

INSTITUTE OF AGRICULTURAL RESEARCH STATISTICS

NATIONAL INDEX

OF

AGRICULTURAL

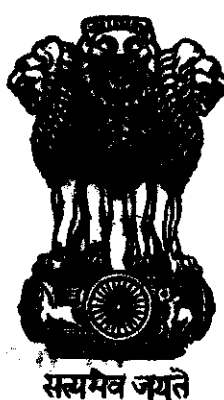
FIELD

EXPERIMENTS

VOL. 3 PART 1

BIHAR

1948-53



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NEW DELHI**

FOREWORD

It is a well recognized fact that the level of agricultural production in India is one of the lowest in the world and it is only by the exploitation of scientific methods of agriculture that we can hope to increase our agricultural production to the level necessary for providing a reasonable standard of living to the country's population. Properly planned and conducted field experiments provide a reliable basis for propagating improved agricultural techniques among farmers. A number of research institutes and other experimental centres are functioning under the Central Ministry of Agriculture, the Commodity Committees and the State Governments, in which research on agricultural problems is going on. The need for an integrated account of the researches done in these organisations and institutions in the country has been felt for a long time, particularly in the context of planning. The absence of such a unified account has often led to duplication of work and delay in the utilisation of the results for practical farming. The Institute of Agricultural Research Statistics of the Indian Council of Agricultural Research has, therefore, rendered a most timely service by preparing a compendium of all agricultural field experiments conducted in India upto 1953 and similar compendia are under preparation by the Institute for subsequent years.

The present compendium contains critical summaries of results of experiments bearing on important agronomic factors such as the responses 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. I am sure that these results will be fully utilised by agricultural institutions, research workers, planners and extension organisations. The chief merit of the present publication is that it brings together in one place the results of experimentation carried out under diverse soil, climatic and agricultural conditions obtaining in India. Workers in one State can thus supplement data for their own area by results from other regions where conditions may be similar and thereby re-inforce their own conclusions. For the same reason I hope that this publication will be of use to workers in other countries also.

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 whole hearted 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 publication 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,
August 20, 1962.

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

PREFACE

A large number of agricultural field experiments on different problems is being conducted in the country by Central and State Governments, Research Institutes, Commodity Committees and other organisations engaged in agricultural research. In addition, a number of schemes involving field experimentation is sponsored by the Indian Council of Agricultural Research in different States. The absence of a unified record of the results of these various experiments has considerably handicapped planning of further research and development and has often led to duplication of efforts.

Vaidyanathan brought out in 1933 a useful catalogue of manurial experiments conducted in India till then. Considering that Vaidyanathan's work was confined to manurial experiments and the fact that an enormous increase has taken place in the number and scope of agronomic experiments in recent years in India, the Indian Council of Agricultural Research launched the scheme of National Index of Field Experiments in 1954. The object of the scheme was two-fold :

(i) the preparation of compendium of all the field experiments for the period 1935-53 and

(ii) the preparation of index cards for individual experiments from 1954 onwards.

Under the scheme, results of all agricultural field experiments other than purely varietal trials were to be consolidated. Subsequently at the time of the extension of the scheme in 1959 it was decided that the compendium would be prepared in the first instance for the period 1948-53 and a similar compendium would be prepared for the period 1954-59. The present series for the period 1948-53 has been prepared in pursuance of this decision.

The compendium 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 & Kashmir and Himachal Pradesh (12) Rajasthan (13) Uttar Pradesh (14) West Bengal and (15) all Central Institutes. In each volume back-ground information of the respective State regarding its physical features, soils, rainfall and climate, agricultural production and area under different crops is given. A map showing different regions of the State, soils and agricultural research farms is also included. The experiments reported in each volume have been arranged cropwise 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 fertilisers (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 given together (e.g., MV as Manurial-cum-Varietal). The results of an experiment are given along with other basic information such as rotation of crops followed, cultural practices adopted, etc.

For making maximum use of the experimental data all the important tables giving the average yields of various treatments along with the appropriate standard errors have been presented. No attempt has, however, been made to summarise the data of groups of experiments on any particular item and to draw any general conclusions. This will be done for the period 1948-59 while publishing the compendium for the period 1954-59.

This publication is the result of the co-operative endeavour of a large number of persons both at the Centre and in the States. I should particularly mention in this connection, guidance and help rendered in the formulation of the scheme by Dr. D.J. Finney F.R.S. of Aberdeen University, Scotland, during his stay at the Institute of Agricultural Research Statistics as an F.A.O. Statistical Expert in 1952-53.

At the Institute of Agricultural Research Statistics, the work under the scheme was carried out under the supervision and guidance of Shri T.P. Abraham, Assistant Statistical Adviser. Shri G.A. Kulkarni, Statistician, looked after the detailed working of the scheme. These officers have been largely responsible for the preparation of the manuscript of the compendium and it is a pleasure to thank them for the hard work they have put in for getting this compendium ready. Messrs O.P. Kathuria, B.V. Srikantiah, M.L. Sahni, B.P. Dyundi, S.D. Bal and P.K. Jain of the statistical staff of the Institute deserve special mention for their careful scrutiny of the data and preparation of the material for the compendium. Thanks are also due to Dr. Uttam Chand, Professor of Statistics, now with the Central Statistical Organisation, Shri K.S. Awadhany, Assistant Statistician, also now with the Central Statistical Organisation, and Shri K.C. Raut, Statistician in this office who were associated with the scheme in its initial stages.

The burden of collecting data from original records by visiting different research stations and the analysis of a large number of experiments, only the primary data for which had been recorded in the files, fell on the regional staff appointed by the Indian Council of Agricultural Research in different States. They deserve to be congratulated for the patient work they have put in. The State Departments of Agriculture, Central Institutes and Commodity Committees made data for the experiments conducted within their jurisdiction readily available. The Indian Council of Agricultural Research acknowledges this willing co-operation without which the consolidation of the results would not have been possible. Various State officers who helped the project by making the data accessible to the statistical staff of the project and worked as the regional supervisors for the scheme also deserve thanks by the Council for their active help. The list of names of the regional supervisors is given on the following page.

NEW DELHI,
August 16, 1962.

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

**REGIONAL SUPERVISORS FOR THE NATIONAL INDEX
OF FIELD EXPERIMENTS**

Region and headquarters	Regional Supervisors :
1. ANDHRA PRADESH (HYDERABAD)	<p>SHRI D.V.G. KRISHNAMOORTHY, Deputy Director of Food Production, Andhra Pradesh.</p> <p>SHRI JAGANNATH RAO, Joint Director of Agriculture (Research), Andhra Pradesh.</p> <p>DR. KHADRUDDIN KHAN, Joint Director of Agriculture (Research), Andhra Pradesh.</p> <p>DR. WAHIUDDIN, Headquarters Deputy Director of Agriculture (Research), Andhra Pradesh.</p>
2. ASSAM, MANIPUR AND TRIPURA (SHILLONG)	<p>SHRI L.K. HANDIQUE, Director of Agriculture, Assam.</p> <p>SHRI S. MAJID, Director of Agriculture, Assam.</p> <p>DR. S.R. BAROOHA, Director of Agriculture, Assam.</p>
3. BIHAR (SABOUR)	<p>DR. R. RICHARIA, Principal, Agriculture College, Sabour.</p> <p>SHRI R.S. ROY, Principal, Agriculture College, Sabour.</p>
4. KERALA (TRIVANDRUM)	<p>SHRI N. SHANKARA MENON, Director of Agriculture, Kerala.</p> <p>SHRI P.D. NAIR, Director of Agriculture, Kerala.</p>
5. MADHYA PRADESH (GWALIOR)	<p>DR. T.R. MEHTA, Principal, Agriculture College, Gwalior.</p>
6. MADRAS (COIMBATORE)	<p>SHRI C.R. SHESHADRI, Vice-Principal & Secretary, Research Council, Agriculture College, Coimbatore.</p> <p>SHRI P.A. VENKATESWARAN, Vice-Principal & Secretary, Research Council, Agriculture College, Coimbatore.</p> <p>LATE SHRI M. BHAVANI SANKARA RAO, Vice-Principal & Secretary, Research Council, Agriculture College, Coimbatore.</p> <p>SHRI T. NATARAJAN, Agronomist & Secretary, Research Council, Agriculture College, Coimbatore.</p> <p>SHRI A.H. SARMA, Extension Specialist & Secretary, Research Council, Agriculture College, Coimbatore.</p>
7. MAHARASHTRA & GUJARAT (FORMER BOMBAY STATE) (POONA)	<p>SHRI D.S. RANGA RAO, Statistician, Department of Agriculture, Poona.</p>

*Owing to transfers and other changes more than one Regional Supervisor have been shown against several states as these officers have acted as Regional Supervisors during different periods from 1955 to 1962.

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|---|--|
| 8. MYSORE
(BANGALORE) | SHRI A. ANANT PADMANABHA RAU,
State Statistician, Mysore State. |
| 9. ORISSA
(BHUBANESHWAR) | DR. U.N. MOHANTY,
Dy. Director of Agriculture (H.Q.), Orissa. |
| 10. PUNJAB, JAMMU &
KASHMIR AND HIMACHAL
PRADESH (CHANDIGARH) | SHRI P.S. SAHOTA,
Statistician, Department of Agriculture, Punjab. |
| 11. RAJASTHAN
(JAIPUR) | SHRI H.C. KOTHARI,
Statistician, Department of Agriculture, Rajasthan. |
| 12. UTTAR PRADESH
(LUCKNOW) | DR. K. KISHEN,
Chief Statistician to Govt. of U.P.
Department of Agriculture, U.P. |
| 13. WEST BENGAL
(CALCUTTA) | SHRI S.N. MUKHERJEE,
Statistical Officer,
Directorate of Agriculture,
West Bengal.
DR. S. BASU,
Statistical Officer,
Directorate of Agriculture,
West Bengal. |
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**ABBREVIATIONS COMMON TO EXPERIMENTS ON ANNUAL AND
PERENNIAL CROPS AND EXPERIMENTS ON CULTIVATORS'
FIELDS**

Crop :- 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 :-

A.P.	Andhra Pradesh	Mn.	Manipur
As.	Assam	Mh.	Maharashtra
Bh.	Bihar	Ms.	Mysore
DI.	Delhi	M.P.	Madhya Pradesh
Gj.	Gujarat	Or.	Orissa
H.P.	Himachal Pradesh	Pb.	Punjab
J.K.	Jammu & Kashmir	Rj.	Rajasthan.
K.	Kerala	Tr.	Tripura
M.	Madras	U.P.	Uttar Pradesh
		W.B.	West Bengal

Repetition of the experiment in other years is indicated in the same line against 'reference' by stating the year and serial number for each repetition side by side e.g. U.P. 53(19)/52(42)/51(20) etc.

Site :- Name of the Research Station is mentioned along with 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 Indian Agricultural Research Institute.

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.

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

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

Abbreviations used in the text of the experiments :-

ac.—acre.	C.L.—Cart load.
Ammo. Phos.—Ammonium Phosphate.	C.M.—Cattle Manure.
A/N—Ammonium Nitrate.	C/N—Chilean Nitrate.
A/S—Ammonium Sulphate.	C/S—Copper Sulphate.
B.D.—Basal Dressing.	F.M.—Fish Meal or Fish Manure.
B.M.—Bone Meal.	F.W.C.—Farm Waste Compost.

F.Y.M.—Farm Yard Manure.	N.—Nitrogen.
G.M.—Green Manure.	Nitro phos—Nitro phosphate.
G.N.C.—Groundnut cake.	P.—Phosphate.
K.—Potash.	Pot. Sul.—Potassium Sulphate.
lb.—Pounds.	Super—Super Phosphate.
M.C.—Municipal Compost.	T.C.—Town compost.
Mur. Pot.—Muriate of Potash.	Zn. Sul.—Zinc Sulphate.

BASAL CONDITIONS

Information under the above heading to be read against the following items :

A. For annual crops :

(i) (a) Crop rotation if any. (b) Previous crop. (c) Manuring of previous crops. (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 (State name of the season along with the month). (x) Date of harvest.

B. For 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 seedling 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 per hold. (vii) Irrigated or Unirrigated. (viii) Post-sowing/planting cultural operations. (ix) Rainfall during crop season. (x) Period of harvesting.

DESIGN

Information under this heading to be read against the following items :

A. For annual crops :

(i) Abbreviations for designs : 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 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

Information under this heading to be read against the following items :—

A. For 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. (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 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.

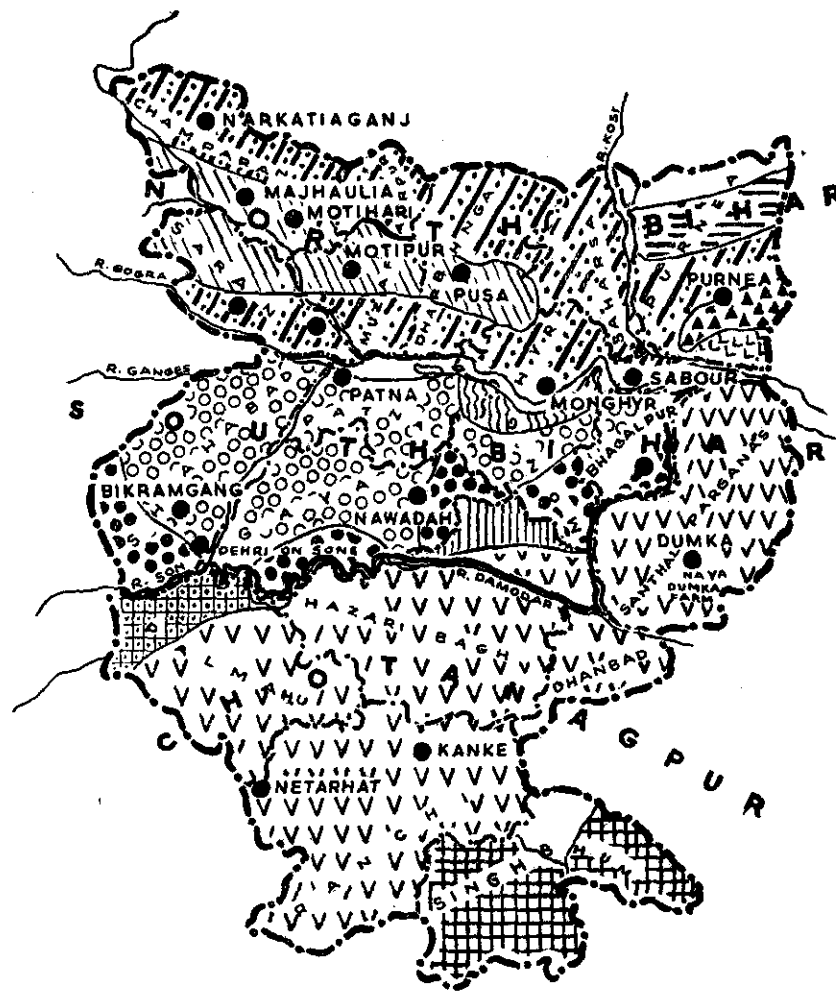
GLOSSARY OF VERNACULAR NAMES OF CROPS





Sl. No.	Name of Crop	Botanical name	Assamese	Bengali	Oriya	Telugu	Tamil	Malayalam	Kannada	Marathi	Gujarati	Hindi	Punjabi
1.	Paddy	<i>Oryza sativa L.</i>	Dhan	Dhan	Dhano	Vadlu, Biyyamu	Nel	Nellu	Bhatta	Bhat	Dangar	Dhan ; Chawal	Chaul ; Dhan
2.	Wheat	<i>Triticum Sativum</i> Lank <i>Triticum</i> <i>aestivum L.</i>	Gaum ; Ghehu	Gam	Gaham	Godumalu	Kothumai	Gotha- mbu	Godhi	Gahu	Gbahu	Gehon	Kanak
3.	Barley	<i>Hordeum vulgare L.</i>	Ja'dhan	Joba,	Jaba, Barlhi	Barley	Baarli arisi	Barley	Barley akki	Satu ; Jav	Jav	Jau	Jaun
4.	Marwah	<i>Eleusine coracana Gaertn.</i>	—	Marwa	Mandia	Ragi, Chodi	Keppai ; Ragi	Muthari ; Ragi	Ragi	Nagli ; Nachni	Nagli ; Bavto	Ragi ; Marwah Mandika	Mandhuka ; Mandhal
5.	Maize	<i>Zea mays L.</i>	Gom dhan	Bhutta	Macca	Mokka jonna	Makka cholam	Cholam	Musukina jola	Makka	Makkai	Makka	Makki ; Makayee
6.	Gram	<i>Cicer arietinum L.</i>	Butmah	Chola	Boot	Sanagalu	Kadalai ; Sundal Kada	Kadala	Kadale	Harbara	Chana	Chana	Chhole ; Chana
7.	Rahar	<i>Cajanus Cajan</i> Milsp.	Arhar	Arhar	Harad	Kandulu	Thuvarai	Thurvaran payaru	Thogari	Tur	Tuver	Rahar ; Arhar	Arhar ; Harhar Eakh Alu
8.	Potato	<i>Solanum tuberosum L.</i>	Alooguti	Alu	Bilati Alu	Bangla- dumpa Ulagadda Cheruku	Uruzhai kilangu	Urala kizangu	Ulu gedde	Batata	Aloo, Batata	Aaloo	
9.	Sugarcane	<i>Saccharum officinarum L.</i>	Kuhar	Akh	—		Karumbu	Karimbu	Kabbu	Oos	Sherdi	Ganna ; Kamad ; Naishakar	Kamad ; Ganna ; Eakh Mungfali
10.	Groundnut	<i>Arachis hypogaea L.</i>	China badam	Cheena badam	China badam	Nelash- anga	Nilakadai	Nilakk- adla	Kadale kayi	Bhui- mug	Magafali		
11.	Sesamum	<i>Sesamum indicum L.</i>	Til	Til	Rasi	Nuvvulu	Ellu	Ellu	Yellu	Til, Tili	Tal	Til	Til
12.	Castor	<i>Ricinus communis L.</i>	Eri	Rehri	Joda	Amudulu	Amanakku	Avanakku	Haralu	Erandi	Diveli ; Erando	Rehri	Arind ; Harind ; Rind

CONTENTS

	PAGE
FOREWORD	
PREFACE	... (i)
LIST OF ABBREVIATIONS	... (v)
GLOSSARY OF VERNACULAR NAMES OF CROPS	... (viii)
BIHAR STATE	... 1
STATEMENT SHOWING DETAILS OF EXPERIMENTAL STATIONS	4
EXPERIMENTAL RESULTS (CROP-WISE)	
Paddy	... 10
Wheat	... 37
Maize	... 47
Gram	... 64
Potato	... 67
Sugarcane	... 68
Groundnut	... 261
Sesamum	... 264
Castor	... 267
Kalai	... 269
Chowmoether	... 270
Mixed Cropping	... 270
RESULTS OF BIHAR MANURIAL TRIALS	... 276

MAP OF BIHAR STATE SHOWING AGRO-CLIMATIC REGIONS, SOILS AND AGRICULTURAL RESEARCH STATIONS ETC.




 BOUNDARY OF AGRO CLIMATIC REGIONS.
 DISTRICT BOUNDARIES.
 RIVERS.
 AGRICULTURAL RESEARCH STATIONS.

 HIGHLY CALCAREOUS ALLUVIAL SOIL.

 LIME STONE ROCK.

 MICA MINES.

 SANDY OLD ALLUVIUM.

 RED ACID UPLAND AND BROWN LOWLAND SOMETIMES MIXED WITH LATERITE SOIL.

 SANDY ALLUVIAL SOILS HAVING ALKALINE REACTION AND SALINE DEPOSITS HERE AND THERE.

 CALCAREOUS SOILS.

 ALLUVIAL SOILS OF HEAVY TEXTURE HAVING NEUTRAL OR ALKALINE REACTION.

 LOOSE GRAVELLY SOILS.

 HILLY & FOREST AREAS WITH RED GRAVELLY SOILS.

 MIXED RED & BLACK SOIL

BIHAR STATE

1. GENERAL.

Bihar occupies an area of about 67,113 sq. miles. In the north it touches the periphery of Nepal, in the west and south-west is bounded by Uttar Pradesh and Madhya Pradesh by Orissa in the south and West Bengal in the east. Patna is the capital city of Bihar State. The State is divided into 4 administrative divisions comprising of 17 districts. The administrative divisions are Patna, Bhagalpur, Tirhut and Chhota Nagpur. The districts in each division are :

Patna : Patna, Gaya, and Shahabad.

Bhagalpur : Bhagalpur, Monghyr, Purnea, Santhal Parganas and Saharsa.

Tirhut : Muzaffarpur, Saran, Champaran and Darbhanga.

Chhota Nagpur : Ranchi, Hazaribagh, Palman, Sirighbhum and Dhanbad.

The total cropped area in the State in 1956—57 was nearly 25 million acres. The classification of land according to its utilisation is given below :

Classification of area for 1956—57 (000 acres).

1. Land under Forests.	9,676
2. Area not available for cultivation.	5,299
3. Uncultivated land excluding fallows.	2,692
4. Fallow land.	5,699
5. Total cropped area.	25,005

Bihar is predominantly an agricultural State, over 80% of the population depending wholly on agriculture.

2. PHYSICAL FEATURES.

Physiographically the State can be divided into three main divisions *viz.* North Bihar Plain Division, South Bihar Plain Division and Chhota Nagpur Division. The former two belong to the Lower Gangetic Plain sub-region of Northern Plains while Chhota Nagpur division belongs to North East Plateau sub-region of Peninsular Hills and Plateau.

The Gangetic depression probably represents the bed of an ancient sea now filled up with alluvial deposits. The Someshvar Hills are composed of sand stones and gravels of the Siwalik system. The southern parts of Bhagalpur present a considerable area of gneissoid and porphyritic gneisses towards Monghyr and the Santal Parganas. The great rivers of Gandak and Kosi and innumerable smaller ones, divide the alluvial plain to the north of the Ganges into areas of varying fertility.

The southern tract is a region of plateau and mountainous spurs which are the eastern terminations of the huge Satpura-Vindhyan range. Near this point, rise the Narbada, running to the west, the Soné running towards Ganges and the Mahanadi to the South-east. To the east of the central high lands and between it and the Bengal boundary, is an irregular, not very wide, area of low lying ground, chiefly in Manbhum. This merges gradually into the lower Gangetic plain of Bengal. The basis of southern tract is the Archean which gives rise to the reddish stiff loamy soil suited to forest growth. The soil is of immense depth on the plateau. Laterite occurs principally as cap on the higher plateau, but is also found in fair thickness in some valleys. In most cases it appears to rest directly on the gneiss or a felspathic granite.

3. SOILS.

North Bihar Plain Division :—In general, the soils of this division are alluvial in origin and may be differentiated into non-calcareous and calcareous soils. The non-calcareous soils are found in the more humid region occupying the major portion of North Bihar in a belt extending from the Someshwar valley at the foot of the Himalyas in the North-East to the extreme South-west, covering the northern halves of Champaran, Muzaffarpur and Darbhanga districts as also the entire districts of Saharsa and Purnea. The soils vary in colour from grey brown to dark brown at the surface, show good physical condition but are generally, poor in plant food constituents. Generally soil reaction is on the alkaline side of neutrality but towards extreme North-west and North-east a tendency to development and intensification of acidity is apparent due to heavy bleaching of bases. The calcareous soils occur in the region of lower rainfall covering the whole of Saran, the southern portions of Champaran and Muzaffarpur besides a portion of Darbhanga districts. The soils are chalk-coloured often tinged grey at the surface (due to admixture of organic matter) profiles being characterised by high contents of calcium carbonate often showing accumulation zones and concretionary deposits very rich in lime.

South Bihar Plain Division :— The soils of this division are of alluvial origin, except in the southern parts of Shahabad, Gaya and Monghyr districts where they have been formed from Vindhyan, Dharwar and Gneiss rocks. Shahabad and Patna soils appear to be of similar composition to those of Bhagalpur soils. Patna soils are more clayey. The soils of Shahabad are heavy clays, with patches of black soils which crack on drying. Infertile patches of *usar* lands are found in the west and central portions of the State. In the south of the districts mentioned above, the soils are characterised by having a definitely low pH, ranging from 4.7 to 6.8, the southern most districts showing the most acid reaction. Low contents of available phosphoric acid and potash and of lime are common features of the soils.

The eastern portion covering the south of Kharagpur Hills is sandy, having somewhat rocky sub-soil. The area between the Kiul and Sakri rivers contains stiff clayey soils with sandy sub-soil. Beyond Sakri the soils are again of a light texture and as we proceed west, the sub-soils become harder. In the area between Wazirganj and Phalgu river, both the surface and sub-soils are stiff clay. The heavy clay soils between Wazirganj and Phalgu get a further deposit from the Paimar which has bed of clay.

Chhota Nagpur Division :— The soils of this division are of sedentary character. Upland soils are reddish and acidic, while low land soils are dark, neutral and clayey. A large variety of soils is met with, in every district. The principal types are : (1) Loam (*Doras*) (2) Red ferruginous gravel (3) Hard clay (4) Calcareous soil (5) Sandy soil and (6) Whitish clay. The last three types are largely infertile. Reddish gravel is most common to all. Good clay soils containing rich alluvium and rich organic matter are found in depressions. Loamy soils are met with near hills and sandy soils in the vicinity of rivers. Calcareous soils exist mainly in Palamau, but small patches may be found in other districts also. Whitish clay is scattered in patches all over the division.

4. CLIMATE AND RAINFALL.

The principal rainfall occurs from June to September with occasional showers in December-January and heavy showers accompanied by thunders in May and thereby cause these months to be considerably humid. The relative humidity is greatest (85%) in Purnea where the rainfall is also high. The rest of the tracts have an annual average humidity varying from 66% to 77%. The maximum temperature (107° to 118° F) occurs generally in April-May and minimum (35° to 49° F) in December-January and the greatest variation (46° to 63° F) between the maximum and the minimum temperatures occurs in February-March.

The season-wise normal rainfall for regions of the State is shown in Table I.

TABLE 1.

Normal Seasonwise Rainfall in inches for different divisions of Bihar.

Divisions	Seasons	June to Sept.	October to December	January to February	March to May	Total
1. North Bihar Plain Division		42.8	3.1	0.2	3.5	49.6
2. South Bihar Plain Division		52.4	2.7	0.2	1.5	56.1
3. Chhota Nagpur Division.		41.5	1.6	0.3	3.3	46.7
State Average (Simple)		45.6	2.5	0.2	2.8	153.1

1" = 25.4 mm.

5. IRRIGATION

The area under assured irrigation before the inception of the First Plan was 8.98 lakh acres in South Bihar and 1.39 lakh acres in North Bihar. Area added during First Plan was 3.54 lakh acres in South Bihar and 2.81 lakh acres in North Bihar. Target for the Second Plan is 6.55 lakh acres, in South Bihar and 0.24 lakh acres in North Bihar.

The total water resources available in the State are 26.99 million acre ft. of which 9.57 million acre ft. can be utilised for assured irrigation of 41.32 lakh acres at an estimated cost of Rs. 79.59 crores.

North Bihar abounds in snow-fed rivers and the problem there is primarily that of flood control. Irrigation is provided only in pockets, where the rainfall is erratic and where the area is made partially or wholly flood free. For tackling these problems North Bihar has been divided into four river basins viz. (i) basin between Gagra and Gandak (ii) basin between Gandak and Burhi Gandak (iii) basin between Kamla and Kosi and (iv) basin between Kosi and Mahanawala.

Most of the important rivers of North Bihar have already been embanked or are scheduled to be embanked in the near future with provision of irrigation-cum-drainage sluices in the embankments. The table below gives the sourcewise distribution of irrigated area.

TABLE 2.

Sourcewise distribution of net irrigated area (1956-57).

Source	Area irrigated (000 acres)	% total
1. Govt. Canals	949	21.6
2. Private canals	566	12.9
3. Tanks	595	13.6
4. Wells	525	12.0
5. Others	1749	39.0
	4384	100.0

6. NORMAL CROPPING PATTERN AND AGRICULTURAL PRODUCTION.

Rice occupies about 48.42% of the total cropped area and is a major crop of the State. Most of the districts grow Wheat, Barley, Maize, *Marua*, Gram and *Arhar*. Shahabad, Monghyr and to a less extent Patna, Gaya, Saran, Champaran, Muzaffarpur and Darbhanga are the main Wheat and Barely producing districts. Monghyr, Santhal Paraganas, Saran, Champaran, Darbhanga and Muzaffarpur have the largest areas under maize. The Patna division as well as Monghyr and Bhagalpur grow Gram and Tirhut division grows *arhar* over wide areas. Saran, Santhal Parganas and Palaman have large areas of land under *Til* whereas Rape and Mustard occupy mainly Patna, Tirhut and Bhagalpur divisions. Sugarcane covers the largest areas of Patna and Tirhut divisions major portion being cultivated in Saran, Darbhanga and Champaran. After U.P., Bihar

is the most important Sugarcane growing State in India, nearly one-sixth of the total production of white-sugar in the country being turned out in Bihar factories.

Jute has been an important crop and is confined almost entirely to the Purnea and Saharsa districts though part of Purnea district has gone to West Bengal after reorganisation of States.

Tobacco is a crop of increasing importance in the State and one which is likely to expand in importance.

The different rotations followed in different parts of the State are :

PADDY

1. North Bihar Region :
 - (a) In upland, early Paddy is rotated with Wheat/Gram and other pulse crops.
 - (b) In low lands, medium/late Paddy is rotated with Gram/*Khasari*/Peas or transplanted Paddy is followed by Sugarcane at some places.
2. South Bihar Region :
 - (a) Uplands : Early Paddy is rotated with Wheat/Gram or *Khasari*.
 - (b) Lowlands : Medium/late Paddy rotated with Gram/*Khasari*/Peas or even left fallow.
3. Chhota Nagpur Region : Paddy is rotated with Horsegram/early varieties of black and green gram or other pulse crops.

WHEAT

1. North Bihar Region :
 - (i) *Urid*/Moong/Cowpea/Maize, Green manure, Wheat.
 - (ii) Maize mixed with *Arhar* or fallow rotated with Gram or other pulse crop.
 - (iii) Rice/Maize-*Berseem*, Fallow, Wheat alone or mixed with Gram.
 - (iv) Maize-Wheat, Green manuring-Sugarcane (3 years).
 - (v) Maize-Potato, Sugarcane, Fallow, Wheat alone or mixed with Gram.
2. South Bihar Region :
 - (i) Maize/*Jowar*-Gram, Fallow-Wheat.
 - (ii) *Urid*/Moong/Maize (alone or mixed)/G.M. and Wheat (irrigated).
 - (iii) Rice-Peas (irrigated) Fallow-Wheat (2 years).
3. Chhota Nagpur Region
 - (i) Rice/Maize-Groundnut-Wheat alone or mixed with Gram.
 - (ii) Rice-Peas or other Pulse-Fallow-Wheat.

SUGARCANE :

1. North Bihar Region :
 - (i) Maize-Wheat, Green manuring-Sugarcane.
 - (ii) Fallow or early, ripening legumes like *Moong*-Wheat, Maize-Potato, Sugarcane.
 - (iii) *Urid* or Moong or Cowpea-Wheat, *Arhar* and Groundnut with Sugarcane, S. ratoon.
 - (iv) Fallow or Green manuring-Wheat, Paddy-Fallow, Sugarcane.

(v) Fallow or early ripening legumes-Wheat, Green manuring-Sugarcane, S. Ratoon (4 years)

2. South Bihar Region :

- (i) Fallow or early ripening Legumes-Wheat, Rape, Fallow, Sugarcane.
(ii) Green manuring-Wheat, Green manuring-Sugarcane.
(iii) Maize-Wheat, Green manuring-Sugarcane, S. Ratoon.
(iv) Fallow or early ripening legumes-Wheat, *Arhar* and Groundnut with Sugarcane, S. Ratoon (4 years).

The following table gives the area, production and yield per acre of different crops in the State.

TABLE 3.

Area, production and yield per acre of principal crops (1957-58).

Crop	Area (000 acres)	Production (000 tons)	Yield in lb./ac.
Rice	12,215	2,198	403
Jowar	5	1	448
Bajra	13	2	345
Maize	1,590	344	485
Ragi	412	74	402
Small millets	567	71	280
Wheat	1,188	243	458
Barley	797	129	363
Pulses	4,020	621	246
Tobacco	35	9	576
Sugarcane	376	318	1894
Oilseeds	352	36	229
Jute	477	778 @	652

@ In 000 bales of 400 lb each.

7. AGRICULTURAL RESEARCH AND EXPERIMENTAL STATIONS

During the period 1948-53 experiments were conducted on twenty five experimental stations. These are evenly distributed among the districts of the State. The soils in the stations were mostly sandy loam, clayey loam or loam. In few cases they were of calcareous and alluvial types. Besides this, a number of experiments have been conducted under Bihar Manurial Trials. Parsa, Motipur, Harinagar, Dehri-on-Sone, Lalgah, Pachrukhi and C.S.R.S. Pusa were devoted exclusively for experiments on Sugarcane. A large number of experiments on Sugarcane was conducted at Pusa and Patna. The experiments on Paddy were conducted at Banka, Kanke, Patna, Purnea and Bikramganj. The experiments on oilseeds were also conducted at these stations. On Wheat, experiments were carried out at Sabour, Monghyr and Pusa.

8. EXPERIMENTS

Although Paddy is major food crop of the State, few agronomic experiments are conducted during the period 1948-53 on this crop. It may be that large number of varietal trials for selection might have been conducted on this crop and hence not included in the compendium. The only crop which has received great attention from agronomic

point of view is the cash crop Sugarcane. Nearly 73% of the experiments are on this crop only. All other crops like wheat, oilseeds etc., have not received the attention as much as paddy, so far as agronomic problems and control of pests and diseases are concerned.

Table—4 gives the distribution of the experiments collected during the period 1948—53 according to the crops and type of treatments studied. Nearly 72% of the experiments have manures and fertilizers as treatments. Experiments having cultivation practices as treatments are nearly 13%. The type of experiments where irrigation formed one of the treatments were nearly 5% of total.

TABLE 4

Distribution of experiments according to crops and types of treatments tried.

Crop	M	MV	C	CM	CV	CMV	I	IM	IV	CIM	IMV	D	DV	Total
Paddy	9	5	11	1	—	—	1	—	—	—	—	—	—	27
Wheat	8	—	1	—	—	—	—	1	—	—	—	1	—	11
Maize	5	—	17	—	—	—	—	—	—	—	—	1	—	23
Pulses	3	—	1	—	—	—	—	—	—	—	—	—	—	4
Potato	1	—	—	—	—	—	—	—	—	—	—	—	—	1
Sugarcane	85	103	7	—	20	2	—	—	1	10	2	5	5	240
Oilseeds	9	—	1	—	—	—	—	—	—	—	—	—	—	10
Others	2	—	—	—	—	—	—	—	—	—	—	—	—	2
Mixed	—	—	—	—	—	—	—	—	—	—	—	—	—	7
Total	122	108	38	1	20	2	1	1	1	10	2	7	5	325

So far as the types of manures tried on sugarcane are concerned both organic and inorganic are used separately and in combination. Among inorganic manures, Ammonium Sulphate and Ammonium Nitrate as source of nitrogen and Single or Triple Super as source of P_2O_5 are mostly used. Organic manures like F.Y.M., Compost, Oilcakes etc. are used as sources of nitrogen in combination with inorganic manures. Factorial combinations of levels of nitrogen and phosphoric acid have been very often used.

Nearly half of the total number of experiments on sugarcane are manurial-cum-varietal. These experiments are generally laid in split-plots with varieties as main-plot treatments and levels of nitrogen as sub-plot treatments. In some cases the sub-plot treatments are the factorial combinations of levels of nitrogen and acid. The varieties commonly used are BO.11 and CO-453 in main-plots. The levels of nitrogen vary from 40 lb./ac. to 200 lb./ac. and the levels of P_2O_5 vary from 0 lb./ac. to 150 lb./ac.

The next common type of experiments on sugarcane are manurial. The type of design generally adopted is randomised blocks. The levels of nitrogen sometimes is as high as 400 lb./ac. in these experiments. Few experiments have been laid as 3^3 confounded design. The factors used were levels of N, P_2O_5 and K_2O .

The gross plot size is 1/30th of an acre and the net plot size is 1/40th of an acre.

On crops other than sugarcane *viz.* paddy, maize and wheat the manurial treatments tried were of both organic and inorganic types. The inorganic sources of nitrogen were usually Ammonium Sulphate, Ammonium Nitrate and that of Phosphoric acid were Single and Triple Super Phosphate. The organic manures were Castor cake, F.Y.M., Compost and Green manures like sunnhemp, *Dhaincha*, used either singly or in combination with inorganic manures. The levels of N varied from 0 to 80 lb./ac. and of P_2O_5 from 0 to 80 and of K_2O from 0 to 100 lb./ac. The design usually adopted for these crops is randomised blocks. The number of plots per block varied from 3 to 18. There were also a few 3^3 partially confounded experiments on paddy with cultural practices as treatments *viz.* spacings, age of seedlings and number of seedlings/hole.

The number of replications varied from 2 to 6 and in few cases it was 8.

For these crops the split plot designs with main-plots varying from 2 to 3 per replication and sub-plots varying from 3 to 5 per main-plot for manurial-cum-varietal trials as well as for some cultural trials were also used.

The experiments on cultivator's fields are being conducted in this State from 1948-49 onwards, with the object of (1) determining the responses of various crops to different fertilizers under cultivator's field conditions and (2) to study the variation in response over different soil types.

The main types of fertilizers used in all the years were Ammonium Sulphate (Nitrogen), Single and Triple Super and Bonemeal (P_2O_5) and Muriate of Potash (K_2O).

The results of these experiments for the period 1948-53 in the form of treatment means are presented in this volume in a form of two way tables between districts and treatments for each year and for each crop.

Results obtained under Stewarts scheme and T.C.M. trials conducted by I.C.A.R. during the period 1948-53 are also presented. The objects of these schemes were also as mentioned above.

The details of Fertilizer trial, conducted under Fertilizer Use Project and called T.C.M. trials are given in the two reports published by the I.C.A.R. (1955). The trials were mainly confined to paddy and wheat crops.

