by birds) was recorded at weekly intervals after treatment. (iv) (a) 1959--not contd. (b) No. (v) to (vii) Nil.

5. RESULTS :

(i) 57.93 %. (ii) 8.70 %. (iii) Treatment differences are highly significant. (iv) Av. % of sound fruits.

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄	T ₅	T ₆
Av. % of sound fruits	37.00	80.00	78.00	74.00	66.00	63.00	60.00
Treatment	T ₇	T ₈	T ₉	T ₁₀	T ₁₁	T ₁₂	T ₁₃
Av. % sound fruits	60.00	56.00	56.00	52.00	50.00	42.00	37.00

S.E./mean = 4.35 %.

Crop :- Anar.

Ref :- U.P. 54(69).

Centre :- Badhan (Almora, c.f.).

Type :- 'D'.

Object :- To find out a suitable insecticidal control measure against Anar borer.

1. BASAL CONDITIONS :

(i) N.A. (ii) (a) Clay loam. (b) N.A. (iii) N.A. (iv) Improved. (v) Perennial. (vi) and (vii) N.A. (viii) Ringing around the base of tree. (ix) N.A. (x) Unirrigated. (xi) N.A. (xii) Perennial.

2. TREATMENTS :

6 insecticidal treatments : T₀=Control, T₁=DDT suspension 2%, T₂=DDT emulsion 0.25%, T₃=Gamma B.H.C. 0.25%, T₄=Lead Arsenate 0.5% and T₅=Gamma BHC 0.12%.

Treatments applied by spraying on 19.4.1954.

3. DESIGN :

(i) R.B.D. (ii) (a) 6. (b) N.A. (iii) 4. (iv) 2. (v) N.A. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Incidence of borer. Control measures as per treatments. (iii) % of bored fruits after treatment. (iv) (a) 1950—contd. (b) No. (v) to (vii) Nil.

5. RESULTS :

(i) 5.67 %. (ii) 1.74 %. (iii) Treatment differences are highly significant. (iv) Av. % of bored fruit/plot.

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄	T ₅
Av. % of bored fruit	9.00	1.00	8.00	2.00	6.00	8.00

S.E./mean = 0.87 %.

Crop :- Anar.

Ref :- U.P. 54(71).

Centre :- Badhan (Almora, c.f.).

Type :- 'D'.

Object :- To find out a suitable insecticidal control measure against Anar borer.

1. BASAL CONDITIONS :

(i) N.A. (ii) (a) Clay loam. (b) N.A. (iii) N.A. (iv) Improved. (v) Perennial. (vi) and (vii) N.A. (viii) Ringing around the base of tree. (ix) N.A. (x) Unirrigated. (xi) N.A. (xii) Perennial.

2. TREATMENTS :

6 insecticidal treatments : T₀=Control, T₁=DDT suspension 2%, T₂=DDT emulsion 0.25%, T₃=Gamma B.H.C. 0.25%, T₄=Gamma B.H.C. 0.12% and T₅=Lead arsenate 0.5%.

Treatments applied by spraying on 22.5.1954.

3. DESIGN :

(i) R.B.D. (ii) (a) 6. (b) N.A. (iii) 4. (iv) 2. (v) N.A. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Incidence of *anar* borer. Control measures as per treatments. (iii) % of bored fruits after treatment. (iv) (a) 1950—contd. (d) No. (v) to (vii) Nil.

5. RESULTS :

(i) 14.67 %. (ii) 1.88 %. (iii) Treatment differences are highly significant. (iv) Av. % of bored fruits.

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄	T ₅
Av. % of bored fruits	28.00	4.00	8.00	9.00	11.00	28.00

S.E./mean = 0.94 %.

Crop :- Anar.

Ref :- U.P. 54(369).

Centre :- Badhan (Almora, c.f.).

Type :- 'D'.

Object :—To study the effect of insecticides against Anar butterfly.

1. BASAL CONDITIONS :

(i) N.A. (ii) (a) Clay loam. (b) N.A. (iii) N.A. (iv) Improved. (v) to (ix) N.A. (x) Unirrigated. (xi) and (xii) N.A.

2. TREATMENTS :

6 insecticidal treatments : T₀=Control, T₁=DDT suspension 2%, T₂=DDT emulsion 0.25%, T₃=Gamma B.H.C. 0.25%, T₄=Gamma B.H.C. 0.12% and T₅=Lead arsenate 0.5%+lime 2 oz./gallon.

Treatments applied on 18.4.1954 and 22.5.1954.

3. DESIGN :

(i) R.B.D. (ii) (a) 6. (b) N.A. (iii) 4. (iv) and (v) N.A. (vi) Yes.

4. GENERAL :

(i) No formation of fruit. (ii) Incidence of *anar* fly. Control measures as per treatments. (iii) % of flowers bored. (iv) (a) 1954—contd. (b) N.A. (v) to (vii) Nil.

5. RESULTS :

(i) 21.30 degrees. (ii) 21.21 degrees. (iii) Treatment differences are not significant. (iv) Av. % of bored flowers in degrees.

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄	T ₅
Mean angle	20.97	32.38	16.43	13.28	36.74	7.99

S.E./mean = 10.60 degrees.

Transformed back %	13.28	29.10	8.48	5.77	36.18	2.44
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Crop :- Guava.

Ref :- U.P. 54(90).

Site :- Govt. Hort. Res. Instt., Saharanpur.

Type :- 'C'.

Object :—To study the behaviour of Safeda variety of Guava on various root stocks.

1. BASAL CONDITIONS :

(i) N.A. (ii) (a) Sandy loam. (b) Refer soil analysis, Saharanpur. (iii) Inarching. (iv) *Safeda*. (v) July, 1954. 20' x 20' square system. (vi) 2 years. (vii) 20 srs./pit of F.Y.M. (viii) Hoeing, weeding, green manuring, ploughing and mulching. (ix) Pea. (x) Irrigated. (xi) 43.97". (xii) N.A.

2. TREATMENTS :

3 treatments : T₁=Airlayed stock of seedless grafted with *safeda*, T₂=*Safeda* seedling and T₃=*Safeda* seedling grafted with *safeda*.

3. DESIGN :

(i) R.B.D. (ii) (a) 3. (b) N.A. (iii) 9. (iv) 1. (v) N.A. (vi) Yes.

4. GENERAL:

- (i) Good. (ii) Nil. (iii) Girth of stock below union and girth of scion above union. (iv) (a) 1954—1959. (b) Nil. (v) and (vi) Nil.

5. RESULTS:

Girth of stock below union

- (i) 1.45 cm./tree. (ii) 0.22 cm./tree. (iii) Treatment differences are not significant. (iv) Av. girth of stock in cm./tree.

Treatment	T ₁	T ₂	T ₃
Av. girth	1.47	1.46	1.43

S.E./mean = 0.07 cm./tree.

Girth of scion above union

- (i) 1.03 cm./tree. (ii) 0.20 cm./tree. (iii) Treatment differences are not significant. (iv) Av. girth of scion in cm./tree.

Treatment	T ₁	T ₂	T ₃
Av. girth	1.03	1.08	0.97

S.E./mean = 0.07 cm./tree.

Crop :- Guava.

Ref :- U.P. 55(91).

Site :- Govt. Hort. Res. Instt., Saharanpur.

Type :- 'C'.

Object :—To study the behaviour of safeda variety of Guava on various root stocks.

1. BASAL CONDITIONS:

- (i) N.A. (ii) (a) Sandy loam. (b) Refer soil analysis, Saharanpur. (iii) Inarching. (iv) *Safeda*. (v) July, 1954. 20'×20' square system. (vi) 2 years. (vii) 20 srs./pit of F.Y.M. (viii) Hoeing, weeding, green manuring, ploughing and mulching. (ix) Pea. (x) Irrigated. (xi) 55.39". (xii) N.A.

2. TREATMENTS and 3. DESIGN:

Same as in expt. no. 54(90) on page 1692.

4. GENERAL:

- (i) Good. (ii) Nil. (iii) Girth of trees 6" above the union. (iv) (a) 1954—1959. (b) Nil. (v) and (vi) Nil.

5. RESULTS:

- (i) 6.48 cm./tree. (ii) 1.48 cm./tree. (iii) Treatment differences are highly significant. (iv) Av. girth above the union in cm./tree.

Treatment	T ₁	T ₂	T ₃
Av. girth	5.67	9.44	4.33

S.E./mean = 0.49 cm./tree.

Crop :- Guava.

Ref :- U.P. 56(35).

Site :- Govt. Hort. Res. Instt., Saharanpur.

Type :- 'C'.

Object :—To study the behaviour of safeda variety of Guava on various root stocks.

1. BASAL CONDITIONS:

- (i) N.A. (ii) (a) Sandy loam. (b) Refer soil analysis, Saharanpur. (iii) Inarching. (iv) *Safeda*. (v) July, 1954. Square System. 20'×20'. (vi) Two years. (vii) 20 srs./pit of F.Y.M. (viii) Hoeing, weeding, green manuring, ploughing and mulching. (ix) Pea. (x) Irrigated. (xi) 65.01". (xii) N.A.

2. TREATMENTS and 3. DESIGN :

Same as in expt. no. 54(90) on page 1692.

4. GENERAL :

(i) Good. (ii) Nil. (iii) Girth of scion. (iv) (a) 1954—1959. (b) Yes. (v) and (vi) Nil.

5. RESULTS :

(i) 11.70 cm./tree. (ii) 2.82 cm./tree. (iii) Treatment differences are highly significant. (iv) Av. girth in cm./tree.

Treatment	T ₁	T ₂	T ₃
Av. girth	10.89	16.11	8.11

S.E./mean = 0.94 cm./tree.

Crop :- Guava.

Ref :- U.P. 57(22).

Site :- Govt. Hort. Res. Instt., Saharanpur.

Type :- 'C'.

Object :— To study the behaviour of safeda variety of Guava on various root stocks.

1. BASAL CONDITIONS :

(i) N.A. (ii) (a) Sandy loam. (b) Refer soil analysis, Saharanpur. (iii) Inarching. (iv) *Safeda*. (v) July, 1954. Square system with 20' x 20' spacing. (vi) Two years. (vii) 20 srs./pit of F.Y.M. (viii) Hoeing, weeding and green manuring. (ix) Pea. (x) Irrigated. (xi) 47.5". (xii) N.A.

2. TREATMENTS and 3. DESIGN :

Same as in expt. no. 54(90) on page 1692.

4. GENERAL :

(i) Good. (ii) Nil. (iii) Girth of scion, number of fruits per tree and weight of fruits per tree in lb. (iv) (a) 1954—1959. (b) N.A. (v) and (vi) Nil.

5. RESULTS :

(i) 4.91 lb./tree. (ii) 5.66 lb./tree. (iii) Treatment differences are not significant. (iv) Av. yield of fruit in lb./tree.

Treatment	T ₁	T ₂	T ₃
Av. yield	6.83	4.73	3.18

S.E./mean = 1.89 lb./tree.

Crop :- Guava.

Ref :- U.P. 58(124).

Site :- Govt. Hort. Res. Instt., Saharanpur.

Type :- 'C'.

Object :— To study the behaviour of safeda variety of Guava on various root stocks.

1. BASAL CONDITIONS :

(i) N.A. (ii) (a) Sandy loam. (b) Refer soil analysis, Saharanpur. (iii) Inarching. (iv) *Safeda*. (v) July, 1954. Square system. (vi) Two years. (vii) 20 srs./pit of F.Y.M. (viii) Hoeing, weeding and ploughing. (ix) N.A. (x) Irrigated. (xi) 64.96". (x) N.A.

2. TREATMENTS and 3. DESIGN :

Same as in expt. no. 54(90) on page 1692.

4. GENERAL :

(i) Good. (ii) Nil. (iii) Girth of scion, volume of tree and yield of guava. (iv) (a) 1954—1959. (b) Yes. (v) and (vi) Nil.

5. RESULTS :

(i) 7.04 lb./tree. (ii) 5.49 lb./tree. (iii) Treatment differences are not significant. (iv) Av. yield of guava in lb./tree.