Sl. No.	Name of the experimental station with location, year of experiment and major crops	Soil type and soil analysis	Normal rainfall in inches	No. of Experiments
1.	2	3	4	5
1.	Banka : Govt. Agricultural Farm, District Bhagalpur, about 6 miles from Barahat railway station. Major crop : Paddy.	Heavy clayey soil with gangal	40"	Paddy—3
2.	Bikramganj : Botanical Sub-Station : Distt. Shahabad about two miles from Bikramganj railway station. Year of establishment-1951. Major crops-Paddy. Paddy growing area.	Clayey to Sandy loam	38.9"	Paddy —3 Paira Crop —1 Mixed —1 <hr/> Total —5
3.	Dehri-on-Sone : Zonal centre. Major crop : Sugarcane.	Alluvium non-calcareous soil	N.A.	Sugarcane—15
4.	Dumka :-Botanical Sub-Station. Distt. Santhal Parganas. Nearest railway station—Deogarhi. Major crops : Paddy, Maize and Oilseeds.	Clayey	N.A.	Paddy —2 Maize —5 Oilseeds —3 <hr/> Total —10
5.	Harinagar : Zonal centre. Major crop :- Sugarcane.	Sandy loam	N.A.	Sugarcane—17
6.	Kanke : Botanical Sub-Station. District Ranchi, 9 miles from Ranchi railway station. Major crops : Paddy.	Laterite to sandy loam soil	60"	Paddy —5
7.	Majhulia : Zonal Centre. Major crops : Sugarcane.	Alluvial calcareous	N.A.	Sugarcane —24
8.	Monghyr : Botanical Sub-Station Distt. Monghyr, 2 miles from Monghyr railway station : Established in 1952. Major Crops : Wheat and Maize.	Red loam	39.6"	Wheat —2 Maize —3 Mixed cropping —2 <hr/> Total —7
9.	Motihari : Zonal Centre. Major Crops : Sugarcane.	Sandy loam ; Calcareous	N.A.	Sugarcane —26
10.	Motipur : Zonal Centre. Major crops : Sugarcane.	Sandy loam	N.A.	Sugarcane —5
11.	Nawadah : Sub-Divisional Farm. Distt. Gaya, about 2 miles from Nawadah railway station. Year of establishment-1924. Major crops : Paddy.	Sandy loam ; Alkaline	40.3"	Paddy —1
12.	Pachrukhi : Zonal Centre. Major crop : Sugarcane.	Sandy loam, Calcareous	N.A.	Sugarcane —16

Sl. No.	Name of the experimental station with location, year of experiment and Major crops	Soil type and soil analysis	Normal rainfall in inches	No. of Experiments
1.	2	3	4	5
13.	Parsa : Zonal Centre. Major Crops : Sugarcane.	Alluvial calcareous	N.A.	Sugarcane —29
14.	Patna : Botanical Sub-station. Distt. Patna. $\frac{1}{2}$ mile from Patna railway station. Year of Establishment-1932. Major Crops : Paddy.	Clay soil	37.7"	Paddy —3
15.	Patna : Sugarcane Research Stn. district Patna. $\frac{1}{2}$ mile from Patna railway stn. recently converted into a research station for work on all crops. Year of Establishment-1932. Major Crops : Sugarcane.	Clay soil	37.7"	Sugarcane—45
16.	Purnea : Botanical Sub-station. Purnea, about $\frac{1}{2}$ mile from Purnea railway station. Year of establishment 1942. Major Crops : Paddy and Oilseeds.	Sandy loam	N.A.	Paddy —2 Oilseeds —4
				<hr/> Total —6
17.	Pusa : Botanical Sub-station Pusa. Distt. Darbhanga, 7 miles from Pusa Road railway station. Established in 1932. Major Crops : Wheat, Maize.	Light loam to sandy loam	45"	Wheat —2 Maize —5
				<hr/> Total —7
18.	Pusa : Central Sugarcane Research Station. Pusa. Distt. Darbhanga, 7 miles from Pusa Road railway station. Established in 1932. Major Crops : Sugarcane.	Medium light loam	45"	Sugarcane —63
19.	Sabour : Agricultural Research Institute. Distt. Bhagalpur adjacent to Sabour railway station. Major Crops : Wheat, Paddy, Maize, Oilseeds and Pulses.	Loam soil	39"	Wheat —7 Paddy —6 Maize —6 Oilseeds —3 Pulses —4 Vegetables —2 Mixed cropping —3
				<hr/> Total —31
20.	Sepaya : Botanical Sub-station. Distt. Saran, 6 miles from Saharsa railway station. Year of Establishment-1952. Major Crops : Paddy and Maize.	Clay loam, Alkaline	49.10"	Paddy —2 Maize —5
				<hr/> Total —7

Crop :- Paddy.

Ref :- Bh. 50(7).

Site :- Govt. Agri. Farm, Banka.

Type :- 'M'.

Object :- To find out the effect of application of inorganic manures on soil fertility.

1. BASAL CONDITIONS :

(i) (a) None. (b) Kharif Paddy. (c) N.A. (ii) (a) Heavy clay soil with *gangal*. (b) N.A. (iii) 10.8.50.
 (iv) (a) Ploughing by bullocks & beaming. (b) to (e) N.A. (v) Nil. (vi) Bk-36 (late). (vii) Unirrigated.
 (viii) Hoeing and weeding by Japanese method. (ix) 15.87". (x) 2.12.50.

2. TREATMENTS :

1. Control.
2. A/S at 60 lb. N/ac.
3. F.Y.M. at 60 lb. N/ac.
4. A/S at 30 lb. N/ac. + F.Y.M. at 30 lb. N/ac.
5. A/S at 60 lb. N/ac. + Super at 40 lb. P₂O₅/ac.
6. F.Y.M. at 60 lb. N/ac. + Super at 40 lb. P₂O₅/ac.

3. DESIGN :

(i) L. Sq. (ii) (a) 6. (b) N.A. (iii) 6. (iv) (a) N.A. (b) 1/80th ac. (v) N.A. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Nil. (iii) Grain & straw yield. (iv) (a) 1949-1951. (b) Yes. (c) Nil. (v) (a) None. (b) Nil.
 (vi) Nil. (vii) Experiment conducted in 1949 not traceable.

5. RESULTS :

- (i) 2103 lb/ac.
 (ii) 248.4 lb/ac.
 (iii) Treatment differences are significant.
 (iv) Av. yield of grain in lb/ac.

Treatment	Av. yield.
1.	2450
2.	2300
3.	2299
4.	2338
5.	2403
6.	2626
S.E./mean	= 101.4 lb/ac.

Crop :- Paddy (Kharif).

Ref :- Bh. 51(13)/50(7).

Site :- Govt. Agri. Farm, Banka.

Type :- 'M'.

Object :- To find out the effect of application of inorganic manure on soil fertility.

1. BASAL CONDITIONS :

(i) (a) None. (b) Paddy. (c) As per treatments. (ii) (a) Heavy clay soil with *gangal*. (b) N.A. (iii) 4.8.51.
 (iv) (a) Ploughing by bullocks and beaming. (b) to (e) N.A. (v) None. (vi) B.K. 36 (late). (vii) Unirrigated.
 (viii) Hoeing and weeding by Japanese method. (ix) 9.66". (x) 22.12.51.

2. TREATMENTS :

1. Control.
2. A/S at 60 lb. N/ac.
3. F.Y.M. at 60 lb. N/ac.
4. A/S at 30 lb. N/ac. + F.Y.M. 30 lb. N/ac.
5. A/S at 60 lb. N/ac. + Super at 40 lb. P₂O₅/ac.
6. F.Y.M. at 60 lb. N /ac. + Super at 40 lb. P₂O₅/ac.

3. DESIGN :

(i) L. Sq. (ii) (a) 6. (b) N.A. (iii) 6. (iv) (a) N.A. (b) 1/80th ac. (v) N.A. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Nil. (iii) Yield of paddy ; grain and straw weight. (iv) (a) 1949-1951. (b) Yes. (c) Nil.
 (v) (a) None (b) —. (vi) and (vii) Nil.

5. RESULTS :

- (i) 2075 lb./ac.
(ii) 222.0 lb./ac.
(iii) Treatments are not significantly different.
(iv) Av. yield of grain in lb./ac.

Treatment	Av. yield
1.	1982
2.	2126
3.	1930
4.	2191
5.	2231
6.	1992
S.E./mean	= 90.6 lb./ac.

Crop :-Paddy.

Ref :-Bh. 52(28).

Site :-Govt. Agri. Farm, Banka.

Type :-'M'.

Object :-To find out the effect of application of Potash and trace elements on soil fertility.

1. BASAL CONDITIONS :

- (i) (a) Paddy—G.M.—Paddy. (b) Paddy. (c) A/S and Super each at 200 lb./ac. (ii) (a) Heavy clay soil with *gangal*. (b) N.A. (iii) 7.8.52. (iv) (a) Ploughing by bullocks and beaming. (b) to (e) N.A. (v) Nil. (vi) B.K. 115 (early). (vii) Unirrigated. (viii) Hoeing and weeding by Japanese method. (ix) 16.43". (x) 24.11.52.

2. TREATMENTS :

- No manure.
- A/S at 40 lb. N/ac.
- 2+Super at 40 lb. P_2O_5 /ac.
- 3+Mur. of Pot. at 40 lb. K_2O /ac.
- 3+Mn. Sul. at 30 lb./ac.
- 3+Borax at 20 lb./ac.
- 3+Zn. Sul. at 20 lb./ac.

3. DESIGN :

- (i) R.B.D. (ii) (a) 7. (b) N.A. (iii) 4. (iv) (a) 47'-4"×14'. (b) 45'-4"×12'. (v) 1' around. (vi) Yes.

4. GENERAL :

- (i) Normal. (ii) None. (iii) Grain yield. (iv) (a) No. (b) and (c)—. (v) (a) and (b) No. (vi) and (vii) Nil.

5. RESULTS :

- (i) 1999 lb./ac.
(ii) 181.0 lb./ac.
(iii) Treatment differences are highly significant.
(iv) Av. yield of grain in lb./ac.

Treatment	Av. yield
1.	1173
2.	1805
3.	2196
4.	2201
5.	2368
6.	2168
7.	2083
S.E./mean	= 90.5 lb./ac.

Crop :- Paddy.

Ref :- Bh. 53(34).

Site :- Botanical Sub. Stn. Bikramganj.

Type :- 'M'.

Object :- To find out the effect of application of Potash & trace elements on soil fertility.

1. BASAL CONDITIONS :

(i) (a) Wheat—Paddy—Wheat. (b) Wheat. (c) A/S and Super each at 100 lb./ac. (ii) (a) Sandy loam. (b) N.A. (iii) 29.6.53/21.8.53. (iv) (a) 3 *deshi* ploughings. (b) Transplanting. (c) —. (d) 9"×9". (e) 2 to 3. (v) Nil. (vi) K. 115 (early). (vii) Irrigated. (viii) Weeding and interculturing with Japanese weeder. (ix) 42.90" (x) 25/26.11.53.

2. TREATMENTS :

1. No manure.
2. A/S at 40 lb. N/ac.
3. 2+Super at 40 lb. P₂O₅/ac.
4. 3+Mur. Pot. at 40 lb. K₂O/ac.
5. 3+Mn. Sul. at 30 lb./ac.
6. 3+Borax at 20 lb./ac.
7. 3+Zn. Sul. at 20 lb./ac.

Full dose of P at planting, ½ dose of N at planting and the other half one month later.

3. DESIGN :

(i) R.B.D. (ii) (a) 7. (b) N.A. (iii) 6. (iv) (a) & (b) 33'×16'6". (v) Nil. (vi) Yes.

4. GENERAL :

(i) N.A. (ii) Nil. (iii) No. of tillers ; height ; yield of grain and straw. (iv) (a) 1953-1955. (b) No. (c) Nil. (v) (a) & (b) N.A. (vi) & (vii) Nil.

5. RESULTS :

(i) 2526 lb./ac.

(ii) 204.3 lb./ac.

(iii) Treatment differences are highly significant.

(iv) Av. yield of grain in lb./ac.

Treatment	Av. yield
1.	2057
2.	2366
3.	2537
4.	2688
5.	2695
6.	2702
7.	2640
S.E./mean	= 83.4 lb./ac.

Crop :- Paddy.

Ref :- Bh. 53(42).

Site :- Botanical Sub. Stn. Kanke.

Type :- 'M'.

Object :- To find out suitable manurial treatment to check drying of leaves.

1. BASAL CONDITIONS :

(i) (a) No. (b) N.A. (c) N.A. (ii) (a) Lateritic soil. (b) N.A. (iii) 24.6.53/25.7.53. (iv) (a) After 3 ploughings by *deshi* plough, the field was green manured with *dhaincha*. (b) N.A. (c) 10 srs./ac. (d) 12"×12". (e) 2 to 3. (v) Nil. (vi) BK-141 (early). (vii) Unirrigated. (viii) 3 weedings only first weeding after 10 days of transplanting, then two at an interval of 15 days. (ix) 55.31". (x) 15.12.53.

2. TREATMENTS :

1. Control (no manure).
2. Mur. of Pot. at 40 lb. K₂O/ac.
3. A/S at 40 lb. N/ac.
4. A/S at 40 lb. N/ac.+Super at 40 lb. P₂O₅/ac.
5. Ferrous Sul. at 2.5 oz./plot.
6. Borax at 2.6 oz./plot.
7. Mg. Sul. at 2.6 oz./plot.
8. Sodium Sul. at 5.2 oz./plot.

3. DESIGN :

(i) R.B.D. (ii) (a) 8. (b) N.A. (iii) 3. (iv) (a) 10'×36'. (b) 8'×34'. (v) 1' border all round the plot. (vi) Yes.

4. GENERAL :

(i) Good—no lodging. (ii) No incidence of pests. (iii) Yield of grain and straw ; date of flowering. (iv) (a) No. (b) Nil. (c) Nil. (v) (a) None. (b) Nil. (vi) & (vii) Nil.

5. RESULTS :

(i) 2285 lb./ac.
 (ii) 435.3 lb./ac.
 (iii) Treatments are not significantly different.
 (iv) Av. yield of grain in lb./ac.

Treatment	Av. yield
1.	2429
2.	2429
3.	2035
4.	2069
5.	2115
6.	2302
7.	2432
8.	2469
S.E./mean	= 251.3 lb./ac.

Crop :- Paddy (Kharif).

Site :- Botanical Sub-Stn, Sepaya.

Ref :- Bh. 52(70).

Type :- 'M'.

Object :- To study the effect of Potash and trace elements on soil fertility.

1. BASAL CONDITIONS :

(i) (a) Paddy-Fallow-Paddy. (b) Paddy. (c) N.A. (ii) (a) Clay loam. (b) N.A. (iii) 11.7.52. (iv) (a) 4 ploughings by Bihar plough. (b) Japanese Method. (c) 7 sr/ac. (d) 10'×10". (e) 3. (v) 40 lb/ac. of N as A/S+40 lb. P₂O₅/ac. as Super ; $\frac{1}{2}$ in seed beds and $\frac{1}{2}$ at the time of planting. (vi) Local (medium). (vii) Irrigated. (viii) Hoing and earthing once. (ix) 37.76". (x) 9.12.52.

2. TREATMENTS :

- Control (no manure).
- A/S at 40 lb. N/ac.
- A/S at 40 lb. N/ac.+Super at 40 lb. P₂O₅/ac.
- A/S at 40 lb. N/ac.+Super at 40 lb. P₂O₅/ac.+Mur. Pot. at 40 lb. K₂O/ac.
- A/S at 40 lb. N/ac.+Super at 40 lb. P₂O₅/ac. +Mn. Sul. at 30 lb./ac.
- A/S at 40 lb. N/ac.+Super at 40 lb. P₂O₅/ac.+Borax at 20 lb./ac.
- A/S at 40 lb. N/ac. +Super at 40 lb. P₂O₅/ac. +Zn. Sul. at 20 lb./ac.

Time and method of application of manures N.A.

3. DESIGN :

(i) R.B.D. (ii) (a) 7. (b) N.A. (iii) 3. (iv) (a) N.A. (b) 26'-5"×16'-6". (v) N.A. (vi) Yes.

4. GENERAL :

(i) Fair (no lodging). (ii) Nil. (iii) Yield of grain and straw. (iv) (a) No. (b) No. (c) No. (v) (a) N.A. (b)—(vi) & (vii) Nil.

5. RESULTS :

(i) 1495 lb/ac.
 (ii) 341.3 lb/ac.
 (iii) Treatment differences are not significant.

(iv) Av. yield of grain in lb/ac.

Treatment	Av. yield
1.	1594
2.	1173
3.	1387
4.	1529
5.	1626
6.	1491
7.	1666
S.E./mean	=197.1 lb/ac.

Crop :- Paddy.

Ref :- Bh. 52(15).

Site :- Rice Res. Stn. Sabour.

Type :- 'M'.

Object :- To find out suitable organic manure to get the high Paddy yield.

1. BASAL CONDITIONS :

(i) (a) Paira—Paira gram—G.M.—Paddy. (b) Gram. (c) Nil. (ii) (a) Sandy loam. (b) N.A. (iii) 19.6.52) 10.8.52. (iv) (a) 3 ploughings. (b) Planting in lines. (c) 20 sr/ac. (d) Between rows 12" and plants 10" (e) 2 to 3. (v) Nil. (vi) B.k—36. (vii) Irrigated. (viii) Weeding twice. (ix) 17.09". (x) 18.11.52.

2. TREATMENTS :

Application of 20 lb/ac. of N in the form of

- | | |
|-------------------------------------|------------------|
| 1. Pith (<i>Ischuim Species</i>). | 7. Goat dung. |
| 2. Sunnhemp. | 8. Horse dung. |
| 3. Dhaincha. | 9. Buffalo dung. |
| 4. Mustard Cake. | 10. Cow dung. |
| 5. Linseed Cake. | 11. B.M. |
| 6. Elephant dung. | 12. A/S. |

Time and method of application N.A.

3. DESIGN :

(i) R.B.D. (ii) (a) 12. (b) N.A. (iii) 2. (iv) (a) N.A. (b) 10'-6" × 15'. (v) N.A. (vi) Yes.

4. GENERAL :

(i) Normal. (ii) Nil. (iii) Grain yield. (iv) (a) No. (b) No. (c)—. (v) (a) N.A. (b)—(vi) & (vii) Nil.

5. RESULTS :

- (i) 680.6 lb/ac.
(ii) 145.2 lb/ac.
(iii) Treatments are not significantly different.
(iv) Av. yield of grain in lb/ac.

Treatment	Av. yield	Treatment	Av. yield
1.	829.7	7.	665.5
2.	665.5	8.	872.9
3.	751.9	9.	579.1
4.	760.6	10.	484.0
5.	535.9	11.	795.1
6.	553.1	12.	674.1
		S.E./mean	=102.7 lb/ac.

Crop :- Paddy.
Site :- College Farm, Sabour.

Ref :- Bh. 53(2).
Type :- 'M'.

Object :- To find out the effect of placement of A/S on Paddy.

1. BASAL CONDITIONS :

(i) (a) Paddy—Paira gram—Paddy. (b) Paira gram. (c) Nil. (ii) (a) Sandy loam. (b) N.A. (iii) 29.8.53. (iv) (a) 4 *deshi* ploughings and puddling. (b) Transplanting. (c) 30 srs./ac. (d) Not fixed. (e) 4 to 8. (v) Nil. (vi) B.K. 36 (late). (vii) Irrigated. (viii) N.A. (ix) 32.38". (x) 1.12.53. and 2.12.53.

2. TREATMENTS :

1. Control.
2. A/S at 113.5 lb./ac. applied before transplanting (29.8.53).
3. A/S at 113.5 lb./ac. applied 4 weeks after transplanting (1.10.53).
4. A/S at 113.5 lb./ac. applied at the time of weeding mixed with earth (11.10.53).

3. DESIGN :

(i) C.R.D. (ii) (a) No block formation. (b) —. (iii) Control 6 ; other treatments 2. (iv) (a) N.A. (b) .044 acres ; dimensions N.A. (v) 3' wide path between adjacent plots. (vi) Yes.

4. GENERAL :

(i) Good (No lodging). (ii) N.A. (iii) Weight of grain and straw ; plant height and tiller counting. (iv) (a) 1952-1954. (b) No. (c) Nil. (v) (a) N.A. (b) Nil. (vi) & (vii) Nil.

5. RESULTS :

(i) 2027 lb./ac.
(ii) 65.1 lb./ac.
(iii) Treatments are not significantly different.
(iv) Av. yield of grain in lb./ac.

Treatment	Av. yield
1.	2037
2.	2091
3.	1896
4.	2085

S.E./mean (other than control) = 46.0 lb./ac.
S.E. of control mean = 26.6 lb./ac.

Crop :- Paddy.
Site :- Botanical Sub. Stn. Bikramganj.

Ref :- Bh. 53(32).
Type :- 'C'.

Object :- To study the response to different combinations of age of seedlings, spacing and no. of seedlings per hole.

1. BASAL CONDITIONS :

(i) (a) Wheat—Paddy—Wheat. (b) Wheat. (c) A/S and Super each at 100 lb./ac. (ii) (a) Sandy loam. (b) N.A. (iii) 29.6.53, 22.6.53 and 15.6.53 for S_1 , S_2 and S_3 respectively/24.7.53 and 27.7.53. (iv) (a) 3 *deshi* ploughings. (b) Transplanting. (c) 20 srs/ac. (d) & (e) As per treatments. (v) A/S at 40 lb. N/ac. + Super at 40 lb. P_2O_5 /ac. + Castor cake 5 md./ac. (vi) BK 115—(early). (vii) Irrigated. (viii) Roguing 1.11.53. (ix) 42.90". (x) 21.11.53 and 24.11.53.

2. TREATMENTS :

All combinations of (1), (2) and (3)

(1) 3 spacings : $S_1=6'' \times 6''$, $S_2=6'' \times 10''$ and $S_3=10'' \times 10''$.
(2) 3 levels of age of seedlings at planting : $A_1=3$, $A_2=4$ and $A_3=5$ weeks.
(3) 3 levels of no. of seedlings/hole : $B_1=2$, $B_2=4$ and $B_3=6$.

3. DESIGN :

(i) 3³ partially Conf'd. (ii) (a) 3 blocks/replication ; 9 plots/block. (b) N.A. (iii) 2. (iv) (a) & (b) 15' x 40'. (v) Nil. (vi) Yes.

4. GENERAL :

- (i) Good—no lodging. (ii) Nil. (iii) Yield of grain and straw. (iv) (a) 1953—contd. (b) Yes. (c) Nil. (v) (a) Sabour, Patna, Kanke, Purnea & Dumka. (b) Nil. (vi) & (vii) Nil.

5. RESULTS :

- (i) 3158 lb./ac.
 (ii) 325.6 lb./ac.
 (iii) Only the effect of spacing is highly significant.
 (iv) Av. yield of grain in lb./ac.

	A ₁	A ₂	A ₃	Mean	B ₁	B ₂	B ₃
S ₁	2928	2733	2691	2784	2809	2842	2701
S ₂	3299	3469	3105	3291	3380	3329	3164
S ₃	3469	3430	3296	3398	3503	3259	3433
Mean	3232	3211	3031	3158			
B ₁	3365	3239	3089	3231			
B ₂	3161	3122	3147	3143			
B ₃	3170	3271	2856	3099			

S.E. of any marginal mean = 76.7 lb./ac.
 S.E. of body of table = 132.9 lb./ac.

Crop :- Paddy.

Ref :- Bh. 53(47).

Site :- Botanical Sub-Stn., Dumka.

Type :- 'C'.

Object :- To study the response to different combinations of age of seedling, spacing and no. of seedlings per hole.

1. BASAL CONDITIONS :

- (i) (a) Nil. (b) N.A. (c) N.A. (ii) (a) Sandy Loam. (b) N.A. (iii) 10.6.1953, 17.6.1953, 24.6.1953, for S₁, S₂ and S₃ respectively/18.7.1953. (iv) (a) 3 ploughings by *deshi* plough. (b) Transplanting. (c) 10 lb./ac. (d) and (e) As per treatments. (v) Super and A/S each at 50 lb./ac. applied at the time of transplanting. (vi) B.K. 36 (late). (vii) Unirrigated. (viii) N.A. (ix) N.A. (x) 3.12.1953 and 4.12.1953.

2. TREATMENTS :

- All combinations of (1), (2) and (3)
 (1) 3 spacings : S₁=6"×6", S₂=6"×10" and S₃=10"×10".
 (2) 3 levels of age of seedlings at planting : A₁=3, A₂=4 and A₃=5 weeks.
 (3) 3 levels of no. of seedlings/hole : B₁=2, B₂=4 and B₃=6.

3. DESIGN :

- (i) 3³ partially Confd. (ii) (a) 3 blocks/replication ; 9 plots/block. (b) N.A. (iii) 2. (iv) (a) N.A. (b) 27'×2"×8'-8". (v) 1' along width and 2' along length. (vi) Yes.

4. GENERAL :

- (i) N.A. (ii) Nil. (iii) Germination and yield of grain. (iv) (a) 1953-contd. (b) No. (c) Nil. (v) (a) Purnea, Sabour, Bikramganj, Kanke and Patna. (b) Nil. (vi) and (vii) Nil.

5. RESULTS :

- (i) 2014 lb./ac.
 (ii) 683.1 lb./ac.
 (iii) Effect of no. of seedlings/hole is highly significant. Other effects and interactions are not significant.

(iv) Av. yield of grain in lb./ac.

	A ₁	A ₂	A ₃	Mean	B ₁	B ₂	B ₃
S ₁	1847	1875	1851	1858	1784	2240	1550
S ₂	2323	2157	1824	2101	1467	2220	2616
S ₃	2561	2280	1411	2084	1471	2022	2759
Mean	2244	2104	1695	2014			
B ₁	1879	1598	1245	1574			
B ₂	2165	2026	2291	2161			
B ₃	2688	2688	1550	2308			

S.E. of marginal mean = 161.0 lb./ac.
 S.E. of body of table = 278.9 lb./ac.

Crop :- Paddy (Kharif).

Ref :- Bh. 52(45).

Site :- Botanical Sub-Stn. Kanke.

Type :- 'C'.

Object :- To determine optimum spacing between lines and plants to get high Paddy yield.

1. BASAL CONDITIONS :

(i)(a) Nil. (b) Paddy. (c) 40 lb./ac. of N as A/S, 40 lb./ac. of P₂O₅ as Super. (ii)(a) Sandy loam. (b) N.A. (iii) 4.7.1952/7.8.1952. (iv) (a) One summer ploughing followed by two ploughings and plankings. (b) Japanese method. (c) 8 srs./ac. (d) As per treatments. (e) 2 to 3. (v) 20 lb./ac. of N as A/S, 40 lb./ac. of P₂O₅ as Super before sowing in seed bed. (vi) B.K. 36 (late). (vii) Rainfed. (viii) Hoeing and earthing. (ix) 58.20°. (x) 9.12.52.

2. TREATMENTS :

Row and plant spacings :-

1. 6" × 6".
2. 9" × 9".
3. 12" × 12".

3. DESIGN :

(i) R.B.D. (ii) (a) 3. (b) N.A. (iii) 2. (iv) (a) 61' × 7'; 61'-6" × 7'-6"; 62' × 8' for treatments 1, 2 and 3 resp. (b) 59'-4" × 5'-4"; 59'-10" × 5'-10"; 60'-4" × 6'-4" for treatments 1, 2 and 3 respectively. (v) 10" all round. (vi) Yes.

4. GENERAL :

(i) Satisfactory. (ii) Nil. (iii) Grain yield and straw weight. (iv) (a) No. (b) No. (c) Nil. (v) (a) None. (b) Nil. (vi) and (vii) Nil.

5. RESULTS :

- (i) 2121 lb./ac.
 (ii) 159.6 lb./ac.
 (iii) Treatments are significantly different.
 (iv) Av. yield of grain in lb./ac.

Treatment	Av. yield
1.	2370
2.	2096
3.	1896
S.E./mean	= 112.9 lb./ac.

Crop :- Paddy (Kharif).
Site :- Botanical Sub Stn. Kanke.

Ref :- Bh. 52(46).
Type :- 'C'.

Object :- To determine the optimum spacing between lines and plants to get highest yield.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Paddy. (c) 40 lb/ac. of N as A/S+40 lb/ac. of P_2O_5 as Super. (ii) (a) Sandy loam. (b) N.A. (iii) 19.6.52/20.7.52 (iv) (a) One summer ploughing followed by two ploughings and beamings. (b) Japanese method. (c) 8 srs/ac. (d) As per treatments. (e) 2 to 3. (v) 20 lb/ac. of N as A/S+40 lb/ac. of P_2O_5 as Super before sowing in seed bed. (vi) BK. 115 (vii) Rainfed. (viii) Earthing and hoeing done by Japanese hoe. (ix) 62.25". (x) 15.12.52.

2. TREATMENTS :

Row and plant spacings as :

1. 6" × 6".
2. 9" × 9".
3. 12" × 12".

3. DESIGN :

(i) R.B.D. (ii) (a) 3. (b) N.A. (iii) 4. (iv) (a) 61' × 7'; 61'-6" × 7'-6"; 62' × 8' for treatments 1, 2 and 3 resply. (b) 59'-4" × 5'-4"; 59'-10" × 5'-10"; 60'-4" × 6'-4" for treatments 1, 2 and 3 respectively. (v) 10" all round the plot. (vi) Yes.

4. GENERAL :

(i) Satisfactory. (ii) Nil. (iii) Grain yield and straw weight. (iv) (a) 1952—1953. (b) No. (c) Nil. (v) (a) None. (b) Nil. (vi) & (vii) Nil.

5. RESULTS :

- (i) 1557 lb./ac.
- (ii) 211.2 lb/ac.
- (iii) Treatments are significantly different.
- (iv) Av. yield of grain in lb/ac.

Treatment	Av. yield
1.	1609
2.	1216
3.	946
S.E./mean	=105.6 lb/ac.

Crop :- Paddy.
Site :- Botanical Sub-Stn. Kanke.

Ref :- Bh. 53(43).
Type :- 'C'.

Object :- To determine the optimum spacing between lines and plants to get high Paddy yield.

1. BASAL CONDITIONS :

(i) (a) No. (b) Fallow. (c) Nil. (ii) (a) Lateritic soil. (b) N.A. (iii) 24.6.53; 19.7.53 (iv) (a) After 3 ploughings by *deshi* plough, the field was green manured with *dhaincha*. (b) Transplanting. (c) 10 seers/ac. (d) As per treatments. (e) 2 to 3. (v) 10 C.L./ac. of F.Y.M.+40 lb/ac. of N as A/S+40 lb/ac. of P_2O_5 as Super. (vi) BK 115 (early). (vii) Unirrigated. (viii) Weeding 3 times. (ix) 55.31". (x) 20.11.53.

2. TREATMENTS :

Row and plant spacings as

1. 6" × 6".
2. 9" × 9".
3. 12" × 12".

3. DESIGN :

(i) R.B.D. (ii) (a) 3. (b) N.A. (iii) 4. (iv) (a) 61' × 7'; 61'-6" × 7'-6"; 62' × 8' for treatments 1, 2 & 3 respectively. (b) 60' × 6'. (v) 3' width between blocks, 1 row round the net plot. (vi) Yes.

4. GENERAL :

(i) Good, no lodging. (ii) Nil. (iii) Yield of grain, and date of flowering. (iv) (a) 1952—1953. (b) No. (c) Nil. (v) (a) N.A. (b) N.A. (vi) & (vii) Nil.

5. RESULTS :

- (i) 1956 lb/ac.
(ii) 377.4 lb/ac.
(iii) Treatments do not differ significantly.
(iv) Av. yield of grain in lb/ac.

Treatment	Av. yield
1.	2193
2.	2098
3.	1576
S.E./mean	= 188.7 lb./ac.

Crop :- Paddy.

Ref :- Bh. 53 (31).

Site :- Botanical Sub-Stn., Patna.

Type :- 'C'.

Object :- To study the response to different combinations of age of seedlings, spacing and no of seedlings/hole.

1. BASAL CONDITIONS :

- (i) (a) N.A. (b) N.A. (c) N.A. (ii) (a) Clay soil. (b) N.A. (iii) 15.7.53. (iv) (a) 4 ploughings by *deshi* plough. (b) N.A. (c) 20 ar/ac. (d) and (e) As per treatments. (v) No. (vi) BK-36 (late). (vii) Irrigated. (viii) Weeding. (ix) 44.97". (x) 14.12.53.

2. TREATMENTS :

All combinations of (1), (2) and (3).

1. 3 spacings : $S_1=6'' \times 6''$, $S_2=6'' \times 10''$ and $S_3=10'' \times 10''$.
2. 3 levels of age of seedlings at planting : $A_1=3$, $A_2=4$ and $A_3=5$ weeks.
3. 3 levels of no. of seedlings/hole : $B_1=2$, $B_2=4$ and $B_3=6$.

3. DESIGN :

- (i) 3^3 partially Confd. (ii) (a) 3 blocks/replication, 9 plots/block. (b) N.A. (iii) 2. (iv) (a) N.A. (b) $30' \times 7'-6''$. (v) 1 line around the plot. (vi) Yes.

4. GENERAL :

- (i) Good (no lodging). (ii) Nil. (iii) Yield of grain and no. of tillers. (iv) (a) 1953--continued. (b) No. (c) Nil. (v) (a) Bikramganj, Sabour, Dumka and Purnea. (b) Nil. (vi) and (vii) Nil.

5. RESULTS :

- (i) 2914 lb./ac.
(ii) 878.9 lb./ac.
(iii) Main effect of spacing alone is significant.
(iv) Av. yield of grain in lb./ac.

	A_1	A_2	A_3	Mean	B_1	B_2	B_3
S_1	3001	2775	2626	2800	3154	2468	2779
S_2	2989	2872	2839	2900	3102	2557	3041
S_3	3041	3081	3005	3042	3100	2952	3065
Mean	3010	2909	2823	2914			
B_1	3255	3235	2876	3122			
B_2	2710	2896	2372	2659			
B_3	3065	2597	3223	2962			

S.E. of any marginal mean = 209.1 lb./ac.
S.E. of body of table = 358.8 lb./ac.

Crop :- Paddy.

Ref :- Bh. 53 (59).

Site :- Botanical Sub-Stn. Patna.

Type :- 'C'.

Object :- To study the response to different combinations of age of seedlings, spacing and no. of seedlings per hole for Paddy.

1. BASAL CONDITIONS :

(i) (a) Paddy-Paira Gram-Green manuring-Paddy. (b) Gram. (c) Nil. (ii) (a) Clay. (b) N.A. (iii) 8.6.53 15.6.53 and 22.6.53 for seedlings 3, 4 and 5 weeks old/15.7.53 to 18.7.53. (iv) (a) Hot weather ploughing. (b) Transplanting (c) 20 srs/ac. (d) and (e) As per treatments. (v) A/S at 20 lb./ac. of N+Super at 15 lb./ac. of P_2O_5 . (vi) (B.R.-7) (vii) Unirrigated. (viii) Seedlings grown under raised seed bed ; and sowing adjusted to get the proper age of seedlings. After transplanting weeding and interculturing with rotary hoeing. (ix) 57.69". (x) 14.12.53

2. TREATMENTS :

All combinations of (1), (2) and (3)

- 3 spacings : $S_1=6'' \times 6''$, $S_2=6'' \times 10''$ and $S_3=10'' \times 10''$.
- 3 levels of age of seedlings at planting : $A_1=3$, $A_2=4$ and $A_3=5$ weeks.
- 3 levels of no. of seedlings/hole : $B_1=2$, $B_2=4$ and $B_3=6$.

3. DESIGN :

(i) 3³ partially Confd. (ii) (a) 3 blocks/replication ; 9 plots/block. (b) N.A. (iii) 2. (iv) (a) 32' x 9'-6" (b) 30' x 7'-6". (v) 1' border around each plot. (vi) Yes.

4. GENERAL :

(i) Good. No lodging. (ii) Tip burn disease ; no control measures taken. (iii) Weight of grain, wt. of straw. (iv) (a) 1953—continued. (b) No. (c) Nil. (v) (a) Bikramganj, Ranchi, Sabour, Dumka and Purnea. (b) Nil. (vi) and (vii) Nil.

5. RESULTS :

- 2914 lb./ac.
- 364.6 lb./ac.
- Main effect of no. of seedlings/hole is highly significant.
- Av. yield of grain in lb./ac.

	A ₁	A ₂	A ₃	Mean	B ₁	B ₂	B ₃
S ₁	3138	2807	2775	2907	3215	2811	2694
S ₂	2642	2921	3081	2881	3384	2718	2541
S ₃	2791	3033	3041	2955	3033	2767	3065
Mean	2857	2920	2914	2914			
B ₁	3303	3174	3154	3211			
B ₂	2565	2908	2823	2766			
B ₃	2702	2678	2920	2767			

S.E. of any marginal mean = 85.9 lb./ac.

S.E. of body of table = 148.8 lb./ac.

Crop :- Paddy.

Ref :- Bh. 53(98).

Site :- Botanical Sub-Stn. Purnea.

Type :- 'C'.

Object :- To study the response to different combinations of age of seedlings, spacing and no. of seedlings per hole for Paddy crop.

1. BASAL CONDITIONS ;

(i) (a) Paddy—Fallow—Paddy. (b) Fallow. (c) Nil. (ii) (a) Sandy loam. (b) N.A. (iii) Transplanting on 4th to 7th August, 1953. (iv) (a) Two *desht* ploughings followed by puddling. (b) Transplanting. (c) 20 srs./ac. (d) and (e) As per treatments. (v) Nil. (vi) BK 115 (early). (vii) Unirrigated. (viii) Nil. (ix) 36.51". (x) 16th to 18th Dec. 1953.

2. TREATMENTS :

All combinations of (1), (2) and (3)

(1) 3 spacings : $S_1=6'' \times 6''$, $S_2=6'' \times 10''$, and $S_3=10'' \times 10''$.

(2) 3 levels of age of seedlings at planting : $A_1=3$, $A_2=4$ and $A_3=5$ weeks.

(3) 3 levels of no. of seedlings/hole : $B_1=2$, $B_2=4$ and $B_3=6$.

3. DESIGN :

(i) 3³ partially Confd. (ii) (a) 3 blocks/replication ; 9 plots/block. (b) N.A. (iii) 2. (iv) (a) 19' x 13'. (b) 18'-6" x 12'-6", 18'-2" x 12'-6" and 18'-2" x 12'-2" x for different spacings. (v) Yes—one non experimental row at each end of a plot. At the time of harvest one clump at each end of a block in a replication is treated as non-experimental area. Also 3' path between replications, 2' path between blocks and 1' path between plots. (vi) Yes.

4. GENERAL :

(i) N.A. (ii) Nil. (iii) Yield of grain and straw. (iv) (a) No. (b) Nil. (c) Nil. (v) (a) Sabour, Dumka, Bikramganj and Patna. (b) Nil. (vi) & (vii) Nil.

5. RESULTS :

(i) 587.7 lb./ac.

(ii) 170.75 lb./ac.

(iii) Main effects of spacing and no. of seedlings/hole alone are highly significant.

(iv) Av. yield of grain in lb./ac.

	A ₁	A ₂	A ₃	Mean	B ₁	B ₂	B ₃
S ₁	683.3	893.3	716.5	764.4	670.0	765.2	858.0
S ₂	491.7	561.3	511.7	521.6	401.5	521.5	641.3
S ₃	462.0	462.0	507.0	477.0	381.8	496.8	552.3
Mean	545.7	638.9	578.4	587.7			
B ₁	489.2	527.5	437.0	484.6			
B ₂	498.2	660.8	624.5	594.5			
B ₃	649.7	728.3	673.7	683.9			

S.E. of any marginal mean = 40.2 lb./ac.

S.E. of body of table = 69.7 lb./ac.

Crop :-Paddy.

Site :-Rice Res. Stn. Sabour.

Ref :-Bh. 52(17).

Type :-'C'.

Object :-To find the best mixtures of two varieties of Paddy as an insurance against failure of Hathia rains.

1. BASAL CONDITIONS :

(i) (a) Paddy—Paira gram—Green manuring—Paddy. (b) Gram. (c) Nil. (ii) (a) Clayey loam. (b) N.A. (iii) 19.6.52./16.7.52. (iv) (a) to (e) N.A. (v) Green manuring after 1st ploughing ; after a month the green manured crop is put under soil with the help of Punjabi plough. (vi) 1385 (B) (Early Aman) and Kolawa Aus (BR—1) (Late). (vii) Irrigated. (viii) 2 weedings at an interval of 3 weeks. (ix) 32.39". (x) 13.10.52 for Kolawa. 15.11.52 for 1385 (B).

2. TREATMENTS :

- 1385 (B) (8 lines)+Kolawa (8 lines).
- 1385 (B) (10 lines)+Kolawa (6 lines).
- 1385 (B) (12 lines)+Kolawa (4 lines).
- 1385 (B) (16 lines)+Kolawa (no lines).
- 1385 (B) (no lines)+Kolawa (16 lines).

3. DESIGN :

(i) R.B.D. (ii) (a) 5. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 17'-3" × 30'-9". (v) N.A. (vi) Yes.

4. GENERAL :

(i) Poor (no lodging). (ii) No. (iii) Nil. (iv) (a) No. (b) No. (c) Nil. (v) (a) No. (b) Nil. (vi) and (vii) Nil.

5. RESULTS :

- (i) 653.6 lb./ac.
 (ii) 167.9 lb./ac.
 (iii) Treatment differences are highly significant.
 (iv) Av. yield of grain in lb./ac.

Treatment	Av. yield
1.	611.9
2.	751.6
3.	822.4
4.	928.7
5.	153.5
S.E./mean	= 84.0 lb./ac.

Crop :-Paddy.

Ref :-Bh. 52(18).

Site :-Rice Res. Stn. Sabour.

Type :-'C'

Object :-To study the best mixture of two varieties of Paddy as an insurance against failure of Hathi rains.

1. BASAL CONDITIONS :

(i) (a) Paddy—Paira gram—Green manuring—Paddy. (b) Gram. (c) Nil. (ii) (a) Clayey loam. (b) N.A. (iii) 19.6.52./16.7.52. (iv) (a) to (e) N.A. (v) Green manuring after 1st ploughing ; after a month the green manure crop is put under soil with the help of Punjabi plough. (vi) BK 36 and Kolawa (BR—1) (Late-Aman). (vii) Irrigated. (viii) 2 weedings at an interval of 3 weeks. (ix) 32.39%. (x) 13.10.52 for Kolawa. 7.12.52 for BK 36.

2. TREATMENTS :

1. BK 36 (8 lines)+Kolawa (8 lines).
2. BK 36 (10 lines)+Kolawa (6 lines).
3. BK 36 (12 lines)+Kolawa (4 lines).
4. BK 36 (16 lines)+Kolawa (no lines).
5. BK 36 (no lines)+Kolawa (16 lines).

3. DESIGN :

(i) R.B.D. (ii) (a) 5. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 11'-3" × 30'-9". (v) N.A. (vi) Yes.

4. GENERAL :

(i) Poor (no lodging). (ii) Nil. (iii) Grain yield. (iv) (a) No. (b) No. (c) No. (v) (a) None. (b) Nil. (vi) and (vii) Nil.

5. RESULTS :

- (i) 680.0 lb./ac.
 (ii) 115.8 lb./ac.
 (iii) Treatment differences are highly significant.
 (iv) Av. yield of grain in lb./ac.

Treatment	Av. yield
1.	653.2
2.	775.2
3.	891.3
4.	975.9
5.	104.3
S.E./mean	= 57.9 lb./ac.

Crop :- Paddy.

Ref :- Bh. 53(8).

Site :- Rice Res. Stn. Sabour.

Type :- 'C'.

Object :- To study the response to different combinations of age of seedlings, spacing and no. of seedlings per hole for Paddy.

1. BASAL CONDITIONS :

(i) (a) Paddy-Paira gram-Green manuring-Paddy. (b) Gram. (c) Nil. (ii) (a) Sandy loam. (b) N.A. (iii) 4.7.53, 27.6.53, 20.6.53 for seedlings 3,4 and 5 weeks old 124.7.53. (iv) Sunnhemp buried at 6227 lb./ac. on 17.7.53. with the help of Punjabi plough. (b) Transplanting. (c) 20 sr./ac. (d) & (e) As per treatments. (v) A/S at 20 lb./ac. of N+ Super at 15 lb./ac. of P_2O_5 (vi) BK 36-BR-7. (vii) Irrigated. (viii) 2 weedings at an interval of 3 weeks. (ix) 39.05". (x) 20.12.53.

2. TREATMENTS :

All combinations of (1), (2) and (3).

(1) 3 spacings :- $S_1=6" \times 6"$, $S_2=6" \times 10"$ and $S_3=10" \times 10"$.

(2) 3 levels of age of seedlings at planting : $A_1=3$, $A_2=4$ and $A_3=5$ weeks.

(3) 3 levels of no. of seedlings/hole :- $B_1=2$, $B_2=4$ and $B_3=6$.

3. DESIGN :

(i) 3³ partially Confd. (ii) (a) 3 blocks/replication ; 9 plots/block. (b) N.A. (iii) 2. (iv) (a) 28' x 8'. (b) 28' x 8' (v) No. (vi) Yes.

4. GENERAL :

(i) Good (no lodging). (ii) Nil. (iii) Yield of grain, yield of straw. (iv) (a) 1953—continued. (b) Not in the first year but subsequently in the same plots. (c) Nil. (v) (a) Bikramganj, Ranchi, Patna, Dumka & Purnea. (b) Nil (vi) & (vii) Nil.

5. RESULTS :

- (i) 2467 lb./ac.
(ii) 308.3 lb./ac.
(iii) None of the effects is significant.
(iv) Av. yield of grain in lb./ac.

	A ₁	A ₂	A ₃	Mean	B ₁	B ₂	B ₃
S ₁	2568	2643	2457	2556	2573	2652	2445
S ₂	2226	2585	2757	2523	2415	2566	2587
S ₃	2218	2250	2504	2324	2321	2202	2449
Mean	2337	2493	2572	2467			
B ₁	2364	2380	2564	2436			
B ₂	2271	2633	2516	2473			
B ₃	2378	2465	2637	2493			

S.E. of any marginal mean = 72.7 lb./ac.
S.E. of body of the table. = 125.9 lb./ac.

Crop :- Paddy.

Ref :- Bh. 53(33).

Site :- Botanical Sub-Stn., Bikramganj.

Type :- 'MV'.

Object :- To study the response to N and P for two different varieties of paddy.

1. BASAL CONDITIONS :

(i) (a) Paira gram-Paddy-Paira gram. (b) Paira Gram. (c) Nil. (ii) (a) Clay. (b) N.A. (iii) Transplanting on 14.8.53 & 16.8.53. (iv) (a) 3 *deshi* ploughings. (b) Transplanting. (c) 20 sr./ac. (d) 10" x 10". (e) 3 to 4. (v) Nil. (vi) As per treatments. (vii) Irrigated. (viii) N.A. (ix) 40.18". (x) 4.1.54 to 6.1.54.

2. TREATMENTS :

Main-plot treatments :—

2 varieties : V_1 =Bk 36 (late) & V_2 =498—2A (late.)

Sub-plot treatments :—

4 levels of N :— $N_0=0$, $N_1=40$, $N_2=60$ & $N_3=80$ lb./ac.

Sub-sub-plot treatments :—

4 levels of P :— $P_0=0$, $P_1=20$, $P_2=40$ & $P_3=60$ lb./ac.N applied as A/S ; P_2O_5 as Super.Super broadcast ; N applied $\frac{1}{2}$ at planting and $\frac{1}{2}$ one month later.

3. DESIGN :

(i) Split-split plot. (ii) (a) 2 main-plots/block ; 4 sub-plots/main-plot ; 4 sub-sub-plots/sub-plot. (b) N.A.
 (iii) 3. (iv) (a) Sub-sub plot $15' \times 9'$ (b) $14' \times 8'$. (v) One non-experimental row around the net plot ; 2' path between main-plots, $2\frac{1}{2}'$ path between replications. (vi) Yes.

4. GENERAL :

(i) N.A. (ii) Leaf burn disease ; no control measures taken. (iii) No. of tillers, height, flowering data, ear length and yield of grain and straw. (iv) (a) 1953—54. (b) No. (c) Nil. (v) (a) Sabour, Patna, Kanke, Dumka & Purnea. (b) Nil. (vi) Great damage due to floods. (vii) Nil.

5. RESULTS :

- (i) 2634 lb./ac.
 (ii) (a) 1033.4 lb./ac.
 (b) 399.0 lb./ac.
 (c) 268.4 lb./ac.
 (iii) Only main effect of N is highly significant.
 (iv) Av. yield of grain in lb./ac.

	V_1	V_2	Mean	P_0	P_1	P_2	P_3
N_0	2262	2449	2355	2157	2366	2466	2432
N_1	2595	2641	2618	2691	2449	2790	2541
N_2	2645	2757	2701	2632	2607	3040	2524
N_3	2815	2911	2863	2882	2682	2899	2990
Mean	2579	2689	2634				
P_0	2570	2611	2590				
P_1	2491	2561	2526				
P_2	2636	2961	2799				
P_3	2620	2624	2622				

S.E. of difference of two

- | | |
|-----------------------------------|----------------|
| 1. marginal means of V | =210.9 lb./ac. |
| 2. marginal means of N | = 77.4 lb./ac. |
| 3. marginal means of P | =115.2 lb./ac. |
| 4. P means at the same level of V | =162.9 lb./ac. |
| 5. V means at the same level of P | =253.8 lb./ac. |
| 6. P means at the same level of N | =176.8 lb./ac. |
| 7. N means at the same level of P | =154.9 lb./ac. |
| 8. N means at the same level of V | =109.5 lb./ac. |
| 9. V means at the same level of N | =231.3 lb./ac. |

Crop :- Paddy.

Ref :- Bh. 53(41).

Site :- Botanical Sub-Stn. Kanke.

Type :- 'MV'.

Object :—To study the response to N and P for two different varieties of Paddy.

1. BASAL CONDITIONS :

(i) (a) Paddy-Fallow—Paddy. (b) Paddy. (c) N.A. (ii) (a) Lateritic soil. (b) N.A. (iii) 24.6.53/11th and 12th August, 1953. (iv) (a) After 3 ploughings with *deshi* plough, the field was green manured

with *Dhaincha*. (b) Transplanting. (c) 10 srs./ac. (d) 6"×6". (e) 2 to 3. (v) Nil. (vi) As per treatments. (vii) Unirrigated. (viii) Weeding 3 times. (ix) 55.31". (x) 14.12.53.

2. TREATMENTS :

Main-plot treatments :—

2 varieties : V_1 =BK 36 and V_2 =498-2A.

Sub-plot treatments :—

4 levels of P : $P_0=0$, $P_1=20$, $P_2=40$ and $P_3=60$ lb./ac.

Sub-sub-plot treatments :—

4 levels of N : $N_0=0$, $N_1=40$, $N_2=60$ and $N_3=80$ lb./ac.

N applied as A/S ; P_2O_5 as Super.

3. DESIGN :

(i) Split-split plot. (ii) (a) 2 main-plots/block ; 4 sub-plots/main-plot ; 4 sub-sub-plots/sub-plot. (b) N.A. (iii) 3. (iv) (a) Sub sub 10'×10'. (b) 9'-6"×9'-6". (v) 3" border all round the plot. (vi) Yes.

4. GENERAL :

(i) Good (no lodging). (ii) Nil. (iii) Yield of grain and straw ; data of flowering. (iv) (a) No. (b) No. (c) No. (v) (a) Sabour, Patna, Dumka, Purnea and Bikramganj. (b) Nil. (vi) and (vii) Nil.

5. RESULTS :

(i) 3433 lb./ac.

(ii) (a) 653.3 lb./ac.

(b) 413.6 lb./ac.

(c) 343.6 lb./ac.

(iii) Main effect of P is highly significant ; main effect of N is significant, while others are not significant.

(iv) Av. yield of grain in lb./ac.

	V_1	V_2	Mean	N_0	N_1	N_2	N_3
P_0	2625	3248	2936	2759	2866	2971	3112
P_1	3132	3477	3305	3198	3394	3298	3328
P_2	3620	3743	3682	3716	3751	3519	3741
P_3	3693	3924	3809	3540	4022	3630	4042
Mean	3268	3598	3433				
N_0	3059	3565	3312				
N_1	3333	3683	3508				
N_2	3190	3520	3355				
N_3	3487	3625	3556				

S.E. of difference of two

1. marginal means of V = 133.4 lb./ac.
2. marginal means of P = 119.4 lb./ac.
3. marginal means of N = 99.2 lb./ac.
4. N means at the same level of V = 140.2 lb./ac.
5. V means at the same level of N = 180.4 lb./ac.
6. N means at the same level of P = 198.4 lb./ac.
7. P means at the same level of N = 202.2 lb./ac.
8. P means at the same level of V = 168.9 lb./ac.
9. V means at the same level of P = 197.9 lb./ac.

Crop :- Paddy.

Ref :- Bh. 53(48).

Site :- Botanical Sub-Stn. Dumka.

Type :- 'MV'.

Object :- To study the response to N and P for two different varieties of Paddy.

1. BASAL CONDITIONS :

(i) (a) Not followed. (b) N.A. (c) N.A. (ii) (a) Sandy loam. (b) N.A. (iii) 17.9.53/25.7.53 and 26.7.53. (iv) (a) 3 ploughings by *deshi* plough. (b) Transplanting. (c) 10 srs/ac. (d) 9" x 9". (e) 3 to 4. (v) Nil. (vi) As per treatments. (vii) Unirrigated. (viii) N.A. (ix) N.A. (x) 1.12.53 and 2.12.53.

2. TREATMENTS :

Main-plot treatments :

2 varieties : $V_1 = \text{BK36}$ (late) and $V_2 = 498-2A$ (late).

Sub-plot treatments :—

4 levels of P : $P_0 = 0$, $P_1 = 20$, $P_2 = 40$ and $P_3 = 60$ lb./ac.

Sub-sub-plot treatments :—

4 levels of N : $N_0 = 0$, $N_1 = 40$, $N_2 = 60$ and $N_3 = 80$ lb./ac.N applied as A/S ; P_2O_5 as Super.

Manures broadcast and mixed with soil before transplanting.

3. DESIGN :

(i) Split-split plot. (ii) (a) 2 main-plots/block ; 4 sub-plots/main-plot ; 4 sub-sub-plots/sub-plot. (b) 58' x 85'. (iii) 3. (iv) (a) 12'-10½" x 8'-6". (b) 9'-10½" x 5'-6". (v) 1½' path around the sub-sub-plot. (vi) Yes.

4. GENERAL :

(i) N.A. (ii) N.A. (iii) Germination, yield of grain. (iv) (a) 1953-1954. (b) No. (c) Nil. (v) (a) Sabour, Patana, Kanke, Bikramanj and Purnea. (b) Nil. (vi) and (vii) Nil.

5. RESULTS :

(i) 5537 lb./ac.
 (ii) (a) 4906.4 lb./ac.
 (b) 2195.8 lb./ac.
 (c) 1595.3 lb./ac.
 (iii) None of the effects is significant.
 (iv) Av. yield of grain in lb./ac.

	V_1	V_2	Mean	N_0	N_1	N_2	N_3
P_0	3600	5379	4490	3953	5224	4228	4554
P_1	5027	5766	5396	5070	5396	5482	5637
P_2	5138	6788	5963	5705	6015	6290	5843
P_3	6083	6513	6298	5980	6908	6565	5740
Mean	4962	6112	5537				
N_0	4717	5637	5177				
N_1	5499	6273	5886				
N_2	4846	6436	5641				
N_3	4786	6101	5444				

S.E. of difference of two

1. marginal means of V = 1001.5 lb./ac.
2. marginal means of P = 633.8 lb./ac.
3. marginal means of N = 460.6 lb./ac.
4. N means at the same level of V = 651.3 lb./ac.
5. V means at the same level of N = 1149.4 lb./ac.
6. N means at the same level of P = 921.1 lb./ac.
7. P means at the same level of N = 1018.9 lb./ac.
8. P means at the same level of V = 896.3 lb./ac.
9. V means at the same level of P = 1267.1 lb./ac.

Crop :- Paddy.

Ref :- Bh. 53(92).

Site :- Botanical Sub-Stn., Patna.

Type :- 'MV'.

Object :- To study the response to N and P for two different varieties of Paddy.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) N.A. (c) N.A. (ii) (a) Clay. (b) N.A. (iii) 22.7.53. (iv) (a) Four ploughings by *deshi* plough. (b) N.A. (c) 7 to 10 *seers*/ac. (d) 9"×9". (e) 2 to 3. (v) No. (vi) As per treatments (vii) Irrigated. (viii) Weeding. (ix) 57.69%. (x) 16.12.53.

2. TREATMENTS :

Main-plot treatments :—

2 varieties : V_1 =B.K. 36 (late) and V_2 =498-2A (late).

Sub-plot treatments :—

4 levels of P : $P_0=0$, $P_1=20$, $P_2=40$ and $P_3=60$ lb./ac.

Sub-sub-plot treatments :—

4 levels of N : $N_0=0$, $N_1=40$, $N_2=60$ and $N_3=80$ lb./ac.N applied as A/S ; P_2O_5 as Super.Broad casting full dose of P. N applied $\frac{1}{2}$ at planting and the other half one month later.

3. DESIGN :

(i) Split-split plot. (ii) (a) 2 main-plots/block ; 4 sub-plots/main-plot ; 4 sub-sub-plots/sub-plot. (b) N.A. (iii) 3. (iv) (a) (main-plot) 34'×51'-4". (sub-plot) 8'-6"×51'-4". (sub-sub-plot) 8'-6"×12'-10". (b) sub-sub plot 5'-6"×9'-10" (v) 1½' border around the net plot. (vi) Yes.

4. GENERAL :

(i) Good (no lodging). (ii) Nil. (iii) Yield of grain, growth, no. of tillers. (iv) (a) 1953-1954. (b) No. (c) Nil. (v) (a) Bikramganj and Sabour. (b) Nil. (vi) & (vii) Nil.

5. RESULTS :

(i) 3804 lb./ac.

(ii) (a) 1020.8 lb./ac.

(b) 675.2 lb./ac.

(c) 660.6 lb./ac.

(iii) The effect of P_2O_5 is significant, the interaction $N \times P$ is highly significant.

(iv) Av. yield of grain in lb./ac.

	V_1	V_2	Mean	N_0	N_1	N_2	N_3
P_0	4396	3725	4061	4430	4094	3608	4111
P_1	4128	3960	4044	3658	4564	4027	3926
P_2	3826	3708	3767	3876	3608	3826	3759
P_3	3541	3146	3343	2618	2970	4682	3104
Mean	3973	3635	3804				
N_0	3960	3331	3645				
N_1	3817	3801	3809				
N_2	4153	3918	4036				
N_3	3960	3490	3725				

S.E. of difference of two

- marginal means of V = 208.4 lb./ac.
- marginal means of P = 194.8 lb./ac.
- marginal means of N = 190.6 lb./ac.
- N means at the same level of V = 269.6 lb./ac.
- V means at the same level of N = 312.9 lb./ac.
- N means at the same level of P = 381.3 lb./ac.
- P means at the same level of N = 383.4 lb./ac.
- P means at the same level of V = 295.6 lb./ac.
- V means at the same level of P = 316.8 lb./ac.

Crop :- Paddy.
Site :- Botanical Sub-Stn., Purnea.

Ref :- Bh. 53(99).
Type :- 'MV'.

Object :- To study the response to N and P for two different varieties of Paddy.

1. BASAL CONDITIONS :

(i) (a) Paddy—Fallow—Paddy. (b) Fallow. (c) Nil. (ii) (a) Sandy loam. (b) N.A. (iii) 25, 26.6.53/27th to 31st August, 1953. (iv) (a) 2 *deshi* ploughings followed by puddling. (b) Transplanting. (c) 20 srs./ac. (d) 10'×10'. (e) 2 to 3. (v) Nil. (vi) As per treatments. (vii) Unirrigated. (viii) Nil. (ix) 50.32%. (x) 26th & 27th Dec. 1953.

2. TREATMENTS :

Main-plot treatments :—

2 varieties : V_1 =BK 36 (late) and V_2 =498-2 A (late).

Sub-plot treatments :—

4 levels of N : $N_0=0$, $N_1=4$, $N_2=60$ and $N_3=80$ lb./ac.

Sub-sub-plot treatments :—

4 levels of P : $P_0=0$, $P_1=20$, $P_2=40$ & $P_3=60$ lb./ac.

N applied as A/S ; P_2O_5 as Super.

Manures applied half at planting and half at interculturing.

3. DESIGN :

(i) Split-split plot. (ii) (a) 2 main-plots/block ; 4 sub-plots/main-plot ; 4 sub-sub-plots/sub-plot. (b) N.A. (iii) 3. (iv) (a) 50'×54' ; 11'×54' ; 11'×12'. (b) Sub-sub-plot 10'-2"×11'-2". (v) One non-experimental row left on both sides of each plot and one clump at each end of each row treated as non-experimental. (vi) Yes.

4. GENERAL :

(i) N.A. (ii) Nil. (iii) Yield of grain and straw only. (iv) (a) 1953-1954. (b) No. (c) Nil. (v) (a) Sabour, Dumka, Bikramganj and Patna. (b) Nil. (vi) & (vii) Nil.

5. RESULTS :

(i) 692.9 lb./ac.

(ii) (a) 365.3 lb./ac.

(b) 95.5 lb./ac.

(c) 129.7 lb./ac.

(iii) Main effects of varieties and N are highly significant. Effect of P_2O_5 is not significant. Interaction $N \times V$ is significant.

(iv) Av. yield of grain in lb./ac.

	V_1	V_2	Mean	P_0	P_1	P_2	P_3
N_0	353.7	653.5	503.6	551.6	471.6	463.6	527.6
N_1	513.6	801.4	657.5	695.4	551.6	743.4	639.5
N_2	573.5	915.3	744.1	723.4	735.4	747.4	771.4
N_3	615.5	1117.1	866.3	863.3	799.4	903.3	899.3
Mean	514.1	871.8	692.9				
P_0	573.5	843.3	708.4				
P_1	435.7	843.3	639.5				
P_2	519.6	909.3	714.4				
P_3	527.6	891.3	709.4				

S.E. of difference of two

1. marginal means of V = 74.6 lb./ac.
2. marginal means of N = 37.4 lb./ac.
3. marginal means of P = 27.5 lb./ac.
4. P means at the same level of V = 39.0 lb./ac.
5. V means at the same level of P = 81.8 lb./ac.
6. P means at the same level of N = 70.5 lb./ac.
7. N means at the same level of P = 7.49 lb./ac.
8. N means at the same level of V = 52.9 lb./ac.
9. V means at the same level of N = 87.5 lb./ac.

Crop :- Paddy.

Ref :- Bh. 53(9).

Site :- Rice Res. Stn., Sabour.

Type :- 'MV'.

Object :- To study the response to N and P for two different varieties of Paddy.

1. BASAL CONDITIONS :

(i) (a) Paddy—Paira gram—Green manuring—Paddy. (b) Gram. (c) Nil. (ii) (a) Sandy loam. (b) N.A. (iii) 17.6.53./29.7.53. (iv) (a) Sunnhemp at 1 md/ac. was sown after one ploughing on 22.6.53. It was buried under the soil on 27.7.53 and 5984 lb. of sunnhemp humus was buried with the help of Punjabi plough. (b) Transplanting. (c) —. (d) 9'×9'. (e) 2 to 3. (v) Nil. (vi) As per treatments. (vii) Irrigated. (viii) 3 weedings each at an interval of 3 weeks. (ix) 39.05". (x) 16.12.53.

2. TREATMENTS :

Main-plot treatments :-

2 varieties : V_1 =BK 36 and V_2 =498-2A. (late)

Sub-plot treatments :-

4 levels of P : $P_0=0$, $P_1=20$, $P_2=40$ and $P_3=60$ lb./ac.

Sub-sub-plot treatments :-

4 levels of N : $N_0=0$, $N_1=40$, $N_2=60$ and $N_3=80$ lb./ac.N applied as A/S ; P_2O_5 as Super.

3. DESIGN :

(i) Split-split plot. (ii) (a) 2 main-plots/replication ; 4 sub-plots/main-plot ; 4 sub-sub-plots/sub-plot. (b) N.A. (iii) 3. (iv) a) (sub-sub-plot) 14'×10'. (b) 11'×7'. (v) 2' path between main plot. 2½' path between each block ; 1½' all round each sub-sub-plot (vi) Yes.

4. GENERAL :

(i) Good (no lodging). (ii) N.A. (iii) Height ; ear bearing tillers, ear length ; weight of straw, yield of grain. (iv) (a) 1953—continued. (b) N.A. (c) Nil. (v) (a) Ranchi, Bikramganj and Patna. (b) N.A. (vi) Nil. (vii) Design changed from 1954 with addition of some factors.

5. RESULTS :

(i) 2054 lb./ac.

(ii) (a) 427.0 lb./ac.

(b) 298.0 lb./ac.

(c) 3:7.4 lb./c.c.

(iii) Only the main effect of N is highly significant. Other effects & interactions are not significant.

(iv) Av. yield of grain in lb./ac.

	V_1	V_2	Mean	N_0	N_1	N_2	N_3
P_0	2074	2124	2124	2227	2275	2080	1915
P_1	1956	2136	2046	2068	2334	2133	1650
P_2	1950	2151	2051	2104	2180	2098	1821
P_3	1874	2113	1993	2127	2163	2033	1650
Mean	1964	2144	2054				
N_0	2110	2154	2132				
N_1	2171	2304	2238				
N_2	1989	2183	2086				
N_3	1585	1933	1757				

S.E. of difference of two

1. marginal means of V = 87.1 lb./ac.
2. marginal means of P = 86.0 lb./ac.
3. marginal means of N = 91.6 lb./ac.
4. N means at the same level of V = 129.6 lb./ac.
5. V means at the same level of N = 142.1 lb./ac.
6. N means at the same level of P = 183.3 lb./ac.
7. P means at the same level of N = 180.5 lb./ac.
8. P means at the same level of V = 121.2 lb./ac.
9. V means at the same level of P = 136.7 lb./ac.

Crop :- Paddy (Kharif).
Site :- Botanical Sub-Stn. Sepaya.

Ref :- Bh. 53 (132).
Type :- 'CM'.

Object :-To test the Japanese method vs. local method of Paddy cultivation.

1. BASAL CONDITIONS :

(i) (a) Paddy—Fallow—Paddy. (b) Paddy in previous Kharif & fallow in Rabi. (c) N.A. (ii) (a) Clay loam. (b) N.A. (iii) 3.6.53/10.7.53. (iv) (a) 5 ploughings by Bihar plough. (b) As per treatments. (c) 7 srs/ac. (d) 10"×10". (e) 3. (v) Nil (vi) Kalamdan local (Medium.) (vii) Irrigated. (viii) One hoeing ; one weeding ; and one earthing. (ix) 66" (x) 5.12.53.

2. TREATMENTS :

1. Control (Local method of cultivation).
2. Local method of cultivation+5 mds/ac. of Castor cake and one md/ac. of A/S.
3. Local method of cultivation+manuring at 10 C.L./ac. of F.Y.M. ploughed at the time of transplanting+200 lb/ac. of A/S mixed with 200 lb/ac. of Super.
4. Local method of cultivation+manuring according to Japanese method viz. 10 C.L./ac. of F.Y.M. ploughed in soil at the time of ploughing+100 lb/ac. of A/S+100 lb/ac. of Super mixed and applied at the time of transplanting+100 lb./ac. of A/S & 100 lb/ac. of Super mixed and applied one month after transplanting.
5. Manuring same as 4 but with Japanese method of paddy cultivation.

3. DESIGN :

(i) R.B.D. (ii) (a) 5. (b) 201'×146'-8". (iii) 5 (iv) (a)42'×29'-4" (b) 40'×27'-4". (v) 1' around. (vi) Yes.

4. GENERAL :

(i) Good (no lodging). (ii) Nil (iii) Grain yield & straw weight. (iv) (a) 1953—1954. (b) Yes. (c) Nil. (v) (a) N.A. (b) Nil. (vi) & (vii) Nil.

5. RESULTS :

- (i) 28.5 lb/ac.
(ii) 175.9 lb/ac.
(iii) Treatment differences are highly significant.
(iv) Av. yield of grain in lb/ac.

Treatment	Av. yield
1.	2467
2.	2858
3.	2927
4.	3127
5.	2945
S.E./mean	= 78.7 lb/ac.

Crop :- Paddy.
Site :- Govt. Agri. Farm, Nawadah.

Ref :- Bh. 53 (100).
Type :- 'I'.

Object :-To study the effect of intensity of irrigation on the yield of Paddy.

1. BASAL CONDITIONS :

(i) (a) Not followed. (b) N.A. (c) N.A. (ii) (a) Loam. (b) N.A. (iii) 8.7.53. (iv) (a) 5 to 6 *deshi* ploughings. (b) N.A. (c) 20 sr/ac. (d) 10"×10". (e) 2 to 3. (v) N.A. (vi) N.A. (vii) Irrigated. (viii) N.A. (ix) 51.60" (x) N.A.

2. TREATMENTS :

1. No irrigation.
2. One irrigation on 7th Oct. 1953.
3. Two irrigations on 25th Sept. & 7th Oct. 1953.
4. Three irrigations on 15th August, 15 Sept. & 7th Oct. 1953.

3. DESIGN :

(i) C.R.D. (ii) (a) No block formation. (b) —. (iii) 6. (iv) (a) N.A. (b) 66'×16'-6". (v) 2' border around each plot. (vi) Yes.

4. GENERAL :

(i) N.A. (ii) N.A. (iii) Yield of grain. (iv) (a) 1951—53. (b) No. (c) Nil. (v) (a) N.A. (b) Nil. (vi) Nil (vii) Results for 1951 & 1952, N.A.

5. RESULTS :

- (i) 1633 lb/ac.
 (ii) 163.2 lb/ac.
 (iii) Treatments are significantly different.
 (iv) Av. yield of grain in lb/ac.

Treatment	Av. yield
1.	1479
2.	1577
3.	1687
4.	1790
S.E./mean	= 66.6 lb./ac.

Crop :- Paddy (1st. crop) Ref. :- Simple trials on cultivators' fields, (T.C.M.) 1953.
 Centre :- Pusa (Bihar) Type :- 'M'.

Object :- I(b) (ii) To study the effect of different levels and types of N and P.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) N.A. (c) N.A. (ii) Sandy loam—p.H. 8.0. (iii) Nil. (iv) N.A. (v) N.A.
 (vi) June-July. (vii) Unirrigated. (viii) N.A. (ix) 40". (x) November-December.

2. TREATMENTS :

O = Control.
 P = 20 lb./ac. of P_2O_5 as Super.
 N_1P = A/S at 20 lb./ac. of N+20 lb./ac. of P_2O_5 as Super.
 N_2P = A/S at 40 lb./ac. of N+20 lb./ac. of P_2O_5 as Super.
 N_1^*P = Urea at 20 lb./ac. of N+20 lb./ac. of P_2O_5 as Super.
 N_2^*P = Urea at 40 lb./ac. of N+20 lb./ac. of P_2O_5 as Super.
 All fertilizers applied before planting.

3. DESIGN :

(i) & (ii) Eleven community project centres, representing the entire paddy growing tract of the country, were selected. From each community project centre, one development block was selected. Villages were selected at random from the selected block and a list of cultivators growing paddy for each selected village was prepared. From this list, two cultivators were selected at random and one field each belonging to them was taken for trial. In each selected field an unreplicated trial was laid out. (iii) N.A. (iv) Yes.

4. GENERAL :

(i) Normal. (ii) Nil. (iii) Yield of grain. (iv) (a) 1953-56. (b) No. (c) N.A. (v) N.A. (vi) Nil. (vii) Nil.

5. RESULTS :

Treatment	Av. yield in lb./ac.
O	1117
P	1358
N_1P	1506
N_2P	1758
N_1^*P	1460
N_2^*P	1517
G.M.	1452
S.E./Mean	36.2 lb/ac.
No. of expts.	55

Crop :-Paddy (1st. crop). Ref :-Simple trials on cultivators' fields, (T.C.M.) 1953.

Centre :- Pusa (Bihar).

Type :- 'M'.

Object :-II To study the effect of N, P & K manures.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) N.A. (c) N.A. (ii) Sandy loam—p.H. 8.0. (iii) Nil. (iv) N.A. (v) N.A. (vi) June-July. (vii) Unirrigated. (viii) N.A. (ix) 40°. (x) November-December.

2. TREATMENTS :

O = Control
 N = A/S at 20 lb./ac. of N
 NP = A/S at 20 lb./ac. of N+Super at 20 lb./ac. of P_2O_5
 N'P = A/N at 20 lb./ac. of N+Super at 20 lb./ac. of P_2O_5
 N"P = Urea at 20 lb./ac. of N+Super at 20 lb./ac. of P_2O_5
 NPK = A/S at 20 lb./ac. of N+Super at 20 lb./ac. of P_2O_5 +Mur. of Pot. at 20 lb./ac. of K_2O
 All fertilizers applied before planting.

3. DESIGN :

(i) & (ii) Eleven community project centres, representing the entire paddy growing tract of the country, were selected. From each community project centre, one development block was selected. Villages were selected at random from the selected block and a list of cultivators growing paddy for each selected village was prepared. From this list, two cultivators were selected at random and one field each belonging to them was taken for trial. In each selected field an unreplicated trial was laid out. (iii) N.A. (iv) Yes.

4. GENERAL :

(i) Normal. (ii) Nil. (iii) Yield of grain. (iv) (a) 1953-56, (b) No. (c) N.A. (v) Nil. (vi) Nil. (vii) Nil.

4. RESULTS :

Treatment	Av. yield in lb./ac.
O	1747
N	2112
NP	2276
N'P	2585
N"P	2437
NPK	2507
G.M.	2277
S.E./mean	112.7 lb./ac.
No. of expts.	19

Crop :-Paddy (1st. crop). Ref :-Simple trials on cultivators' fields, (T.C.M.) 1953.

Centre :-Pusa (Bihar).

Type :- 'M'.

Object :-III To study effect of A/S with different sources of P.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) N.A. (c) N.A. (ii) Sandy loam—p.H. 8.0. (iii) Nil. (iv) N.A. (v) N.A. (vi) June-July. (vii) Unirrigated. (viii) N.A. (ix) 40°. (x) November-December.

2. TREATMENTS :

O = Control.
 N = A/S at 20 lb./ac. of N
 NP = A/S at 20 lb./ac. of N+Super at 20 lb./ac. of P_2O_5
 NP' = A/S at 20 lb./ac. of N+Nitro-phos. at 20 lb./ac. of P_2O_5
 NP" = A/S at 20 lb./ac. of N+Ammo. Phos. at 20 lb./ac. of P_2O_5
 All fertilizers applied before planting.

3. DESIGN :

(i) & (ii) Eleven community project centres representing the entire paddy growing tract of the country, were selected. From each community project centre, one development block was selected. Villages were selected at random from the selected block and a list of cultivators growing paddy for each selected village was prepared. From this list, two cultivators were selected at random and one field each belonging to them was taken for trial. In each selected field an unreplicated trial was laid out. (iii) N.A. (iv) Yes.

4. GENERAL :

(i) Normal. (ii) Nil. (iii) Yield of grain. (iv) (a) 1953-56. (b) No. (c) N.A. (v) N.A. (vi) Nil. (vii) Nil.

5. RESULTS :

Treatments	Av. yield in lb./ac.
O	1103
N	1497
NP	1585
NP'	1539
NP''	1688
G.M.	1482
S.E./mean	45.25 lb./ac.
No. of expts.	41

Crop :-Paddy(1st crop). Ref :-Simple Trials on Cultivators' Fields, (T.C.M.) 1953.
Centre :-Rameshwar (Bihar). Type :- 'M'.