Treatment	T ₁	T ₂	T ₃
Av. yield	8.75	3.62	8.75

S.E./mean = 1.83 lb./tree.

Crop :- Guava.

Ref :- U.P. 59(146).

Site :- Govt. Hort. Res. Instt., Saharanpur.

Type :- 'C'.

Object :— To study the behaviour of safeda variety of Guava on various root stocks.

1. BASAL CONDITIONS :

(i) N.A. (ii) (a) Sandy loam. (b) Refer soil analysis, Saharanpur. (iii) Inarching. (iv) *Safeda*. (v) July, 1954. 20' x 20' square system. (vi) Two years. (vii) 20 srs./pit of F.Y.M. (viii) N.A. (ix) Nil. (x) Irrigated. (xi) 63.0". (xii) N.A.

2. TREATMENTS and 3. DESIGN :

Same as in expt. no. 54(90) on page 1692.

4. GENERAL :

(i) and (ii) N.A. (iii) Girth of scion, volume of tree, number and weight of fruits. (iv) (a) 1954—1959. (b) Nil. (v) and (vi) Nil.

5. RESULTS :

Girth of scion

(i) 32.0 cm./tree. (ii) 3.79 cm./tree. (iii) Treatment differences are significant. (iv) Av. girth in cm./tree.

Treatment	T ₁	T ₂	T ₃
Mean girth of scion	29.9	38.0	28.1

S.E./mean = 1.26 cm./tree.

Number of fruits/tree

(i) 281 fruits/tree. (ii) 170.0 fruits/tree. (iii) Treatment differences are significant. (iv) Av. number of fruits/tree.

Treatment	T ₁	T ₂	T ₃
No. of fruits	390	130	323

S.E./mean = 56.7 fruits/tree.

Weight of fruits/tree

(i) 44.09 lb./ac. (ii) 28.02 lb./ac. (iii) Treatment differences are significant. (iv) Av. yield of fruit in lb./ac.

Treatment	T ₁	T ₂	T ₃
Av. yield	48.76	23.02	60.47

S.E./mean = 9.35 lb./tree.

Crop :- Guava.

Ref :- U.P. 54(62).

Site :- Hort. Farm, Jeolikote.

Type :- 'D'.

Object :—To study the effect of various fungicides against *Cercospora* leaf blight disease.

1. BASAL CONDITIONS :

(i) N.A. (ii) (a) Sandy loam. (b) Refer soil analysis, Jeolikote. (iii) By seed. (iv) Mixed. (v) N.A. (vi) 3 year old trees. (vii) and (viii) N.A. (ix) Nil. (x) Irrigated. (xi) N.A. (xii) Not required.

2. TREATMENTS :

5 fungicidal treatments : T_0 =Control (no treatment), T_1 =Coppesan 0.3 %, T_2 =Dithane D. 14, 0.25 % with Zinc sulphate 0.1 %, T_3 =Lime sulphur 1.30 (sp. gravity 1.3) and T_4 =Perenox 0.3 %.

Fungicides were sprayed on 10.8.1954.

3. DESIGN :

(i) R.B.D. (ii) (a) 5. (b) N.A. (iii) 5. (iv) 5. (v) N.A. (vi) Yes.

4. GENERAL :

(i) Poor. (ii) Field trail with various fungicides against *cercospora* leaf blight disease. (iii) Percentage of infection on 18.10.1954. (iv) (a) 1952—1954. (b) Nil. (v) and (vi) Nil.

5. RESULTS :

(i) 37.76 %. (ii) 3.41 %. (iii) Treatment differences are highly significant. (iv) Av. % of infection/plot.

Treatment	T_0	T_1	T_2	T_3	T_4
% of infection	46.20	34.80	39.20	31.40	37.20

S.E./mean = 1.52 %.

Crop :- Guava.

Centre :- Nainital (Nainital, c.f.).

Ref :- U.P. 54(61).

Type :- 'D'.

Object :- To study the effect of various fungicides for the control of Guava fruit scab disease.

1. BASAL CONDITIONS :

(i) N.A. (ii) (a) Sandy loam. (b) N.A. (iii) N.A. (iv) Mixed. (v) and (vi) N.A. (vii) to (ix) N.A. (x) Irrigated. (xi) and (xii) N.A.

2. TREATMENTS :

6 fungicidal treatments : T_0 =Control, T_1 =Coppesan 0.3 %, T_2 =Dithane 278, 0.3 %, T_3 =Copper sandoz 0.3 %, T_4 =Perenox 0.3 % and T_5 =Lime sulphur 1 : 25.

Fungicides sprayed on 25 and 26.6.1954.

3. DESIGN :

(i) R.B.D. (ii) (a) 6. (b) N.A. (iii) 4. (iv) 2. (v) N.A. (vi) Yes.

4. GENERAL :

(i) N.A. (ii) Attack of fruit scab disease. (iii) The percentage of spotted fruits was determined on 10.8.1954. (iv) (a) 1952—1954. (b) Nil. (v) and (vi) Nil.

5. RESULTS :

(i) 41.58 %. (ii) 5.43 %. (iii) Treatment differences are highly significant. (iv) Av. % of spotted fruits/plot.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5
Mean %	59.50	36.25	46.50	41.50	30.75	35.00

S.E./mean = 2.72 %.

Crop :- Guava.**Ref :- U.P. 54(58).****Site :- Hort. Farm, Jeolikote.****Type :- 'D'.****Object :-**To study the effect of various fungicides against *Cercospora* leaf blight of Guava.**1. BASAL CONDITIONS :**

(i) N.A. (ii) (a) Sandy loam. (b) Refer soil analysis, Jeolikote. (iii) By seed. (iv) and (v) N.A. (vi) 2 years. (vii) and (viii) N.A. (ix) Nil. (x) Irrigated. (xi) and (xii) N.A.

2. TREATMENTS : T_0 =Control, T_1 =Lime sulphur 1 : 30, T_2 =Perenox 0.3 %, T_3 =Dithane D-14 and T_4 =Coppesan 0.3 %.**3. DESIGN :**

(i) R.B.D. (ii) (a) 5. (b) N.A. (iii) 5. (iv) Approximately 48 to 50 seedlings. (v) Two rows of 16' of guava seedlings 4' high with about 24 to 26 plants in each row. (vi) Yes.

4. GENERAL :(i) N.A. (ii) Incidence of *cercospora* leaf blight disease of guava. (iii) % infection. (iv) (a) 1952-1954. (b) Nil. (v) to (vii) Nil.**5. RESULTS :**

(i) 40.00 %. (ii) 3.20 %. (iii) Treatment differences are highly significant. (iv) Av. % of infection.

Treatment	T_0	T_1	T_2	T_3	T_4
Av. % of infection	51.60	31.20	45.80	38.60	32.80

S.E./mean = 1.43 %.

Crop :- Guava.**Ref :- U.P. 54(377).****Centre :- Varanasi (Varanasi, c.f.).****Type :- 'D'.****Object :-**To test the effect of different fungicides against mealy bugs on Guava trees.**1. BASAL CONDITIONS :**

(i) to (xii) N.A.

2. TREATMENTS :5 fungicidal treatments : T_1 =0.06% Parathion emulsion (0.3% Ekatox-20), T_2 =0.1% Parathion emulsion (0.5% Ekatox-20), T_3 =0.1% Aldrin emulsion (Aldrin 40% EC), T_4 =0.1% Dieldrin emulsion (Dieldrex 15) and T_5 =Water only (control).

Sprayed at 2 gallons/tree on 17.6.1954.

3. DESIGN :

(i) C.R.D. (ii) (a) 25. (b) N.A. (iii) N.A. (iv) 1. (v) N.A. (vi) Yes.

4. GENERAL :

(i) N.A. (ii) Incidence of mealy bugs. Control measures as per treatments. (iii) No. of bugs on 5 twigs before applications of treatments; 24 hours, 48 hours and a week after spraying. (iv) (a) 1954-only. (b) Nil. (v) Nil. (vi) The trees before application of treatments were grease banded with Rosin and Castor oil 5 : 4. Five twigs/tree were selected at random and they were tagged at a distance of approximately 6" from the end of the twig. Population of bugs was counted in between the end of the twig and the tag, before and after spraying. Grease-banding material was also applied on the twigs at the place where the tag was tied.

5. RESULTS :

(i) 63.82 degrees. (ii) 8.170 degrees. (iii) Treatment differences are highly significant. (iv) Mean % reduction of mealy bugs a week after spraying in degrees.

Treatment	T ₁	T ₂	T ₃	T ₄	T ₅
Mean angle	82.09	85.26	60.08	43.51	48.14
S.E./mean = 3.65 degrees.					
Transformed back %	97.62	98.83	74.86	47.43	55.42

Crop :- Pear.

Ref :- U.P. 59(440).

Site :- Govt. Hill Fruit Res. Stn., Chaubattia.

Type :- 'D'.

Object :-To study the effects of different fungicides to control leaf spot disease of Pear.

1. BASAL CONDITIONS :

(i) N.A. (ii) (a) Sandy loam. (b) Refer soil analysis, Chaubattia. (iii) to (xii) N.A.

2. TREATMENTS :

7 insecticidal treatments : T₀=Control, T₁=Lime sulphur 1 : 30, T₂=Dithane Z-78, 0.3%, T₃=Perenox 0.3%, T₄=Copper sandoz 0.3%, T₅=Coppesan 0.3% and T₆=Poltgia cuneese 1%.

Insecticides sprayed on 11.7.1959.

3. DESIGN :

(i) R.B.D. (ii) (a) 7. (b) N.A. (iii) 5. (iv) One tree of full growth. (v) N.A. (vi) Yes.

4. GENERAL :

(i) N.A. (ii) Incidence of leaf spot disease. Control measures taken as per treatments. (iii) % infection. (iv) (a) 1955—contd. (b) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 41.79 degrees. (ii) 4.26 degrees. (iii) Treatment differences are highly significant. (iv) Mean % of infection in degrees.

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄	T ₅	T ₆
Mean angle	54.29	43.49	42.70	37.92	38.64	34.52	41.00
S.E./mean = 1.90 degrees.							
Transformed back %	65.93	47.40	46.02	37.89	39.09	32.26	43.11

Crop :- Pear.

Ref :- U.P. 55(58).

Site :- Govt. Hill Fruit Res. Stn., Chaubattia.

Type :- 'D'.

Object :-To study the effect of different fungicides to control leaf spot disease of pear.

1. BASAL CONDITIONS :

(i) Orchard. (ii) (a) Sandy loam. (b) Refer soil analysis, Chaubattia. (iii) By grafting on wild Pear. (iv) Mixed. (v) to (vii) Nil. (viii) Nil. (ix) No. (x) to (xii) N.A.

2. TREATMENTS :

6 fungicidal treatments : T₀=Control, T₁=Coppesan 0.3 %, T₂=Dithane Z-78 : 0.3 %, T₃=Copper sandoz 0.3 %, T₄=Perenox 0.3 % and T₅=Lime sulphur 1 : 30 sp. gravity 1.33.

Fungicides were sprayed on 3rd and 4th., of June 1955.

3. DESIGN :

(i) R.B.D. (ii) (a) 6. (b) N.A. (iii) 6. (iv) One tree of Pear. (v) N.A. (vi) Yes.

4. GENERAL :

(i) Normal. (ii) Incidence of leaf spot disease. Control measures as per treatment. (iii) On 26th. July 1955, 400 healthy and spotted leaves were picked at random from each unit of a plot and percentage of infection was determined. (iv) (a) 1955-1957. (b) Yes. (v) to (vii) Nil.

5. RESULTS :

(i) 51.47 %. (ii) 12.59 %. (iii) Treatment differences are highly significant. (iv) Av. % infection.

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄	T ₅
Av. percentage	92.50	42.50	40.17	46.00	58.00	29.17

S.E./mean = 5.14 %.

Crop :- Pear.

Ref :- U.P. 56(4).

Site :- Govt. Hill Fruit Res. Stn., Chaubattia.

Type :- 'D'.

Object :- To study the effect of different fungicides to control leaf spot disease of Pear.

1. BASAL CONDITIONS :

(i) N.A. (ii) (a) Clay loam. (b) Refer soil analysis, Chaubattia. (iii) N.A. (iv) Mixed. (v) 20' between trees. (vi) to (viii) N.A. (ix) N.A. (x) Unirrigated. (xi) and (xii) N.A.

2. TREATMENTS :

6 fungicidal treatments : T₀=Control, T₁=Coppesan 0.3 %, T₂=Dithane Z-78 0.3 %, T₃=Copper sandoz 0.3 %, T₄=Perenox 0.3 % with Alboleum and T₅=Lime sulphur 1.30 sp. gravity 1.33.

Treatments applied out on 26th May, 1956.

3. DESIGN :

(i) R.B.D. (ii) (a) 6. (b) N.A. (iii) 5. (iv) One. (v) N.A. 20' between trees. (vi) Yes.

4. GENERAL :

(i) Normal. (ii) Incidence of leaf spot disease. Control measures as per treatments. (iii) Percentage of infection. (iv) (a) 1955-1957. (b) N.A. (v) to (vii) Nil.

5. RESULTS :

(i) 13.80 %. (ii) 12.09 %. (iii) Treatment differences are highly significant. (iv) Av. % of infection.

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄	T ₅
Av. % infection	41.20	13.80	5.20	11.20	8.80	2.60

S.E./mean = 5.41 % infection.

Crop :- Pear.

Ref :- U.P. 57(3).

Site :- Govt. Hill Fruit Res. Stn., Chaubattia.

Type :- 'D'.

Object :- To study the effect of different fungicides against leaf spot disease of Pear.

1. BASAL CONDITIONS :

(i) Under orchard. (ii) (a) Clay loam. (b) Refer soil analysis Chaubattia. (iii) Grafted. (iv) Mixed. (v) N.A. (vi) Full growth. (vii) and (viii) N.A. (ix) No. (x) Unirrigated. (xi) and (xii) N.A.

2. TREATMENTS :

Same as in expt. no. 55(58) on page 1698.

3. DESIGN :

(i) R.B.D. (ii) (a) 6. (b) N.A. (iii) 5. (iv) One. (v) N.A. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Incidence of leaf spot disease. Control measures as per treatments. (iii) % infection. (iv) (a) 1955—1957. (b) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 20.43 %. (ii) 2.99 %. (iii) Treatment differences are highly significant. (iv) Av. % of infection.

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄	T ₅
Av. % infection	28.20	26.40	14.80	24.80	15.60	12.80

S.E./mean = 1.34 %.

Crop :- Pear.**Ref :- U.P. 58(21).****Site :- Govt. Hill Fruit Res. Stn., Chaubattia.****Type :- 'D'.**

Object :—To study the effect of different fungicides against leaf spot disease of Pear.

1. BASAL CONDITIONS :

(i) Under orchard. (ii) (a) Clay loam. (b) Refer soil analysis, Chaubattia. (iii) N.A. (iv) Mixed. (v) to (vii) N.A. (ix) No. (x) Unirrigated. (xi) and (xii) N.A.

2. TREATMENTS :7 fungicidal treatments: T₀=Control, T₁=Lime sulphur 1 : 30 sp. gravity 1.33, T₂=Dithane Z-78 0.3%, T₃=Perenox 0.3%, T₄=Coppesan 0.3%, T₅=Copper sandoz 0.3%, T₆=Poltgia cuneese 1%.

Trial was conducted on 28.6.1958.

3. DESIGN :

(i) R.B.D. (ii) (a) 7. (b) N.A. (iii) 5. (iv) 1. (v) N.A. (vi) Yes.

4. GENERAL :

(i) Normal. (ii) Incidence of leaf spot disease. Control measures as per treatments. (iii) On July 27 and 28.1958, two hundred healthy and diseased leaves were picked up at random from each unit of a plot and examined in the laboratory. The amount of diseased spots in each leaf was noted down and thus the percentage of leaf spot infection was determined. (iv) (a) 1953—contd. (b) Nil. (v) Nil. (vi) Initial infection was nil. (vii) Nil.

5. RESULTS :

(i) 48.90 degrees. (ii) 4.69 degrees. (iii) Treatment differences are highly significant. (iv) Mean % of leaf spot infection in degrees.

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄	T ₅	T ₆
Mean angle	70.15	58.07	40.93	53.86	39.34	39.69	40.27

S.E./mean = 2.10 degrees.

Transformed back %	88.09	71.81	42.97	65.05	40.30	40.89	41.88
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Crop :- Peach.**Ref :- U.P. 57(28).****Site :- Govt. Hill Fruit Res. Stn., Chaubattia.****Type :- 'D'.**

Object :—To find out a suitable protective treatment against the Peach leaf curling aphid during winter.

1. BASAL CONDITIONS :

(i) N.A. (ii) (a) Clay loam (b) Refer soil analysis, Chaubattia. (iii) Budding during Sept.-Oct. (iv) Alexander and Hills early. (v) Planting at a spacing of 20' x 20' in pits duly filled with soil during winter, planting time—Jan. to Feb. (vi) N.A. (vii) Nil. (viii) Pruning in winter. (ix) Nil. (x) Unirrigated. (xi) N.A. (xii) July—August.

2. TREATMENTS :

7 insecticidal treatments : T₀=Control, T₁=DDT emulsion 0.5%, T₂=Parathion emulsion 0.025%, T₃=Ekatin I : 1000 spray. T₄=Diazinon emulsion 0.05%, T₅=DDT emulsion 0.25%, T₆=Malathion emulsion 0.1%.

Treatments were applied as spray on 17.12.1957.

3. DESIGN :

(i) R.B.D. (ii) (a) 7. (b) N.A. (iii) 4. (iv) 2. (v) Nil. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Curling of leaves and premature falling of fruits. (iii) 200 exterior top-most leaves on 10 different branches per tree selected at random in the case of curled leaves and the number of fruits at a length of 2 feet per branch from the same branch were recorded to assess the efficacy of treatments. (iv) (a) 1957—1958. (b) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 80.94 degrees. (ii) 5.70 degrees. (iii) Treatment differences are highly significant. (iv) Mean % of sound leaves on 7.5.1958 in degrees.

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄	T ₅	T ₆
Mean angle	59.02	90.00	88.24	86.96	84.68	85.39	72.26
	S.E./mean = 2.85 degrees.						
% of sound leaves	73.27	99.50	99.41	99.22	98.65	98.86	90.31

Crop :- Peach.

Ref :- U.P. 58(495).

Site :- Govt. Hill Fruit Res. Stn., Chaubattia.

Type :- 'D'.

Object :- To find out the most suitable time for spraying Peach trees against leaf curling aphid.

1. BASAL CONDITIONS :

(i) N.A. (ii) (a) Clay loam. (b) Refer soil analysis, Chaubattia. (iii) N.A. (iv) Improved. (v) and (vi) N.A. (vii) Nil. (viii) and (ix) N.A. (x) Unirrigated. (xi) and (xii) N.A.

2. TREATMENTS :

Same as in expt. no. 57 (28) on page 1700.

Treated on 21.1.1958.

The experimental trees were numbered serially and population of the pest recorded before application of treatments. 10 paper chits of graph paper having each 10 dots with magenta ink were then gummed on various branches of a tree to determine % coverage. The trees were sprayed according to plan on a uniform dose basis controlled by timings with the help of stop watch. The gummed paper chits were then examined for the no. of dots wetted and % coverage calculated.

3. DESIGN :

(i) R.B.D. (ii) (a) 7. (b) N.A. (iii) 4. (iv) 2. (v) Nil. (vi) Yes.

4. GENERAL :

(i) N.A. (ii) Incidence of peach leaf curling. Control measures as per treatments. (iii) Percentage of sound peach. (iv) (a) 1958-59. (b) No. (v) to (vii) Nil.

5. RESULTS :

(i) 97.35 %. (ii) 4.16 %. (iii) Treatment differences are highly significant. (iv) Av. % of sound peach fruits.

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄	T ₅	T ₆
Av. percentage	87.65	100.00	100.00	100.00	100.00	98.30	95.50

S.E./mean = 2.08 %.

Crop :- Peach.

Ref :- U.P. 57(517).

Site :- Govt. Hill Fruit Res. Stn., Chaubattia.

Type :- 'D'.

Object :- To find out a suitable aphidicide against Peach leaf curling aphis during spring season.

1. BASAL CONDITIONS :

(i) N.A. (ii) (a) Clay loam. (b) Refer soil analysis, Chaubattia. (iii) Budding during Sept.—October. (iv) Alexander and Hills (early). (v) Planting at a spacing of 20' × 20' in pits duly filled with soil before plantation. Planting time—Jan. to Feb. (vi) N.A. (vii) Nil. (viii) Pruning during winter. (ix) Nil. (x) Unirrigated. (xi) N.A. (xii) July—August.

2. TREATMENTS :

10 insecticidal treatments : T₀=Control, T₁=Diazinon emulsion 0.0417%, T₂=Ekatin 1 : 1000, T₃=Metasystox 1 : 1000, T₄=Malathion emulsion 0 : 1%, T₅=Parathion emulsion 0.025%, T₆=Endrin emulsion 0.1%, T₇=Tetrax 1 : 1000, T₈=Nicotine sulphate (40%) 1 : 800+1% soap and T₉=DDT emulsion 0.5%.

Insecticides were sprayed by *Maruti* sprayer.

3. DESIGN :

(i) R.B.D. (ii) (a) 10. (b) N.A. (iii) 4. (iv) 2. (v) Nil. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Curling of leaves due to sucking of soap by the aphids. (iii) The population of aphis was recorded before and after the application. (iv) (a) and (b) No. (v) to (vii) Nil.

5. RESULTS :

(i) 186.55 counts/plot. (ii) 108.95 counts/plot. (iii) Treatment differences are highly significant. (iv) Av. population of aphis after application of treatments.

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄	T ₅	T ₆	T ₇	T ₈	T ₉
Av. population	1203.25	0.00	7.50	4.25	0.00	0.00	13.50	423.00	198.75	15.25

S.E./mean = 54.48 counts/plot.

Crop :- Peach.

Ref :- U.P. 56(38).

Site :- Govt. Hill Fruit Res. Stn., Chaubattia.

Type :- 'D'.

Object :- To find out a suitable insecticidal control measure against Peach leaf curling aphis.

1. BASAL CONDITIONS :

(i) N.A. (ii) (a) Clay loam. (b) Refer soil analysis, Chaubattia. (iii) Budding during Sept.—Oct. (iv) Alexander and Hill (early). (v) and (vi) N.A. (vii) Nil. (viii) Pruning during winter. (ix) Nil. (x) Unirrigated. (xi) N.A. (xii) July—Aug.

2. TREATMENTS :

6 insecticidal treatments : T₀=Control (no treatment), T₁=DDT emulsion 0.5%, T₂=Basudin 20—E (1 : 800), T₃=Basudin 20—E (1 : 640), T₄=DDT emulsion 0.25%, T₅=Fish oil rosin soap 3%.

Spraying trees thoroughly achieving 80 to 100% coverage.

3. DESIGN :

(i) R.B.D. (ii) (a) 6. (b) N.A. (iii) 4. (iv) 2. (v) Nil. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Curling leaves. (iii) The population of aphid and number of curled leaves were recorded after treatment on 12.4.1956 and 25.5.1956 respectively by examining actually 100 leaves per tree from 10 young shoots selected at random. (iv) (a) and (b) No. (v) to (vii) Nil.

5. RESULTS :

(i) 19.64 degrees. (ii) 6.06 degrees. (iii) Treatment differences are highly significant. (iv) Av. % of patch fungus infection in degrees.

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄	T ₅
Mean angle	45.29	2.02	15.92	9.21	8.27	37.12
	S.E./mean = 3.03 degrees.					
Transformed back %	50.50	0.62	7.95	3.03	2.55	36.56

Crop :- Peach.

Ref :- U.P. 58(22).