Object :-III—To study effect of A/S with different sources of P.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) N.A. (c) N.A. (ii) Red loam—pH. 6.0. (iii) Nil. (iv) N.A. (v) N.A. (vi) July—August. (vii) Unirrigated. (viii) N.A. (ix) 50°. (x) November—December.

2. TREATMENTS :

O =Control (2 plots/field).

N =A/S at 20 lb./ac. of N.

NP =A/S at 20 lb./ac. of N+Super at 20 lb./ac. of P_2O_5 .

NP'' =A/S at 20 lb./ac. of N+ Ammo. Phos. at 20 lb./ac. of P_2O_5 .

All fertilizers applied before planting.

3. DESIGN :

(i) and (ii) Eleven community project centres, representing the entire paddy growing tract of the country, were selected. From each community project centre, one development block was selected. Villages were selected at random from the selected block and list of cultivators growing paddy for each selected village was prepared. From this list, two cultivators were selected at random and one field each belonging to them was taken for trial. In each selected field an unreplicated trial was laid out. (iii) N.A. (iv) Yes.

4. GENERAL :

(i) Normal. (ii) Nil. (iii) Yield of grain. (iv) (a) 1953—56. (b) No. (c) N.A. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

Treatment	Av. yield in lb./ac.
O	1340
N	1611
NP	1883
NP''	1799
G.M.	1658
S.E./mean	51.01 lb./ac.
No. of expts.	15

Crop :-Paddy (1st crop). Ref :-Simple Trials on Cultivators' Fields, (T.C.M.)1953.
Centre :-Rameshwar (Bihar) Type :-'M'.

Object :-I (b) (ii) To study the effect of different levels and types of N and P_2O_5 .

1. BASAL CONDITIONS :

(i) (a) N.A. (b) N.A. (c) N.A. (ii) Red loam—pH. 6.0. (iii) Nil. (iv) N.A. (v) N.A. (vi) July—August. (vii) Unirrigated. (viii) N.A. (ix) 50". (x) November—December.

2. TREATMENTS :

O =Control.

P =Super at 20 lb./ac. of P_2O_5 .

N_1P =A/S at 20 lb./ac. of N+20 lb./ac. of P_2O_5 as super.

N_2P =A/S at 40 lb./ac. of N+20 lb./ac. of P_2O_5 as Super.

N^1P =Urea at 20 lb./ac. of N+20 lb./ac. of P_2O_5 as Super.

N^2P =Urea at 40 lb./ac. of N+20 lb./ac. of P_2O_5 as Super.

All fertilizers applied before planting.

3. DESIGN :

(i) and (ii) Eleven community project centres, representing the entire paddy growing tract of the country, were selected. From each community project centre, one development block was selected. Villages were selected at random from the selected block and a list of cultivators growing paddy for each selected village was prepared. From this list, two cultivators were selected at random and one field each belonging to them was taken for trial. In each selected field an unreplicated trial was laid out. (iii) N.A. (iv) Yes.

4. GENERAL :

(i) Normal. (ii) Nil. (iii) Yield of grain. (iv) (a) 1953—56. (b) No. (c) N.A. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

Treatment	Av. yield in lb./ac.
O	1622
P	1929
N_1P	2100
N_2P	2305
N^1P	2095
N^2P	2262
G.M.	2052
S.E./mean	26.33
No. of expts.	28

Crop :-Paddy (1st crop). Ref :-Simple Trials on Cultivators' Fields (T.C.M.)1953.
Site :-Rameshwar (Bihar). Type :-'M'.

Object :-II To study the effect of N, P and K manures.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) N.A. (c) N.A. (ii) Red loam—pH. 6.0. (iii) Nil. (iv) N.A. (v) N.A. (vi) July—August. (vii) Unirrigated. (viii) N.A. (ix) N.A. (x) November—December.

2. TREATMENTS :

O =Control (2 plots/field).

N =A/S at 20 lb./ac. of N.

N^1 =Urea at 20 lb./ac. of N.

$N+40K$ =A/S at 20 lb./ac. of N+40 lb./ac. of K_2O as Muriate of Potash.

All fertilizers applied before planting.

3. DESIGN :

(i) and (ii) Eleven community project centres, representing the entire paddy growing tract of the country, were selected. From each community project centre, one development block was selected. Villages were selected at random from the selected block and a list of cultivators growing paddy for each selected village was prepared. From this list, two cultivators were selected at random and one field each belonging to them was taken for trial. In each selected field an unreplicated trial was laid out. (iii) N.A. (iv) Yes.

4. GENERAL :

(i) Normal. (ii) Nil. (iii) Yield of grain. (iv) (a) 1953-56. (a) No. (c) N.A. (v) N.A. (vi) Nil. (vii) Nil.

5. RESULTS :

Treatment	Av. yield in lb./ac.
O	993
N	1343
N ^r	1363
N+40K	1553
G.M.	1313
S.E./mean	27.15 lb./ac.
No. of expts.	33

Crop :-Paddy (1st crop). Ref :-Simple Trials on Cultivators' Fields (T.C.M.) 1953.

Site :-Rameshwar (Bihar). Type :-'M'.

Object :-II To study the effect of N, P and K manures

1. BASAL CONDITIONS :

(i) (a) N.A. (b) N.A. (c) N.A. (ii) Red loam—pH. 6.0. (iii) Nil. (iv) N.A. (v) N.A. (vi) July—August. (vii) Unirrigated. (viii) N.A. (ix) 50°. (x) November—December.

2. TREATMENTS :

O =Control.

N =A/S at 20 lb./ac. of N.

NP =A/S at 20 lb./ac. of N+Super at 20 lb./ac. of P₂O₅.

N^rP=Urea at 20 lb./ac. of N+Super at 20 lb./ac. of P₂O₅.

NPK=A/S at 20 lb./ac. of N+Super at 20 lb./ac. of P₂O₅+Mur. of Pot. at 20 lb./ac. of K₂O.

All fertilizers applied before planting.

3. DESIGN :

(i) and (ii) Eleven community project centres, representing the entire paddy growing tract of the country, were selected. From each community project centre, one development block was selected. Villages were selected at random from the selected block and a list of cultivators growing paddy for each selected village was prepared. From this list two cultivators were selected at random and one field each belonging to them was taken for trial. In each selected field an unreplicated trial was laid out. (iii) N.A. (iv) Yes.

4. GENERAL :

(i) Normal. (ii) Nil. (iii) Yield of grain. (iv) (a) 1953-56. (b) No. (c) N.A. (v) N.A. (vi) Nil. (vii) Nil.

5. RESULTS :

Treatments	Av. yield in lb./ac.
O	1699
N	1962
NP	2194
N ^r P	2167
NPK	2417
G.M.	2087
S.E./mean	33.73 lb./ac.
No. of expts.	20

Crop :- Paddy (1st crop). Ref :- Simple Trials on Cultivators' Fields (T.C.M.), 1953.

Centre :- Rameshwar (Bihar). Type :- 'M'.

Object :- I (a) (ii) To study the effect of different levels and sources of N.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) N.A. (c) N.A. (ii) Red loam-pH. 6.0. (iii) Nil. (iv) N.A. (v) N.A. (vi) July August. (vii) Unirrigated. (viii) N.A. (ix) 50". (x) November-December.

2. TREATMENTS :

O = Control (2 plots/field).

N₁ = A/S at 20 lb./ac. of N

N₂ = A/S at 40 lb./ac. of N

N₁" = Urea at 20 lb./ac. of N

N₂" = Urea at 40 lb./ac. of N

All fertilizers applied before planting.

3. DESIGN :

(i) and (ii) Eleven community project centres, representing the entire paddy growing tract of the country, were selected. From each community project centre, one development block was selected. Villages were selected at random from the selected block and a list of cultivators growing paddy for each selected village was prepared. From this list, two cultivators were selected at random and one field each belonging to them was taken for trial. In each selected field an unreplicated trial was laid out. (iii) N.A. (iv) Yes.

4. GENERAL :

(i) Normal. (ii) Nil. (iii) Yield of grain. (iv) (a) 1953-56. (b) No. (c) N.A. (v) N.A. (vi) Nil. (vii) Nil.

5. RESULTS :

Treatments	Av. yield in lb./ac.
O	1029
N ₁	1327
N ₂	1558
N ₁ "	1369
N ₂ "	1604
G.M.	1377
S.E./mean	26.33 lb./ac.
No. of expts.	36

Crop :- Paddy (1st crop). Ref :- Simple Trials on Cultivators' fields (T.C.M.), 1953.

Centre :- Rameshwar (Bihar). Type :- 'M'.

Object :- III To study effect of A/S with different sources of P₂O₅.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) N.A. (c) N.A. (ii) Red loam-pH. 6.0. (iii) Nil. (iv) N.A. (v) N.A. (vi) July-August. (vii) Unirrigated. (viii) N.A. (ix) 50". (x) November-December.

2. TREATMENTS :

O = Control.

N = A/S at 20 lb./ac. of N

NP" = A/S at 20 lb./ac. of N + Ammo. Phos. at 20 lb./ac. of P₂O₅.

All fertilizers applied before planting.

3. DESIGN :

(i) and (ii) Eleven community project centres, representing the entire paddy growing tract of the country, were selected. From each community project centre, one development block was selected. Villages were

selected at random from the selected block and a list of cultivators growing paddy for each selected village was prepared. From this list, two cultivators were selected at random and one field each belonging to them was taken for trial. In each selected field an unreplicated trial was laid out. (iii) N.A. (iv) Yes.

4. GENERAL :

(i) Normal. (ii) Nil. (iii) Yield of grain. (iv) (a) 1953-56. (b) No. (c) N.A. (v) N.A. (vi) Nil. (vii) Nil.

5. RESULTS :

Treatment	Av. yield in lb./ac.
O	993
N	1322
NP ^r	1492
G.M.	1269
S.E./mean	35.38 lb./ac.
No. of expts.	30

Crop :- Wheat.

Ref :- 53(66).

Site :- Botanical Sub-Stn. Monghyr.

Type :- 'M'.

Object :--To study the effect of locally available green weeds as source of raw material for making compost.

1. BASAL CONDITIONS :

(i) (a) No. (b) Wheat. (c) Nil. (ii) (a) Loam. (b) N.A. (iii) 18.11.53. (iv) (a) G.M. buried with help of Bihar plough ; four *deshi* ploughings. (b) Sown behind the plough. (c) 40 srs./ac. (d) 1' between rows. (e) —. (v) Nil. (vi) N.P. 52—(late). (vii) Unirrigated. (viii) Weeding after a month of sowing and another after 3 weeks. (ix) 1.13". (x) 18.3.54.

2. TREATMENTS :

- Control (no green matter).
- Chakora* green matter turning under on 27.9.53.
- Jangli Til* " " " " "
- Sunhemp* " " " " "
- Dhaincha* " " " " "
- Jute leaves " " " " "
- Chakora* compost turned under.
- Jangali Til* " " "
- Mirchaya* " " "
- Kokrandha* " " "

3. DESIGN :

(i) R.B.D. (ii) (a) 10. (b) N.A. (iii) 4. (iv) (a) 5'×5'. (b) 4'×4'. (v) $\frac{1}{2}$ ' around the plot. (vi) Yes.

4. GENERAL :

(i) Normal (no lodging). (ii) N.A. (iii) Yield of grain. (iv) (a) No. (b) Nil. (c) Nil. (v) (a) Nil. (b) Nil. (vi) and (vii) Nil.

5. RESULTS :

- (i) 298.5 lb./ac.
 (ii) 93.2 lb./ac.
 (iii) Treatment differences are significant.
 (iv) Av. yield of grain in lb./ac.

Treatment	Av. yield
1.	200.3
2.	140.8
3.	283.6
4.	268.3
5.	320.2
6.	371.8
7.	344.1
8.	318.6
9.	364.3
10.	373.2
S.E./mean	= 46.6 lb./ac.

Crop :- Wheat.

Ref :- Bh. 53(65).

Site :- Botanical Sub-Stn. Monghyr.

Type :- 'M'.

Object :—To study the response to Sunnhemp and *Dhaincha* applied to Wheat one month after sowing and at budding and flowering stage, *in situ* and after cutting.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Wheat and Gram. (c) Nil. (ii) (a) Loam. (b) N.A. (iii) 19.11.53. (iv) (a) G.M. buried with the help of Bihar plough, 4 *deshi* ploughings. (b) Sown behind the plough. (c) 40 srs./ac. (d) Row to row 1'. (e) —. (v) Nil. (vi) N.P. 52 (late). (vii) Unirrigated. (viii) Weeding after a month of sowing and another after 3 weeks. (ix) 1.13". (x) 16.3.54 and 17.3.54.

2. TREATMENTS :

All combinations of (1), (2) and (3) + a Control.

(1) 2 sources of G.M. : G_1 =Sunnhemp and G_2 =*Dhaincha*.

(2) 2 methods of application : M_1 =grown *in situ* and M_2 =applied after cutting.

(3) 3 times of application : T_1 =one month after sowing ; T_2 =at budding stage and T_3 =at flowering stage.

3. DESIGN :

(i) R.B.D. (ii) (a) 13. (b) N.A. (iii) 4. (iv) (a) 15'×45'. (b) 13'×41'. (v) A non-experimental of 2' width along the length, and 1' along the breadth of the plot ; 3' path between adjacent plots and 5' path between adjacent blocks. (vi) Yes.

4. GENERAL :

(i) Normal (no lodging). (ii) N.A. (iii) Germination, stand after one month and yield of grain. (iv) (a) No. (b) Nil. (c) Nil. (v) (a) No. (b) Nil. (vi) and (vii) Nil.

5. RESULTS :

(i) 274.2 lb./ac.

(ii) 124.4 lb./ac.

(iii) None of the effects is significant.

(iv) Av. yield of grain in lb./ac.

Control=300.8 lb./ac.

	G_1	G_2	Mean	T_1	T_2	T_3
M_1	245.6	275.8	260.7	311.9	261.4	208.8
M_2	281.1	294.2	287.6	262.7	268.6	331.6
Mean	263.4	285.0	274.2			
T_1	267.3	307.3	287.3			
T_2	266.0	264.0	265.0			
T_3	256.8	283.7	370.2			

S.E. of control mean = 62.2 lb./ac.

S.E. of marginal mean of G or M = 25.4 lb./ac.

S.E. of marginal mean of T = 31.0 lb./ac.

S.E. of body of G×M table = 35.9 lb./ac.

S.E. of body of T×M or T×G table = 44.0 lb./ac.

Crop :- Wheat.

Ref :- Bh. 53(120).

Site :- Central Botanical Sub-Stn., Pusa.

Type :- 'M'.

Object :- To find out best source of P_2O_5 to be combined with Oilcake.

1. BASAL CONDITIONS :

(i) (a) G.M.—Wheat. (b) G.M. (c) Nil. (ii) (a) Light loam. (b) N.A. (iii) First week of Nov. 1953. (iv) (a) 3 *deshi* ploughings followed by one discing. (b) Sown behind the plough. (c) 40 srs./ac. (d) Row to row = 1'. (e) — (v) Nil. (vi) N.P. 758 (Medium). (vii) Irrigated. (viii) 2 weedings at an interval of 2 months, first weeding after a month of sowing. (ix) 1.07". (x) First week of April, 1954.

2. TREATMENTS :

1. No manure.
2. Oilcake at 40 lb./ac. of N.
3. Oilcake at 40 lb./ac. of N+Rock Phosphate at 80 lb./ac. of P_2O_5 broadcast.
4. Oilcake at 40 lb./ac. of N+Super at 80 lb./ac. of P_2O_5 broadcast.
5. Oilcake at 40 lb./ac. of N+Rock Phosphate at 80 lb./ac. of P_2O_5 placed.
6. Oilcake at 40 lb./ac. of N+Super at 80 lb./ac. of P_2O_5 placed.

3. DESIGN :

(i) R.B.D. (ii) (a) 6. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 45' × 21'. (v) 2' border around the experimental field. (vi) Yes.

4. GENERAL :

(i) Fair (no lodging). (ii) Nil. (iii) Yield of grain only. (iv) (a) 1953—continued. (b) Yes. (c) Nil. (v) (a) Delhi. (b) Nil. (vi) and (vii) Nil.

5. RESULTS :

- (i) 351.5 lb./ac.
- (ii) 48.39 lb./ac.
- (iii) Treatments differ significantly.
- (iv) Av. yield of grain in lb./ac.

Treatment	Av. yield
1.	175
2.	323
3.	338
4.	336
5.	498
6.	439
S.E./mean	=24.20 lb./ac.

Crop :-Wheat.

Ref :- Bh. 53 (121).

Site :- Central Botanical Sub-Stn., Pusa.

Type :- 'M'.

Object :- To find out the best source of P_2O_5 to be combined with A/S and F.Y.M.

1. BASAL CONDITIONS :

(i) (a) G.M. —Wheat. (b) G.M. (Sunnhemp). (c) Nil. (ii) (a) Light loam. (b) N.A. (iii) First week of Nov. 1953. (iv) (a) 3 *deshi* ploughings followed by one discing. (b) Sown behind the plough. (c) 40 sr./ac. (d) Row to row=1'. (e) —. (v) Nil. (vi) N.P. 710 (Medium). (vii) Irrigated (viii) 2 weedings at an interval of 2 months, first weeding after a month of sowing. (ix) 1.07". (x) First week of April, 1954.

2. TREATMENTS:

1. No manure.
2. A/S at 40 lb./ac. of N.
3. F.Y.M. at 80 lb./ac. of N.
4. Dicalcium Phosphate at 80 lb./ac. of P_2O_5 .
5. Dicalcium Phosphate at 80 lb./ac. of P_2O_5 +A/S at 40 lb./ac. of N.
6. Dicalcium Phosphate at 80 lb./ac. of P_2O_5 +F.Y.M. at 80 lb./ac. of N.

7. Super at 80 lb./ac. of P_2O_5
8. Super at 80 lb./ac. of P_2O_5 +A/S at 40 lb./ac. of N.
9. Super at 80 lb./ac. of P_2O_5 +F.Y.M. at 80 lb./ac. of N.
10. B.M. at 80 lb./ac. of P_2O_5 .
11. B.M. at 80 lb./ac. of P_2O_5 +A/S at 40 lb./ac. of N.
12. B.M. at 80 lb./ac. of P_2O_5 +F.Y.M. at 80 lb./ac. of N.

3. DESIGN :

- (i) R.B.D. (ii) (a) 12. (b) N.A. (iii) 4. (iv) (a) 68' × 18'. (b) 66' × 16'. (v) 1' around. (vi) Yes.

4. GENERAL :

- (i) Fair (no lodging). (ii) Nil. (iii) Yield of grain only. (iv) (a) 1952-1954. (b) Yes. (c) Nil. (v) (a) Delhi (b) Nil. (vi) and (vii) Nil.

5. RESULTS :

- (i) 602.4 lb./ac.
 (ii) 86.3 lb./ac.
 (iii) Treatment differences are highly significant.
 (iv) Av. yield of grain in lb./ac.

Treatment	Av. yield	Treatment	Av. yield
1.	277	7.	716
2.	313	8.	735
3.	563	9.	926
4.	670	10.	342
5.	793	11.	330
6.	845	12.	699
S.E./mean	=43.2 lb./ac.		

Crop :- Wheat.

Ref :- Bh. 53 (19).

Site :- Agri. Chemistry Section, Sabour.

Type :- 'M'.

Object :- To test whether B.M. and Rock Phosphate would be as effective as Super and that their availability could be increased by chemical treatment of the soil.

1. BASAL CONDITIONS :

- (i) (a) Wheat—Maize—Wheat. (b) Maize. (c) As per treatments. (ii) (a) Loam. (b) N.A. (iii) 17.11.53. (iv) (a) Spade ploughing. (b) Seed sown in rows, 7 rows in a plot were made. (c) 4 ozs/plot. (d) and (e) N.A. (v) Nil. (vi) N.P. 52—(late). (vii) Irrigated. (viii) One weeding and one interculture. (ix) 1.11". (x) 29.3.54.

2. TREATMENTS :

1. Control—no manure.
 2. A/S at 40 lb./ac. of N.
 3. A/S at 40 lb./ac. of N+Super at 40 lb./ac. of P_2O_5 .
 4. A/S at 40 lb./ac. of N+Rock Phosphate at 40 lb./ac. of P_2O_5 .
 5. Compost at 40 lb./ac. of N.
 6. Treatment 5+Super at 40 lb./ac. of P_2O_5 .
 7. Treatment 5+Rock Phosphate at 40 lb./ac. of P_2O_5 .
 8. Treatment 5+B.M. at 40 lb./ac. of P_2O_5 .
 9. Treatment 3+ H_2SO_4 .
 10. Treatment 4+ H_2SO_4 .
- Time and method of application of manures N.A.

3. DESIGN :

- (i) R.B.D. (ii) (a) 10. (b) N.A. (iii) 6. (iv) (a) N.A. (b) 1/400th ac. (square in shape). (v) Yes—2' between adjacent plots. (vi) Yes.

4. GENERAL :

- (i) Good—No lodging. (ii) N.A. (iii) Weight of grain, weight of straw. (iv) (a) 1952-1955. (b) Yes. (c) Nil. (v) (a) No. (b) Nil. (vi) and (vii) Nil.

5. RESULTS :

- (i) 966 lb./ac.
(ii) 293.8 lb./ac.
(iii) Treatment differences are highly significant.
(iv) Av. yield of grain in lb./ac.

Treatment	Av. yield
1.	502
2.	1113
3.	1192
4.	1049
5.	711
6.	864
7.	640
8.	811
9.	1367
10.	1317
S.E./mean	=119.9 lb./ac.

Crop :- Wheat.

Ref :- Bh. 53 (17).

Site :- Agri. Chemistry Section, Sabour.

Type :- 'M'.

Object :- To test the effects of previous *kharif* crops on soil fertility as shown by the yield of the succeeding crop of Wheat.

1. BASAL CONDITIONS :

- (i) (a) *Sanai*—Wheat—*Sanai*. (b) *Sanai*. (c) Nil. (ii) (a) Loam. (b) N.A. (iii) 20.11.53. (iv) (a) Spade ploughing. (b) Sown in line. (c) 4 oz./plot. (d) and (e) N.A. (v) Nil. (vi) N.P. 52 (late). (vii) Irrigated. (viii) One weeding and one interculture. (ix) 2.14". (x) 4.4.54.

2. TREATMENTS :

Previous crops grown on these plots

1. *Kalai*.
2. *Mung*.
3. Soyabean.
4. *Jowar*.
5. Maize.
6. Fallow.

3. DESIGN :

- (i) R.B.D. (ii) (a) 6. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 1/400th ac. (v) 2' between adjacent plots. (vi) Yes.

4. GENERAL :

- (i) Good (no lodging). (ii) N.A. (iii) Yield of grain and straw. (iv) (a) 1951—continued. (b) Yes. (v) (a) No. (b) No. (vi) and (vii) Nil.

5. RESULTS :

- (i) 384.1 lb./ac.
(ii) 262.5 lb./ac.
(iii) Treatments do not differ significantly.
(iv) Av. yield of grain in lb./ac.

Treatment	Av. yield
1.	840.5
2.	516.6
3.	362.9
4.	190.7
5.	244.5
6.	149.5
S.E./mean	=131.3 lb./ac.

Crop :- Wheat.
Site :- Agri. Chemistry Section, Sabour.

Ref :- Bh. 53(16).
Type :- 'M'.

Object :- To study the effect of application of P manure at the time of turning of green manure crop.

1. BASAL CONDITIONS :

(i) (a) *Sanai-Wheat-Sanai*. (b) *Sanai* (Sunnhemp). (c) Nil. (ii) (a) Loam (b) N.A. (iii) 15.11.53'. (iv) (a) Spade ploughing. (b) N.A. (c) Sown in line. (d) & (e), N.A. (v) Nil. (vi) N.P. 52—late. (vii) Irrigated. (viii) One weeding and one interculture. (ix) 1.11". (x) 17.3.54.

2. TREATMENTS :

1. Super at 40 lb./ac. of P_2O_5 at the time of turning *Sanai*.
2. Rock Phos. at 40 lb./ac. of P_2O_5 at the time of turning *Sanai*.
3. Super at 40 lb./ac. of P_2O_5 at the time of sowing wheat.
4. Rock Phos. at 40 lb./ac. of P_2O_5 at the time of sowing wheat.
5. Manured fallow.

3. DESIGN :

(i) C.R.D. (ii) (a) No block formation. (b) N.A. (iii) 3. (iv) N.A. (b) 1/400th²ac. (v) 2' border between adjacent plots. (vi) Yes.

4. GENERAL :

(i) Good (no lodging.) (ii) N.A. (iii) Weight of stalk & grain. (iv) (a) 1953—1954. (b) Yes. (c) Nil. (v) (a) No (b) No. (vi) & (vii) Nil.

5. RESULTS :

- (i) 867 lb./ac.
- (ii) 167.9 lb./ac.
- (iii) Treatment differences are significant.
- (iv) Av. yield of grain in lb./ac.

Treatment	Av. yield.
1.	1018
2.	1052
3.	576
4.	772
5.	918
S.E./mean	= 96.9 lb./ac.

Crop :- Wheat.
Site :- College Experimental Farm, Sabour.

Ref :- Bh. 52(20).
Type :- 'M'.

Object :- To study the effect of green manuring with different crops on Wheat.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) G.M. (c) Nil. (ii) (a) Sandy loam. (b) N.A. (iii) G.M. 18.7.52. Wheat—N.A. (iv) (a) to (e) N.A. (v) Nil. (vi) N.A. (vii) Irrigated. (viii) N.A. (ix) 0.87". (x) Wheat 31.3.1953.

2. TREATMENTS :

Green manure crops sown before wheat are :

1. *Kalai*.
2. *Sanai*.
3. *Dhaincha*.

3. DESIGN :

(i) R.B.D. (ii) (a) 3. (b) N.A. (iii) 3. (iv) (a) N.A. (b) 0.29 ac. (v) N.A. (vi) Yes.

4. GENERAL :

- (i) Normal. (ii) Nil. (iii) Yield of grain and yield of *bhusa*. (iv) (a) No. (b) Nil. (c) No. (v) (a) None. (b) No. (vi) & (vii) Nil.
- (i) 980 lb./ac.
- (ii) 98.77 lb./ac.
- (iii) Treatment differences are not significant.

(iv) Av. yield of grain in lb./ac.

Treatment	Av. yield.
1.	974
2.	1060
3.	906
S.E./mean	= 56.9 lb./ac.

Crop :-Wheat.

Ref :-Bh. 53(30).

Site :-Agri. Res. Inst. Botany Section, Sabour.

Type :-'C'.

Object .—To find out most economical spacing between plants and rows for higher yield.

1. BASAL CONDITIONS :

(i) (a) No. (b) Wheat. (c) Nil. (ii) (a) Sandy loam. (b) N.A. (iii) 17.11.53. (iv) (a) Harrowing once, (b) N.A. (c) 40 srs./ac. (approx). (d) As per treatments. (e) N.A. (v) Compost at 100 md./ac., before sowing when preparing field. (vi) N.P. 52 (late). (vii) Irrigated. (viii) Weeding and other agricultural operations harrowing were done once. (ix) 1.11". (x) 3.4.54.

2. TREATMENTS :

Main-plot treatments :—

All combinations of (1) and (2)

(1) 2 methods of planting : (a) on Ridges and (b) Flat.

(2) 3 levels of row spacing : $S_1=9"$, $S_2=12"$ and $S_3=18"$.

Sub-plot treatments :—

3 levels of plant spacing : $S'_1=6"$, $S'_2=9"$ and $S'_3=12"$.

3. DESIGN :

(i) Split plot design. (ii) (a) 6 main-plots/block, 3 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) $19\frac{1}{2}' \times 13\frac{1}{2}'$. (b) $12' \times 6'$. (v) $3\frac{1}{4}'$ all round the net blot. (vi) Yes.

4. GENERAL :

(i) N.A. (ii) Not observed. (iii) Grain yield. (iv) (a) 1953—continued. (b) No. (c) Nil. (v) (a) Nil. (b) Nil. (vi) and (vii) Nil.

5. RESULTS

(i) 579.0 lb./ac.

(ii) (a) 225.2 lb./ac.

(b) 145.1 lb./ac.

(iii) Main effect 'ridges vs. flat' alone is significant. Others are not significant.

(iv) Av. yield of grain in lb./ac.

	Ridges	Flat	Mean	S'_1	S'_2	S'_3
S_1	502.3	813.5	657.9	690.3	661.1	622.2
S_2	525.0	586.6	555.8	573.6	525.0	568.8
S_3	518.5	528.3	523.4	602.8	486.1	481.3
Mean	515.3	642.8	579.0			
S'_1	583.3	661.1	622.2			
S'_2	489.4	625.5	557.4			
S'_3	473.2	641.7	557.4			

1. S.E. of marginal mean of method of planting = 37.5 lb./ac.
2. S.E. of marginal mean of row spacing = 46.0 lb./ac.
3. S.E. of body of 'method \times row spacing' table = 55.3 lb./ac.
- S.E. of difference of two
4. plant spacing means = 41.9 lb./ac.
5. plant spacing means at the same method = 59.5 lb./ac.
6. method means at the same plant spacing = 72.1 lb./ac.
7. plant spacing means at the same row spacing = 72.5 lb./ac.
8. row spacing means at the same plant spacing = 87.9 lb./ac.

Crop :-Wheat.
Site :-College Experimental Farm, Sabour.

Ref :-Bh. 53(6).
Type :-'IM'.

Object .—To find out the effect of sources of N suitable for Wheat with different numbers and intensities of irrigation.

1. BASAL CONDITIONS .

(i) (a) Maize + *Kalai*—Gram + Mustard—Maize + *Kalai*. (b) Early maize (failed) green manured with *sanai* (c) Nil. (ii) (a) Sandy loam. (b) N.A. (iii) 14.11.53. (iv) (a) Two tractor ploughings with disc and then 6 *deshi* ploughings. (b) Sown behind the plough. (c) 4) srs./ac. (d) Row to row=1'. (e) —. (v) Super at 2 md./ac. (vi) NP 52 (late). (vii) Irrigated. As per treatments. (viii) Rouging. (ix) 1.11". (x) 24.3.54.

2. TREATMENTS :

All combinations of (1), (2) and (3)

- (1) 3 levels of irrigation : $I_1=2$, $I_2=3$ and $I_3=3$ irrigations.
(2) 3 intensities of irrigation : $A_1=2"$, $A_2=3"$ and $A_3=4"$ per acre.
(3) 3 applications of N : $N_0=0$, $N_1=A/S$ at 40 lb./ac.N and $N'_1=A/S$ and A/N mixed at 40 lb /ac.N.

3. DESIGN :

(i) 3^s partially Confd. (ii) (a) 9 plots/block; 3 blocks/replication. (b) N.A. (iii) 2. (iv) (a) N.A. (b) 1/100th ac. ; Dimensions N.A. (v) Yes—Details N.A. (vi) Yes.

4. GENERAL :

(i) Good (no lodging). (ii) Nil. (iii) Wieght of grain and straw. (iv) (a) 1953—continued. (b) No. (c) Nil. (v) (a) Nil. (b) No. (vi) and (vii) Nil.

5. RESULTS :

- (i) 1244 lb./ac.
(ii) 329.2 lb./ac.
(iii) Only main effect of N is highly significant. No other effect is significant.
(iv) Av. yield of grain in lb./ac.

	A ₁	A ₂	A ₃	Mean	N ₀	N ₁	N' ₁
I ₁	1212	1103	1237	1184	978	1371	1203
I ₂	1124	1313	1299	1245	1070	1275	1391
I ₃	1149	1404	1358	1304	1007	1321	1584
Mean	1162	1273	1298	1244			
N ₀	936	1020	1099	1018			
N ₁	1279	1470	1216	1322			
N' ₁	1271	1329	1580	1339			

S.E. of any marginal mean = 77.5 lb./ac.
S.E. of body of the tables = 134.4 lb./ac.

Crop :-Wheat.
Site :-Agri. Chemistry Section, Sabour.

Ref :-Bh. 53(15).
Type :-'D'.

Object :—To study the effect of soaking seeds in mixture of chemicals.

1. BASAL CONDITIONS :

(i) (a) Wheat—Maize—Wheat. (b) Maize. (c) Nil. (ii) (a) Sandy loam. (b) N.A. (iii) 25.11.53. (iv) (a) Spade ploughing. (b) Sown in line. (c) 4 oz./plot. (d) and (e) N.A. (v) Nil. (vi) N.P. 52 (late). (vii) Irrigated. (viii) One weeding and one interculture. (ix) 2.14". (x) 3.4.54.

2. TREATMENTS :

1. Control.
2. Soaking in water.
3. Soaking in K_2HPO_4 —M/4.
4. Soaking in KH_2PO_4 —M/32.
5. Coating with gum.
6. Coating with gum and Castor cake.
7. Coating with gum and A/S.
8. Coating with gum and Super.

For treatment 5, 8 oz. of gum was mixed in water and the volume was made upto 400 cc. One lb. of wheat seed was coated in 100 cc. of gum solution.

For treatment 7, 2 oz. of A/S was added in 100 cc. of gum. Then 1 lb. of wheat seed was uniformly coated.

For treatment 8, 100 cc. of gum+2 oz. of Super was coated to 1 lb. of wheat seed.

For treatment 6, 2 oz. of castor cake was coated in 1 lb. of wheat seed.

Seeds were soaked for 24 hours under each treatment.

3 DESIGN :

- (i) R.B.D. (ii) (a) 8. (b) N.A. (iii) 3. (iv) (a) N.A. (b) 1/400th ac. (v) 2' border between adjacent plots. (vi) Yes.

4. GENERAL :

- (i) Good. No lodging (ii) N.A. (iii) % of germination, yield of straw and yield of grain. (iv) (a) No. (b) Nil. (c) Nil. (v) (a) No. (b) Nil. (vi) and (vii) Nil.

5. RESULTS :

- (i) 801.2 lb./ac.
 (ii) 117.6 lb./ac.
 (iii) Treatments are not significantly different.
 (iv) Av. yield of grain in lb./ac.

Treatment	Av. yield
1.	942.1
2.	781.6
3.	780.7
4.	749.6
5.	716.4
6.	843.3
7.	789.2
8.	806.6
S.E./mean	= 67.8 lb./ac.

Crop :- Wheat. Ref :- Simple Trials on Cultivators' Fields (T.C.M. 1953).
 Centre :- Pusa (Bihar). Type :- 'M'.

Object :- I (b) (ii) To study different levels and types of N and P_2O_5 .

1. BASAL CONDITIONS :

- (i) (a) N.A. (b) N.A. (c) N.A. (ii) Grey and brown—Sandy—pH.8.0. (iii) N.A. (iv) N.A. (v) N.A. (vi) October-November. (vii) Unirrigated. (viii) N.A. (ix) N.A. (x) March-April.

2. TREATMENTS :

- O = Control.
 P = 20 lb./ac. of P_2O_5 as Super ;
 N_1P = A/S at 20 lb./ac. of N+20 lb./ac. of P_2O_5 as Super.
 N_2P = A/S at 40 lb./ac. of N+20 lb./ac. of P_2O_5 as Super.
 $N_1''P$ = Urea at 20 lb./ac. of N+20 lb./ac. of P_2O_5 as Super.
 $N_2''P$ = Urea at 40 lb./ac. of N+20 lb./ac. of P_2O_5 as Super.

3. DESIGN :

- (i) & (ii) Eleven community project centres, representing the entire wheat growing tract of the country, were selected. From each community project centre, one development block was selected. Villages were selected at random from the selected block and a list of cultivators growing wheat for each selected village was prepared. From this list, two cultivators were selected at random and one field each belonging to them was taken for trial. In each selected field an unreplicated trial was laid out. (iii) N.A. (iv) Yes.

4. GENERAL :

(i) Normal. (ii) Nil. (iii) Yield of grain. (iv) (a) 1953-56. (b) No. (c) N.A. (v) N.A. (vi) Nil. (vii) Nil.

5. RESULTS :

Treatment	Av. yield in lb./ac.
O	1029
P	1186
N ₁ P	1427
N ₂ P	1654
N ₁ 'P	1411
N ₂ 'P	1580
G.M.	1381
S.E./mean	63.85 lb./ac.
No. of experiments	33

Crop :- Wheat. Ref :- Simple Trials on Cultivator's Fields (T.C.M) 1953.
Centre :- Pusa (Bihar). Type :- 'M'.

Object :- II To study the effect of N, P and K manures.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) N.A. (c) N.A. (ii) Grey and brown—Sandy loam ; pH.8.4. (iii) Nil. (iv) N.A. (v) N.A. (vi) October-November. (vii) Unirrigated. (viii) N.A. (ix) N.A. (x) March-April.

2. TREATMENTS :

O=Control.

N=A/S at 20 lb./ac. of N.

NP=A/S at 20 lb./ac. of N+Super at 20 lb./ac. of P₂O₅.

N'P=A/N at 20 lb./ac. of N+Super at 20 lb./ac. of P₂O₅.

N''P=Urea at 20 lb./ac. of N+Super at 20 lb./ac. of P₂O₅.

NPK=A/S at 20 lb./ac. of N+Super 20 lb./ac. of P₂O₅+Muriate of Potash at 20 lb./ac. of K₂O.

3. DESIGN :

(i) & (ii) Eleven community project centres, representing the entire wheat growing tract of the country, were selected. From each community project centre, one development block was selected. Villages were selected at random from the selected block and a list of cultivators growing wheat for each selected village was prepared. From this list, two cultivators were selected at random and one field each belonging to them was taken for trial. In each selected field an unreplicated trial was laid out. (iii) N.A. (iv) Yes.

4. GENERAL :

(i) Normal. (ii) Nil. (iii) Yield of grain. (iv) (a) 1953-56. (b) No. (c) N.A. (v) N.A. (vi) Nil. (vii) Nil.

5. RESULTS :

Treatment	Av. yield in lb./ac.
O	1066
N	1316
NP	1510
N'P	1330
N''P	1623
NPK	1470
G.M.	1386
S.E./mean	40.32
No. of experiments	48

Crop :- Wheat. Ref :- Simple Trials on Cultivator's Fields (T.C.M.) 1953.

Centre :- Pusa (Bihar).

Type :- 'M'.

Object :- III To study the effect of A/S with different sources of P_2O_5 .