Site :- Govt. Hill Fruit Res. Sta., Chaubattia.

Type :- 'D'.

Object :- To study the effect of insecticides to control patch fungus of Peach.

1. BASAL CONDITIONS :

(i) Under orchard. (ii) (a) Clay loam. (b) Refer soil analysis, Chaubattia. (iii) Grafted. (iv) Peach mixed. (v) and (vi) N.A. (vii) and (viii) Nil. (ix) No. (x) Unirrigated. (xi) and (xii) Not recorded.

2. TREATMENTS :

4 insecticidal treatments : T₀=No treatment (control), T₁=Sandolin 0.5%, T₂=Lime sulphur 1:20 sp. gravity 1.33, T₃=Caustic soda 3 lb. in 20 gallons of water.

Insecticides applied on 17.10.1958.

3. DESIGN :

(i) R.B.D. (ii) (a) 4 trees of peach. (b) N.A. (iii) 5. (iv) 1. (v) Nil. (vi) Yes.

4. GENERAL :

(i) Normal. (ii) Incidence of patch fungus. Control measures—as per treatments. (iii) The fungus patches of each in experimental plot (one tree) were marked by Indian ink to record the subsequent increase in the area of each patch. (iv) (a) 1958—contd. (b) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 51.76 degrees. (ii) 7.72 degrees. (iii) Treatment differences are highly significant. (iv) Av. % of patch fungus infection in degrees.

Treatment	T ₀	T ₁	T ₂	T ₃
Mean angle	44.54	38.87	60.42	63.20
	S.E./mean = 3.45 degrees.			
Transformed back %	49.21	39.51	75.37	79.37

Crop :- Peach.

Ref :- U.P. 59(445).

Centre :- Nainital (c.f.).

Type :- 'D'.

Object :- To study the effect of insecticidal sprays in spring before and after bud burst respectively on Peach leaf curling aphid and on the yield of fruits.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Peach. (c) Nil. (ii) Clay loam. (iii) Nil. (iv) Improved. (v) Nil. (vi) N.A. (vii) Irrigated. (viii) N.A. (ix) Not recorded. (x) to (xii) N.A.

2. TREATMENTS :

T₀=Control, T₁=DDT emulsion 0.5% before bud burst on 2.3.1959, T₂=Diazinon 0.031% before bud burst on 2.3.1959 and T₃=Diazinon 0.05% before bud burst on 2.3.1959.
Treatments were sprayed.

3. DESIGN :

(i) R.B.D. (ii) (a) 4. (b) N.A. (iii) 10. (iv) 200'×200'. (v) N.A. (vi) Yes.

4. GENERAL :

(i) N.A. (ii) Curling leaves and premature fall of fruits. (iii) Average number of fruits per 100 ft. length of branch on 4.5.1959 at Shyamkot. (iv) (a) and (b) No. (v) to (vii) Nil.

5. RESULTS :

(i) 38 fruits. (ii) 2.67 fruits. (iii) Treatment differences are highly significant. (iv) Number of fruits per 100' of length of branch.

Treatment	T ₀	T ₁	T ₂	T ₃
Av. number	30	43	43	35

S.E./mean = 0.84 fruits.

Crop :- Peach.

Site :- Govt. Hort. Res. Instt., Saharanpur.

Ref :- U.P. 57(427).

Type :- 'D'.

Object :- To find out chemical control measures against Peach leaf curling aphid.

1. BASAL CONDITIONS :

(i) N.A. (ii) (a) Sandy loam. (b) Refer soil analysis, Saharanpur. (iii) Budding. (iv) Improved. (v) to (xii) N.A.

2. TREATMENTS :

7 insecticidal treatments : T₀=Control (Unsprayed), T₁=4 sprays with 0.033% Diazinon (1 : 600), T₂=3 sprays with 0.033% Diazinon (1 : 600), T₃=2 sprays with 0.05% Diazinon (1 : 500), T₄=1 spray with 0.05% Diazinon (1 : 400), T₅=4 sprays with 0.1 % Malathion (1 : 300) and T₆=4 sprays with tobacco soap decoction (1 : 1 : 10) × 8.

3. DESIGN :

(i) R.B.D. (ii) (a) 7. (b) N.A. (iii) 5. (iv) and (v) N.A. (vi) Yes.

4. GENERAL :

(i) N.A. (ii) Incidence of peach leaf curling. Control measures—as per treatments. (iii) % affected shoots. (iv) (a) 1957—1958. (b) Nil. (v) N.A. (v) to (vii) Nil.

5. RESULTS :

(i) 15.4 degrees. (ii) 10.38 degrees. (iii) Treatment differences are highly significant. (iv) Av. value of % of affected shoots in degrees.

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄	T ₅	T ₆
Mean angle	46.18	4.22	1.41	0.00	14.49	7.36	34.45

S.E./mean = 4.64 degrees.

Transformed back %	52.04	1.03	0.56	0.50	6.70	2.10	32.18
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Crop :- Peach.**Ref :- U.P. 58(427).****Site :- Govt. Hort. Res. Instt., Saharanpur.****Type :- 'D'.**

Object :—To find out chemical control measures against leaf curling aphid.

1. BASAL CONDITIONS :

(i) N.A. (ii) (a) Sandy loam. (b) Refer soil analysis, Saharanpur. (iii) to (xii) N.A.

2. TREATMENTS :

14 insecticidal treatments : T_0 =Control (no insecticide), T_1 =4 sprays with 0.033% Diazinon (1 : 600), T_2 =3 sprays with 0.033% Diazinon (1 : 600), T_3 =2 sprays with 0.04% Diazinon (1 : 500), T_4 =1 spray with 0.05% Diazinon (1 : 400), T_5 =4 sprays with 0.1% Malathion (1 : 600), T_6 =3 sprays with 0.1% Malathion (1 : 600), T_7 =2 sprays with 0.15% Malathion (1 : 400), T_8 =4 sprays with 0.1% Parathion (1 : 1000), T_9 =3 sprays with 0.1% Parathion (1 : 1000), T_{10} =2 sprays with 0.2% Parathion (1 : 500), T_{11} =4 sprays with 0.03% Endrin (1 : 800), T_{12} =3 sprays with 0.03% Endrin (1 : 800) and T_{13} =2 sprays with 0.6% Endrin (1 : 400).

3. DESIGN :

(i) R.B.D. (ii) (a) 14. (b) N.A. (iii) 5. (iv) and (v) N.A. (vi) Yes.

4. GENERAL :(i) N.A. (ii) Incidence of leaf curling aphid. (iii) % of affected shoots. (iv) (a) 1957—1958. (b) Nil. (v) and (vi) Nil. (vii) Value of treatment T_7 in one replication is missing.**5. RESULTS :**

(i) 11.44 degrees. (ii) 12.08 degrees. (iii) Treatment differences are not significant. (iv) Av. % of affected shoots in degrees.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5	T_6
Mean angle	23.16	5.78	3.89	9.40	20.16	6.70	9.85
Transformed back %	15.80	1.49	0.96	3.14	12.26	1.85	3.39
Treatment	T_7	T_8	T_9	T_{10}	T_{11}	T_{12}	T_{13}
Mean angle	14.13	8.39	7.51	12.05	10.02	8.69	20.49
Transformed back	6.40	2.61	2.19	4.82	3.49	2.76	12.64

S.E./mean (others than T_7) = 5.40 degrees.S.E. of T_7 mean = 6.09 degrees.**Crop :- Peach.****Ref :- U.P. 57(515).****Site :- Govt. Hill Fruit Res. Stn., Chaubattia.****Type :- 'D'.**

Object :—To find out suitable control measures against the peach leaf curling aphid.

1. BASAL CONDITIONS :

(i) N.A. (ii) (a) Clay loam. (b) Refer soil analysis, Chaubattia. (iii) N.A. (iv) Improved. (v) and (vi) N.A. (vii) Nil. (viii) and (ix) N.A. (x) Unirrigated. (xi) and (xii) N.A.

2. TREATMENTS :

5 insecticidal treatments : T_0 =Control, T_1 =DDT emulsion 0.5 %, T_2 =DDT emulsion 0.25 %, T_3 =Diazinon emulsion 0.04166 % (Basudin 1 : 480) and T_4 =Diazinon emulsion 0.03125 % (Basudin 1 : 640).

Treatments applied on 22.10.1957.

3. DESIGN :

(i) R.B.D. (ii) (a) 5. (b) N.A. (iii) 4. (iv) 1. (v) Nil. (vi) Yes.

4. GENERAL :

(i) N.A. (ii) Incidence of peach leaf curling aphis. Control measures as per treatments. (iii) Population before and after application of treatments. (iv) (a) 1956—1957. (b) N.A. (v) to (vii) Nil.

5. RESULTS :

(i) 13.22 degrees. (ii) 11.11 degrees. (iii) Treatment differences are highly significant. (iv) Av. % of affected shoots in degrees.

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄
Mean angle	52.22	0.00	0.00	0.00	13.88
S.E./mean = 5.55 degrees.					
Transformed back %	62.78	0.50	0.50	0.50	6.24

Crop :- Peach.

Ref :- U.P. 57(15).

Site :- Govt. Hill Fruit Res. Stn., Chaubattia.

Type :- 'D'.

Object :—To find suitable protective measures against the Peach curling aphis during winter.

1. BASAL CONDITIONS :

(i) N.A. (ii) (a) Clay loam. (b) Refer soil analysis, Chaubattia. (iii) Budding during Sept. and Oct. (iv) Alexander and Hills early. (v) Planting at a space of 20' × 20' in pits duly filled with soil before plantation. Planting time—Jan. to Feb. (vi) N.A. (vii) Nil. (viii) Pruning during winter. (ix) Nil. (x) Unirrigated. (xi) N.A. (xii) July and Aug.

2. TREATMENTS and 3. DESIGN :

Same as in expt. no. 57(515) on page 1705.
Insecticides were sprayed with *Maruti* sprayer on 22.1.1957.

4. GENERAL :

(i) Good. (ii) Curling of leaves due to sucking up by the aphis. (iii) The population of aphis from 10 young shoots containing each 8 to 15 tender leaves from each tree was counted and number of aphis per 200 leaves calculated. Final observation taken on 24.4.1957 : (3 months after application of treatment). (iv) (a) N.A. (b) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 215.80. (ii) 160.94. (iii) Treatments differences are highly significant. (iv) Av. population of peach leaf curling aphis per 200 leaves per plot.

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄
Av. population	908.25	1.50	7.75	2.25	159.25
S.E./mean = 80.47					

Crop :- Litchi.

Ref :- U.P. 55(90).

Site :- Govt. Hort. Res. Instt., Saharanpur.

Type :- 'C'.

Object :—To study the performance of Calcuttia and late Seedless variety on their own stocks and on the seedling root stock of Dehra Dun variety.

1. BASAL CONDITIONS :

(i) N.A. (ii) (a) Sandy loam. (b) Refer soil analysis, Saharanpur. (iii) Inarching and air layering. (iv) As per treatments. (v) April, 1955. Square system : 30' × 36'. (vi) 2 years. (vii) 1 md./pit of F.Y.M. (viii) Weeding, hoeing, ploughing and mulching. (ix) Berseem. (x) Irrigated. (xi) 55.39%. (xii) No harvest.

2. TREATMENTS :

T₁=Calcuttia grafted on seedling root stock of Dehra Dun variety, T₂=Late Seedless grafted on seedling root stock of Dehra Dun variety, T₃=Air-layered stock on Calcuttia and T₄=Air-layered stock on Seedless.

3. DESIGN :

(i) R.B.D. (ii) (a) 4. (b) N.A. (iii) 6. (iv) 1. (v) Guard row all round the experimental area. (vi) Yes.

4. GENERAL :

(i) Good. (ii) No. (iii) Girth of scion at 6" above the union and volume of tree. (iv) (a) 1955—1959. (b) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 2.92 cm./tree. (ii) 0.41 cm./tree. (iii) Treatment differences are highly significant. (iv) Av. girth of scion in cm./tree.:

Treatment	T ₁	T ₂	T ₃	T ₄
Av. girth	2.00	2.00	3.67	4.00

S.E./mean = 0.17 cm./tree.