1. BASAL CONDITIONS :

(i) (a) N.A. (b) N.A. (c) N.A. (ii) Grey and brown—Sandy loam ; pH.8.0. (iii) Nil. (iv) N.A. (v) N.A. (vi) October-November. (vii) Unirrigated. (viii) N.A. (ix) N.A. (x) March-April.

2. TREATMENTS :

O = Control.

N = A/S at 20 lb./ac. of N.

NP = A/S at 20 lb./ac. of N + Super at 20 lb./ac. of P_2O_5 .

NP' = A/S at 20 lb./ac. of N + Nitrophos. at 20 lb./ac. of P_2O_5 .

NP'' = A/S at 20 lb./ac. of N + Ammo. Phos. at 20 lb./ac. of P_2O_5 .

3. DESIGN :

(i) & (iii) Eleven community project centres, representing the entire wheat growing tract of the country were selected. From each community project centre, one development block was selected. Villages were selected at random from the selected block and a list of cultivators growing wheat for each selected village was prepared. From this list, two cultivators were selected at random and one field each belonging to them was taken for trial. In each selected field an unreplicated trials was laid out. (iii) N.A. (iv) Yes.

4. GENERAL :

(i) Normal. (ii) Nil. (iii) Yield of grain. (iv) (a) 1953—56. (b) No. (c) N.A. (v) N.A. (vi) Nil (vii) Nil.

5. RESULTS :

Treatment	Av. yield in lb./ac.
O	926
N	1112
NP	1221
NP'	1287
NP''	1256
G.M.	1160
S.E./mean	27.15 lb./ac.
No. of experiments	79

Crop :- Maize.

Ref :- Bh. 53(18)

Site :- Agri. Chemistry Section, Sabour.

Type :- 'M'.

Object :- To study the effect of different doses of castor cake on yield of Maize.

1. BASAL CONDITIONS :

(i) (a) Maize-Wheat-Maize. (b) Wheat. (c) Mahua cake at 6 lb./plot + A/S at 8 oz/plot + Super 10 oz/plot + Potash at 4 oz/plot. (ii) (a) Loam. (b) N.A. (iii) 24.6.53. (iv) (a) Spade ploughing. (b) and (c) N.A. (d) Each plot divided into 6 strips and in each strip 13 holes were made. (e) 2 seeds / hole. (v) Nil. (vi) Unirrigated. (vii) Unirrigated. (viii) One weeding and three interculturalures at an interval of 2 weeks. (ix) 38.61%. (x) 24.9.53.

2. TREATMENTS ;

1. Control.

2. Inorganic manure + Castor cake at 2 lb./plot.

3. Inorganic manure + Castor cake at 4 lb./plot.

4. Inorganic manure + Castor cake at 6 lb./plot.

5. Inorganic manure + Castor cake at 8 lb./plot.

Inorganic manure consists of A/S at 8 oz/plot + Super at 10 oz/plot + Potash at 40 oz/plot.

3. DESIGN :

(i) C.R.D. (ii) (a) No block formation. (b) N.A. (iii) 2. (iv) (a) N.A. (b) 1/400th ac. (v) 2' between adjacent plots all round. (vi) Yes.

4. GENERAL :

(i) Good. Lodging on 30.7.53. (ii) Nil. (iii) Weight of grain, weight of cobs and weight of stalks. (iv) (a) No. (b) No. (c) Nil. (v) (a) Nil. (b) Nil. (vi) Nil. (vii) In the control plots, cobs were formed, but no grain formation took place, hence the yield of grain in control plots was zero.

5. RESULTS :

- (i) 1608 lb./ac.
 (ii) 648.5 lb./ac.
 (iii) Treatments are significantly different.
 (iv) Av. yield of grain in lb./ac.

Treatment	Av. yield
1.	Nil
2.	849.8
3.	1757.0
4.	2739.0
5.	2696.0
S.E./mean	=458.6 lb./ac.

Crop :- Maize.

Ref :- Bh. 52(23).

Site :- College Experimental Farm, Sabour.

Type :- 'M'.

Object :- To study the effect of application of A/S and A/N on the yield of Maize.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) G.M. (c) Nil. (ii) (a) Sandy loam. (b) N.A. (iii) 26.6.1952. (iv) (a) 2 ploughings. (b) Broadcast. (c) 8 srs./ac. (d) and (e) —. (v) G.M. (vi) N.A. (vii) Unirrigated. (viii) Hoeing, weeding and earthing once after germination. (ix) 31.91". (x) 15.9.1952.

2. TREATMENTS :

1. Control.
 2. A/S at 40 lb./ac. of N.
 3. A/N at 40 lb./ac. of N.
- Time and method of application of manure—N.A.

3. DESIGN :

(i) R.B.D. (ii) (a) 3. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 1/20th ac. (v) None. (vi) Yes.

4. GENERAL :

(i) Normal. (ii) Nil. (iii) Grain yield. (iv) (a) No. (b) Nil. (c) Nil. (v) (a) None. (b) No. (vi) and (vii) Nil.

5. RESULTS :

- (i) 2941 lb./ac.
 (ii) 250.0 lb./ac.
 (iii) Treatment differences are not significant.
 (iv) Av. yield of grain in lb./ac.

Treatment	Av. yield
1.	3020
2.	3045
3.	2758
S.E./mean	=125.0 lb./ac.

Crop :- Maize.

Ref :- Bh. 53(25).

Site :- Agri. Chemistry Section, Sabour.

Type :- 'M'.

Object :—To study if cheaper phosphates like bone meal, rock phosphate are as good as single super phosphate and whether their availability can be increased by treatments with organic manures and sulphuric acid treatments.

1. BASAL CONDITIONS :

(i) (a) Maize-Wheat-Maize. (b) Wheat. (c) N.A. (ii) (a) Loam. (b) Nil. (iii) 23.6.53 and 24.6.53. (iv) (a) Spade ploughing. (b) and (c) N.A. (d) 13 holes in a row; 6 rows in a plot. (e) 2. (v) Nil. (vi) Jaunpur—(Late). (vii) Unirrigated. (viii) One weeding and three intercultures. (ix) 38.61". (x) 17.9.53.

2. TREATMENTS :

1. A/S at 40 lb./ac. of N.
2. A/S at 40 lb./ac. of N+Super at 40 lb./ac. of P_2O_5 .
3. A/S at 40 lb./ac. of N+Rock phos. at 40 lb./ac. of P_2O_5 .
4. A/S at 40 lb./ac. of N+Triple Super at 40 lb./ac. of P_2O_5 .
5. A/S at 40 lb./ac. of N+B.M. at 40 lb./ac. of P_2O_5 .
6. T.C. at 40 lb./ac. of N.
7. T.C. at 40 lb./ac. of N+Super at 40 lb./ac. of P_2O_5 .
8. T.C. at 40 lb./ac. of N+Rock phos. at 40 lb./ac. of P_2O_5 .
9. T.C. at 40 lb./ac. of N+Triple Super at 40 lb./ac. of P_2O_5 .
10. T.C. at 40 lb./ac. of N+B.M. at 40 lb./ac. of P_2O_5 .

3. DESIGN :

(i) R.B.D. (ii) (a) 10. (b) N.A. (iii) 6. (iv) (a) N.A. (b) 1/400th. ac. (v) 2' border between adjacent plots. (vi) Yes.

4. GENERAL :

(i) Growth medium. No lodging. (ii) N.A. (iii) Yield of grain. (iv) (a) Yes. 1952-1955. (b) Yes. (c) Nil. (v) (a) Nil. (b) Nil. (vi) and (vii) Nil.

5. RESULTS :

- (i) 423 lb./ac.
(ii) 213.4 lb./ac.
(iii) Treatment effects are highly significant.
(iv) Av. yield of grain in lb./ac.

Treatment	Av. yield
1.	495
2.	756
3.	592
4.	577
5.	397
6.	285
7.	431
8.	264
9.	334
10.	100
S.E./mean	=87.1

Crop :- Maize.

Ref :- Bh. 52(22).

Site :- College Experimental Farm, Sabour.

Type :- 'M'.

Object :—To study the effect of Potash and trace elements on yield of Maize.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Gram. (c) G.M. (ii) (a) Sandy loam. (b) N.A. (iii) 25.5.52. (iv) (a) to (e) N.A. (v) Nil. (vi) Local. (vii) Unirrigated. (viii) Nil. (ix) 35.19". (x) 29.9.52.

2. TREATMENTS :

1. No manure.
 2. N at 40 lb./ac.
 3. N at 40 lb./ac.+P at 40 lb./ac.
 4. N at 40 lb./ac.+P at 40 lb./ac.+K at 40 lb./ac.
 5. N at 40 lb./ac.+P at 40 lb./ac.+Mn. Sul. at 30 lb./acre.
 6. N at 40 lb./ac.+P at 40 lb./ac.+Borax at 20 lb./ac.
 7. N at 40 lb./ac.+P at 40 lb./ac.+Zn. Sul. at 20 lb./ac.
- Time and method of application-N.A.

3. DESIGN :

- (i) R.B.D. (ii) (a) 7. (b) N.A. (iii) 6. (iv) N.A. (b) 50'×22'. (v) 2' path between plots. (vi) Yes.

4. GENERAL :

- (i) Normal. (ii) Nil. (iii) Grain yield. (iv) (a) No. (b) Nil. (c) Nil. (v) (a) None. (b) Nil. (vi) & (vi) Nil.

5. RESULTS :

- (i) 1213 lb/ac.
 (ii) 160.6 lb/ac.
 (iii) Treatment differences are significant.
 (iv) Av. yield of grain in lb/ac.

Treatment	Av. yield
1.	1295
2.	1145
3.	1448
4.	1150
5.	875
6.	1230
7.	1346
S.E./mean	= 65.6 lb/ac.

Crop :- Maize.

Ref :- Bh. 53(4)

Site :- College Experimental Farm, Sabour.

Type :- 'M'.

Object :-To find out the effect of trace elements in the manuring of Maize crop.

1. BASAL CONDITIONS :

- (i) (a) Maize—Gram—Maize. (b) Gram. (c) Super at 1 md/ac. (ii) (a) Sandy loam. (b) N.A. (iii) 4.7.53. (iv) (a) One tractor ploughing with mould bow+one tractor ploughing with Disc bow and then two *deshi* ploughings. (b) Sown behind the plough. (c) 10 Sr/ac. (d) Row to row 2', plant to plant 9". (e)—(v) 40 lb/ac. of N as A/S. 40 lb/ac. of P₂O₅ as Super.+40 lb/ac. of K₂O as Pot. Sul. (vi) Jaunpur (medium). (vii) Unirrigated. (viii) Four times hoeing and weeding and earthing up once. (ix) 31.94". (x) 23.9.1953.

2. TREATMENTS :

1. Control (no manure).
 2. Borax at 20 lb/ac. of Boron.
 3. Mn. Sul. at 20 lb/ac. of Mn.
 4. Zn. Sul. at 20 lb/ac. of Zn
 5. Cu. Sul. at 20 lb/ac. of Cu.
 6. Ferrous Sul. at 20 lb/ac. Fe.
- Time & method of application N.A.

3. DESIGN :

- (i) R.B.D. (ii) (a) 6. (b) N.A. (iii) 5. (iv) (a) N.A. (b) 22'×33'. (v) 4' path from plot to plot. (vi) Yes.

4. GENERAL :

- (i) Good. No lodging. (ii) Nil. (iii) Weight of stalk and cobs and grain yield. (iv) (a) 1953—continued. (b) No. (c) Nil. (v) (a) Nil. (b) Nil. (vi) & (vii) Nil.

5. RESULTS :

- (i) 2555 lb/ac.
(ii) 451.2 lb/ac.
(iii) Treatment differences are not significant.
(iv) Av. yield of grain in lb/ac.

Treatment	Av. yield.
1.	2481
2.	2487
3.	2543
4.	2632
5.	2740
6.	2444
S.E./mean	= 201.8 lb/ac.

Crop :- Maize.

Site :- Botanical Sub.-Stn. Dumka.

Ref :- Bh. 53(90).

Type :- 'C'.

Object :- To find out the spacing between row and between plants for higher yield of Maize.

1. BASAL CONDITIONS

- (i) (a) N.A. (b) N.A. (c) N.A. (ii) (a) Sandy loam. (b) N.A. (iii) 26.6.53 (iv) (a) Ploughing with *deshi* plough 3 times. (b) & (c) N.A. (d) As per treatments. (e) 2 seeds/hole. (v) N.A. (vi) Local. (vii) Unirrigated. (viii) Weeding. (ix) 30" nearly. (x) 3.10.53.

2. TREATMENTS :

Treatments in one direction :-

3 levels of row spacing viz. $R_1=18''$, $R_2=24''$ and $R_3=30''$.

Treatments in an orthogonal direction :-

3 levels of plant spacings viz. $S_1=9''$, $S_2=12''$ and $S_3=18''$.

3. DESIGN :

- (i) Strip plot. (ii) (a) 3 strips in one direction and 3 orthogonal to it. (b) N.A. (iii) 6. (iv) (a) N.A. (b) $12' \times 30'$. (v) 1 row on either side of the plot and 1 plant on either side of the row. 4' border between blocks. (vi) Yes.

4. GENERAL :

- (i) Fair ; no lodging. (ii) Nil. (iii) Germination, plant height, ear height ear length, stand at harvest, yield of grain. (iv) (a) No. (b) Nil. (c) Nil. (v) (a) Monghyr, Pusa, Sabour, Sepaya. (b) Nil. (vi) & (vii). Nil.

5. RESULTS :

- (i) 979. lb./ac.
(ii) (a) 468.2 lb./ac. for R.
(b) 294.6 lb./ac. for S.
(c) 237.4 lb./ac. for $R \times S$.
(iii) Main effect of plant to plant spacing is significant. Other effects are not significant.
(iv) Av. yield of grain in lb./ac.

	R_1	R_2	R_3	Mean
S_1	1198	1001	1058	1086
S_2	1211	1033	977	1073
S_3	952	788	591	777
Mean	1120	941	875	979

S.E. of difference of two

1. plant spacing means = 98.2 lb./ac.
2. row spacing means = 156.1 lb./ac.
3. row spacing means at the same plant spacing = 192.0 lb./ac.
4. plant spacing means at the same row spacing. = 148.9 lb./ac.

Crop :-Maize.

Ref :-Bh. 53(88).

Site :- Botanical Sub-Stn. Dumka.

Type :- 'C'.

Object :- To find out the optimum spacing between hills and number of plants per hill in a chedar type of sowing.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) N.A. (c) N.A. (ii) (a) Sandy loam. (b) N.A. (iii) 16.6.53. (iv) (a) Ploughing with *deshi* plough 3 times (b) & (c) N.A. (d) & (e) As per treatments. (v) N.A. (vi) Local. (vii) Unirrigated. (viii) Weeding. (ix) 30' nearly. (x) 26.9.53.

2. TREATMENTS :

Main-plot treatments :-

2 levels of spacing between hills :- $S_1=2'$ and $S_2=3'$.

Sub-plot treatments :-

3 levels of no. of plants/hill :- $H_1=1$, $H_2=2$ and $H_3=3$.

3. DESIGN :

(i) Split plot. (ii) (a) 2 main-plots/block, and 3 sub-plots/main-plot. (b) N.A. (ii) 6. (iv) (a) $16' \times 24'$ and $18' \times 24'$. (b) $12' \times 24'$. (v) One guard row along both sides of length. (vi) Yes.

4. GENERAL :

(i) Fair. No lodging. (ii) No. (iii) Date of flowering, pest incidence and yield. (iv) (a) No. (b) No. (c) Nil. (v) (a) Monghyr, Pusa, Sepaya, Sabour. (b) Nil. (vi) & (vii) Nil.

5. RESULTS :

- (i) 612.5 lb./ac.
 (ii) (a) 369.8 lb./ac.
 (b) 283.1 lb./ac.
 (iii) Main effect of spacing is significant and that of no. of plants/hill is highly significant. Interaction is not significant.
 (iv) Av. yield of grain in lb./ac.

	H ₁	H ₂	H ₃	Mean
S ₁	476.4	758.4	1144.0	792.9
S ₂	259.3	583.4	453.7	432.1
Mean	367.8	670.9	798.8	612.5

S.E. of difference of two

1. main-plot treatment means = 123.3 lb./ac.
 2. sub-plot treatment means = 115.6 lb./ac.
 3. sub-plot treatment means at the same level of main-plot treatment = 163.5 lb./ac.
 4. main-plot treatment means at the same level of sub-plot treatment = 181.7 lb./ac.

Crop :-Maize.

Ref :-Bh. 53(89).

Site :-Botanical Sub-Stn. Dumka.

Type :- 'C'.

Object :-To study the effect of time of sowing on Maize yield.

1. BASAL CONDITIONS :

(i) (a) No. (b) N.A. (c) N.A. (ii) (a) Sandy loam. (b) N.A. (iii) 8.6.53. (iv) Ploughing with *desi* plough 3 times. (b) and (c) N.A. (d) Plant to plant—1' ; row to row—2'. (e) 2 seeds/hole. (v) N.A. (vi) Local. (vii) Unirrigated. (viii) Weeding and earthing. (ix) 30" nearly. (x) 16.9.53.

2. TREATMENTS :

Time of sowing as follows :—

1. Mrigashira.
2. Ardra.

3. DESIGN :

(i) R.B.D. (ii) (a) 2. (b) N.A. (iii) 8. (iv) (a) 15' × 10'. (b) 15' × 8'. (v) 1' along length. (vi) Yes.

4. GENERAL :

(i) Poor. No lodging. (ii) Nil. (iii) Germination, yield of seed, plant height, earheight, earlength, stand at harvest. (iv) (a) No. (b) No. (c) No. (v) (a) Sepaya, Pusa, Sabour. (b) Nil. (vi) and (vii) Nil.

5. RESULTS :

- (i) 27.71 lb./ac.
- (ii) 13.90 lb./ac.
- (iii) Treatment difference is not significant.
- (iv) Av. yield of grain in lb./ac.

Treatment	Av. yield
1.	26.25
2.	29.17
S.E./mean	= 4.84 lb./ac.

Crop :-Maize.

Ref :-Bh. 53(50).

Site :-Botanical Sub-Stn. Dumka.

Type :-'C'.

Object :—To study the effect of earthing and topping on yield of Maize crop.

1. BASAL CONDITIONS :

(i) (a) No. (b) N.A. (c) N.A. (ii) (a) Sandy loam. (b) N.A. (iii) 6.6.53. (iv) (a) Ploughing with Desi plough 3 times, earthing up at the height 4'. Topping at a distance of 18" from the top with sharp sickle. (b) and (c) N.A. (d) Plant to plant 1', row to row 2'. (e) N.A. (vi) Local. (vii) Unirrigated. (viii) Weeding. (ix) 30" nearly. (x) 16.9.53.

2. TREATMENTS :

Main-plot treatments :—

No. of earthings (2) : E_0 =No earthing and $E_1=1$.

Sub-plot treatments :—

3 stages of topping : T_1 =Topping soon after basal comes out ; T_2 =Topping after pollination and T_3 =no topping.

3. DESIGN :

(i) Split plot. (ii) (a) 2 main-plots/block ; 3 sub-plots/main-plot. (b) N.A. (iii) 6. (iv) (a) (main) 15' × 10'. (b) (sub) 15' × 2'. (v) 2' on both sides of the main-plot, 3' path between main-plots and 4' path around the block. (vi) Yes.

4. GENERAL :

(i) Fair, no lodging. (ii) Nil. (iii) Plant height, ear height, earlength and yield of grain. (iv) (a) No. (b) No. (c) Nil. (v) (a) Sepaya, Pusa, Sabour. (b) Nil. (vi) and (vii) Nil.

5. RESULTS :

- (i) 447.3 lb./ac.
- (ii) (a) 309.7 lb./ac.
(b) 339.0 lb./ac.
- (iii) None of the effects is significant.

(iv) Av. yield of grain in lb./ac.

	T ₁	T ₂	T ₃	Mean
E ₀	591.1	388.9	365.6	448.5
E ₁	544.5	497.8	295.6	446.0
Mean	567.8	443.4	330.6	447.3

S.E. of difference of two.

1. main-plot treatment means = 103.2 lb./ac.
2. sub-plot treatment means = 138.4 lb./ac.
3. sub-plot treatment means at the same level of main-plot treatment = 195.7 lb./ac.
4. main-plot treatment means at the same level of sub-plot treatment = 190.3 lb./ac.

Crop :-Maize.

Ref :-Bh. 53(49).

Site :-Botanical Sub-Stn., Dumka.

Type :-'C'.

Object :—To study the effect of the seed taken from the different parts of the cob on yield of Maize crop.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) N.A. (c) N.A. (ii) (a) Sandy loam. (b) N.A. (iii) 16.6.53. (iv) (a) Ploughing with *desi* plough 3 times. (b) to (d) N.A. (e) 2/hole. Finally thinned to one strong seedling/hole. (v) N.A. (vi) Local (vii) Unirrigated. (viii) Weeding. (ix) 30" nearly. (x) 22.9.53.

2. TREATMENTS :

Planting seed taken from

1. Apical portion of the cob.
2. Central portion of the cob.
3. Basal portion of the cob.
4. Bulked seeds (control).

3. DESIGN :

(i) R.B.D. (ii) (a) 4. (b) N.A. (iii) 4. (iv) (a) 15'×6'. (b) 15'×6'. (v) Nil. (vi) Yes.

4. GENERAL :

(i) Fair. No lodging. (ii) Nil. (iii) Height, data on germination and flowering, yield of grain. (iv) (a) No. (b) No. (c) Nil. (v) (a) Monghyr, Pusa, and Sepaya. (b) Nil. (vi) and (vii) Nil.

5. RESULTS :

- (i) 758 lb./ac.
- (ii) 214.7 lb./ac.
- (iii) Treatments are not significantly different.
- (iv) Av. yield of grain in lb./ac.

Treatment	Av. yield
1.	638
2.	825
3.	685
4.	887

S.E./mean = 107.3 lb./ac.

Crop :- Maize.

Ref :- Bh. 53 (68).

Site :- Botanical Sub-Stn., Monghyr.

Type :- 'C'.

Object :- To find out the optimum spacing between rows and between plants for higher yield of Maize.

BASAL CONDITIONS :

(i) (a) N.A. (b) Gram. (c) Nil. (ii) (a) Loam. (b) N.A. (iii) 7.7.53 and 9.7.53. (iv) (a) 3 *deshi* ploughings. (b) and (c) N.A. (d) As per treatments. (e) N.A. (v) A/S at 2.5 md./ac. + Super at 3 mds. 5 seers/ac. (vi) Jaunpur (late). (vii) Unirrigated. (viii) 3 weedings, 2 by Brihar cultivators, one by Bihar junior, ridging. (ix) 31.04". (x) 29.9.53 and 30.9.53.

TREATMENTS :

Treatments in one direction :-

3 levels of plant spacing : $P_1=9''$, $P_2=12''$ and $P_3=18''$.

Treatments in an orthogonal direction :-

3 levels of row spacing : $R_1=18''$, $R_2=24''$ and $R_3=30''$.

DESIGN :

(i) Strip plot. (ii) (a) 9. (b) $102' \times 42\frac{1}{2}'$. (iii) 6. (iv) (a) Varies from $13.5' \times 33'$ to $15' \times 35'$. (v) One non experimental row around the sub-plot and 3' path between adjacent blocks. (vi) Yes.

4. GENERAL :

(i) Poor. No lodging. (ii) Attack of termites reported. (iii) Germination percentage; stand at thinning; no. of guarded hills; average plant height at silking time, green weight of cob; dryweight of cob; ear length, cob diameter (after shelling); no. of kernel rows per ear; kernels per row; ear height, yield of dry grain. (iv) Yes. 1953—continued. (b) No. (c) Nil. (v) (a) Dumka, Pusa, Purnea, Sabour and Sepaya. (b) Nil. (vi) and (vii) Nil.

5. RESULTS :

- (i) 156.4 lb./ac.
 (ii) (a) 138.8 lb./ac. for P.
 (b) 125.2 lb./ac. for R.
 (c) 83.6 lb./ac. for $P \times R$.
 (iii) None of the effects is significant.
 (iv) Av. yield of grain in lb./ac.

	P_1	P_2	P_3	Mean
R_1	146.2	158.8	110.9	138.7
R_2	201.7	214.3	90.8	168.9
R_3	233.1	168.9	93.3	161.8
Mean	190.3	180.7	98.3	156.4

S.E. of difference of two

1. plant spacing means =46.3 lb./ac.
 2. row spacing means =41.7 lb./ac.
 3. row spacing means at the same plant spacing =57.4 lb./ac.
 4. plant spacing means at the same row spacing =60.8 lb./ac.

Crop :- Maize.

Ref :- Bh. 53 (69).

Site :- Botanical Sub-Stn., Monghyr.

Type :- 'C'.

Object :- To find out the optimum relationship between spacing and no. of plants per hill in a checker type of sowing.

BASAL CONDITIONS :

(i) (a) N.A. (b) Rahar and Khesari. (c) Nil. (ii) (a) Loam. (b) N.A. (iii) 3.7.53 and 4.7.53. (iv) (a) 3 *deshi* ploughings. (b) Dibbling. (c) —. (d) Row to row 2'; plant to plant as per

treatments. (e) As per treatments. (v) A/S at 2.5 md./ac.+Super at 3 md/ac. (vi) Jaunpur (late). (vii) Unirrigated. (viii) 3 weedings; 2 by Bihar cultivators and one by Bihar junior; ridging. (ix) 31.04". (x) 26.9.53.

2. TREATMENTS :

Main-plot treatments :—

H_1 =8 hills each 2' apart and H_2 =6 hills each 3' apart.

Sub-plot treatments :—

P_1 =1 plant/hill (2 seeds/hole), P_2 =2 plants/hill (4 seeds/hole) and P_3 =3 plants/hill (6 seeds/hole).

3. DESIGN :

(i) Split plot. (ii) (a) 2 main-plots/block; 3 sub-plots/main-plot. (b) N.A. (iii) 6. (iv) (a) and (b) For H_1 : 16' × 24'; for H_2 : 18' × 24'. (v) 4' path between each block. (vi) Yes.

4. GENERAL :

(i) Poor. No lodging. (ii) Attack of termites reported. (iii) Germination percentage; stand at thinning; no. of guarded hills; average plant height at silking time; date of silking; green weight of cob; dry weight of cob; ear length; cob diameter; ear height; yield of grain. (iv) (a) 1953—1955. (b) No. (c) Nil. (v) (a) Dumka, Pusa, Purnea, Sabour and Sepaya. (b) Nil. (vi) and (vii) Nil.

5. RESULTS :

(i) 148.9 lb./ac.

(ii) (a) 45.8 lb./ac.

(b) 86.3 lb./ac.

(iii) Main-plot and sub-plot treatment effects are significant. Interaction is not significant.

(iv) Av. yield of grain in lb./ac.

	H_1	H_2	Mean
P_1	115.8	69.5	92.7
P_2	183.3	134.5	158.8
P_3	222.2	168.0	195.1
Mean	173.8	124.0	148.9

S.E. of difference of two

1. main-plot treatment means	15.3 lb./ac.
2. sub-plot treatment means	35.2 lb./ac.
3. sub-plot treatment means at the same level of main-plot treatment	49.8 lb./ac.
4. main plot treatment means at the same level of sub-plot treatment	43.5 lb./ac.

Crop :- Maize.

Site :- Botanical Sub-Stn., Monghyr.

Ref :- Bh. 53 (87).

Type 'C'.

Object :—To study the effect of the seed taken from different parts of the cob.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) *Rahar* and *Khesari*. (c) Nil. (ii) (a) Loam. (b) N.A. (iii) 29.6.53. (iv) (a) 3 *deshi* ploughings. (b) Dibbling. (c)—. (d) Row to row 2'. Plant to plant 1'. (e) 2, to be thinned into one strong seedling. (v) A/S at 2 mds-2) seers/ac.+Super at 3 mds-5 seers/ac. (vi) Jaunpur (late). (vii) Unirrigated. (viii) 3 weedings; 2 by Bihar cultivators and one by Bihar Junior ridger. (ix) 35.74". (x) 17.9.53.

2. TREATMENTS :

Planting seed taken from :—

1. Apical portion of the cob.
2. Central portion of the cob.
3. Basal portion of the cob.
4. Bulked seed (control).

Planting in 4 row plots each row 15' long, distance between rows being 2' and between plants 1'.

3. DESIGN :

(i) R.B.D. (ii) (a) 4. (b) N.A. (iii) 8.1 (iv) (a) 15' × 8'. (b) 15' × 8'. (v) 3' path between plots. (vi) Yes.

4. GENERAL :

(i) Good. No lodging. (ii) Nil. (iii) Germination percentage, plant height, date of silking, % of good ears, green weight of cob dryweight of cob, cob length, cob diameter, yield of grain, (after silking) shelling% of grain to ear, and ear height. (iv) (a) 1953-54. (b) No. (c) Nil. (v) (a) Dumka, Pusa, Purnea, Sabour and Sepaya. (b) Nil. (vi) and (vii) Nil.

5. RESULTS :

(i) 930.9 lb./ac.

(ii) 129.4 lb./ac.

(iii) Treatment differences are not significant.

(iv) Av. yield of grain in lb./ac.

Treatment	Av. yield
1.	989.7
2.	972.7
3.	825.3
4.	935.9
S.E./mean	=45.8 lb./ac.

Crop :- Maize (Kharif)

Ref :- Bh. 52(58)

Site :- Botanical Sub-Stn. Pusa.

Type :- 'C'.

Object :- To find optimum spacing between rows and plants for getting higher yield of Maize.

1. BASAL CONDITIONS :

(i) (a) No. (b) Sugarcane. (c) 60 lb./ac. of N as A/S+75 lb./ac. of P_2O_5 as Super. (ii) (a) Sandy loam. (b) N.A. (iii) 12.6.52. (iv) (a) 3 ploughings (b) Dibbling. (c) 8 sr/ac. (d) As per treatments (e) 2. (v) 20 lb./ac. of N as A/S+20 lb./ac. of P_2O_5 as Super, $\frac{1}{2}$ broadcast at time of earthing and $\frac{1}{2}$ given in lines at time of sowing. (vi) Jaunpur. (vii) Rainfed. (viii) Weeding, hoeing, earthing and thinning, (ix) 30.0". (x) 26.9.52.

2. TREATMENTS :

Main-plot treatments :-

3 levels of row spacing :- $R_1=24"$, $R_2=30"$ and $R_3=36"$.

Sub-plot treatments :-

3 levels of plant spacing :- $P_1=12"$, $P_2=18"$ and $P_3=24"$.

3. DESIGN :

(i) Split plot. (ii) (a) 3 main-plots/block, 3 sub-plots/main-plot. (b) 105' × 45'. (iii) 4. (iv) 15' × 35'. (b) 12' × 30'. (v) 1½' border along length ; 2½' border along breadth. (vi) Yes.

4. GENERAL :

(i) Fair. (ii) Stem borers and white ants noticed. D.D.T. mixed with pyrochloride sprayed. (iii) Maize yield (with cobs). (iv) No. (b) No. (c) No. (v) (a) None. (b) Nil. (vi) & (vii) Nil.

5. RESULTS :

(i) 959.7 lb./ac.

(ii) (a) 274.8 lb./ac.

(b) 157.2 lb./ac.

(iii) Differences due to plant spacings are highly significant ; other effects are not significant.

(v) Av. yield of grain in lb./ac.

	P ₁	P ₂	P ₃	Mean
R ₁	1302.7	989.8	995.6	1095.7
R ₂	1058.9	836.8	938.8	944.8
R ₃	1058.9	763.6	693.3	838.7
Mean	1139.8	863.4	876.0	959.7

S.E. of difference of two

1. row spacing means =112.2 lb./ac.
2. plant spacing means = 64.2 lb./ac.
3. plant spacing means at the same level of row spacing =111.1 lb./ac.
4. row spacing means at the same level of plant spacing =144.3 lb./ac.

Crop :- Maize (Kharif).

Ref :- Bh. 53(127).

Site :- Botanical Sub-Stn. Pusa.

Type :- 'C'.

Object :— To find out optimum spacing between rows and plants for getting higher yield of Maize.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Surgarcane. (c) 60 lb./ac. of N as + 75 lb./ac. P₂O₅ as Super. (ii) (a) Sandy loam. (b) N.A. (iii) 25.6.53 and 30.6.53. (iv)(a) 3 ploughings. (b) Dibbling. (c) 8 sr./ac. (d) As per treatments. (e) 2. (v) 20 lb./ac. of N as A/S+20 lb./ac. of P₂O₅ as Super, $\frac{1}{2}$ broadcast at time of earthing and $\frac{1}{2}$ spread over lines at the time of sowing. (vi) Local. (vii) No. (viii) Weeding, hoeing, thinning and earthing up. (ix) 36.0°. (x) 11.10.53.

2. TREATMENTS :

Main-plot treatments :—

3 levels of row spacing :— R₁=18", R₂=24" and R₃=30".

Sub-plot treatments :—

3 levels of plant spacing :—P₁=9", P₂=12" and P₃=15".

3. DESIGN :

(i) Split plot. (ii) (a) 3 main-plots/block ; 3 sub-plots/main-plot. (b) N.A. (iii) 6. (iv) 14'×35'. (b) 12'×30'. (v) 1' border along length, 2½' border along breadth. (vi) Yes.

4. GENERAL :

(i) Fair. (ii) Attack of stem borers and white ants noticed. D.D.T. sprayed. (iii) Maize yield (with cobs) (iv) (a) No. (b) Nil. (c) Nil. (v) (a) Monghyr. (v) No. (vi) & (vii) Nil.

RESULTS :

- (i) 312.7 lb./ac.
- (ii) (a) 110.4 lb./ac.
(b) 132.8 lb./ac.
- (iii) None of the effects is significant.
- (iv) Av. yield of grain in lb./ac.

	P ₁	P ₂	P ₃	Mean
R ₁	378.4	368.1	316.2	354.2
R ₂	305.9	329.2	318.8	318.0
R ₃	279.9	227.3	290.3	265.8
Mean	321.4	308.2	308.4	312.7

S.E. of difference of two

1. row spacing means =36.8 lb./ac.
2. plant spacing means =44.3 lb./ac.
3. plant spacing means means at the same level of row spacing =76.7 lb./ac.
4. row spacing mean at the same level of plant spacing =72.6 lb./ac.

Crop :- Maize (Kharif).
Site :- Botanical Sub-Stn. Pusa.

Ref :- Bh. 52(60).
Type :- 'C'.

Object :- To find out the optimum spacing between rows for obtaining higher yield of Maize.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Sugarcane. (c) 60 lb./ac. of N as A/S, 75 lb./ac of P_2O_5 as Super. (ii) (a) Sandy loam. (b) N.A. (iii) 8.6.52. (iv) (a) 3 ploughings, (b) Dibbling. (c) 8 srs./ac. (d) Rows-as per treatment ; plants-1' apart. (e) 2. (v) 20 lb./ac. of N as A/S + 20 lb./ac. of P_2O_5 as super $\frac{1}{2}$ spread on lines at the time of sowing and $\frac{1}{2}$ broadcast at the time of earthing. (vi) Local. (vii) Unirrigated. (viii) Weeding, hoeing, earthing and thinning. (ix) 25.7". (x) 21.9.52.

2. TREATMENTS :

Distance between rows :-

1. 18".
2. 24".
3. 30".
4. 36".

3. DESIGN :

(i) R.B.D. (ii) (a) 4. (b) N.A. (iii) 6. (iv) (a) N.A. (b) 36' x 15'. (v) Nil. (vi) Yes.

4. GENERAL :

(i) Fair. (ii) Stem borers and white ants noticed. Spraying with D.D.T. and pyrochloride. (iii) Maize yield (cob weight). (iv) (a) No. (b) No. (c) Nil. (v) (a) Sepaya. (b) Nil. (vi) and (vii) Nil.

5. RESULTS :

- (i) 455.0 lb./ac.
- (ii) 237.8 lb./ac.
- (iii) Treatment differences are not significant.
- (iv) Av. yield of grain in lb./ac.

Treatment	Av. yield
1.	502.3
2.	520.4
3.	356.0
4.	441.4
S.E./mean	= 97.1 lb./ac.

Crop :- Maize (Kharif).
Site :- Botanical Sub-Stn. Pusa.

Ref :- Bh. 52(59).
Type :- 'C'.

Object :- To study the relationship between spacing and the number of plants per hill in a checker type of planting.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Sugarcane. (c) 60 lb./ac. of N as A/S, 75 lb./ac. of P_2O_5 as Super. (ii) (a) Sandy loam. (b) N.A. (iii) 16.6.52. (vi) (a) 3 ploughings. (b) Behind the plough. (c) 8 srs./ac. (d) and (e) As per treatments. (v) 20 lb./ac. of N as A/S, +20 lb./ac. of P_2O_5 as Super, $\frac{1}{2}$ at the time of sowing in lines and $\frac{1}{2}$ at the time of earthing (broadcast). (vi) Jaunpur. (viii) Weeding, earthing, thinning and hoeing. (ix) 36.7". (x) 27.9.52.

2. TREATMENTS :

Main-plot treatments :-

Spacing between hills : $H_1=2'$ and $H_2=3'$.

Sub-plot treatments :-

No of plants/hill : $P_1=1$, $P_2=2$ and $P_3=3$.

3. DESIGN :

(i) Split plot. (ii) (a) 2 main plots/block; 3 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) 18' x 24'. (b) 16' x 24'. (v) 1' border left along the length. (vi) Yes.

4. GENERAL :

(i) Fair. (ii) Attack of stem borers and white ants noticed. Sprayed with D.D.T. and Pyrochloride. (iii) Maize yield (cob weight). (iv) (a) No. (b) No. (c) No. (v) (a) None. (b) No. (vi) and (vii) Nil.

5. RESULTS :

- (i) 743.1 lb./ac.
 (ii) (a) 162.9 lb./ac.
 (b) 263.3 lb./ac.
 (iii) None of the effects is significant.
 (iv) Av. yield of grain in lb./ac.