Crop :- Litchi.

Ref :- U.P. 56(34).

Site :- Govt. Hort. Res. Instt., Saharanpur.

Type :- 'C'.

Object :-To study the performance of Calcuttia and late Seedless variety on their own stocks and on the seedling root stock of Dehra Dun variety.

1. BASAL CONDITIONS :

(i) N.A. (ii) (a) Sandy loam. (b) Refer soil analysis, Saharanpur. (iii) Inarching and air-layering. (iv) As per treatments. (v) April, 1955. Square system : 30' × 30'. (vi) 2 years. (vii) 1 md./pit of F.Y.M. (viii) Weeding, hoeing, ploughing and mulching. (ix) Berseem. (x) Irrigated. (xi) 65.01%. (xii) No harvest.

2. TREATMENTS to 4. GENERAL :

Same as in expt. no. 55(90) on page 1706.

5. RESULTS :

(i) 4.1 cm./tree. (ii) 0.76 cm./tree. (iii) Treatment differences are highly significant. (iv) Av. girth of scion in cms./tree.

Treatment	T ₁	T ₂	T ₃	T ₄
Av. girth	3.7	3.2	4.2	5.2

S.E./mean = 0.38 cm./tree.

Crop :- Litchi.

Ref :- U.P. 57(23).

Site :- Govt. Hort. Res. Instt., Saharanpur.

Type :- 'C'.

Object :-To study the performance of Calcuttia and late Seedless variety on their own stocks and on seedling root stock of Dehra Dun variety.

1. BASAL CONDITIONS :

(i) N.A. (ii) (a) Sandy loam. (b) Refer soil analysis, Saharanpur. (iii) Inarching and air-layering. (iv) As per treatments. (v) April, 1955. Square system : 30' × 30'. (vi) 2 years. (vii) 1 md./pit of F.Y.M. (viii) Weeding, hoeing, ploughing and mulching. (ix) Perseem. (x) Irrigated. (xi) 47.5%. (xii) No harvest.

2. TREATMENTS and 3. DESIGN :

Same as in expt. no. 55(90) on page 1706.

4. GENERAL :

(i) Good. (ii) No. (iii) Girth of scion. (iv) (a) 1955—1959. (b) Nil. (v) and (vi) Nil.

5. RESULTS :

(i) 4.79 cm./tree. (ii) 1.45 cm./tree. (iii) Treatment differences are not significant. (iv) Av. girth of scion in cm./tree.

Treatment	T ₁	T ₂	T ₃	T ₄
Av. girth	4.00	4.17	4.83	6.17

S.E./mean = 0.59 cm./tree.

Crop :- Litchi.

Ref :- U.P. 58(125).

Site :- Govt. Hort. Res. Instt., Saharanpur.

Type :- 'C'.

Object :— To study the performance of Calcuttia and late seedless variety on their own stocks and on seedling root stock of Dehra Dun variety.

1. BASAL CONDITIONS :

(i) N.A. (ii) (a) Sandy loam. (b) Refer soil analysis, Saharanpur. (iii) Inarching and air-layering. (iv) As per treatments. (v) April, 1955. Square system : 30' × 30'. (vi) 2 years. (vii) 1 md./pit. of F.Y.M. (viii) N.A. (ix) No. (x) Irrigated. (xi) 63.94". (xii) No harvest.

2. TREATMENTS and 3. DESIGN :

Same as in expt. no. 55(90) on page 1706.

4. GENERAL :

(i) and (ii) N.A. (iii) Girth of scion. (iv) (a) 1958—1959. (b) Nil. (v) and (vi) Nil.

5. RESULTS :

(i) 6.95 cm./tree. (ii) 4.40 cm./tree. (iii) Treatment differences are not significant. (iv) Av. girth of scion in cm./tree.

Treatment	T ₁	T ₂	T ₃	T ₄
Av. girth	4.82	6.93	7.12	8.93

S.E./mean = 1.80 cm/tree.

Crop :- Litchi.

Ref :- U.P. 59(141).

Site :- Govt. Hort. Res. Instt., Saharanpur.

Type :- 'C'.

Object :— To study the performance of Calcuttia and late Seedless variety on their own stocks and on seedling root stock of Dehra Dun variety.

1. BASAL CONDITIONS :

(i) N.A. (ii) (a) Sandy loam. (b) Refer soil analysis, Saharanpur. (iii) Inarching and air-layering. (iv) As per treatments. (v) April 1955. Square system : 36' × 36'. (vi) 2 years. (vii) 1 md./pit. of F.Y.M. (viii) and (ix) N.A. (x) Irrigated. (xi) 63.04". (xii) N.A.

2. TREATMENTS and 3. DESIGN :

Same as in expt. no. 55(90) on page 1706.

4. GENERAL :

(i) and (ii) N.A. (iii) Girth of scion. (iv) (a) 1955—1959. (b) Nil. (v) and (vi) Nil.

5. RESULTS :

(i) 12.0 cm./tree. (ii) 5.65 cm./tree. (iii) Treatment differences are not significant. (iv) Av. girth of scion in cm./tree.

Treatment	T ₁	T ₂	T ₃	T ₄
Av. girth	15.2	13.6	9.9	9.3

S.E./mean = 2.31 cm./tree.

Crop :- Litchi.

Ref :- U.P. 54(375).

Site :- Botanical Gardens, Govt. Agri. College, Kanpur. Type :- 'D'.

Object :—To test the effectiveness and suitability of insecticides against Mango mealy bug on Litchi trees.

1. BASAL CONDITIONS :

(i) N.A. (ii) (a) Sandy loam. (b) Refer soil analysis, Kanpur. (iii) to (xii) N.A.

2. TREATMENTS :

4 insecticidal sprayings : T₁=Spraying with 0.1 % Aldrin emulsion 40 %, T₂=Spraying with 0.05 % Parathion Ekatox 20, T₃=Spraying with 0.08 % Folidol E-608 a.r.d T₄=Spraying with water (control).

Spraying done on 10.2.1954 at 4 gallons/tree.

3. DESIGN :

(i) C.R.D. (ii) (a) and (b) N.A. (iii) 3. (iv) 1. (v) Nil. (vi) Yes.

4. GENERAL :

(i) N.A. (ii) Incidence of mango mealy bug. Control measures—as per treatments. (iii) No. of mango mealy bug nymphs counted on 10 inflorescence branches or twigs before spraying and 24 and 72 hours after spraying. (iv) (a) and (b) No. (v) to (vii) Nil.

5. RESULTS :

(i) 40.35 degrees. (ii) 6.85 degrees. (iii) Treatment differences are highly significant. (iv) % mortality of mango mealy bugs.

Treatment	T ₁	T ₂	T ₃	T ₄
Mean angle	34.12	55.68	46.60	25.01

S.E./mean = 3.95 degrees.

Transformed back %	31.66	68.03	52.75	18.20
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Crop :- Litchi.

Ref :- U.P. 54(379).

Centre :- Dehra Dun (Dehra Dun, c.f.).

Type :- 'D'.

Object :—To study the effect of different insecticides on Litchi leaf curl mite, Eriophyes sp.

1. BASAL CONDITIONS :

(i) to (x) N.A.

2. TREATMENTS :

5 insecticidal treatments : T₀=Control (no treatment), T₁=Spraying with lime sulphur wash (dilution 1 : 20), T₂=Spraying with 0.1 % Parathion emulsion, T₃=Spraying with Sandolin A (D.N.O.C.) 0.05 % and T₄=Spraying with Euphyton winter (mineral oil emulsion) 1 %.

Date of spraying : 5.3.1954.

3. DESIGN :

(i) and (ii) R.B.D. with 4 replications. (iii) (a) and (b) 1 tree/plot. (iv) Yes.

4. GENERAL :

(i) N.A. (ii) Incidence of litchi mite. Control measure—as per treatments. (iii) No. of leaves affected by mites on 5.3.1954, 20.3.1954, 5.4.1954 and 21.4.1955 recorded on the selected infested branches. (iv) No. (v) and (vi) Nil. (vii) Av. number of infested leaves per branch have increased in some plots after spraying over the av. number of infested leaves per branch before spraying, analysis of covariance was done by taking the av. number of infested leaves per branch on 5.3.1954 as ancillary variate (x) and av. number of infested leaves per branch on 21.4.1954. (transformed to $\sqrt{y+\frac{1}{2}}$ as the main variate (y) where y = Av. no. of infested leaves. Results after necessary adjustments are presented.

5. RESULTS :

(i) 3.30 degrees. (ii) 0.15 degrees. (iii) Treatment differences are not significant. (iv) Adjusted mean value in degrees where y=average number of infested leaves per branch on 21.4.1954.

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄
Adjusted mean value	3.46	3.23	3.35	3.30	3.17

S.E. of difference of two treatment means = 0.12

Crop :- Litchi.

Ref :- U.P. 55(409).

Centre :- Dehra Dun (Dehra Dun, c.f.).

Type :- 'D'.

Object :- To study the effect of different insecticides on Litchi leaf curl mite.

1. BASAL CONDITIONS :

(i) to (x) N.A.

2. TREATMENTS :

7 insecticidal treatments : T₀=Control (no treatment), T₁=Spraying with Folidol E—605 (Parathion)—0.05%, T₂=Spraying with Chlorthion—0.05%. T₃=Spraying with Malathion—0.05%, T₄=Spraying with Basudin—0.2%, T₅=Spraying with Metasystox—0.1% and T₆=Spraying lime sulphur 1 : 15 dilution.

Date of spraying : 14.7.1955.

3. DESIGN :

(i) and (ii) R.B.D. with 5 replications. (iii) (a) and (b) One litchi branch having leaves with new infestation of mites/plot. (iv) Yes.

4. GENERAL :

(i) N.A. (ii) Incidence of litchi leaf curl mite. Control measure—as per treatments. (iii) Total no. of dead and live mites observed at 3 different places on the same leaf, 24 hours, 2 hours and 8 days after spraying. (iv) (a) and (b) No. (v) and (vi) Nil. (vii) As the total population of mites on 15.7.1955 differed widely in different plots, analysis of covariance was done by taking total no. of mites at 3 places on a leaf 24 hours after spraying on 15.7.1955 as ancillary variate (x) and total no. of live mites at 3 places on a leaf 24 hours after spraying on 15.7.1955 (transformed to $\sqrt{y+\frac{1}{2}}$) as the main variate (y). Results after necessary adjustment are presented above.

5. RESULTS :

(i) 2.76 degrees. (ii) 2.22 degrees. (iii) Treatment differences are highly significant. (iv) Adjusted mean value in degrees where y=total no. of live mites at 3 places on a leaf. 24 hours after spraying on 15.7.1955.

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄	T ₅	T ₆
Adjusted mean value in degrees	7.56	1.97	2.21	3.22	1.30	1.98	1.09

S.E. of difference of 2 treatment mean = 1.44 degree.

Crop :- Litchi.

Ref :- U.P. 55(410).

Centre :- Dehra Dun (Dehra Dun, c.f.).

Type :- 'D'.

Object :- To study the effect of insecticides on Litchi mites.

1. BASAL CONDITIONS :

(i) to (x) N.A.

2. TREATMENTS :

7 insecticidal treatments : T₀=Control (No treatment), T₁=Spraying the trees with Folidol E-605 (Parathion)—0.05%, T₂=Spraying the trees with Chlorthion—0.05%, T₃=Spraying the trees with Malathion—0.05%, T₄=Spraying the trees with Basudin (Diazinon)—0.02%, T₅=Spraying the trees with Mataystox—0.1% and T₆=Spraying the trees with Lime sulphur—0.5% (1 : 20 Dil).

Spraying on 6.11.1955 and 8.11.1955.

3. DESIGN :

(i) and (ii) R.B.D. with 5 replications. (iii) (a) and (b) 1 tree/plot. (iv) Yes.