	P ₁	P ₂	P ₃	Mean
H ₁	771.0	983.3	715.8	823.4
H ₂	513.4	665.7	809.6	662.9
Mean.	642.2	824.5	762.7	743.1

S.E. of difference of two

1. main-plot treatment means = 66.5 lb./ac.
2. sub-plot treatment means = 131.7 lb./ac.
3. sub-plot treatment means at the same level of main-plot treatment = 186.2 lb./ac.
4. main-plot treatments means at the same level of sub-plot treatment = 165.9 lb./ac.

Crop :- Maize (Kharif).

Ref :- Bh. 52(61).

Site :- Botanical Sub-Stn. Pusa.

Type :- 'C'.

Object :- To study the effect of earthing on yield of Maize.

1. BASAL CONDITIONS :

- (i) (a) Nil. (b) Sugarcane. (c) 60 lb./ac. of N as A/S+75 lb./ac. of P₂O₅ as Super. (ii) (a) Sandy loam. (b) N.A. (iii) 8.6.52. (iv) (a) 3 ploughings. (b) Behind the plough. (c) 8 srs./ac. (b) Rows-2' apart. plants-9" apart. (e) 2 to 3. (v) 20 lb./ac. of N as A/S+20 lb./ac. P₂O₅ as Super, $\frac{1}{2}$ at time of earthing (broadcast) and $\frac{1}{2}$ at time of sowing, given in lines. (vi) Local. (vii) Rainfed. (viii) Weeding, hoeing and thinning, earthing as per treatment. (ix) 31.7". (x) 25.9.52.

2. TREATMENTS :

1. Maize plots earthed up.
2. Maize plots not earthed.

3. DESIGN :

- (i) R.B.D. (ii) (a) 2. (b) N.A. (iii) 6. (iv) (a) 15'×16'. (b) 15'×8'. (v) 4' border left along length. (vi) Yes.

4. GENERAL :

- (i) Fair. No lodging. (ii) Attack of stem borers and white ants noticed. Spraying with D.D.T. mixed with Pyrochloride. (iii) Maize yield (with cobs). (iv) (a) No. (b) No. (c) Nil. (v) (a) Sepaya. (b) Nil. (vi) and (vii) Nil.

5. RESULTS :

- (i) 1291 lb./ac.
 (ii) 107.1 lb./ac.
 (iii) Treatments are significantly different.
 (iv) Av. yield of grain in lb./ac.

Treatment	Av. yield
1.	1417
2.	1164
S.E./Mean	=43.7 lb./ac.

Crop :- Maize.

Ref :- Bh. 53(93).

Site :- Botanical Sub-Stn. Sepaya.

Type :- 'C'.

Object :- To study the effect of earthing and topping on the yield of Maize.

1. BASAL CONDITIONS :

(i) (a) No. (b) Rahar. (c) Nil. (ii) (a) Alkaline. (b) N.A. (iii) 24.6.53. (iv) (a) 3 country ploughings followed by one tractor ploughing. (b) & (c) N.A. (d) Row to row distance 2'. Plant to plant distance 1'. (e) 2. (v) Nil. (vi) Jaunpur (late). (vii) Unirrigated. (viii) Weeding and hoeing. (ix) 65.20". (x) 27.9.53.

2. TREATMENTS :

Main-plot treatments :-

(A) earthing & (B) No earthing.

Sub-plot treatments :-

T₁=topping soon after tassel comes out. T₂=topping after pollination. T₃=No topping.

Earthing up done, when plant is 4' high. For topping, about 18" of top portion of the plant is to be removed with the help of sharp sickel.

3. DESIGN :

(i) Split-plot. (ii) (a) 2 main-plots/block ; 3 sub-plots/main-plot. (b) N.A. (iii) 6. (iv) (a) N.A. (b) 15' x 10'. (v) Two outer rows in each sub-plot treated as non-experimental. (vi) Yes.

4. GENERAL :

(i) N.A. (ii) Nil. (iii) Date of flowering ; weight of green cob, plant height, weight of dry cob, ear height, weight of shelled kernel and length of husked ear. (iv) (a) 1952—continued. (b) No. (c) Nil. (v) (a) Dumka, Monghyr, Purnea, Pusa & Sabour. (b) Nil. (vi) Nil. (vii) Yield of two replications could not be recorded due to reasons unknown and hence analysis done with 4 replications. Experiment for 1952 N.A.

5. RESULTS :

(i) 155.4 lb./ac.

(ii) (a) 116.7 lb./ac.

(b) 73.7 lb./ac.

(iii) None of the effects and interactions is significant.

(iv) Av. yield of maize grain in lb./ac.

	T ₁	T ₂	T ₃	Mean
A	130.7	106.4	158.7	131.9
B	154.0	205.3	177.3	178.9
Mean	142.3	155.9	168.0	155.4

S.E. of difference of two

1. main-plot treatment means

=47.6 lb./ac.

2. sub-plot treatment means

=36.8 lb./ac.

3. sub-plot treatment means at the same level of main-plot treatment

=52.1 lb./ac.

4. main-plot treatment means at the same level of sub-plot treatment

=63.9 lb./ac.

Crop :- Maize.

Ref :- Bh. 53(97).

Site :- Botanical Sub-Stn. Sepaya.

Type :- 'C'.

Object :- To study the effect of seed taken from different parts of the cob on the yield of Maize.

1. BASAL CONDITIONS :

(i) (a) No. (b) N.A. (c) N.A. (ii) (a) Alkaline. (b) N.A. (iii) 3.7.53. (iv) (a) 3 country ploughings followed by one tractor ploughing. (b) & (c) N.A. (d) Row to row 2', Plant to plant 1'. (e) 2. (v) Nil. (vi) Local. (vii) Unirrigated. (viii) Weeding, hoeing and earthing. (ix) 54.86". (x) 9.10.53.

2. TREATMENTS :

Planting seed taken from

1. Apical portion of the cob
2. Central " " " "
3. Basal " " " "
4. Bulk seed (control).

3. DESIGN :

(i) R.B.D. (ii) (a) 4. (b) N.A. (iii) 8. (iv) (a) N.A. (b) 15'×6'. (v) Outer 4 rows treated as non-experimental. (vi) Yes.

4. GENERAL :

(i) N.A. (ii) Nil. (iii) Date of flowering, weight of green cob, plant height, weight of dry cob, ear height, weight of shelled kernel and length of the husked ear. (iv) (a) No. (b) No. (c) No. (v) (a) Dumka, Monghyr, Purnea, Pusa and Sabour. (b) Nil. (vi) & (vii) Nil.

5. RESULTS :

- (i) 452.1 lb./ac.
 (ii) 202.4 lb./ac.
 (iii) Treatment differences are not significant.
 (iv) Av. yield of grain in lb./ac.

Treatment	Av. yield
1.	513.3
2.	451.1
3.	412.2
4.	431.7
S.E./mean	= 71.5 lb./ac.

Crop :- Maize.**Site :- Botanical Sub-Stn. Sepaya.****Ref :- Bh. 53(95)****Type :- 'C'.**

Object :- To find out the optimum spacing for Maize crop.

1. BASAL CONDITIONS :

(i) (a) No. (b) N.A. (c) N.A. (ii) (a) Alkaline. (b) N.A. (iii) 2.7.53. (iv) (a) 3 country ploughings followed by one tractor ploughing. (b) & (c) N.A. (d) As per treatments. (e) 2. (v) Ni. (vi) Local variety. (vii) Unirrigated. (viii) Weeding, hoeing and earthing. (ix) 54'86". (x) 6.10.53.

2. TREATMENTS :

1. Row to row 18".
2. " " " " 24".
3. " " " " 30".
4. " " " " 36".

3. DESIGN :

(i) R.B.D. (ii) (a) 4. (b) N.A. (iii) 8. (iv) (a) N.A. (b) 15'×3' ; 15'×4' ; 15'×5' and 15'×6'. (v) Outer 2 rows in each sub-plot treated as non-experimental. (vi) Yes.

4. GENERAL :

(i) N.A. (ii) Nil. (iii) Plant weight, ear height, no. of good ear/plot, length of the husked ear, kernel in a row, weight of green and dry cob ; weight of shelled kernel. (iv) (a) No. (b) No. (c) No. (v) (a) Dumka, Monghyr, Purnea, Pusa and Sabour. (b) Nil. (vi) & (vii) Nil.

5. RESULTS :

- (i) 936 lb./ac.
 (ii) 238.5 lb./ac.
 (iii) Treatment differences are not significant.

(iv) Av. yield of grain in lb./ac.

Treatment	Av. yield
1.	1120
2.	951
3.	863
4.	809
S.E./mean	= 84.3 lb./ac.

Crop :-Maize.

Ref :-Bh. 53(94).

Site :-Botanical Sub-Stn. Sepaya.

Type :-'C'.

Object :-To study the effect of different dates of sowing on yield of Maize.

1. BASAL CONDITIONS :

(i) (a) No. (b) Rahar. (c) Nil. (ii) (a) Alkaline. (b) N.A. (iii) As under treatments. (iv) (a) 3 country ploughings followed by one tractor ploughing. (b) and (c) N.A. (d) Row to row 2'. Plant to plant 1'. (e) 2. (v) Nil. (vi) Local. (vii) Unirrigated. (viii) Weeding, hoeing and earthing. (ix) 65.20". (x) N.A.

2. TREATMENTS :

Dates of sowing as follows :-

Nakshtra	date
1. Rohini	3.6.53.
2. Mrigshira	16.6.53.
3. Ardra	29.6.53.

3. DESIGN :

(i) R.B.D. (ii) (a) 3. (b) N.A. (iii) 8. (iv) (a) and (b) 15'×8'. (v) Nil. (vi) Yes.

4. GENERAL :

(i) Good (no lodging). (ii) Nil. (iii) Dates of tasselling and silking, plant and earheight length of husked ear, % of good ear/plot, kernel in a row, weight of green cob and dry cob and weight of shelled kernel. (iv) (a) No. (b) No. (c) No. (v) (a) Dumka, Monghyr, Purnea, Pusa and Sabour. (vi) and (vii) Nil.

5. RESULTS :

(i) 311.7 lb./ac.
(ii) 151.1 lb./ac.
(iii) Treatment differences are highly significant.
(ix) Av. yield of grain in lb./ac.

Treatment	Av. yield
1.	449.2
2.	364.6
3.	121.3
S.E./mean	= 53.5 lb./ac.

Crop :-Maize.

Ref :-Bh. 53(10).

Site :-Agri. Chemistry Section, Sabour.

Type :-'D'.

Object :-To test the effects of soaking seed in chemical solutions.

1. BASAL CONDITIONS :

(i) (a) Maize—Wheat—Maize. (b) Wheat. (c) Nil. (ii) (a) Loam. (b) N.A. (iii) 13.5.53. (iv) (a) Spade ploughing. (b) and (c) N.A. (d) Each plot divided into 6 strips and in each strip, there were 13 holes. (e) 2 (v) Nil. (vi) Jaunpur. (vii) Unirrigated. (viii) One weeding and three intercultural operations were performed. (ix) 25.52". (x) 27.8.53.

2. TREATMENTS :

Seeds soaked in solutions as follows :—

1. Control.
2. Water.
3. M/16 KH_2PO_4 .
4. M/32 KH_2PO_4 .
5. M/16 K_2HPO_4 .
6. M/32 K_2HPO_4 .
7. M/16 KMnO_4 .
8. M/32 KMnO_4 .

M indicates normal solution and the remaining are chemicals.

3. DESIGN :

(i) R.B.D. (ii) (a) 8. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 1/400th ac. (v) 2' border between plots. (vi) Yes.

4. GENERAL :

(i) Not good. (ii) Nil. (iii) No. of cobs, weight of stalks. (iv) (a) No. (b) No. (c) No. (v) (a) No. (b) Nil. (vi) Nil. (vii) Crop was destroyed due to heavy rains and hence only the yield of stalks was recorded.

5. RESULTS :

- (i) 3725 lb./ac.
- (ii) 657.5 lb.ac.
- (iii) Treatment differences are highly significant.
- (iv) Av. yield of stalks in lb./ac.

Treatment	Av. yield
1.	2700
2.	3200
3.	3800
4.	5050
5.	3800
6.	4450
7.	2900
8.	3900
S.E./mean	= 328.8 lb./ac.

Crop :- Gram.

Site :- Rice. Res. Stn. Sabour.

Ref :- Bh. 53(7).

Type :- 'M'.

Object :— To study the residual effect on Gram with higher potential yield trial on Paddy.

1. BASAL CONDITONS :

(i) (a) Paddy-Paira Gram-Green manuring-Paddy. (b) Paddy. (c) As per treatments. (ii) (a) Sandy loam. (b) N.A. (iii) 16.10.53. (iv) (a) Gram sown as Paira ; when previous crop Paddy was standing. (b) N.A. (c) 1 md/ac. (d) & (e) N.A. (v) Nil. (vi) ST. 4. (vii) Unirrigated. (viii) Nil. (ix) 1.53". (x) 26.3.54.

2. TREATMENTS :—

Main-plot treatments :

4 levels of P_2O_5 : $\text{P}_0=0$ lb./ac., $\text{P}_1=20$ lb./ac., $\text{P}_2=40$ lb./ac. & $\text{P}_3=60$ lb./ac.

Sub-plot treatments :—

4 levels of N : $\text{N}_0=0$ lb./ac., $\text{N}_1=40$ lb./ac., $\text{N}_2=60$ lb./ac. & $\text{N}_3=80$ lb./ac.

P_2O_5 as Super and N as A/S applied to the previous crop of paddy.

3. DESIGN :

(i) Split plot. (ii) (a) 4 main plots/block ; 4 sub-plots/main plot. (b) N.A. (iii) 6. (iv) (a) N.A. (b) 14' x 10'. (v) N.A. (vi) Yes.

4. GENERAL :

(i) Good. No lodging. (ii) Nil. (iii) Yield of grain. (iv) (a) No. (b) & (c) Nil. (v) (a) Nil. (b) Nil. (vi) & (vii) Nil.

5. RESULTS :

- (i) 429.2 lb./ac.
 (ii) (a) 122.09 lb./ac.
 (b) 153.41 lb./ac.
 (iii) None of the treatment effects is significant.
 (iv) Av. yield of grain in lb./ac.

	N ₀	N ₁	N ₂	N ₃	Mean
P ₀	414.9	353.3	382.4	427.8	394.6
P ₁	518.6	363.0	372.7	489.4	435.9
P ₂	392.2	395.4	356.5	489.4	403.4
P ₃	563.9	392.2	470.0	486.2	478.1
Mean	472.4	375.9	395.4	473.2	429.2

S.E. of difference of two P₂O₅ means = 35.26 lb./ac.
 S.E. of difference of two N means = 44.26 lb./ac.
 S.E. of difference of two N means at the same level of P₂O₅ = 88.51 lb./ac.
 S.E. of difference of two P₂O₅ means at the same level of N = 84.36 lb./ac.

Crop :- Gram.

Ref :- Bh. 52(24).

Site :- College Farm, Sabour.

Type :- 'M'.

Object :- To study the effect of placement of Super with and without Potash on Gram.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Maize. (c) Nil. (ii) (a) Sandy loam. (b) N.A. (iii) 18.10.52 to 20.10.52. (iv) (a) Ploughing. (b) N.A. (c) 35 sr./ac. (d) & (e) N.A. (v) Super at 300 lb./ac. and Pot. sul. at 50 lb./ac. (vi) N.A. (vii) Unirrigated. (viii) Nil. (ix) 1.34". (x) N.A.

2. TREATMENTS :

- Control—(No manure).
- Super applied on surface.
- Super applied in seedling line.
- Super applied in band.
- Super applied on surface+Potash on surface.
- Super applied in seedling line+Potash on surface.
- Super applied in band+Potash on surface.

3. DESIGN :

(i) R.B.D. (ii) (a) 7. (b) N.A. (iii) 2. (iv) (a) N.A. (b) 0.01 ac. (v) N.A. (vi) Yes.

4. GENERAL :

(i) N.A. (ii) N.A. (iii) Grain yield and yield of bhusa. (iv) (a) 1952-1953. (b)—(c)—(v) (a) None. (b)—(vi) Nil. (vii) In each plot celled strip here, yield was weighed in 4 batches, and 2 batches were taken from one strip.

5. RESULTS :

- (i) 1858 lb./ac.
 (ii) 608.4 lb./ac.
 (iii) Treatment differences are not significant.
 (iv) Av. yield of grain in lb./ac.

Treatment	Av. yield
1.	1699
2.	1777
3.	1992
4.	1815
5.	2127
6.	1616
7.	1980
S.E./mean	= 430.3 lb./ac.

Crop :- Gram.
Site :- College Farm, Sabour.

Ref :- Bh. 53(5).
Type :- 'M'.

Object :- To find out the effect of placement of Super with and without Potash on Gram.

1. BASAL CONDITIONS :

(i) (a) Jowar+Meth—Gram—Jowar+Meth. (b) Jowar+Meth. (c) 1 md/ac. of A/S. (ii) (a) Sandy loam. (b) N.A. (iii) 27.10.53. (iv) (a) 3 *deshi* ploughings. (b) Sown behind the plough ; method of sowing in strips ; (c) 35 srs/ac. (d) Row to row 1'. (v) Nil. (vi) N.A. (vii) Unirrigated. (viii) Weeding. (ix) 1.55". (x) 14.3.1954.

2. TREATMENTS :

1. Control (no manure).
2. Super applied on surface.
3. Super applied in seeding line.
4. Super applied in band.
5. Super applied on surface+Potash on surface.
6. Super applied in seedling line+Potash on surface.
7. Super applied in band+Potash on surface.

3. DESIGN :

(i) R.B.D. (ii) (a) 7. (b) N.A. (iii) 3. (iv) (a) N.A. (b) 207.5'×21' (v) Yes—1½' path between adjacent plots. (vi) Yes.

4. GENERAL :

(i) Medium. (ii) No attack. (iii) Weight of straw and grain. (iv) (a) 1952-1953. (b) No. (c) Nil. (v) (a) Nil. (b)— (vi) & (vii) Nil.

5. RESULTS :

- (i) 526.8 lb./ac.
- (ii) 74.67 lb./ac.
- (iii) Treatments are not significantly different.
- (iv) Av. yield of grain in lb./ac.

Treatment	Av. yield
1.	553.3
2.	539.8
3.	527.6
4.	489.7
5.	548.1
6.	495.4
7.	533.3
S.E./mean.	52.7 lb./ac.

Crop :- Paira crops.
Site :- Botanical Sub-Stn., Bikramganj.

Ref :- Bh. 53(35).
Type :- 'C'.

Object :- To test the suitability of the following crops as Paira under local conditions.

BASAL CONDITIONS :

(i) (a) Paddy-Paira Gram-Paddy. (b) Paddy. (c) A/S at 40 lb./ac. of N and Single Super at 40 lb./ac. of P₂O₅. (iii) (a) Clayey loam. (b) N.A. (iii) 8.11.53. (iv) (a) N.A. (b) Broadcast. (c) According to local practices. (d) and (e) N.A. (v) Nil. (vi) Local variety (early). (vii) Nil. (viii) N.A. (ix) 7.31". (x) 24.3.54 (Khesari) ; 25.3.54 (Gram) ; 7.3.54 (Lentil) ; 6.3.54 (Pea) ; 10.3.54 (Linseed).

2. TREATMENTS :

1. Khesari.
2. Lentil.
3. Pea.
4. Gram.
5. Linseed.

3. DESIGN :

(i) R.B.D. (ii) (a) 5. (b) 295'×66' (iii) 2. (iv) (a) and (b) 59'×66'. (v) Nil. (vi) Yes.

4. GENERAL :

(i) N.A. (ii) Nil. (iii) Yield of grain and straw. (iv) (a) 1953-1956. (b) No. (c) Nil. (v) (a) N.A. (b) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) to (iii) —.

(iv) Av. yield of grain in lb./ac.

Treatment	Av. yield
1.	575.24
2.	99.23
3.	221.47
4.	431.43
5.	99.23

Crop :- Potato.

Site :- Agri. Chemistry Section, Sabour.

Ref :- Bh. 53(20).

Type :- 'M'.

Object :—To test the effect of trace elements on the yield of Potato.

1. BASAL CONDITIONS :

(i) (a) Potato-Maize-Kalai-Potato. (b) Kalai. (c) As under treatments. (ii) (a) Loam. (b) N.A. (iii) 13.11.53 (iv) (a) Spade ploughing. (b) Complete small potatoes were thrown in the field. (c) N.A. (d) Plant to plant 6" and row to row 30". (e) N.A. (v) Nil. (vi) DRR-Darjeeling Red—Round—(Late). (vii) Irrigated. (viii) One weeding and one interculture. (ix) 1.11". (x) 4th to 7th March 1954.

2. TREATMENTS :

- No manure.
 - 80 lb./ac. of N as A/S+80 lb./ac. of P_2O_5 as Super +80 lb./ac. of K_2O as Muriate of Potash.
 - Treatment (2) + Manganese at 25 lb./ac.
 - Treatment (2) + Manganese at 50 lb./ac.
 - Treatment (2) + Manganese at 75 lb./ac.
- Manure applied at the time of sowing.

3. DESIGN :

(i) R.B.D. (ii) (a) 5. (b) N.A. (iii) 3. (iv) (a) N.A. (b) 1/400th ac. (square in shape). (v) Yes-2' between adjacent plots. (vi) Yes.

4. GENERAL :

(i) Good. No lodging. (ii) N.A. (iii) Yield of tubers, (iv) (a) 1953-1955. (b) Yes. (c) Nil. (v) (a) Nil. (b) Nil. (vi) and (vii) Nil.

5. RESULTS :

- (i) 15090 lb./ac.
 (ii) 2359.3 lb./ac.
 (iii) Treatment differences are highly significant.
 (vi) Av. yield of tuber in lb./ac.

Treatment	Av. yield
1.	7708
2.	17199
3.	17333
4.	17541
5.	15674
S.E./mean	=1362.2 lb./ac.

Crop :- Sugarcane.

Ref :- Bh. 51(36).

Site :- Zonal Centre, Dehri-on-Sone.

Type :- 'M'.

Object :- To find out the optimum yield potential of N and P₂O₅ combinations.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) N.A. (c) N.A. (ii) (a) Alluvium non-calcareous. (b) N.A. (iii) N.A. (iv) (a) 4 ploughings. (b) Flat planting. (c) 60, 3-budded setts/row. (d) Rows 3' apart. (e) —. (v) N.A. (vi) BO. 11. (vii) N.A. (viii) Hoeing, weeding and earthing up. (ix) N.A. (x) N.A.

2. TREATMENTS :

1. No manure.
 2. 40 lb./ac. of N+50 lb./ac. of P₂O₅.
 3. 80 lb./ac. of N+100 lb./ac. of P₂O₅.
- N as A/S, P₂O₅ as Super.

3. DESIGN :

(i) R.B.D. (ii) (a) 3. (b) N.A. (iii) 2. (iv) (a) 60.5'×24'. (b) 60.5'×18'. (v) One row on each side along length. (vi) Yes.

4. GENERAL :

(i) N.A. (ii) N.A. (iii) Sucrose %, no. of mature stalks and sugarcane yield. (iv) (a) 1951-1952. (b) No. (c) Nil. (v) (a) Harinagar, Parsa and Majhauilia. (b) Nil. (vi) Nil. (vii) Experiment conducted during 1952 not traceable.

5. RESULTS :

- (i) 13.59 ton/ac.
- (ii) 0.326 ton/ac.
- (iii) Treatment differences are not significant.
- (iv) Av. yield of sugarcane in ton/ac.

Treatment	Av. yield
1.	12.48
2.	14.01
3.	14.24
S.E./mean	=0.231 ton/ac.

Crop :- Sugarcane.

Ref :- Bh. 51 (37).

Site :- Zonal Centre, Dehri-on-Sone.

Type :- 'M'.

Object :- To find out the optimum dose of N applied singly and in combination with P₂O₅.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) N.A. (c) N.A. (ii) (a) Alluvium non-calcareous. (b) N.A. (iii) N.A. (iv) (a) 4 ploughings by *deshi* plough. (b) Flat planting. (c) 60, 3-budded setts/row. (d) Rows 3' apart. (e) —. (v) N.A. (vi) CO. 453. (vii) N.A. (viii) Hoeing, earthing and weeding. (ix) N.A. (x) N.A.

2. TREATMENTS :

1. 30 lb./ac. of N.
2. 30 lb./ac. of N+30 lb./ac. of P₂O₅.
3. 60 lb./ac. of N.
4. 60 lb./ac. of N+30 lb./ac. of P₂O₅.
5. 60 lb./ac. of N+60 lb./ac. of P₂O₅.
6. Control.

Source of N is A/S and that of P₂O₅ is Super.

Treatments applied at the time of planting, mixed with the soil.

3. DESIGN :

(i) R.B.D. (ii) (a) 6. (b) N.A. (iii) 6. (iv) (a) 60.5' × 24'. (b) 60.5' × 18'. (v) One row on each side along length. (vi) Yes.

4. GENERAL :

(i) N.A. (ii) Nil. (iii) Sugarcane yield, sucrose% and no. of mature stalks. (iv) (a), (b) and (c) No. (v) (a) None. (b) Nil. (vi) and (vii) Nil.

5. RESULTS :

- (i) 18.31 ton/ac.
 (ii) 1.296 ton/ac.
 (iii) Treatments differ highly significantly.
 (iv) Av. yield of sugarcane in ton/ac.

Treatment	Av. yield
1.	17.26
2.	18.81
3.	20.39
4.	20.56
5.	20.52
6.	12.33
S.E./mean	= 0.529 ton/ac.

Crop :- Sugarcane.

Ref :- Bh. 51 (54).

Site :- Zonal Centre, Dehri-on-Sone.

Type :- 'M'.

Object :—To find the optimum requirement of N and P_2O_5 alone and in combination.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) N.A. (c) N.A. (ii) (a) Alluvial (non-calcareous). (b) N.A. (iii) N.A. (iv) (a) 4 ploughings followed by beaming. (b) Flat planting. (c) 60, 3-budded setts/row. (d) Rows 3' apart. (e)—(v) Nil. (vi) CO.453. (vii) N.A. (viii) Hoeing, weeding and earthing up. (ix) N.A. (x) N.A.

2. TREATMENTS :

All combinations of (1) and (2)

(1) 2 levels of N : $N_1=40$ and $N_2=80$ lb./ac.

(2) 2 levels of P_2O_5 : $P_1=50$ and $P_2=100$ lb./ac.

N as Castor cake and P_2O_5 as Super.

Time and method of application of manures N.A.

3. DESIGN :

(i) 2×2 Fact. in R.B.D. (ii) (a) 4. (b) N.A. (iii) 4. (iv) (a) $60.5' \times 24'$. (b) $60.5' \times 18'$ (v) One row on each side along length. (vi) Yes.

4. GENERAL :

(i) Fair. (ii) Nil. (iii) No. of tillers, sucrose %, sugarcane yield. (iv) (a) No. (b) Nil. (c) Nil. (v) (a) None. (b) Nil. (vi) & (vii) Nil.

5. RESULTS :

- (i) 19.32 ton/ac.
 (ii) 0.97 ton/ac.
 (iii) None of the effects is significant.
 (iv) Av. yield of sugarcane in ton/ac.

	N_1	N_2	Mean
P_1	16.17	24.52	20.35
P_2	17.92	18.67	18.30
Mean	17.05	21.59	19.32

S.E. of body of table = 0.49 ton/ac.

S.E. of any marginal mean = 0.34 ton/ac.

Crop :- Sugarcane.
Site :- Zonal Centre, Dehri-on-Sone

Ref :- Bh. 51(56).
Type :- 'M'.

Object :- To find the optimum requirements of N & P₂O₅ alone and in combination.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) N.A. (c) N.A. (ii) (a) Alluvial, non-calcareous. (b) N.A. (iii) N.A. (iv) (a) 4 ploughings by *deshi* plough. (b) Flat method of planting, (c) 60, 3-budded setts/row. (d) Rows 3' apart. (e) —. (v) N.A. (vi) CO. 453. (vii) N.A. (viii) Hoeing, weeding and earthing up. (ix) N.A. (x) N.A.

2. TREATMENTS :

All combinations of (1) and (2)

(1) 2 levels of N : N₁=40 and N₂=80 lb./ac.

(2) 2 levels of P₂O₅ : P₁=50 and P₂=100 lb./ac.

N as Castor cake and P₂O₅ as Super.

3. DESIGN :

(i) R.B.D. Fact. (ii) (a) 4. (b) N.A. (iii) 4. (iv) (a) 60.5'×24'. (b) 60.5'×18'. (v) One row on either side along length. (vi) Yes.

4. GENERAL :

(i) N.A. (ii) N.A. (iii) No. of tillers and mature stalks, sucrose %, and sugarcane yield. (iv) (a) 1951—1953 (b) No. (c) Nil. (v) (a) N.A. (b) N.A. (vi) & (vii) Nil.

5. RESULTS :

(i) 19.33 ton/ac.

(ii) 1.94 ton/ac.

(iii) No effect is significant.

(iv) Av. yield of sugarcane in ton/ac.

	N ₁	N ₂	Mean
P ₁	16.18	24.52	20.35
P ₂	17.92	18.67	18.30
Mean	17.05	21.60	19.33

S.E. of any marginal mean = 0.69 ton/ac.

S.E. of body of table = 0.97 ton/ac.

Crop :- Sugarcane.
Site :- Zonal Centre, Dehri-on-Sone.

Ref :- Bh. 52(75).
Type :- 'M'.

Object :- To find the optimum requirement of N & P₂O₅ alone and in combination.

1. BASAL CONDITIONS :

(i) (a) No. (b) N.A. (c) N.A. (ii) (a) Alluvial, non-calcareous. (b) N.A. (iii) N.A. (iv) (a) 4 ploughings by *deshi* plough. (b) Flat method of planting. (c) 60, 3-budded setts/row. (d) Rows 3' apart. (e) —. (v) N.A. (vi) CO. 453. (vii) N.A. (viii) Hoeing, weeding and earthing up. (ix) N.A. (x) N.A.

2. TREATMENTS :

All combinations of (1) and (2)

(1) 2 levels of N : N₁=40 and N₂=80 lb./ac.

(2) 2 levels of P₂O₅ : P₁=50 and P₂=100 lb./ac.

N as A/S and P₂O₅ as Super.

Manures applied at planting.

3. DESIGN :

(i) 2×2 Fact. in R.B.D. (ii) (a) 4. (b) N.A. (iii) 4. (iv) (a) 60.5'×24'. (b) 60.5'×18'. (v) One row on either side along length. (vi) Yes.

4. GENERAL :

(i) N.A. (ii) N.A. (iii) No. of tillers and mature stalks, sucrose % and sugarcane yield. (iv) (a) 1951-1953. (b) No. (c) Nil. (v) (a) N.A. (b) N.A. (vi) & (vii) Nil.

5. RESULTS :

- (i) 16.16 ton/ac.
 (ii) 2.77 ton/ac.
 (iii) None of the effects is significant.
 (iv) Av. yield of sugarcane in ton/ac.

	N ₁	N ₂	Mean
P ₁	15.46	15.49	15.48
P ₂	16.49	17.16	16.83
Mean	15.98	16.33	16.16

S.E. of any marginal mean = 0.98 ton/ac.

S.E. of the body of table = 1.39 ton/ac.

Crop :- Sugarcane.

Site :- Zonal Centre, Dehri-on-Sone.

Ref :- Bh. 52(68).

Type :- 'M'.

Object :—To find the optimum requirements of N, P₂O₅ and K₂O alone and in combination.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) N.A. (c) N.A. (ii) (a) Alluvial, non-calcareous. (b) N.A. (iii) N.A. (iv) (a) 4 ploughings followed by beaming. (b) Flat planting. (c) 60, 3-budded setts/row. (d) Rows 3' apart. (e) —. (v) Nil. (vi) CO. 453. (vii) N.A. (viii) Hoeing, weeding and earthing up. (ix) N.A. (x) N.A.

2. TREATMENTS :

All combinations of (1), (2) and (3)

- (1) 2 levels of N : N₁=40 and N₂= 80 lb./ac.
 (2) 2 levels of P₂O₅ : P₁=50 and P₂=100 lb./ac.
 (3) 2 levels of K₂O : K₁=80 and K₂=160 lb./ac.

3. DESIGN :

(i) 2³ Fact. in R.B.D. (ii) (a) 8. (b) N.A. (iii) 4. (iv) (a) 60.5'×24'. (b) 60.5'×18'. (v) One row on each side along length. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Nil. (iii) No. of mature stalks, sucrose % & sugarcane yield. (iv) (a) 1951-1953. (b) No. (c) Nil. (v) (a) Majhulia, Motihari and Pachrukhi. (b) Nil. (vi) Nil. (vii) Experiment conducted during 1953 is not traceable.

5. RESULTS :

- (i) 15.97 ton/ac.
 (ii) 2.76 ton/ac.
 (iii) None of the effects is significant.

(iv) Av. yield of sugarcane in ton/ac.

	P ₁	P ₂	Mean	K ₁	K ₂
N ₁	15.71	16.11	15.91	15.93	15.89
N ₂	15.56	16.48	16.02	16.28	15.76
Mean	15.64	16.30	15.97	16.10	15.83
K ₁	15.43	16.77			
K ₂	15.84	15.82			

S.E. of any marginal mean = 0.69 ton/ac.
 S.E. of body of table = 0.97 ton/ac.

Crop :- Sugarcane.

Ref :- Bh. 52(88).

Site :- Zonal Centre, Dehri-on-Sone.

Type :- 'M'.

Object :- To find out the optimum dose of N and P₂O₅ for CO. 453 and BO. 11 varieties.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) N.A. (c) N.A. (ii) (a) Sandy loam. (b) N.A. (iii) N.A. (iv) (a) 4 ploughings by *deshi* plough. (b) Flat method. (c) 60, 3-budded setts/row. (d) Rows 3' apart. (e) —. (v) N.A. (vi) CO. 453. (vii) N.A. (viii) Hoeing, weeding and earthing up. (ix) N.A. (x) N.A.

2. TREATMENTS :

All combinations of (1) and (2)

(1) 4 levels of N : N₀=0, N₁=40, N₂=80 and N₃=120 lb./ac.(2) 4 levels of P₂O₅ : P₀=0, P₁=50, P₂=100 and P₃=150 lb./ac.N as A/S and P₂O₅ as Super, applied before planting sugarcane as a mixture.

3. DESIGN :

(i) 4×4 Fact. in R.B.D. (ii) (a) 16. (b) N.A. (iii) 4. (iv) (a) 60.5'×24'. (b) 60.5'×18'. (v) One row on each side along length. (vi) Yes.

4. GENERAL :

(i) N.A. (ii) N.A. (iii) No. of tillers, no. of mature stalks, sucrose % and sugarcane yield. (iv) (a) 1950, 1953. (b) No. (c) Nil. (v) (a) Parsa. (b) No. (vi) Nil. (vii) This experiment was to be conducted in split plot with 2 varieties but it was conducted in R.B.D. with CO. 453 variety only. Expts. conducted during the years 1950, 1951 and 1953 are given under Type 'MV'.

5. RESULTS :

(i) 8.66 ton./ac.
 (ii) 2.80 ton./ac.
 (iii) None of the effects is significant.
 (iv) Av. yield of sugarcane in ton./ac.

	P ₀	P ₁	P ₂	P ₃	Mean
N ₀	9.37	8.96	7.16	6.10	7.90
N ₁	10.10	9.11	4.41	4.92	7.14
N ₂	15.17	11.61	8.08	7.75	10.65
N ₃	8.78	9.15	12.64	5.14	8.93
Mean	10.86	9.71	8.07	5.98	8.66

S.E. of any marginal mean = 0.70 ton./ac.
 S.E. of body of table = 1.40 ton./ac.

Crop :- Sugarcane.
Site :- Zonal Centre, Harinagar.

Ref :- Bh. 52(64).
Type :- 'M'.

Object :- To find out the optimum dose of N and P_2O_5 for BO.11 variety.

1. BASAL CONDITIONS :

(i) (a) G.M.—Sugarcane—G.M. (b) Sanai. G.M. (c) Nil. (ii) (a) Sandy loam. (b) N.A. (iii) 3.2.52. (iv) (a) One ploughing for upturning Sanai, followed by four ploughings. (b) Flat planting. (c) 60, 3-budded setts/row. (d) Rows 3' apart. (e)—(v) 10 C.L./ac. of F.Y.M. (vi) BO. 11 (vii) Unirrigated. (viii) Nil. (ix) 60.62". (x) 2.3.53 to 4.3.53.

2. TREATMENTS :

All combinations of (1) and (2)

(1) 4 levels of N : $N_0=0$, $N_1=40$, $N_2=80$ and $N_3=120$ lb/ac.

(2) 4 levels of P_2O_5 : $P_0=0$, $P_1=50$, $P_2=100$ and $P_3=150$ lb/ac.

N as Castor cake and P_2O_5 as Super. Manures mixed, spread over and mixed with soil before planting.

3. DESIGN :

(i) 4×4 Fact. in R.B.D. (ii) (a) 16. (b) N.A. (iii) 5 (iv) (a) $60.5' \times 24'$. (b) $60.5' \times 18'$. (v) One row on each side along length. (vi) Yes.

4. GENERAL :

(i) No lodging. (ii) No attack of pest or disease. (iii) Sucrose %, sugarcane yield and number of mature stalks. (iv) (a) 1951—1952. (b) No. (c) Nil. (v) (a) Harinagar, Parsa, Motipur and Dehri-on-Sone. (vi) Nil. (vii) Experiment conducted during 1951 not available.

5. RESULTS :

(i) 8.64 ton/ac.
(ii) 2.79 ton/ac.
(iii) None of the effects is significant.
(iv) Av. yield of sugarcane in ton/ac.

	P_0	P_1	P_2	P_3	Mean
N_0	9.36	8.95	7.16	6.09	7.89
N_1	9.89	9.10	4.40	4.92	7.10
N_2	15.16	11.60	8.07	7.74	10.64
N_3	8.77	9.14	12.62	5.14	8.92
Mean	10.82	9.70	8.06	5.97	8.64

S.E. of any marginal mean = 0.62 ton/ac.

S.E. of body of table = 1.25 ton/ac.

Crop :- Sugarcane.
Site :- Zonal Centre, Harinagar.