4. GENERAL :

(i) N.A. (ii) Incidence of *litchi* mites. (iii) Total no. of mite infested branches on each tree and no. of infested leaves at 3 random branches on each tree on 5.11.1955. No. of infested branches per tree on May, 8.9.1956. (iv) (a) and (b) No. (v) and (vi) Nil. (vii) As the no. of infested branches per tree in May, 1956 have increased in some plots over the no. of infested branches per tree in Nov., 1955 (before spraying), analysis of covariance was done by taking the no. of infested branches per tree in Nov., 1955 as ancillary variate (x) and no. of infested branches per tree in May, 1956 as the main variate (y). Results after necessary adjustment are presented.

5. RESULTS :

(i) 3.32. (ii) 0.86. (iii) Treatment difference are not significant. (iv) Mean value of $\sqrt{y+\frac{1}{2}}$ /plot where y=number of infested branches/tree on 8 and 9.5.1956.

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄	T ₅	T ₆
Adjusted mean value	3.60	3.07	3.70	3.38	3.16	3.33	2.98

S.E. of mean = 0.38.

Crop :- Litchi.

Ref - U.P. 56(503).

Site :- Dehra Dun (Dehra Dun, c.f.).

Type :- 'D'.

Object :- To study the effect of different insecticides on Litchi mites.

1. BASAL CONDITIONS :

(i) to (x) N.A.

2. TREATMENTS :

6 insecticidal treatments : T₀=Control (no spraying), T₁=Spraying trees with Folidol E. 605 (Parathion)—0.075%, T₂=Spraying trees with Malathion 50% E.C—0.075%, T₃=Spraying trees with Basudin (Diazinon) 20% E.C—0.25%, T₄=Spraying trees with Aramite—0.03% and T₅=Spraying trees with Lime Sulphur—1 : 15 dilution in water.

Time of application : 9, 10.5.1956.

3. DESIGN :

(i) R.B.D. with 4 replications. (ii) N.A. (iii) (a) and (b) One *litchi* tree. (iv) Yes.

4. GENERAL :

(i) N.A. (ii) Incidence of *litchi* mites, Control measures as per treatments. (iii) No. of mite infested branches per tree on 8/9.5.1956 and 16/17.6.1956. (iv) (a) and (b) No. (v) and (vi) Nil. (vii) As the number of infested branches per tree on 16/17.6.1956 have increased in some plots over the no. of infested branches per tree on 8/9.5.1956 (before spraying), analysis of covariance was done by taking the no. of infested branches per tree on 8/9.5.1956 as ancillary variate (x) and no. of infested branches per tree on 16/17.6.1956 as the main variate (y). Results after necessary adjustment are presented.

5. RESULTS :

(i) 9.60. (ii) 0.45. (iii) Treatment differences are not significant. (iv) Mean value of $\sqrt{y+\frac{1}{2}}$ /plot where y =No. of mite infested branches per tree on 16—17.6.1956.

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄	E ₅
Adjusted mean value	4.17	3.67	3.48	3.25	3.74	3.34
S.E. of mean = 0.20.						

Crop :- Plum.**Ref :- U.P. 54(57).****Site :- Govt. Hill Fruit Res. Stn., Chaubattia****Type :- 'D'.**

Object :— To study the effect of various insecticides against licheus on temperate fruits.

1. BASAL CONDITIONS :

(i) N.A. (ii) (a) Clay loam. (b) Refer soil analysis Chaubattia. (iii) to (vii) N.A. (viii) Spraying of above harmones and fungicides. (xi) N.A. (x) Unirrigated. (xi) and (xii) N.A.

2. TREATMENTS :

12 insecticidal treatments : T₀=Control, T₁=Agroxone 0.2%, T₂=Agroxone 0.1%, T₃=Agroxone 0.05%, T₄=Ferroxone 0.2%, T₅=Ferroxone 0.1%, T₆=Ferroxone 0.05%, T₇=Dicotax 25 c.c. in 5000 c.c. of water, T₈=Dicotax 12.5 c.c. in 5000 c.c. of water, T₉=Dicotax 6 c.c. in 5000 c.c. of water, T₁₀=Sandolin 0.5% and T₁₁=Sandolin 0.25%.

3. DESIGN :

(i) R.B.D. (a) 12. (b) N.A. (iii) 4. (iv) 1. (v) N.A. (vi) Yes.

4. GENERAL :

(i) N.A. (ii) Control of licheus on temperate fruit plants (plum trees). (iii) % of living licheus were determined on 11—12.6.1954. (iv) (a) 1952—1954. (b) Nil. (x) Nil. (vi) Experiment was conducted by officer-in-charge Jeolikote. (viii) Nil.

5. RESULTS :

(i) 58.10%. (ii) 13.51%. (iii) Treatment differences are highly significant. (iv) Mean % of infection.

Treatments	T ₀	T ₁	T ₂	T ₃	T ₄	T ₅	T ₆	T ₇	T ₈	T ₉	T ₁₀	T ₁₁
Av. percentage	74.25	41.00	52.50	56.50	65.25	66.00	66.25	48.25	61.25	74.50	43.75	47.75
S.E./mean = 6.76%.												

Crop :- Straw berry.**Ref. :- U.P. 54(94).****Site :- Hort. Farm, Jeolikote.****Type :- 'D'.**

Object :— To find out a suitable insecticidal control measure against straw berry beetle.

1. BASAL CONDITIONS :

(i) N.A. (ii) (a) Clay loam. (b) Refer soil analysis Jeolikote. (iii) Planting cuttings. (iv) Improved. (v) During rainy season. (vi) N.A. (vii) Nil. (viii) Hosing, weeding and earthing and making ridges during rainy season. (ix) Nil. (x) Unirrigated. (xi) N.A. (xii) April—May.

2. TREATMENTS :

5 insecticidal treatments : T₀=Control, T₁=DDT emulsion 0.25%, T₂=DDT suspension 0.25%, T₃=Lead arsenate 0.2% and T₄=Calcium arsenate 0.2%.

3. DESIGN :

(i) R.B.D. (ii) (a) 5. (b) Nil. (iii) 4. (iv) N.A. (100 sq. ft. plot of straw berry). (v) Nil. (vi) Yes.

4. GENERAL :

(i) Fair. (ii) Defoliating leaves. Spraying with DDT emulsion 0.25%. (iii) % of reduction in population on 1.4.1954., 15 days after treatment and number of holes per 100 leaflets on 14.5.1954, 2 months after treatment. (iv) (a) 1953-1954. (b) Nil. (v) and (vi) Nil.

5. RESULTS:

(i) 55.99 degrees. (ii) 12.23 degrees. (iii) Treatment differences are highly significant. (iv) % of reduction in population in degrees.

Treatments	T ₀	T ₁	T ₂	T ₃	T ₄
Mean angle	24.16	80.13	70.24	32.52	72.92
S.E./mean = 6.117 degrees.					
Transformed back %	17.12	96.59	88.18	29.35	90.96

Crop :- Strawberry.

Ref :- U.P. 54(60).

Site :- Hort. Farm, Jeolikote.

Type :- 'D'.

Object :-To study the effect of different fungicides against leaf spot disease of Strawberry.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Soyabean. (c) N.A. (ii) (a) Sandy loam. (b) Refer soil analysis, Jeolikote. (iii) N.A. (iv) Spraying of fungicides. (v) Nil. (vi) Mixed. (vii) Irrigated. (viii) Spraying. (ix) and (x) N.A.

2. TREATMENTS :

8 fungicidal treatments : T₀=Control, T₁=Coppesan 0.3%, T₂=Copper Sandoz 0.3%, T₃=Dithane D-19 0.3% with Zinc Sulphate 0.45%, T₄=Sandolin 0.3%, T₅=Dithane 2.78, T₆=Lime Sulphur 1 : 50 and T₇=Perenox 0.3 %.

Fungicides were sprayed on 24.6.1954.

3. DESIGN :

(i) R.B.D. (ii) (a) 8. (b) N.A. (iii) 4. (iv) and (v) N.A. (vi) Yes.

4. GENERAL :

(i) Stunted. (ii) Incidence of leaf spot disease. Control measure as per treatments. (iii) Percentage of infection was determined. (iv) (a) 1952-1954. (b) and (c) No. (v) to (vii) Nil.

5. RESULTS :

(i) 41.44 %. (ii) 5.19 %. (iii) Treatment differences are highly significant. (iv) Av. % of infection.

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄	T ₅	T ₆	T ₇
Mean % of infection	52.00	35.75	36.50	43.75	41.00	46.75	32.25	43.50
S.E./mean = 2.59 %.								

Crop :- Walnut.

Ref :- U.P. 59(545).

Site :- State Orchard, Bharsar.

Type :- 'D'.

Object :-To study the effect of fungicides against Kurmula grubs.

1. BASAL CONDITIONS :

(i) N.A. (ii) (a) Clay loam. (b) N.A. (iii) N.A. (iv) Improved. (v) April, 1959. (vi) N.A. (vii) Nil. (viii) and (ix) N.A. (x) Irrigated. (xi) and (xii) N.A.

2. TREATMENTS :

T₀=Control, T₁=DDT emulsion 8 lb./ac. in 150 gallons of water, T₂=Gama B.H.C. emulsion 4 lb./ac. in 150 gallons of water, T₃=Parathion emulsion 4 lb./ac. in 150 gallons of water, T₄=Aldrin emulsion 8 lb./ac. in 150 gallons of water, T₅=Malathion emulsion 8 lb./ac. in 150 gallons of water, T₆=Dieldrin emulsion 4 lb./ac. in 150 gallons of water, T₇=Aldrin dust 8 lb. in 160 lb. dust, T₈=Gama B.H.C. dust 2 lb. in 160 lb. dust, T₉=DDT dust 16 lb. in 160 lb. dust, T₁₀=B.H.C. dust 16 lb. in 244 lb. dust and Parathion emulsion 2 lb. in 150 gallons of water.

Treatments applied on 23.7.1959.

3. DESIGN :

(i) R.B.D. (ii) (a) 12. (b) N.A. (iii) 6. (iv) 1. (v) Nil. (vi) Yes.

4. GENERAL :

(i) N.A. (ii) Incidence of kurmula grubs. Control measures as per treatments. (iii) Counts of population after treatment. (iv) (a) N.A. (b) Nil. (v) and (vi) Nil.

5. RESULTS :

(i) 2.89 counts/plot. (ii) 1.73 counts/plot. (iii) Treatment differences are highly significant. (iv) Mean counts/plot.

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄	T ₅	T ₆	T ₇	T ₈	T ₉	T ₁₀	T ₁₁
Mean counts/plot	3.50	4.18	2.50	1.33	2.83	2.33	2.00	1.50	2.50	2.50	2.17	7.33

S.E./mean = 0.71 counts/plot.

Crop :- Lokat.

Ref :- U.P. 54(63).

Centre :- Haldwani (Nainital, c.f.).

Type :- 'D'.

Object :- To study the effect of fungicides to control the dieback disease of Lokat.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) and (c) N.A. (ii) and (iii) N.A. (iv) Local and improved variety. (v) Spraying of fungicides. (vi) N.A. (vii) Irrigated. (viii) to (x) N.A.

2. TREATMENTS :

4 fungicidal treatments : T₀=Control, T₁=Chabattia paste in Lanolin (red lead 2 oz., copper carbon 2 oz. and Lanolin), T₂=Copper oxychloride paste (2 pts. coppessan in 2½ pts. raw linseed oil) and T₃=Chevastelon solution (6% cold solution of potassium dichromate mixed with 6% cold solution of copper sulphate).

From each unit of plot 48 branches (of equal diameter) affected with dieback were pruned 9" below the dead tissues.

3. DESIGN :

(i) R.B.D. with 12 replications. (ii) N.A. (iii) One tree of Lokat per/plot. (b) N.A. (iv) Yes.

4. GENERAL :

(i) Poor due to die-back disease. (ii) Die-back disease. (iii) The number of branches showing absence of callus formation were counted and measured for each treatment. (iv) (a) and (b) N.A. (v) to (vii) Nil.