Ref :- Bh. 49(17).
Type :- 'M'.

Object :- To compare salvaged A/N with standard manures on Sugarcane yield.

1. BASAL CONDITIONS :

(i) (a) G.M.—Sugarcane—G.M. (b) G.M. (Sanai). (c) Nil. (ii) (a) Sandy loam. (b) N.A. (iii) 3.2.49. (iv) (a) 4 ploughings. (b) Flat planting. (c) 60, 3-budded setts/row. (d) Rows 3' apart. (e)—(v) Nil. (vi) BO. 11. (vii) Irrigated. (viii) Nil. (ix) 56.34". (x) 3.2.50 to 5.2.50.

2. TREATMENTS :

Different sources to supply 40 lb/ac. of N+50 lb/ac. of P_2O_5 .

1. Control (no manure).
2. Castor cake+Triple Super.
3. Ammo. phos.
4. Salvaged A/N.

Manures mixed, spread over and mixed with soil before planting.

3. DESIGN :

(i) R.B.D. (ii) (a) 4. (b) N.A. (iii) 8 (iv) (a) 60.5'×24'. (b) 60.5'×18'. (v) 3' on either side along length. (vi) Yes

4. GENERAL :

(i) Good. (ii) Nil. (iii) Surcose %, no. of mature stalks and sugarcane yield. (iv) (a) No. (b) No. (c) Nil. (v) (a) None. (b) Nil. (vi) & (vii) Nil.

5. RESULTS :

- (i) 25.76 ton/ac.
- (ii) 2.998 ton/ac.
- (iii) Treatments differ highly significantly.
- (iv) Av. yield of sugarcane in ton/ac.

Treatment	Av. yield
1.	22.02
2.	27.38
3.	26.48
4.	27.17
S.E./mean	= 1.06 ton/ac.

Crop :- Sugarcane.

Site :- Zonal Centre, Harinagar.

Ref :- 49(31).

Type :- 'M'.

Object :- To find out the effect of liming in heavy soils.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) N.A. (c) Nil. (ii) (a) Sandy loam. (b) N.A. (iii) No. (iv) (a) 4 ploughings & harrowing. (b) Flat method of planting. (c) 65 md/ac. (d) Rows 3' apart. (e) —. (v) N.A. (vi) BO. 11 and CO. 453. (vii) N.A. (viii) Hoeing and weeding. (ix) N.A. (x) N.A.

2. TREATMENTS :

1. Control (no manure).
2. 40 lb/ac. of N as Castor cake+50 lb/ac. of P_2O_5 as Triple Super.
3. 40 lb/ac. of N as Castor cake+50 lb/ac. of P_2O_5 as Triple Super.+5 md/ac. of Lime.
4. 40 lb/ac. of N as Castor cake+50 lb/ac. of P_2O_5 as Triple Super.+10 md/ac. of Lime.
5. 40 lb/ac. of N as Ammo. phos.+50 lb/ac. of P_2O_5 as Triple Super.+5 md/ac. of Lime.
6. 40 lb/ac. of N as Ammo. phos.+50 lb/ac. of P_2O_5 as Triple Super.+10 md/ac. of Lime.

3. DESIGN :

(i) R.B.D. (ii) (a) 6 plots/block for each variety. (b) N.A. (iii) 4 (iv) (a) 60.5'×24'. (b) 60.5'×18'. (v) One row on either side along length. (vi) Yes.

4. GENERAL :

(i) N.A. (ii) N.A. (iii) Cane yield, no. of mature stalks, and juice [content. (iv) (a) 1949—1953. (b) No. (c) Nil. (v) (a) N.A. (b) N.A. (vi) Nil. (vii) Experiment conducted during the year 1950 not available.

5. RESULTS :

Variety BO. 11	Variety CO. 453
(i) 19.56 ton/ac.	(i) 23.92 ton/ac.
(ii) 3.042 ton/ac.	(ii) 1.307 ton/ac.
(iii) Treatment differences are not significant.	(iii) Treatment differences are not significant.

(iv) Av. yield of sugarcane in ton/ac.

Treatment	BO. 11 Av. yield	CO 453 Av. yield
1.	16.90	25.53
2.	21.49	23.23
3.	18.62	23.97
4.	18.64	25.53
5.	21.21	23.14
6.	20.48	22.13
S.E./mean	= 1.521 ton/ac.	=0.654 ton/ac.

Crop :- Sugarcane.

Site :- Zonal Centre, Harinagar.

Ref :- Bh. 51(31).

Type :- 'M'.

Object :- To find out the effect of liming in heavy soil.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) N.A. (c) N.A. (ii) (a) Sandy loam. (b) N.A. (iii) N.A. (iv) (a) 4 ploughings by *deshi* plough
(b) Flat planting (c) 60, 3-budded setts/row. (d) Rows 3' apart. (e) N.A. (v) N.A. (vi) CO.453. (vii)
N.A. (viii) Weeding and earthing up. (ix) N.A. (x) N.A.

2. TREATMENTS :

All combinations of (1) & (2)+a control (no manure).

(1) 2 sources to supply 60 lb./ac. of N+75 lb./ac. of P_2O_5 : A=Castorcake+Single Super and
B=Ammo.phos.

(2) 3 doses of Lime : $L_0=0$, $L_1=5$ and $L_2=10$ md./ac.

Manures mixed spread over and mixed with the soil before planting.

3. DESIGN :

(i) R.B.D. (ii) (a) 7. (b) N.A. (iii) 6. (iv) (a) $60.5' \times 24'$. (b) $60.5' \times 18'$. (v) 3' on either side along length
(vi) Yes.

4. GENERAL :

(i) N.A. (ii) N.A. (iii) Sucrose %, no. of matured stalks and sugarcane yield. (iv) (a) 1949—1953. (b) No.
(c) No. (v) (a) Parsa, Majhauria and Motihari. (b) Nil. (vi) Nil. (vii) Experiments conducted during the
years 1952,1953—N.A.

5. RESULTS :

- (i) 21.25 ton/ac.
(ii) 6.737 ton/ac.
(iii) None of the effects is significant.
(iv) Av. yield of cane in ton/ac.

	Control=23.52 ton/ac		Mean.
	A	B	
L_0	22.00	24.16	23.08
L_1	20.65	17.71	19.18
L_2	21.20	19.52	20.36
Mean.	21.28	20.46	20.87

S.E. of marginal mean of lime =1.945 ton/ac.
S.E. of marginal mean of source =1.588 ton/ac.
S.E. of body of the table =2.751 ton/ac.

Crop :- Sugarcane.
Site :- Zonal Centre, Harinagar.

Ref :- Bh. 50(47).
Type :- 'M'.

Object :- To find out the optimum yield potential of N & P₂O₅ applied alone and in combinations.

1. BASAL CONDITIONS :

(i) (a) G.M.—Sugarcane—G.M. (b) Sanai. (c) Nil. (ii) (a) Sandy loam. (b) N.A. (iii) 1.12.50. (iv) (a) 4 ploughings by *deshi* plough. (b) Flat planting. (c) 60 3-budded setts/row. (d) Rows 3' apart. (e)— (v) Sanai as G.M. (vi) BO.11. (vii) Irrigated. (viii) Weeding and earthing. (ix) 42.79". (x) 1.1.52 to 2.1.52.

2. TREATMENTS :

1. No manure (control)
2. 40 lb./ac. of N+40 lb./ac. of P₂O₅
3. 80 lb./ac. of N+80 lb./ac. of P₂O₅
N as A/S and P₂O₅ as Single Super., at the time of planting mixed with soil.

3. DESIGN :

(i) R.B.D. (ii) (a) 3. (b) N.A. (iii) 2. (iv) (a) 60.5'×24'. (b) 60.5'×18'. (v) 3' on either side of width. (vi) Yes.

4. GENERAL :

(i) N.A. (ii) Nil. (iii) Sucrose %, no. of mature stalks and sugarcane yield. (iv) (a) 1950—52. (b) No. (c) Nil. (v) (a) Majhulia, Pachrukhi and Dehri-on-Sone. (b) Nil (vi) & (vii) Nil.

5. RESULTS :

(i) 23.36 ton/ac.
(ii) 7.182 ton/ac.
(iii) Treatment differences are not significant.
(iv) Av. yield of Sugarcane in ton/ac.

Treatment	Av yield.
1.	26.65
2.	17.00
3.	26.43
S.E./mean	= 5.08 ton/ac.

Crop :- Sugarcane.
Site :- Zonal Centre, Harinagar.

Ref :- Bh. 52(80).
Type :- 'M'.

Object :- To find out the optimum yield potential of N and P₂O₅ applied alone and in combinations.

1. BASAL CONDITIONS :

(i) (a) G.M.—Sugarcane—G.M. (b) G.M. (c) Nil. (ii) (a) Sandy loam. (b) N.A. (iii) 20.11.52 (iv) (a) 4 ploughings followed by beaming. (b) Flat planting. (c) 60, 3-budded setts/row. (d) Rows 3' apart. (e)— (v) Nil. (vi) BO. 11. (vii) Unirrigated. (viii) Hoeing, weeding and earthing up. (ix) 63.50". (x) 6.2.54. to 8.2.54.

2. TREATMENTS :

1. No manure.
2. 40 lb./ac. of N+50 lb./ac. of P₂O₅.
3. 80 lb./ac. of N+100 lb./ac. of P₂O₅.
N as A/N and P₂O₅ as Super. Time & method of application of treatments N.A.

3. DESIGN :

(i) R.B.D. (ii) (a) 3. (b) N.A. (iii) 2. (iv) (a) 60.5'×24'. (b) 60.5'×18'. (v) One row on each side of width (vi) Yes.

4. GENERAL :

(i) No lodging. (ii) No major incidence of pest and disease noticed. (iii) No. of mature stalks, sucrose% and sugarcane yield. (iv) (a) 1950-1952. (b) No. (c) Nil. (v) (a) Parsa, Majhulia, Motipur and Dheris-on-Sone. (b) Nil. (vi) Nil. (vii) Experiment conducted during 1951 N.A.

5. RESULTS :

- (i) 15.48 ton/ac.
- (ii) 1.84 ton/ac.
- (iii) Treatment differences are not significant.
- (iv) Av. yield of sugarcane in ton/ac.

Treatment	Av. yield
1.	10.46
2.	17.62
3.	18.35
S.E./mean	= 1.30 ton/ac

Crop :- Sugarcane.

Ref:- Bh. 52(89).

Site :- Zonal Centre, Majhulia.

Type :- 'M'.

Object :— To find out the response to different combinations of N and P₂O₅.

1. BASAL CONDITIONS :

- (i) (a) N.A. (b) N.A. (c) N.A. (ii) (a) Alluvial-calcareous. (b) N.A. (iii) N.A. (iv) (a) 4 ploughings by *deshi* plough. (b) Flat method of planting (c) 60, 3-budded setts/row. (d) Rows 3' apart. (e)– (v) N.A. (vi) CO. 453. (vii) N.A. (viii) Hoeing, weeding and earthing up. (ix) N.A. (x) N.A.

2. TREATMENTS :

1. 60 lb./ac. of N as A/S+75 lb./ac. of P₂O₅ as Single Super.
2. 60 lb./ac. of N as Castor cake+75 lb./ac. of P₂O₅ as Single Super.
3. 45 lb./ac. of N as Castor cake+15 lb./ac. of N as A/S+75 lb./ac. of P₂O₅ as Single Super.
4. 30 lb./ac. of N as Castor cake+30 lb./ac. of N as A/S+75 lb./ac. of P₂O₅ as Single Super.
5. 15 lb./ac. of N as Castor cake+45 lb./ac. of N as A/S+75 lb./ac. of P₂O₅ as Single Super.
6. Control (no manure).

3. DESIGN :

- (i) R.B.D. (ii) (a) 6. (b) N.A. (iii) 4. (iv) (a) 60.5'×24'. (b) 60.5'×18'. (v) One row on both side along length (vi) Yes.

4. GENERAL :

- (i) N.A. (ii) N.A. (iii) No. of mature stalks and tillers sucrose % and sugarcane yield. (iv) (a) 1950–1953. (b) No. (c) Nil. (v) (a) N.A. (b) Nil. (vi) Nil. (vii) This experiment was to be conducted in split plot with CO. 453 and BO. 11 varieties in main-plot, but it was conducted in R.B.D with only variety CO.-453

5. RESULTS :

- (i) 21.97 ton/ac.
- (ii) 1.84 ton/ac.
- (iii) Treatment differences are highly significant.
- (iv) Av. yield of sugarcane in ton/ac.

Treatment	Av. yield
1.	21.49
2.	22.99
3.	22.92
4.	23.10
5.	22.52
6.	18.81
S.E./mean	= 0.92 ton/ac.

Crop :- Sugarcane.
Site :- Zonal Centre, Majhulia.

Ref :- Bh. 49(32).
Type :- 'M'.

Object :- To find out the optimum requirements of N and P_2O_5 for BO. 11 variety.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) N.A. (c) Nil. (ii) (a) Alluvial calcareous. (b) N.A. (iii) N.A. (iv) (a) 4 ploughings and harrowing. (b) Flat method. (c) 65 md./ac. (d) Rows 3' apart. (e) —. (v) N.A. (vi) BO. 11. (vii) N.A. (viii) Hoeing and weeding. (ix) N.A. (x) N.A.

2. TREATMENTS :

All combinations of (1) and (2).

(1) 3 levels of N : $N_0=0$, $N_1=20$ and $N_2=40$ lb./ac.

(2) 3 levels of P_2O_5 : $P_0=0$, $P_1=25$ and $P_2=50$ lb./ac.

Source of N is Castor cake and P_2O_5 is Triple Super.

3. DESIGN :

(i) 3×3 Fact. in R.B.D. (ii) (a) 9. (b) N.A. (iii) 8. (iv) (a) $60.5' \times 24'$. (b) $60.5' \times 18'$. (v) 1 row on either side along length. (vi) Yes.

4. GENERAL :

(i) N.A. (ii) N.A. (iii) Cane yield, no. of mature stalks and juice content. (iv) (a) 1949-1952. (b) No. (c) Nil. (v) (a) N.A. (b) N.A. (vi) Nil. (vii) Experiment conducted with 2 varieties onwards.

5. RESULTS :

(i) 16.19 ton/ac.

(ii) 0.808 ton/ac.

(iii) None of the effects is significant.

(iv) Av. yield of sugarcane in ton/ac.

	P_0	P_1	P_2	Mean
N_0	15.02	14.99	16.24	15.42
N_1	16.75	16.75	15.94	16.48
N_2	15.72	16.27	18.00	16.66
Mean	15.83	16.00	16.73	16.16

S.E. of any marginal mean = 0.165 ton/ac.

S.E. of body of table = 0.286 ton/ac.

Crop :- Sugarcane.
Site :- Zonal Centre, Majhulia.

Ref :- Bh. 50(35).
Type :- 'M'.

Object :- To find out the optimum requirements of N, P_2O_5 and K_2O alone and in combinations.

1. BASAL CONDITIONS :

(i) (a) Sugarcane-G.M.-Wheat-G.M.-Sugarcane. (b) Sanai (G.M.). (c) Nil. (ii) (a) Alluvial calcareous. (b) N.A. (iii) 20/21.2.50. (iv) (a) 4 ploughings and harrowing. (b) Flat planting. (c) 70 mds./ac. or 60, 3-budded setts/row. (d) Rows 3' apart. (e) —. (v) Castor cake 78 md./ac. + Single Super 22.5 md./ac. (vi) BO. 11. (vii) Unirrigated. (viii) N.A. (ix) 38.95%. (x) 22/23.1.51.

2. TREATMENTS :

All combinations of (1), (2) and (3)

(1) 2 levels of N : $N_1=40$ and $N_2=80$ lb./ac.

(2) 2 levels of P_2O_5 : $P_1=50$ and $P_2=100$ lb./ac.

(3) 2 levels of K_2O : $K_1=80$ and $K_2=160$ lb./ac.

N as Castor cake, P_2O_5 as Super and K_2O as Pot. Sul.

N, P_2O_5 and K_2O spread over plots just before planting, and mixed with soil thoroughly and uniformly.

3. DESIGN :

(i) 2³ Fact in R.B.D. (ii) (a) 8. (b) N.A. (iii) 4. (iv) (a) 60.5'×24'. (b) 60.5'×18'. (v) 3' on either side of width. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Nil. (iii) Mature stalk counts and sugarcane yield. (iv) (a) 1950-1953. (b) N.A. (c) None. (v) (a) Pusa. (b) No. (vi) and (vii) Nil.

5. RESULTS :

- (i) 19.74 ton/ac.
(ii) 2.948 ton/ac.
(iii) None of the effects is significant.
(iv) Av. yield of sugarcane in ton/ac.

	P ₁	P ₂	Mean	K ₁	K ₂
N ₁	19.14	20.89	20.01	20.05	19.97
N ₂	19.88	19.07	19.47	18.50	20.45
Mean	19.51	19.98	19.74	19.26	20.21
K ₁	19.13	19.39			
K ₂	19.85	20.57			

S.E. of any marginal mean = 0.74 ton/ac.
S.E. of body of table = 1.04 ton/ac.

Crop :- Sugarcane.
Site :- Zonal Centre, Majhaulia.

Ref :- Bh. 51(51).
Type :- 'M'.

Object :- To find out the optimum requirement of N, P₂O₅ and K₂O alone and in combinations.

1. BASAL CONDITIONS :

(i) (a) Sugarcane-G.M.-Wheat-G.M.-Sugarcane. (b) Sanai. (c) Nil. (ii) (a) Alluvial calcareous soil. (b) N.A. (iii) 28.1.51. (iv) (a) 4 ploughings. (b) Flat planting. (c) 60, 3-budded setts/row. (d) Rows 3' apart. (e) —. (v) N.A. (vi) BO. 11. (vii) N.A. (viii) N.A. (ix) 47.05". (x) 10.1.52 to 12.1.52.

2. TREATMENTS :

All combinations of (1), (2) and (3)

- (1) 2 levels of N : N₁=40 and N₂=80 lb./ac.
(2) 2 levels of P₂O₅ : P₁=50 and P₂=100 lb./ac.
(3) 2 levels of K₂O : K₁=80 and K₂=160 lb./ac.

N as Castor cake, P₂O₅ as Super and K₂O as Pot. Sul.

Manures spread over plots just before planting, thoroughly and uniformly mixed with soil.

3. DESIGN :

(i) 2³ Fact. in R.B.D. (ii) (a) 8. (b) 4. (iii) (a) 60.5'×24'. (b) 60.5'×18'. (v) 3' either side of width. (vi) Yes.

4. GENERAL :

(i) Normal. (ii) Nil. (iii) Tiller and mature stalk counts and sugarcane yield. (iv) (a) 1950-53. (b) No. (c) Nil. (v) (a) Dehri-on-Sone. (b) Nil. (vi) and (vii) Nil.

5. RESULTS :

- (i) 25.43 ton/ac.
(ii) 2.55 ton ac.
(iii) None of the effects is significant.

(iv) Av. yield of sugarcane in ton/ac.

	P ₁	P ₂	Mean	K ₁	K ₂
N ₁	23.72	24.66	24.19	24.77	23.60
N ₂	25.44	27.89	26.66	25.85	27.48
Mean	24.58	26.28	25.43	25.31	25.54
K ₁	24.38	26.24			
K ₂	24.78	26.31			

S.E. of any marginal mean = 0.64 ton/ac.
 S.E. of body of table = 0.90 ton/ac.

Crop :- Sugarcane.
 Site :- Zonal Centre, Majhaulia.

Ref :- Bh. 52(69).
 Type :- 'M'.

Object :- To find out the optimum requirement of N, P₂O₅ and K₂O alone and in combination.

1. BASAL CONDITIONS :

(i) (a) Sugarcane—G.M.—Wheat—G.M.—Sugar cane. (b) Sanai. (c) Nil. (ii) (a) Alluvial calcareous soil. (b) N.A. (iii) 24.1.52. (iv) (a) 4 ploughings. (b) Flat planting. (c) 60, 3-budded setts/row. (d) Rows 3' apart. (e) —. (v) Castor cake—78 md./ac. (vi) BO. 11. (vii) N.A. (viii) Nil. (ix) 66.65%. (x) 6/7.3.53.

2. TREATMENTS :

All combinations of (1), (2) and (3)

(1) 2 levels of N : N₁=40 and N₂=80 lb./ac. of N.

(2) 2 levels of P₂O₅ : P₁=50 and P₂=100 lb./ac. of P₂O₅.

(3) 2 levels of K₂O : K₁=80 and K₂=160 lb./ac. of K₂O.

N as Castor cake, P₂O₅ as Super and K₂O as Pot. Sul.

Manures spread over plots just before planting, thoroughly and uniformly mixed with soil.

3. DESIGN :

(i) 2³ Fact. in R.B.D. (ii) (a) 8. (b) N.A. (iii) 4. (iv) (a) 60.5'×24'. (b) 60.5'×18'. (v) 3' on either side of width. (vi) Yes.

4. GENERAL :

(i) Average. (ii) Nil. (iii) Mature stalk count, sugarcane yield (and sucrose %). (iv) (a) 1950-53 (b) No. (c) Nil. (v) (a) Motihari, Pachrukhi and Dehri-on-Sone. (b) Nil. (vi) & (vii) Nil.

5. RESULTS :

(i) 24.76 ton/ac.

(ii) 3.00 ton/ac.

(iii) None of the effects is significant.

(iv) Av. yield of sugarcane in ton/ac.

	P ₁	P ₂	Mean	K ₁	K ₂
N ₁	26.08	23.18	24.63	24.06	25.20
N ₂	25.16	24.61	24.89	25.22	24.55
Mean	25.62	23.90	24.76	24.64	24.88
K ₁	26.81	22.47			
K ₂	24.42	25.33			

S.E. of any marginal mean = 0.75 ton./ac.
 S.E. of body of table = 1.06 ton./ac.

Crop :- Sugarcane.
Site :- Zonal Centre, Majhaulia.

Ref :- Bh. 53(137).
Type :- 'M'.

Object :- To find out the optimum requirements of N, P₂O₅ and K₂O alone and in combination.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) N.A. (c) Nil. (ii) (a) Alluvial calcareous. (b) N.A. (iii) N.A. (iv) (a) 3 ploughings and harrowing. (b) Flat method. (c) 65 md./ac. (d) Rows 3' apart. (e) —. (v) N.A. (vi) CO. 453. (vii) N.A. (viii) Hoeing and weeding. (ix) N.A. (x) N.A.

2. TREATMENTS :

All combinations of (1), (2) and (3)

(1) 2 levels of N : N₁=40 and N₂=80 lb./ac.

(2) 2 levels of P₂O₅ : P₁=50 and P₂=100 lb./ac.

(3) 2 levels of K₂O : K₁=80 and K₂=160 lb./ac.

N as Castor cake, P₂O₅ as Super and K₂O as Pot. Sul.

3. DESIGN :

(i) 2³ Fact. in R.B.D. (ii) (a) 8. (b) N.A. (iii) 4. (iv) (a) 60.5'×24 (b) 60.5'×18'. (v) 1 row on each side of breadth. (vi) Yes.

4. GENERAL :

(i) N.A. (ii) N.A. (iii) Cane yield, no. of mature stalks and juice content. (iv) (a) 1950-1953. (b) No. (c) Nil. (v) (a) N.A. (b) N.A. (vi) & (vii) Nil.

5. RESULTS :

(i) 21.03 ton/ac.

(ii) 1.62 ton/ac.

(iii) None of the effects is significant.

(iv) Av. yield of sugarcane in ton/ac.

	P ₁	P ₂	Mean	K ₁	K ₂
N ₁	21.21	21.13	21.17	21.79	20.54
N ₂	21.32	20.48	20.90	21.04	20.75
Mean	21.26	20.81	21.03	21.42	20.81
K ₁	22.02	20.81			
K ₂	20.50	20.80			

S.E. of the body of table = 0.57 ton/ac.

S.E. of any marginal mean = 0.41 ton/ac.

Crop :- Sugarcane.
Site :- Zonal Centre, Majhaulia.

Ref :- Bh. 49(24).
Type :- 'M'.

Object :- To find out the optimum requirement of N and P₂O₅ alone and in combination for BO.11 variety.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) N.A. (c) N.A. (ii) (a) Alluvium calcareous. (b) N.A. (iii) N.A. (iv) (a) 4 ploughings. (b) Flat planting. (c) 60, 3-budded setts/row. (d) Rows 3' apart. (e) —. (v) Nil. (vi) BO. 11. (vii) N.A. (viii) N.A. (ix) N.A. (x) N.A.

2. TREATMENTS :

All combinations of (1) and (2)

(1) 3 levels of N : N₀=0, N₁=20 and N₂=40 lb./ac.

(2) 3 levels of P₂O₅ : P₀=0, P₁=25 and P₂=50 lb./ac.

N as A/S and P₂O₅ as Single Super.

Manures spread over the field and uniformly mixed with the soil before planting.

3. TREATMENTS :

(i) 3×3 Fact. in R.B.D. (ii) (a) 9. (b) N.A. (iii) 8. (iv) (a) 60.5'×24'. (b) 60.5'×18'. (v) 1 outer row on each side of width. (vi) Yes.

4. GENERAL :

(i) N.A. (ii) N.A. (iii) No. of mature stalks, sucrose % and sugarcane yield. (iv) (a) No. (b) No. (c) No. (v) (a) Pusa and Parsa. (b) Nil. (vi) & (vii) Nil.

5. RESULTS :

(i) 16.16 ton/ac.
 (ii) 2.282 ton/ac.
 (iii) None of the effects is significant.
 (iv) Av. yield of sugarcane in ton./ac.

	P ₀	P ₁	P ₂	Mean
N ₀	15.02	14.97	16.22	15.40
N ₁	16.72	16.72	15.92	16.45
N ₂	15.69	16.26	17.98	16.64
Mean	15.81	15.98	16.71	16.16

S.E. of any marginal mean = 0.466 ton/ac.
 S.E. of body of table = 0.807 ton/ac.

Crop :- Sugarcane.

Site :- Zonal Centre, Majhulia.

Ref :- Bh. 52(41).

Type :- 'M'.

Object :- To find out the optimum yield potential of N and P₂O₅ alone and in combination.

1. BASAL CONDITIONS :

(i) Sugarcane-G.M.-Wheat-G.M.-Sugarcane. (b) *Sanai*. (c) Nil. (ii) (a) Alluvial calcareous. (b) N.A. (iii) 24.1.52. (iv) (a) 4 ploughings. (b) Flat planting. (e) 60, 3-budded setts/row. (d) Rows 3' apart. (e) —. (v) Castorcake-78 md./ac. Time & method of application of Castorcake N.A. (vi) BO. 11. (vii) N.A. (viii) Nil. (ix) 66.78°. (x) 6/7.3.53.

2. TREATMENTS :

1. Control (no manure).
 2. 40 lb./ac. of N + 50 lb./ac. of P₂O₅.
 3. 80 lb./ac. of N + 100 lb./ac. of P₂O₅.
 N as A/S and P₂O₅ is Single Super. Treatment applied at the time of planting.

3. DESIGN :

(i) R.B.D. (ii) (a) 3. (b) N.A. (iii) 2. (iv) (a) 60.5'×24'. (b) 60.5'×18'. (v) 3' on either side of width. (vi) Yes.

4. GENERAL :

(i) Average. (ii) Nil. (iii) No. of tillers and mature stalks and sugarcane yield. (iv) (a) 1949-1952. (b) No. (c) Nil. (v) (a) Parsa, Harinagar and Motihari. (b) Nil. (vi) and (vii) Nil.

5. RESULTS :

(i) 24.37 ton/ac.
 (ii) 2.346 ton/ac.
 (iii) Treatments do not differ significantly.
 (iv) Av. yield of sugarcane in ton/ac.

Treatment	Av. yield
1.	24.22
2.	23.12
3.	25.76
S.E./mean	= 1.66 ton/ac.

Crop :- Sugarcane.
Site :- Zonal Centre, Motihari.

Ref :- Bh. 53(146).
Type :- 'M'.

Object :- To find out the response to different combinations of manures.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) N.A. (c) N.A. (ii) (a) Sandy loam. (b) N.A. (iii) N.A. (iv) (a) 4 ploughings by *deshi* plough. (b) Flat method. (c) 60, 3-budded setts/row. (d) Rows 3' apart. (e) —. (v) N.A. (vi) CO. 453. (vii) N.A. (viii) Hoeing, weeding and earthing. (ix) N.A. (x) N.A.

2. TREATMENTS :

1. 60 lb./ac of N as A/S + 75 lb./ac. of P_2O_5 as Single Super.
2. 60 lb./ac. of N as Castorcake + 75 lb./ac. of P_2O_5 as Single Super.
3. 45 lb./ac. of N as Castorcake + 15 lb./ac. of N as A/S + 75 lb./ac. of P_2O_5 as Single Super.
4. 30 lb./ac. of N as Castorcake + 30 lb./ac. of N as A/S + 75 lb./ac. of P_2O_5 as Single Super.
5. 15 lb./ac. of N as Castorcake + 45 lb./ac. of N as A/S + 75 lb./ac. of P_2O_5 as Single Super.
6. Control.

3. DESIGN :

(i) R.B.D. (ii) (a) 6. (b) N.A. (iii) 4. (iv) (a) 60.5' × 24'. (b) 60.5' × 18'. (v) One row on each side of width. (vi) Yes.

4. GENERAL :

(i) N.A. (ii) N.A. (iii) No. of tillers, no. of mature stalks, sucrose % and sugarcane yield. (iv) (a) 1948-1953. (b) No. (c) Nil. (v) (a) Nil. (b) Nil. (vi) Nil. (vii) This experiment was to be conducted in split plot with CO. 453 and BO. 11 varieties. But it was conducted in R.B.D. with CO. 453 variety only.

5. RESULTS :

- (i) 19.93 ton/ac.
- (ii) 3.47 ton/ac.
- (iii) Treatment differences are not significant.
- (iv) Av. yield of sugarcane in ton/ac.

Treatment	Av. yield
1.	20.68
2.	19.39
3.	20.59
4.	19.84
5.	21.89
6.	17.41
S.E./mean	=1.74 ton/ac.

Crop :- Sugarcane.
Site :- Zonal Centre, Motihari.

Ref :- Bh. 49(28).
Type :- 'M'.

Object :- To find out the optimum dose of N and P_2O_5 .

1. BASAL CONDITIONS :

(i) (a) *Sanai*—Sugarcane—*Sanai*. (b) *Sanai*. (c) 50 lb./ac. of P_2O_5 as Single Super. (ii) (a) Sandy loam. (b) N.A. (iii) N.A. (iv) (a) 4 ploughings. (b) Flat planting. (c) 60, 3-budded setts/row. (d) Rows 3' apart. (e) — (v) *Sanai*. Details N.A. (vi) BO. 11. (vii) N.A. (viii) 3 hoeings and 3 weedings. (ix) 56.35". (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 $N_3=120$ lb./ac.
- (2) 4 levels of P_2O_5 : $P_0=0$, $P_1=50$, $P_2=100$ and $P_3=150$ lb./ac.

N as Castorcake and P_2O_5 as Triple Super.

Time and method of application of manures N.A.

3. DESIGN :

(i) 4 × 4 Fact. in R.B.D. (ii) (a) 16. (b) N.A. (iii) 4. (iv) (a) 60.5' × 24'. (b) 60.5' × 18' (v) One guard row along each side of length. (vi) Yes.

4. GENERAL :

(i) Fair. (ii) Nil. (iii) No. of mature stalks, sucrose % and sugarcane yield. (iv) (a) 1949-50 to 1952. (b) No. (c) Nil. (v) (a) Harinagar. (b) No. (vi) Nil. (vii) Information of the experiment conducted during 1950 not available.

5. RESULTS :

(i) 21.04 ton/ac.
(ii) 0.94 ton/ac.
(iii) Main effects of N and P are significant while interaction $N \times P$ is not significant.
(iv) Av. yield of sugar cane in ton/ac.

	P ₀	P ₁	P ₂	P ₃	Mean
N ₀	20.49	21.10	20.34	21.87	20.95
N ₁	18.76	18.41	22.95	19.63	19.94
N ₂	19.64	21.62	21.53	21.98	21.19
N ₃	23.16	22.54	22.09	23.47	22.07
Mean.	19.76	20.92	21.73	21.74	21.04

S.E. of any marginal mean = 0.23 ton/ac.

S.E. of body of the table = 0.47 ton/ac.

Crop :- Sugarcane

Site :- Zonal Centre, Motihari.

Ref :- Bh. 51(50).

Type :- 'M'.

Object :- To find the optimum dose of N and P₂O₅ for BO. 11 variety of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) *Sanai*—Sugarcane—*Sanai*. (b) *Sanai*. (c) Nil. (ii) (a) Sandy loam. (b) N.A. (iii) 2.2.51. (iv) (a) One ploughing for burying *Sanai*, followed by 4 ploughings and beamings. (b) Flat planting. (c) 60, 3-budded setts/row. (d) Rows 3' apart. (e)—(v) *Sanai* as G.M. (vi) B.O. 11. (vii) Irrigated. (viii) Hoeing, weeding and earthing up (ix) 42.79". (x) 4/5.1.52.

2. TREATMENTS :

All combinations of (1) and (2)

(1) 4 levels of N : N₀=0, N₁=40, N₂=80 and N₃=120 lb./ac.

(2) 4 levels of P₂O₅ : P₀=0, P₁=50, P₂=100 and P₃=150 lb./ac.

N as Castorcake and P₂O₅ as Single Super.

Time and method of application—N.A.

3. DESIGN :

(i) 4×4 Fact. in R.B.D. (ii) (a) 16. (b) N.A. (iii) 4. (iv) (a) 60.5'×24'. (b) 60.5'×18' (v) Rows of 3' on each side along length. (vi) Yes.

4. GENERAL :

(i) N.A. (ii) Nil. (iii) No. of mature stalks, sucrose %, and sugarcane yield. (iv) (a) 1949-50 to 1952. (b) No. (c) Nil. (v) (a) Harinagar. (b) Nil. (vi) and (vii) Nil.

5. RESULTS :

(i) 19.71 ton/ac.
(ii) 0.99 ton/ac.
(iii) None of the effects is significant.

(iv) Av. yield of cane in ton/ac.

	P ₀	P ₁	P ₂	P ₃	Mean
N ₀	15.27	19.00	22.09	18.46	18.70
N ₁	18.47	20.53	22.90	20.32	20.55
N ₂	20.31	17.03	21.74	13.63	18.18
N ₃	23.80	21.50	20.66	19.65	21.40
Mean	19.46	19.51	21.85	18.01	19.71

S.E. of any marginal mean = 0.25 ton/ac.
 S.E. of body of table = 0.50 ton/ac.

Crop :- Sugarcane.
 Site :- Zonal Centre, Motihari.

Ref :- Bh. 52(43).
 Type :- 'M'.

Object :- To find the optimum dose of N and P₂O₅ for BO. 11.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) *Sanai*. (c) 50 lb./ac. of P₂O₅ as Single Super. (ii) (a) Sandy loam. (b) N.A. (iii) N.A. (iv) (a) 4 ploughings with Bihar plough. (b) Flat planting. (c) 60, 3-budded setts/row. (d) Rows 3' apart. (e)-(v) G.M. (*Sanai*) + 100 md./ac. F.Y.M. before planting. (vi) BO. 11. (vii) Irrigated. (viii) 3 times hoeing and weeding. (ix) 50.11". (x) 16.3.53 to 18.3.53.

2. TREATMENTS :

All combinations of (1) and (2)

(1) 4 levels of N : N₀=0, N₁=40, N₂=80 and N₃=120 lb./ac.

(2) 4 levels of P₂O₅ : P₀=0, P₁=50, P₂=100 and P₃=150 lb./ac.

N as Castorcake and P₂O₅ as Single Super.

Time and method of application of manures N.A.

3. DESIGN :

(i) 4 × 4 Fact. in R.B.D. (ii) (a) 16. (b) N.A. (iii) 4. (iv) (a) 60.5' × 24'. (b) 60.5' × 18'. (v) 1 guard row along length on each side. (vi) Yes.

4. GENERAL :

(i) Normal. (ii) No major pest. (iii) No. of tillers, no. of mature stalks and sugarcane yield. (iv) (a) 1949-1952. (b) No. (c) Nil. (v) (a) Harinagar. (b) No. (vi) and (vii) Nil.

5. RESULTS :

(i) 7.28 ton/ac.

(ii) 4.18 ton/ac.

(iii) Only main effect of N is significant.

(iv) Av. yield of cane in ton/ac.

	P ₀	P ₁	P ₂	P ₃	Mean
N ₀	5.25	5.25	4.15	5.69	5.09
N ₁	8.70	6.94	7.60	12.51	8.94
N ₂	6.79	6.42	4.48	6.53	6.05
N ₃	6.86	7.82	13.32	8.18	9.05
Mean	6.90	6.61	7.39	8.23	7.28

S.E. of any marginal mean = 1.045 ton/ac.
 S.E. of body of table = 2.090 ton/ac.

Crop :- Sugarcane.
Site :- Zonal Centre, Motihari.

Ref :- Bh. 52(66).
Type :- 'M'.

Object :- To find out the optimum requirements of N, P₂O₅ and K₂O.

1. BASAL CONDITIONS :

(i) (a) *Sanai*—Sugarcane—*Sanai*. (b) *Sanai*. (c) 50 lb./ac. of P₂O₅ as Single Super. (ii) (a) Sandy loam. (b) N.A. (iii) N.A. (iv) (a) 1 ploughing for turning up *Sanai* and 4 ploughings by Bihar plough. (b) Flat planting. (c) 70 md./ac. (d) Rows 3' apart. (e) —. (v) *Sanai* as G.M. and F.Y.M. (vi) CO. 453. (vii) Irrigated. (viii) 3 hoeings and weeding. (ix) N.A. (x) N.A.

2. TREATMENTS :

All combinations of (1), (2) and (3)

(1) 2 levels of N : N₁=40 and N₂=80 lb./ac.

(2) 2 levels of P₂O₅ : P₁=50 and P₂=100 lb./ac.

(3) 2 levels of K₂O : K₁=80 and K₂=160 lb./ac.