5. RESULTS :

(i) 56.15 %. (ii) 10.12 %. (iii) Treatment differences are highly significant. (iv) % of non-callus formation.

Treatment	T ₀	T ₁	T ₂	T ₃
% of non-callus formation	68.50	46.75	52.25	57.08

S.E./mean = 2.92 %.

Crop :- Apricot.**Ref :- U.P. 55(152).****Site :- Govt. Hill Fruit Res. Sta., Chaubattia.****Type :- 'D'.**

Object :—To study the effect of different fungicides to control Apricot insects.

1. BASAL CONDITIONS :

(i) N.A. (ii) (a) Clay loam. (b) Refer soil analysis, Chaubattia. (iii) N.A. (iv) Improved. (v) and (vi) N.A. (vii) Nil. (viii) and (ix) N.A. (x) Unirrigated. (xi) 9%. (xii) N.A.

2. TREATMENTS :3 fungicidal treatments: T_0 =Control, T_1 =Basudin (20% Diazinon emulsion) at 1 : 530 and T_2 =DDT emulsion (2.5%) at 1 : 50.

Flit pump was used to spray on 10.10.1955 at 1 lb./5 branches when nymphs were in dormant stage.

3. DESIGN :

(i) R.B.D. (ii) (a) 3. (b) N.A. (iii) 5. (iv) 1 branch of each treatment as unit. (v) Nil. (vi) Yes.

4. GENERAL :

(i) N.A. (ii) Incidence of insects noticed and control measure as per treatments. (iii) Population before treatment and after treatment. (iv) (a) and (b) N.A. (v) and (vi) Nil.

5. RESULTS :(i) 3.36. (ii) 0.85. (iii) Treatment differences are highly significant. (iv) Mean value of $\sqrt{x+0.5}$ /plot where x =population of scab per $\frac{1}{4}$ square inch leaf area.

Treatment	T_0	T_1	T_2
Mean value	4.70	2.94	2.44

S.E./mean = 0.38

Crop :- Papaya.**Ref :- U.P. 54(174).****Site :- Govt. Hort. Res. Instt., Saharanpur.****Type :- 'M'.**

Object :— To study the effect of different levels of N, P and K fertilizers on the growth of Papaya.

1. BASAL CONDITIONS :

(i) It was under orchard from which the trees were cut off and the experiment was laid out. (ii) (a) Sandy loam. (b) Refer soil analysis, Saharanpur. (iii) By seeds. (iv) Pandjang. (v) Last week of August, 1954. (vi) 3 months. (vii) 26 lb./plot of F.Y.M. which was dug at a distance of 8'x8'. (viii) Weeding, digging, and spraying with fungicide. (ix) Pea for seed purposes. (x) Irrigated. (xi) 43.97%. (xii) No harvest.

2. TREATMENTS :

All combinations of (1), (2) and (3)+control (no manure)

(1) 2 levels of N : $N_1=0.6$ and $N_2=1.2$ lb./plot per year.(2) 3 levels of P_2O_5 : $P_0=0$, $P_1=0.6$ and $P_2=1.2$ lb./plot per year.(3) 3 levels of K_2O : $K_0=0$, $K_1=0.6$ and $K_2=1.2$ lb./plot per year.**3. DESIGN :**

(i) R.B.D. (ii) (a) 19. (b) N.A. (iii) 3. (iv) 4 trees. (v) Gaurd rows of single plants. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Collar rot ; sprayed with fungicide for control. (iii) Plant girth. (iv) (a) and (b) No. (v) N.A. (vi) Expt. abandoned before harvesting the fruits due to death of trees in heavy rains.

5. RESULTS :

(i) 10.55 cms /plant. (ii) 1.35 cms /plant. (iii) Control vs. others effect and main effect of N are highly significant. (iv) Av. girth per plant in cms.

Control mean = 8.03 cms./ac.

	P ₀	P ₁	P ₂	Mean	K ₀	K ₁	K ₂
N ₁	10.91	10.81	12.12	11.28	10.16	11.80	11.87
N ₂	10.32	9.48	10.45	10.09	10.30	9.77	13.46
Mean	10.62	10.15	11.29	10.69	10.10	10.78	11.17
K ₀	10.20	9.23	10.86				
K ₁	11.32	10.63	10.40				
K ₂	10.33	10.58	12.60				

S.E. of N marginal mean = 0.28 cm.
 S.E. of P or N marginal mean = 0.34 cm.
 S.E. of body of N×P or N×K table = 0.48 cm.
 S.E. of body of P×K table = 0.48 cm.

Crop :- Papaya.**Ref :- U.P. 59(284).****Site :- Allahabad Agri. Instt., Allahabad.****Type :- 'C'.**

Object :—To study the effect of spacing on the yield of Papaya.

1. BASAL CONDITIONS :

(i) N.A. (ii) (a) Fine sandy loam. (b) Refer soil analysis, Allahabad. (iii) and (iv) N.A. (v) 23.10.1959. (vi) N.A. (vii) $\frac{1}{4}$ lb./plant of N as A/S in Nov., and 1/10 lb./plot of N as castor cake in January. (viii) 2 cultivations. (ix) N.A. (x) Irrigated. (xi) N.A. (xii) 15.11.1960 to 31.4.1961.

2. TREATMENTS :

3 spacings: S₁=3'×3', S₂=6'×6' and S₃=10'×10'.
 No. of plants in an acre for S₁=4840, S₂=1210 and S₃=436.

3. DESIGN :

(i) L. Sq. (ii) (a) 3. (b) N.A. (iii) 3. (iv) 50. (v) 2 guard rows on both sides. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Height, girth, internode, flowering and yield of *papaya*. (iv) (a) 1959—1961. (b) and (c) N.A. (v) and (vi) N.A. (vii) To reduce the possible number of male population in the experimental plot, 3 plants are planted at each plant. No original plotwise yield data was available.

5. RESULTS :

(i) 176 lb. for 10 plants. (ii) 41.33 lb. for 10 plants. (iii) Treatment differences are not significant. (iv) Av. yield of *papaya* in lb. for 10 plants.

Treatment	S ₁	S ₂	S ₃
Av. yield	120.0	206.8	201.6

S.E./mean = 23.89 lb. 10 plants.

Crop :- Papaya.**Ref :- U.P. 56(131).****Site :- Govt. Hort. Res. Instt., Saharanpur.****Type :- 'C'.**

Object :—To study the effect of different lancing intervals on yield and quality of Papaya fruits.

1. BASAL CONDITIONS :

(i) The experiment was taken in a papaya block raised for commercial purpose. (ii) (a) Sandy loam. (b) Refer soil analysis, Saharanpur. (iii) Seeds propagated. (iv) Mixed variety of papaya. (v) About 1½ years old plant. (vi) Nil. (vii) N.A. (viii) Weeding, digging and spraying with fungicides. (ix) No. (x) Irrigated. (xi) 65.01". (xii) Harvested after ripening of fruits on different dates in Oct. and Nov., 1956.

2. TREATMENTS :

T₀=Control (no lancing), T₁=Bi-weekly lancing and T₂=weekly lancing.

3. DESIGN :

(i) R.B.D. (ii) (a) 3. (b) N.A. (iii) 5. (iv) 1. (v) N.A. (vi) Yes.

4. GENERAL :

(i) Good. (ii) No pests but collar rot perceptible ; fungicides sprayed for its control. (iii) Yield of ripe fruits, and time of ripening of fruits. (iv) (a) and (b) No. (v) and (vi) Nil.

5. RESULTS :

(i) 2.37 lb./fruit. (ii) 0.286 lb./fruit. (iii) Treatment differences are not significant. (iv) Av. weight in lb./fruit.

Treatment	T ₀	T ₁	T ₂
Av. weight	2.40	2.39	2.33

S.E./mean = 12.80 lb./fruit.

Crop :- Rauwolfia Serpentina.

Ref :- U.P. 56(393).

Site :- Minor Forest Products Branch, Forest Res. Instt. Dehradun. Type :- 'C'.

Object :-To study the different methods of propagation and their effects on production and alkaloidal content of roots.

1. BASAL CONDITIONS :

(i) N.A. (ii) (a) Sandy loam to sandy clay loam. (b) Refer soil analysis, Dehra Dun. (iii) As per treatments. (iv) (Linn) Benth ex kurz. (v) As per treatments. (vi) N.A. (vii) No. (viii) N.A. (ix) No. (x) N.A. (xi) N.A. (xii) October—November.

2. TREATMENTS :

All combinations of 1 and (2)

(1) 3 methods of propagation ; A=Seed sowing for transplanting, B=Root cuttings (horizontal planting) and C=Stem cutting.

(2) 4 times of trial : T₁=First week of March, T₂=First week of April, T₃=First week of May, and T₄=First week of June.

3. DESIGN :

(i) Fact. in R.B.D. (ii) (a) 12. (b) (iii) 3. (iv) 360 plants per plot. (v) N.A. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Weight of thick roots (fresh), weight of thick+mother roots (fresh) and weight of thick+fibrous roots. (iv) (a) 1956—1958. (b) N.A. (v) N.A. (vi) Treatments AT₄, CT₁ and CT₂ were failures as such observations were taken for 9 other treatments only.

5. RESULTS :

Weight of thick roots

(i) 697 lb./ac. (ii) 433 lb./ac. (iii) Treatment differences are highly significant. (iv) Av. yield in lb./ac.

Treatment	AT ₁	AT ₂	AT ₃	BT ₁	BT ₂	BT ₃	BT ₄	CT ₃	CT ₄
Av. yield	1143	1884	708	872	488	526	141	214	301

S.E./mean = 250 lb./ac.

Weight of thick+mother roots

(i) 747 lb./ac. (ii) 436 lb./ac. (iii) Treatment differences are highly significant. (iv) Av. yield in lb./ac.

Treatment	AT ₁	AT ₂	AT ₃	BT ₁	BT ₂	BT ₃	BT ₄	CT ₃	CT ₄
Av. yield	1143	1884	708	1038	570	634	229	224	301

S.E./mean = 252 lb./ac.

Weight of thick+fibrous roots

(i) 765 lb./ac. (ii) 459 lb./ac. (iii) Treatment differences are highly significant. (iv) Av. yield in lb./ac.

Treatment	AT ₁	AT ₂	AT ₃	BT ₁	BT ₂	BT ₃	BT ₄	CT ₃	CT ₄
Av. yield	1252	2004	773	950	527	672	163	225	316

S.E./mean = 265 lb./ac.

Crop :- Rauwolfia Serpentina.

Ref :- U.P. 57(416).

Site :- Minor Forest Products Branch, Forest Res. Instt. Dehradun. Type :- 'C'.

Object :—To study different methods of propagation and their effect on production of Alkaloidal content of roots.

1. BASAL CONDITIONS : to 4. GENERAL :

Same as expt. no 56(393) on page 1717.

5. RESULTS :

Weight of thick roots

(i) 1162 lb./ac. (ii) 812 lb./ac. (iii) Treatment differences are highly significant. (iv) Av. yield in lb./ac.

Treatment	AT ₁	AT ₂	AT ₃	BT ₁	BT ₂	BT ₃	BT ₄	CT ₃	CT ₄
Av. yield	1727	3741	1078	1465	679	831	461	138	335

S.E./mean = 469 lb./ac.

Weight of thick+mother roots

(i) 1233 lb./ac. (ii) 812 lb./ac. (iii) Treatment differences are highly significant. (iv) Av. yield in lb./ac.

Treatment	AT ₁	AT ₂	AT ₃	BT ₁	BT ₂	BT ₃	BT ₄	CT ₃	CT ₄
Av. yield	1727	3741	1078	1663	821	1013	578	138	335

S.E./mean = 469 lb./ac.

Weight of thick+ fibrous roots

(i) 1234 lb./ac. (ii) 892 lb./ac. (iii) Treatment differences are highly significant. (iv) Av. yield in lb./ac.

Treatment	AT ₁	AT ₂	AT ₃	BT ₁	BT ₂	BT ₃	BT ₄	CT ₃	CT ₄
Av. value	1837	4032	1141	1535	708	867	486	147	355

S.E./mean = 515 lb./ac.

Crop :- Rauwolfia Serpentina.

Ref :- U.P. 58(404).

Site :- Minor Forest Products Branch, Forest Res. Instt. Dehradun. Type :- 'C'.

Object :—To study the different methods of propagation and their effect on production and Alkaloidal content of roots.

1. BASAL CONDITIONS : to 4 GENERAL :

Same as in expt. no. 56(393) on page 1717.

Weight of thick roots

(i) 1565 lb./ac. (ii) 951 lb./ac. (iii) Treatment differences are highly significant. (iv) Av. yield in lb./ac.

Treatment	AT ₁	AT ₂	AT ₃	BT ₁	BT ₂	BT ₃	BT ₄	CT ₃	CT ₄
Av. yield	2576	4312	1756	1785	977	1219	598	277	587

S.E./mean = 549 lb./ac.

Weight of thick + mother roots

(i) 1654 lb./ac. (ii) 960 lb./ac. (iii) Treatment differences are highly significant. (iv) Av. yield in lb./ac.

Treatment	AT ₁	AT ₂	AT ₃	BT ₁	BT ₂	BT ₃	BT ₄	CT ₃	CT ₄
Av. yield	2576	4312	1756	2047	1147	1450	737	277	587

S.E./mean = 554 lb./ac.

Weight of thick + fibrous roots

(i) 160.6 lb./ac. (ii) 975 lb./ac. (iii) Treatment differences are highly significant. (iv) Av. yield in lb./ac.

Treatment	AT ₁	AT ₂	AT ₃	BT ₁	AT ₂	BT ₃	BT ₄	CT ₃	CT ₄
Av. yield	2561	4414	1808	1861	1019	1274	624	284	609

S.E./mean = 563 lb./ac.

Crop :- Carnation flower.**Ref. :- U.P. 56(494)****Centre :- Rajbhavan (Nainital, c.f.).****Type :- 'D'.**Object :- To study the effect of *Metasystox* against mites on carnation flower plant.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Carnation. (c) N.A. (ii) to (vi) N.A. (vii) Irrigated. (viii) to (x) N.A.

2. TREATMENTS :

4 insecticidal treatments : T₀ = Control, T₁ = *Metasystox* 0.1%, T₂ = Lime Sulphur 1 : 30 and T₃ = Sulphur dust 95%.

Insecticides applied on 15.5.1956.

3. DESIGN :

(i) and (ii) R.B.D. with 8 replications ; by survey selection. (iii) (a) and (b) N.A. (iv) Yes.

4. GENERAL :

(i) N.A. (ii) Under study. (iii) Population of nymphs and adults. (iv) (a) 1956—1957. (b) N.A. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 3.97. (ii) 2.70. (iii) Treatment differences are highly significant. (iv) Av. count/plot of mites.

Treatment	T ₀	T ₁	T ₂	T ₃
Mean count/plot	13.88	0.00	0.25	1.75

S.E./mean = 0.95.

ADDENDUM

Crop :- Apple.

Ref :- U.P. 54(77) on page 1613.

5. RESULTS :

(i) 64.29 degrees. (ii) 8.31 degrees. (iii) Treatment differences are highly significant. (iv) Mean % reduction in adults and nymph of *aphid* in degrees.

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄	T ₅	T ₆
Mean angle	25.27	72.09	80.53	69.07	76.78	63.74	66.54

S.E./mean = 4.16 degrees.

Transformed back % after bias correction	18.54	90.13	96.82	79.19	94.30	80.13	86.24
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Crop :- Apple.

Ref :- U.P. 57(17) on page 1615.

5. RESULTS :

(i) 84.78 degrees. (ii) 9.20 degrees. (iii) Treatment differences are not significant. (iv) Mean % of disease free plants in degrees.

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄	T ₅	T ₆
Mean angle	71.74	90.00	96.00	90.00	83.91	83.91	83.91

S.E./mean = 4.60 degrees.

Transformed back % after bias correction	89.78	99.50	99.50	99.50	98.38	98.38	98.38
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Crop :- Apple.

Ref :- U.P. 56(5) on page 1615.

5. RESULTS :

(i) 16.53 degrees. (ii) 2.66 degrees. (iii) Treatment differences are highly significant. (iv) Mean % of infection in degrees.

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄
Mean angle	18.92	17.24	18.48	16.69	11.32

S.E./mean = 1.19 degrees.

Transformed back % after bias correction	10.90	9.19	10.44	8.67	4.31
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Crop :- Apple.

Ref :- U.P. 57(4) on page 1616.

5. RESULTS :

(i) 21.28 degrees. (ii) 1.72 degrees. (iii) Treatment differences are significant. (iv) Mean % of infection in degrees.

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄
Mean angle	23.85	20.57	23.25	20.52	18.20

S.E./mean = 0.77 degrees.

Transformed back % after bias correction	16.69	12.72	15.93	12.67	10.16
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Crop :- Apple.

Ref :- U.P. 54(72) on page 1617.

5. RESULTS :

(i) 46.26 degrees. (ii) 5.00 degrees. (iii) Treatment differences are highly significant. (iv) Mean % of defoliated leaves in degrees.

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄	T ₅
Mean angle	65.25	36.12	39.23	40.21	45.33	51.40

S.E./mean = 2.50 degrees.

Transformed back % after bias correction	82.15	34.90	40.10	42.51	50.53	61.20
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Crop :- Apple.

Ref :- U.P. 56(1) on page 1617.

5. RESULTS :

(i) 22.34 degrees. (ii) 14.00 degrees. (iii) Treatment differences are highly significant. (iv) Mean % of callus formation in degrees.

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄	T ₅	T ₆	T ₇	T ₈	T ₉	T ₁₀
Mean angle	0.00	23.48	29.96	22.01	21.66	25.21	33.40	30.85	27.00	1.58	30.63

S.E./mean = 4.67 degrees.

Transformed back % after bias correction	0.50	16.22	25.19	14.40	13.93	18.46	30.50	26.54	20.90	1.26	26.20
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Crop :- Apple.

Ref :- U.P. 57(1) on page 1618.

5. RESULTS :

(i) 36.17 degrees. (ii) 19.32 degrees. (iii) Treatment differences are highly significant. (iv) Mean % of callus formation in degrees.

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄	T ₅	T ₆	T ₇	T ₈	T ₉	T ₁₀
Mean angle	0.00	21.99	24.54	41.28	36.28	47.74	64.62	55.31	51.21	26.64	28.27

S.E./mean = 6.11 degrees.

Transformed back % after bias correction	0.50	14.38	17.58	43.58	35.17	54.73	81.31	67.43	60.64	20.31	22.71
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Crop :- Apple.

Ref :- U.P. 55(59) on page 1619.

5. RESULTS :

(i) 35.63 degrees. (ii) 4.48 degrees. (iii) Treatment differences are highly significant. (iv) Mean % of infection in degrees.

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄	T ₅
Mean angle	26.60	32.16	39.18	41.04	32.54	42.26

S.E./mean = 2.24 degrees.

Transformed back % after bias correction	20.35	28.55	40.02	43.19	29.14	45.27
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Crop :- Apple.**Ref :- U.P. 56(3) on page 1620.****5. RESULTS :**

(i) 42.94 degrees. (ii) 5.20 degrees. (iii) Treatment differences are highly significant. (iv) Mean % of infection in degrees.

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄	T ₅	T ₆	T ₇
Mean angle	58.64	35.95	38.19	32.81	35.85	34.43	33.64	31.33

S.E./mean = 2.60 degrees.

Transformed back % after bias correction	72.69	34.63	38.35	29.58	34.46	32.15	30.88	27.26
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Treatment	T ₈	T ₉	T ₁₀	T ₁₁	T ₁₂	T ₁₃	T ₁₄
Mean angle	28.80	58.98	53.31	44.13	57.42	40.91	49.74
Transformed back % after bias correction	23.48	73.21	64.16	65.51	70.79	42.95	58.15

Crop :- Apple.**Ref :- U.P. 57(2) on page 1621.****5. RESULTS :**

(i) 38.12 degrees. (ii) 3.06 degrees. (iii) Treatment differences are highly significant. (iv) Mean % of infection in degrees.

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄	T ₅	T ₆	T ₇	T ₈	T ₉
Mean angle	47.19	31.47	38.17	39.10	40.84	35.83	38.64	32.35	36.37	41.19

S.E./mean = 1.37 degrees.

Transformed back % after bias correction	53.78	27.48	38.32	39.88	42.84	34.43	39.09	28.84	35.32	43.44
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Crop :- Apple.**Ref :- U.P. 57(18) on page 1622.****5. RESULTS :**

(i) 70.50 degrees. (ii) 11.97 degrees. (iii) Treatment differences are highly significant. (iv) Mean % of disease free trees in degrees.

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄	T ₅
Mean angle	42.00	90.00	84.00	84.00	72.00	51.00

S.E./mean = 5.35 degrees.

Transformed back % after bias correction	44.82	99.50	98.81	98.81	90.16	59.91
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Crop :- Apple.**Ref :- U.P. 54(78) on page 1626.****5. RESULTS :**

(i) 63.12 degrees. (ii) 7.14 degrees. (iii) Treatment differences are highly significant. (iv) Mean % of reduction of woolly aphid population in degrees.

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄
Mean angle	25.03	81.99	74.36	70.34	63.90

S.E./mean = 3.19 degrees.

Transformed back % after bias correction	18.22	97.58	92.30	88.29	80.33
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Crop :- Apple.

Ref :- U.P. 55(62) on page 1626.

5. RESULTS :

(i) 75.10 degrees. (ii) 8.32 degrees. (iii) Treatment differences are highly significant. (iv) Mean % of reduction in aphids in degrees.

Treatment	T ₀	T ₁	T ₂	T ₃	T ₄
Mean angle	38.68	87.83	86.33	84.00	78.64

S.E./mean = 4.16 degrees.

Transformed back % after bias correction					
	39.17	99.36	99.09	98.42	99.66

Crop :- Sweet Orange.

Ref :- U.P. 57(21) on page 1671.

5. RESULTS :

(i) 12.6 fruits/tree. (ii) (a) 21.2 fruits/tree. (b) 8.1 fruits/tree. (iii) Main effect of S alone is significant. (iv) Av. number of fruits/tree.

	S ₁	S ₂	S ₃	S ₄	S ₅	S ₆	S ₇	Mean
V ₁	9.3	10.7	13.7	9.3	21.3	6.3	21.7	13.2
V ₂	12.3	8.9	3.3	5.3	5.3	7.0	21.7	9.0
V ₃	14.7	17.3	10.7	28.7	16.3	5.0	17.3	15.7
Mean	12.1	12.0	9.2	14.4	14.3	6.1	20.2	12.6

S.E. of difference of two

1. V marginal means = 6.6 fruits/tree.
2. S marginal means = 3.8 fruits/tree.
3. S means at the same level of V = 6.7 fruits/tree.
4. V means at the same level of S = 9.0 fruits/tree.

Crop :- Mandarin.

Ref :- U.P. 57(24) on page 1680.

5. RESULTS :

(i) 61.9 fruits/tree. (ii) (a) 39.5 fruits/tree. (b) 31.8 fruits/tree. (iii) Main effect of V is significant and that of S is highly significant. (iv) Av. number of fruits/tree.

	S ₁	S ₂	S ₃	S ₄	S ₅	S ₆	S ₇	Mean
V ₁	29.0	99.3	11.3	19.3	56.7	14.7	40.3	38.7
V ₂	57.0	102.0	23.0	80.0	108.3	94.3	125.0	84.2
V ₃	46.0	75.3	32.7	42.3	62.0	75.0	106.0	62.8
Mean	44.0	92.2	22.3	47.2	75.7	61.3	90.4	61.9

S.E. of difference of two

1. V marginal means = 12.2 fruits/tree.
2. S marginal means = 15.0 fruits/tree.
3. S means at the same level of V = 26.0 fruits/tree.
4. V means at the same level of S = 27.0 fruits/tree.