N as Castorcake, P₂O₅ as Single Super and K₂O as Pot. Sul.

Time and method of application of treatments N.A.

3. DESIGN :

(i) 2³ Fact. in R.B.D. (ii) (a) 8. (b) N.A. (iii) 4. (iv) (a) 60.5' × 24'. (b) 60.5' × 18'. (v) One guard row on each side along length. (vi) Yes.

4. GENERAL :

(i) N.A. (ii) Nil. (iii) No. of tillers and mature stalks, sucrose % and sugarcane yield. (iv) (a) No. (b) No. (c) No. (v) (a) Majhulia, Motipur and Pachrukhi. (b) No. (vi) and (vii) Nil.

5. RESULTS :

(i) 16.39 ton/ac.

(ii) 4.11 ton/ac.

(iii) None of the effects is significant.

(iv) Av. yield of sugarcane in ton/ac.

	P ₁	P ₂	Mean	K ₁	K ₂
N ₁	15.43	17.56	16.50	14.66	18.33
N ₂	16.20	16.37	16.28	14.31	18.26
Mean	15.81	16.91	16.39	14.49	18.29
K ₁	14.99	13.98			
K ₂	16.64	19.94			

S.E. of any marginal mean = 1.03 ton/ac.

S.E. of body of table = 1.45 ton/ac.

Crop :- Sugarcane.
Site :- Zonal Centre, Motihari.

Ref :- Bh. 48(1).
Type :- 'M'.

Object :- To find out the response to different combinations of manures.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) N.A. (c) N.A. (ii) (a) Sandy loam. (b) N.A. (iii) N.A. (iv) (a) 4 ploughings by *desi* plough. (b) Flat planting. (c) 60, 3-budded setts/row. (d) Rows 3' apart. (e) —. (v) N.A. (vi) CO. 313. (vii) N.A. (viii) Weeding and earthing up. (ix) N.A. (x) N.A.

2. TREATMENTS :

Different sources to supply 40 lb./ac. of N and 50 lb./ac. of P_2O_5 :-

1. Ammo. phos.
2. A/S+Triple Super.
3. Castorcake+A/S+Triple Super.
4. Castorcake+Triple Super.
5. Mustardcake+Triple Super+Ammo. phos.
6. Mustardcake+Triple Super.
7. Linseedcake+Ammo. phos.+Triple Super.
8. Linseedcake+Triple Super.
9. Control (no manure).

DESIGN :

- (i) R.B.D. (ii) (a) 9. (b) N.A. (iii) 3. (iv) (a) 60.5'×24'. (b) 60.5'×18'. (v) 3' on each side along length. (vi) Yes.

4. GENERAL :

- (i) N.A. (ii) N.A. (iii) Sucrose %, no. of matured stalks and sugarcane yield. (iv) (a) No. (b) No. (c) Nil. (v) (a) Parsa, Majhulia and Harinagar. (b) N.A. (vi) and (vii) Nil.

5. RESULTS :

- (i) 22.94 ton/ac.
 (ii) 1.44 ton/ac.
 (iii) Treatment differences are not significant.
 (iv) Av. yield of sugarcane in ton/ac.

Treatment	Av. yield
1.	21.7
2.	21.6
3.	22.1
4.	24.5
5.	23.1
6.	22.6
7.	23.0
8.	24.1
9.	23.0

S.E./mean = 0.83 ton/ac.

Crop :-Sugarcane.

Site :-Zonal Centre, Motihari.

Ref :-Bh. 49(16).

Type :-'M'.

Object :-To find out the response to different combinations of manures on Sugarcane yield.

1. BASAL CONDITIONS :

- (i) (a) *Sanai*—Sugarcane—*Sanai*. (b) *Sanai*. (c) 50 lb./ac. of P_2O_5 as Single Super. (ii) (a) Sandy loam. (b) N.A. (iii) Feb. 1949. (iv) (a) 4 ploughings. (b) Flat planting. (c) 60, 3-budded setts/row. (d) Rows 3' apart. (e)—. (v) Nil. (vi) BO. 11. (vii) N.A. (viii) Weeding and hoeing done 3 times. (ix) 56.35°. (x) N.A.

2. TREATMENTS :

1. A/P to supply 60 lb./ac. of N and 75 lb./ac. of P_2O_5 .
2. A/S to supply 60 lb./ac. of N+Triple Super at 75 lb./ac. of P_2O_5 .
3. Castorcake+A/P+Triple Super to supply 60 lb./ac. of N and 75 lb./ac. of P_2O_5 .
4. Castorcake+Triple Super to supply 60 lb./ac. of N and 75 lb./ac. of P_2O_5 .
5. Castor cake+Triple Super to supply 40 lb./ac. of N and 50 lb./ac. of P_2O_5 .
6. A/N to supply 60 lb./ac. of N+Triple Super at 75 lb./ac. P_2O_5 .
7. Control (no manure).

Time and method of application of treatments N.A.

3. DESIGN :

- (i) R.B.D. (ii) (a) 7. (b) N.A. (iii) 4. (iv) (a) 60.5'×24'. (b) 60.5'×18'. (v) 3' on each side along length. (vi) Yes.

4. GENERAL :

(i) Fair. (ii) Nil. (iii) No. of mature stalks, sucrose % and sugarcane yield. (iv)(a) No. (b) No. (c) Nil. (v) (a) Majhulia and Harinagar. (b) Nil. (vi) and (vii) Nil.

5. RESULTS :

- (i) 18.88 ton/ac.
 (ii) 1.86 ton/ac.
 (iii) Treatment differences are not significant.
 (iv) Av. yield of sugarcane in ton/ac.

Treatment	Av. yield
1.	18.65
2.	19.68
3.	18.18
4.	18.28
5.	19.60
6.	18.91
7.	18.86
S.E./mean	= 0.93 ton/ac.

Crop :-Sugarcane.

Site :-Zonal Centre, Motihari.

Ref :-Bh. 49(14).

Type :-'M'.

Object :-To find out the optimum dose of N and P_2O_5 .

1. BASAL CONDITIONS :

(i) (a) G.M.—Sugarcane—G.M. (b) *Sanai*. (c) P_2O_5 at 50 lb./ac. as Single Super. (ii) (a) Sandy loam, calcareous soil. (b) N.A. (iii) Feb. 1949. (iv) (a) 4 ploughings. (b) Flat planting. (c) 60, 3-budded setts/row. (d) Rows 3' apart. (e) —. (v) *Sanai*; other details N.A. (vi) BO. 11. (vii) N.A. (viii) 3 weedings and hoeings worked with bullock driven cultivator, (ix) 56.35". (x) N.A.

2. TREATMENTS :

1. Ammo. phos. to supply 40 lb./ac. of N and 50 lb./ac. of P_2O_5 .
2. Ammo. phos. to supply 60 lb./ac. of N and 75 lb./ac. of P_2O_5 .
3. Castorcake at 40 lb./ac. of N+Triple Super at 50 lb./ac. of P_2O_5 .
4. Castorcake at 60 lb./ac. of N+Triple Super at 75 lb./ac. of P_2O_5 .
5. A/S at 40 lb./ac. of N+Triple Super at 50 lb./ac. of P_2O_5 .
6. A/S at 60 lb./ac. of N+Triple Super at 75 lb./ac. of P_2O_5 .
7. Control (no manure).

Time and method of application of treatments N.A.

3. DESIGN :

(i) R.B.D. (ii) (a) 7. (b) N.A. (iii) 6. (iv) (a) 60.5'×24'. (b) 60.5'×18'. (v) One guard row along length on both sides. (vi) Yes.

4. GENERAL :

(i) N.A. (ii) N.A. (iii) No. of mature stalks, sucrose % and cane yield. (iv) (a) No. (b) No. (c) Nil. (v) (a) Pachrukhi. (b) No. (vi) and (vii) Nil.

5. RESULTS :

- (i) 19.75 ton/ac.
 (ii) 2.009 ton/ac.
 (iii) Treatment differences are not significant.
 (iv) Av. yield of cane in ton/ac.

Treatment	Av. yield
1.	21.04
2.	19.96
3.	19.51
4.	17.65
5.	20.56
6.	20.08
7.	19.44
S.E./mean	= 0.82 ton/ac.

Crop :- Sugarcane.
Site :- Zonal Centre, Motihari.

Ref :- Bh. 49(15).
Type :- 'M'.

Object :- To compare the effect of salvaged A/N with standard manures on cane yield.

1. BASAL CONDITIONS :

(i) (a) *Sanai*—Sugarcane. (b) *Sanai*. (c) 50 lb./ac. of P_2O_5 in the form of Single Super. (ii) (a) Sandy loam calcareous soil. (b) N.A. (iii) N.A. (iv) (a) 4 ploughings. (b) Flat planting. (c) 60, three-budded setts/row. (d) Rows 3' apart. (e)—(v) *Sanai* and F.Y.M. Others details N.A. (vi) BO. 11. (vii) N.A. (viii) 3 times weeding and hoeing done. (ix) 56.35". (x) N.A.

2. TREATMENTS :

1. Control (no manure).
 2. Castor cake+Triple Super to supply 40 lb./ac. of N+50 lb./ac. of P_2O_5 .
 3. A/S + " " " " " " " "
 4. Salvaged A/N+ " " " " " " " "
- Time and method of application of manures N.A.

3. DESIGN :

(i) R.B.D. (ii) (a) 4. (b) N.A. (iii) 8. (iv) (a) 60.5'×24' (b) 60.5'×18'. (v) One guard row along the length on both sides. (vi) Yes.

4. GENERAL :

(i) Fair. (ii) Nil. (iii) No. of mature stalks, sucrose % and sugarcane yield. (iv) (a) No. (b) No. (c) No. (v) (a) None. (b) No. (vi) and (vii) Nil.

5. RESULTS :

- (i) 20.93 ton/nc.
- (ii) 2.57 ton/ac.
- (iii) Treatment differences are not significant.
- (iv) Av. yield of cane in ton/ac.

Treatment	Av. yield
1.	19.29
2.	21.29
3.	20.74
4.	22.40
S.E./mean	= 0.91 ton/ac.

Crop :- Sugarcane.
Site :- Zonal Centre, Motihari.

Ref :- Bh. 50(20).
Type :- 'M'.

Object :- To find out the suitability and optimum dose of press mud.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) *Sanai*. (c) 50 lb/ac. of P_2O_5 as Single Super. (ii) (a) Sandy loam. (b) N.A. (iii) 17.2.50. (iv) (a) 4 ploughings by Bihar plough. (b) Flat planting. (c) 60, three budded setts/row. (d) Rows 3' apart. (e)—(v) *Sanai* as G.M. and F.Y.M. at 100 md/ac. before planting. (vi) BO. 11 (vii) ~~Sanai~~. (viii) Hoeing done once. (ix) 40.00". (x) N.A.

2. TREATMENTS :

1. 100 md/ac. of press mud applied 1 month before planting.
 2. 150 " " " "
 3. 200 " " " "
 4. 10 md/ac. of Castorcake+2½ md/ac. of Single Super at the time of planting.
 5. Control.
- Time and method of application of manures N.A.

3. DESIGN :

(i) R.B.D. (ii) (a) 5. (b) N.A. (iii) 5. (iv) (a) 60'-6"×24'. (b) 60'-6"×18'. (v) One guard row along the length on both sides. (vi) Yes.

4. GENERAL :

- (i) N.A. (ii) N.A. (iii) Tiller count, no of mature stalk, sucrose % and sugarcane yield. (iv) (a) No. (b) No. (c) No. (v) (a) None. (b) No. (vi) & (vii) Nil.

5. RESULTS :

- (i) 23.04 ton/ac.
 (ii) 2.963 ton/ac.
 (iii) Treatment differences are not significant.
 (iv) Av. yield of cane in ton/ac.

Treatment	Av. yield
1.	23.25
2.	22.42
3.	24.39
4.	23.71
5.	21.44
S.E./mean	= 1.325 ton/ac.

Crop :- Sugarcane.

Ref :- Bh. 52(42)

Site :- Zonal Centre, Motihari.

Type :- 'M'.

Object :- To study the effect of P manuring on green manure crops and on subsequent crop.

1. BASAL CONDITIONS :

- (i) (a) G.M.—Sugarcane—G.M. (b) *Sanai*. (c) 50 lb/ac. of P_2O_5 as Single Super. (ii) (a) Sandy loam. (b) N.A. (iii) 23.2. (iv) (a) 4 ploughings. (b) Flat planting. (c) 70 md/ac. (d) Rows 3' apart. (e)—(v) *Sanai* as G.M. and F.Y.M. at 100 md./ac. before planting. (vi) BO. 11. (vii) Irrigated. (viii) 3 hoeings and weedings. (ix) 50.01". (x) N.A.

2. TREATMENTS :

All combinations of (1) and (2)

- (1) 2 green manures :
- $G_1 = \text{Sanai}$
- and
- $G_2 = \text{Soyabean}$
- .

(2) 6 levels of P_2O_5 : $P_0=0$, $P_1=50$, $P_2=100$, $P_3=150$, $P_4=200$, and $P_5=250$ lb/ac. P_2O_5 as Single Super. Time & method of application of treatments N.A.

3. DESIGN :

- (i) 2×6 Fact. in R.B.D. (ii) (a) 12. (b) N.A. (iii) 6. (iv) (a) $60.5' \times 24'$. (b) $60.5' \times 18'$. (v) One guard row along the length in both sides. (vi) Yes.

4. GENERAL :

- (i) No lodging. (ii) Nil. (iii) Tiller and mature stalk count, sucrose %, and sugarcane yield. (iv) (a) No. (b) No. (c) No. (v) (a) None. (b) No. (vi) & (vii) Nil.

5. RESULTS :

- (i) 19.20 ton/ac.
 (ii) 4.65 ton/ac.
 (iii) No effect is significant.
 (iv) Av. yield of cane in ton/ac.

	P_0	P_1	P_2	P_3	P_4	P_5	Mean
G_1	20.48	17.40	20.11	18.57	17.76	19.74	19.01
G_2	19.78	18.72	21.18	19.60	18.42	18.57	19.38
Mean	20.13	18.06	20.65	19.09	18.09	19.16	19.20

S.E. of marginal mean of G = 0.77 ton/ac.
 S.E. of marginal mean of P = 1.34 ton/ac.
 S.E. of body of table. = 1.90 ton/ac.

Crop :- Sugarcane.
Site :- Zonal Centre, Motihari.

Ref :- Bh. 52(44).
Type :- 'M'.

Object :- To find out the optimum yield potential of N and P_2O_5 combinations.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) *Sanai* (c) About 50 lb./ac. of P_2O_5 as Single Super. (ii) (a) Sandy loam. (b) N.A. (iii) 19.2.52. (iv) (a) 4 ploughings by Bihar plough. (b) Flat planting. (c) 60, three buded setts/row. (d) Rows 3' apart. (v) *Sanai* as G.M. and 100 md./ac. of F.Y.M. before planting. (vi) BO. 11. (vii) Irrigated. (viii) Hoeing and earthing up. (ix) 50.01" (x) 12.10.53.

2. TREATMENTS :

1. Control (Nomanure).
2. 40 lb./ac. of N+ 50 lb./ac. of P_2O_5 .
3. 80 lb./ac. of N+100 lb./ac. of P_2O_5 .
N as A/S and P_2O_5 as Single Super. Time and method of application of manures N.A.

3. DESIGN :

(i) R.B.D. (ii) (a) 3. (b) N.A. (iii) 2. (iv) (a) 60.5'×24'. (b) 60.5'×18'. (v) One guard row on length on both sides. (vi) Yes.

4. GENERAL :

(i) Normal. (ii) No major incidence of pests & disease. (iii) Tiller and mature stalk count, sucrose% and sugarcane yield. (iv) (a) 1949—1952. (b) No. (c) Nil. (v) (a) Harinagar, Parsa and Majhauria. (b) Nil. (vi) Nil. (vii) Information on experiments conducted during 1949, 1950 and 1951 not available.

5. RESULTS :

(i) 12.91 ton/ac.
(ii) 2.247 ton/ac.
(iii) Treatment differences are not significant.
(iv) Av. yield of sugarcane in ton/ac.

Treatment	Av. yield
1.	12.11
2.	13.21
3.	13.40
S.E./mean	= 1.589 ton/ac.

Crop :- Sugarcane.
Site :- Zonal Centre, Motihari.

Ref :- Bh. 53(126).
Type :- 'M'.

Object :- To find out the optimum dose of N in combination with P_2O_5 .

1. BASAL CONDITIONS :

(i) (a) N.A. (b) N.A. (c) N.A. (ii) (a) Sandy loam. (b) N.A. (iii) N.A. (iv) (a) Four ploughings by *deshi* plough. (b) Flat planting. (c) 60, three buded setts/row. (d) Rows 3' apart. (e) — (v) Nil. (vi) N.A. (vii) N.A. (viii) Weeding and earthing up. (ix) N.A. (x) N.A.

2. TREATMENTS :

1. Control.
2. 40 lb./ac. of N+ 50 lb./ac. of P_2O_5 .
3. 60 lb./ac. of N+ 75 lb./ac. of P_2O_5 .
4. 80 lb./ac. of N+100 lb./ac. of P_2O_5 .
5. 100 lb./ac. of N+125 lb./ac. of P_2O_5 .
N as A/S and P_2O_5 as Single Super.

3. DESIGN :

(i) R.B.D. (ii) (a) 5. (b) N.A. (iii) 6. (iv) (a) 60.5'×24'. (b) 60.5'×18'. (v) One guard row on each side of length. (vi) Yes.

4. GENERAL :

(i) N.A. (ii) N.A. (iii) Sucrose%, no. of matured stalks and yield of sugarcane. (iv) (a) No. (b) No. (c) Nil. (v) (a) Pachrukhi and Dehri-on-Sone. (b) None. (vi) & (vii) Nil.

5. RESULTS :

- (i) 11.00 ton/ac.
(ii) 3.76 ton/ac.
(iii) Treatment differences are not significant.
(iv) Av. yield of cane in ton/ac.

Treatment	Av. yield
1.	10.93
2.	12.64
3.	9.00
4.	11.30
5.	11.14
S.E./mean	= 1.54 ton/ac.

Crop :- Sugarcane.

Ref :- Bh. 52(90).

Site :- Zonal Centre, Motipur.

Type :- 'M'.

Object :- To find out the optimum dose of N & P₂O₅

1. BASAL CONDITIONS :

- (i) (a) N.A. (b) N.A. (c) N.A. (ii) (a) Sandy loam. (b) N.A. (iii) N.A. (iv) (a) 4 ploughings by *deshti* plough (b) Flat method. (c) 60, three budded setts/row. (d) Row 3' apart. (e) — (v) N.A. (vi) CO. 453. (vii) N.A. (viii) Hoeing, weeding and earthing up. (ix) N.A. (x) N.A.

2. TREATMENTS :

All combinations of (1) & (2)

(1) 4 levels of N : N₀=0, N₁=40, N₂=80 and N₃=120 lb./ac.(2) 4 levels of P₂O₅ : P₀=0, P₁=50, P₂=150 and P₃=200 lb./ac.N as A/S and P₂O₅ as Single Super. Applied before transplanting as mixture.

3. DESIGN :

- (i) 4×4 Fact. in R.B.D. (ii) (a) 16. (b) N.A. (iii) 4. (iv) 60.5'×24'. (b) 60.5'×18'. (v) One row on each side along width. (vi) Yes.

4. GENERAL :

- (i) Nil. (ii) N.A. (iii) Tiller count, no of mature stalk, sucrose % and sugarcane yield. (iv) (a) 1951-1952. (b) No. (c) Nil. (v) (a) Harinagar, Motihari and Dehri-On-Sone (b) Nil. (vi) Nil. (vii) This experiment was to be conducted in split plot with two varieties CO 453+BO. 11 but it was conducted in R.B.D. with CO. 453 variety only. Experiment conducted during 1951 under category "MV".

5. RESULTS :

- (i) 17.08 ton/ac.
(ii) 1.75 ton/ac.
(iii) None of the effects is significant.
(iv) Av. yield of cane in ton/ac.

	P ₀	P ₁	P ₂	P ₃	Mean
N ₀	17.37	15.43	15.54	16.90	16.31
N ₁	17.08	13.74	20.42	17.41	17.16
N ₂	16.53	16.46	18.92	19.65	17.89
N ₃	16.68	16.02	19.25	15.94	16.97
Mean	16.92	15.41	18.53	17.48	17.08

S.E. of any marginal mean =0.44 ton/ac.
S.E. of body of table. =0.87 ton/ac.

Crop :- Sugarcane.
Site :- Zonal Centre, Motipur.

Ref :- Bh. 53(139).
Type :- 'M'.

Object :- To find the optimum dose of Ammo. Phos.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) N.A. (c) N.A. (ii) (a) Sandy loam. (b) N.A. (iii) N.A. (iv) (a) 4 ploughings by *deshi* plough. (b) Flat method. (c) 60 md/ac. (d) Rows 3' apart. (e) — (v) N.A. (vi) Co. 453. (vii) N.A. (viii) Hoeing weeding and earthing up. (ix) N.A. (x) N.A.

2. TREATMENTS :

Ammo. Phos. to supply :

1. 0 lb./ac.
2. 40 lb./ac. of N+ 50 lb./ac. of P_2O_5 .
3. 60 lb./ac. of N+ 75 lb./ac. of P_2O_5 .
4. 80 lb./ac. of N+100 lb./ac. of P_2O_5 .
5. 100 lb./ac. of N+125 lb./ac. of P_2O_5 .

Time & method of application of treatments N.A.

3. DESIGN :

(i) R.B.D. (ii) (a) 5. (b) N.A. (iii) 6. (iv) (a) 60.5'×24' with 8 rows 3' apart. (b) 60.5'×18' with 6 rows 3' apart. (v) One row on either side along width. (vi) Yes.

4. GENERAL :

(i) N.A. (ii) N.A. (iii) Tiller count, no. of mature stalk, sucrose % and sugarcane yield. (iv) (a) 1950—1953. (b) No. (c) Nil. (v) (a) N.A. (b) N.A. (vi) Nil. (vii) Experiments conducted during 1950 and 1951 may be seen under category 'MV'.

5. RESULTS :

- (i) 11.04 ton/ac.
(ii) 1.54 ton/ac.
(iii) Treatment differences are not significant.
(iv) Av. yield of cane in ton/ac.

Treatment	Av. yield
1.	10.92
2.	12.63
3.	9.05
4.	11.18
5.	11.44
S.E./mean	= 0.63 ton/ac.

Crop :- Sugarcane.
Site :- Zonal Centre, Pachrukhi.

Ref :- Bh. 49(21).
Type :- 'M'.

Object :- To compare the effect of salvaged A/N with standard manures.

1. BASAL CONDITIONS :

(i) (a) G.M.-Sugarcane—G.M. (b) G.M. (*Sanai*). (c) Nil. (ii) (a) Sandy loam. (b) N.A. (iii) 23-2-1949. (iv) (a) 4 ploughings. (b) Line planting. (c) 60, three budded setts/row. (d) Rows 3' apart. (e) —. (v) N.A. (vi) BO. 11. (vii) Irrigated. (viii) Two interculturings. (ix) N.A. (x) N.A.

2. TREATMENTS :

1. Control (no manure).
 2. Castorcake at 40 lb./ac. of N+Triple Super at 50 lb./ac. of P_2O_5 .
 3. Ammo. Phos. to give 40 lb./ac. of N+50 lb./ac. of P_2O_5 .
 4. Salvaged A/N at 40 lb./ac. of N+50 lb./ac. of P_2O_5 .
- Treatments applied at the time of planting, mixed with soil.

3. DESIGN :

(i) R.B.D. (ii) (a) 4. (b) 4/30 acre. (iii) 8. (iv) (a) 60.5'×24'. (b) 60.5'×18'. (v) 3' wide on both sides. (vi) Yes.

4. GENERAL :

- (i) Good. (ii) Nil. (iii) Cane yield, sucrose %, counting of mature stalk. (iv) (a) No. (b) No. (c) No. (v) (a) No. (b) No. (vi) and (vii) Nil.

5. RESULTS :

- (i) 8.55 ton/ac.
 (ii) 2.61 ton/ac.
 (iii) Treatment differences are not significant.
 (iv) Av. yield of cane in ton/ac.

Treatment	Av. yield
1.	7.39
2.	10.32
3.	8.21
4.	8.27
S.E./mean	=0.92 ton/ac.

Crop :- Sugarcane.

Ref :- Bh. 50(23).

Site :- Pachrukhi (Zonal Centre-Chanki farm).

Type :- 'M'.

Object :--To find out the optimum dose of N and P_2O_5 in combination.

1. BASAL CONDITIONS :

- (i) (a) G.M.-Sugarcane-G.M. (b) *Sanai* as G.M. (c) Nil. (ii) (a) Sandy loam. (b) N.A. (iii) 28-2-1950. (iv) (a) *Sanai* buried by one disk ploughing ; later ploughings by disk ploughing, 2 worked by cultivator, once harrowed and 4 beamings done. (b) Flat planting. (c) 65 md./ac. (d) Rows 3' apart. (e) —. (v) Castor cake at 6 md./ac. + Single Super at 3 md./ac. + A/S at 1 md./ac. at the time of planting. (vi) BO. 11. (vii) N.A. (viii) Two interculturings. (ix) N.A. (x) N.A.

2. TREATMENTS :

- Ammo. Phos. to supply
 1. Control (no manure).
 2. 40 lb./ac. of N+50 lb./ac. of P_2O_5 .
 3. 80 lb./ac. of N+100 lb./ac. of P_2O_5 .
 Treatments applied at the time of planting, mixed with soil.

3. DESIGN :

- (i) R.B.D. (ii) (a) 3. (b) N.A. (iii) 2. (iv) (a) 60.5' × 24'. (b) 60.5' × 18'. (v) 3' wide on both sides along the width. (vi) Yes.

4. GENERAL :

- (i) Good. (ii) N.A. (iii) Tiller count, counting of mature stalk and cane yield. (iv) (a) No. (b) No. (c) No. (v) (a) Nil. (b) Nil. (vi) and (vii) Nil.

5. RESULTS :

- (i) 11.52 ton/ac.
 (ii) 1.935 ton/ac.
 (iii) Treatment differences are not significant.
 (iv) Av. yield of cane in ton/ac.

Treatment	Av. yield
1.	9.98
2.	11.12
3.	13.47
S.E./mean	=1.368 ton/ac.

Crop :- Sugarcane.
Site :- Zonal Centre, Pachrukhi.

Ref :- Bh. 52(77).
Type :- 'M'.

Object :—To find out the optimum requirements of N, P₂O₅ and K₂O.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) N.A. (c) N.A. (ii) (a) Sandy loam (calcareous). (b) N.A. (iii) N.A. (iv) (a) 4 ploughings by *deshi* plough. (b) Flat planting. (c) 60, three budded setts/row. (d) Rows 3' apart. (e) —. (v) N.A. (vi) CO .453. (vii) N.A. (viii) Hoeing, weeding and earthing up. (ix) N.A. (x) N.A.

2. TREATMENTS :

All combinations of (1), (2) and (3)

(1) 2 levels of N : N₁=40 and N₂=80 lb./ac.

(2) 2 levels of P₂O₅ : P₁=50 and P₂=100 lb./ac.

(3) 2 levels of K₂O : K₁=80 and K₂=160 lb./ac.

N as A/S, P₂O₅ as Super and K₂O as Mur. Pot.

3. DESIGN :

(i) 2³ Fact. in R.B.D. (ii) (a) 8. (b) N.A. (iii) 4. (iv) (a) 60.5' × 24' with 8 rows 3' apart. (b) 60.5' × 18' with 6 rows 3' apart. (v) One row on either side of width. (vi) Yes.

4. GENERAL :

(i) N.A. (ii) N.A. (iii) No. of tillers and mature stalk, sucrose %, and sugarcane yield. (iv) (a) 1952-1953. (b) No. (c) Nil. (v) (a) Nil. (b) Nil. (vi) and (vii) Nil.

5. RESULTS :

(i) 11.90 ton/ac.

(ii) 4.54 ton/ac.

(iii) None of the effects is significant.

(iv) Av. yield of cane in ton/ac.

	P ₁	P ₂	Mean	K ₁	K ₂
N ₁	10.58	11.71	11.15	10.74	11.15
N ₂	14.94	10.38	12.66	10.67	14.64
Mean	12.76	11.05	11.90	10.71	13.10
K ₁	10.08	11.34			
K ₂	15.44	10.74			

S.E. of any marginal mean = 1.13 ton/ac.

S.E. of any mean in the body of the table = 1.61 ton/ac.

Crop :- Sugarcane.
Site :- Zonal Centre, Pachrukhi.

Ref :- Bh. 53 (131).
Type :- 'M'.

Object :—To find the optimum requirements of N, P₂O₅ and K₂O.

1. BASAL CONDITIONS :

(i) (a) *Sanai-Sugarcane-Sanai*. (b) *Sonai*. (c) Nil. (ii) (a) Sandy loam. (b) N.A. (iii) 5.2.1953. (iv) (a) 4 ploughings followed by beamings. (b) Flat planting. (c) 60, three budded setts/row. (d) Rows 3' apart. (e) —. (v) Nil. (vi) CO. 453. (vii) Unirrigated. (viii) Hoeing, weeding and earthing up. (ix) 64.82". (x) 6.2.1954.

2. TREATMENTS :

All combinations of (1), (2) and (3).

(1) 2 levels of N : $N_1=40$ and $N_2=80$ lb./ac.

(2) 2 levels of P_2O_5 : $P_1=50$ and $P_2=100$ lb./ac.

(3) 2 levels of K_2O : $K_1=80$ and $K_2=160$ lb./ac.

N as castor cake, P_2O_5 as Super and K_2O as pot. Sul. Treatments applied at the time of planting mixed with soil.

3. DESIGN :

(i) 2³ Fact. in R.B.D. (ii) (a) 8. (b) N.A. (iii) 4. (iv)(a) 60.5' × 24'. (b) 60.5' × 18'. (v) One row on each side of width. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Nil. (iii) No. of mature stalks, sucrose% and sugarcane yield. (iv) (a) 1952-1953. (b) No. (c) Nil. (v) (a) Harinagar, Dehri-on-Sone and Motihari. (b) Nil. (vi) and (vii) Nil.

5. RESULTS :

(i) 10.68 ton/ac.

(ii) 2.30 ton/ac.

(iii) None of the effects is significant.

(iv) Av. yield of cane in ton/ac.

	P_1	P_2	Mean	K_1	K_2
N_1	9.19	11.71	10.45	9.82	11.08
N_2	10.68	11.13	10.91	11.42	10.39
Mean	9.94	11.42	10.68	10.62	10.74
K_1	9.16	12.08			
K_2	10.72	10.76			

S.E. of marginal mean = 0.57 ton/ac.

S.E. of body of table = 0.81 ton/ac.

Crop :- Sugarcane.

Ref :- Bh. 52 (84).

Site :- Zonal Centre, Parsa.

Type :- 'M'.

Object :- To find out the response due to different combinations of manures.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) N.A. (c) N.A. (ii) (a) Alluvial calcareous. (b) N.A. (iii) N.A. (iv) (a) 4 ploughings by *deshi* plough. (b) Flat method. (c) 60, three budded setts/row (d) Rows 3' apart. (e) —. (v) N.A. (vi) CO. 453. (vii) N.A. (viii) Hoeing, weeding and earthing up (ix) N.A. (x) N.A.

2. TREATMENTS :

- 60 lb./ac. of N as A/S+75 lb./ac. of P_2O_5 as Super.
- 60 lb./ac. of N as Castor cake+75 lb./ac. of P_2O_5 as Super.
- 45 lb./ac. of N as Castor cake+15 lb./ac. of N as A/S+75 lb./ac. of P_2O_5 as Super.
- 30 lb./ac. of N as Castor cake+30 lb./ac. of N as A/S+75 lb./ac. of P_2O_5 as Super.
- 15 lb./ac. of N as Castor cake+45 lb./ac. of N as A/S+75 lb./ac. of P_2O_5 as Super.
- Control.

3. DESIGN :

(i) R.B.D. (ii) (a) 6. (b) N.A. (iii) 4. (iv) (a) 60.5' × 24'. (b) 60.5' × 18'. (v) One row on each side of width. (vi) Yes.

4. GENERAL :

(i) N.A. (ii) N.A. (iii) No. of tillers, no. of mature stalks, sucrose% and sugarcane yield. (iv) (a) 1950-1953. (b) No. (c) No. (v) (a) N.A. (b) N.A. (vi) Nil. (vii) This experiment was to be conducted in split plot with Co. 453 and BO. 11 varieties but it was conducted in R.B.D. with one variety, Co. 453.

5. RESULTS :

- (i) 17.31 ton/ac.
 (ii) 1.71 ton/ac.
 (iii) Treatment differences are significant.
 (iv) Av. yield of cane in ton/ac.

Treatment	Av. yield
1.	17.82
2.	18.81
3.	18.04
4.	17.26
5.	17.48
7.	14.47
S.E./mean	= 0.85 ton/ac.

Crop :- Sugarcane.
 Site :- Zonal Centre, Parsa.

Ref :- Bh. 49 (33).
 Type :- 'M'.

Object :- To find the optimum requirements of N and P_2O_5 .

1. BASAL CONDITIONS :

(i) (a) N.A. (b) N.A. (c) N.A. (ii) (a) Alluvial calcareous. (b) N.A. (iii) N.A. (iv) (a) 4 ploughings and harrowing. (b) Flat Method. (c) 65 md./ac. (d) Rows 3' apart. (e) —. (v) N.A. (vi) CO. 453. (vii) N.A. (viii) Hoeing and weeding. (ix) N.A. (x) N.A.

2. TREATMENTS :

All possible combinations of (1) and (2)
 (1) 3 levels of N : $N_0=0$, $N_1=20$ and $N_2=40$ lb./ac.
 (2) 3 levels of P_2O_5 : $P_0=0$, $P_1=25$ and $P_2=50$ lb./ac.
 N as Castor cake and P_2O_5 as Triple Super.

3. DESIGN :

(i) 3×3 Fact. in R.B.D. (ii) (a) 9. (b) N.A. (iii) 3. (iv) (a) $60.5' \times 24'$. (b) 1/40th ac. (v) 1 row on either side along width. (vi) Yes.

4. GENERAL :

(i) N.A. (ii) N.A. (iii) Cane yield, mature stalks and juice content. (iv) (a) 1949—1953. (b), (c) N.A. (v) (a) N.A. (b) N.A. (vi) Nil. (vii) Instead of using split plot design for testing both the varieties, only the variety CO.453 was tested in R B.D.

5. RESULTS :

- (i) 13.10 ton/ac.
 (ii) 0.330 ton/ac.
 (iii) All effects are significant.
 (iv) Av. yield of cane in ton/ac.

	P_0	P_1	P_2	Mean
N_0	12.44	12.81	13.42	12.89
N_1	13.69	11.87	13.06	12.87
N_2	13.32	12.65	14.63	13.53
Mean.	13.15	12.44	13.70	13.10

S.E. of any marginal mean = 0.110 ton/ac.
 S.E. of body of table = 0.190 ton/ac.

Crop :- Sugarcane.
Site :- Zonal Centre, Parsa.

Ref :- Bh. 52(85).
Type :- 'M'.

Object :- To find out the optimum dose of N and P_2O_5 .

1. BASAL CONDITIONS :

(i) (a) N.A. (b) N.A. (c) N.A. (ii) (a) Alluvial calcareous. (b) N.A. (iii) N.A. (iv) (a) 4 ploughings by *deshi* plough. (b) Flat method. (c) 60, three budded setts/row. (d) Rows 3' apart. (e) —. (v) N.A. (vi) Co. 453. (vii) N.A. (viii) Hoeing, weeding and earthing up. (ix) N.A. (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 $N_3=120$ lb./ac.

(2) 4 levels of P_2O_5 : $P_0=0$, $P_1=50$, $P_2=150$ and $P_3=200$ lb./ac.

N as A/S and P_2O_5 as Super. Applied as mixture at time of transplanting.

3. DESIGN :

(i) 4×4 Fact. in R.B.D. (ii) (a) 16. (b) N.A. (iii) 4. (iv) (a) $60.5' \times 24'$. (b) $60.5' \times 18'$. (v) One row on each side along width. (vi) Yes.

4. GENERAL :

(i) N.A. (ii) N.A. (iii) No. of tillers, no. of mature stalks, sucrose % and sugarcane yield. (iv) (a) 1949-1953. (b) No. (c) Nil. (v) (a) Nil. (b) Nil. (vi) Nil. (vii) This experiment was to be conducted in split plot with CO. 453 & BO 11 varieties in main-plots. But this was conducted in R.B.D. with CO. 453 variety only. Experiments conducted during other years except 1949 are under category 'MV'.

5. RESULTS :

(i) 16.74 ton./ac.

(ii) 1.43 ton./ac.

(iii) None of the effects is significant.

(iv) Av. yield of cane in ton./ac.

	P_0	P_1	P_2	P_3	Mean
N_0	13.84	16.81	17.98	16.11	16.19
N_1	16.99	15.71	17.87	18.72	17.32
N_2	16.96	13.21	16.37	18.35	16.22
N_3	16.37	18.86	16.07	17.62	17.23
Mean	16.04	16.15	17.07	17.70	16.74

S.E. of any marginal mean = 0.36 ton./ac.
S.E. of body of table = 0.72 ton./ac.

Crop :- Sugarcane.
Site :- Zonal Centre, Parsa.

Ref :- Bh. 51(33).
Type :- 'M'.

Object :- To find out the optimum yield potential of N and P_2O_5 combination.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) N.A. (c) N.A. (ii) (a) Alluvium calcareous. (b) N.A. (iii) N.A. (iv) (a) 4 ploughings by *deshi* plough. (b) Flat planting. (c) 60, three budded setts/row. (d) Rows 3' apart. (e) —. (v) N.A. (vi) BO. 11. (vii) N.A. (viii) Hoeing, earthing and weeding. (ix) N.A. (x) N.A.

2. TREATMENTS :

1. No manure.

2. 40 lb./ac. of N + 50 lb./ac. of P_2O_5 .

3. 80 lb./ac. of N + 100 lb./ac. of P_2O_5 .

N as A/S and P_2O_5 as Single Super.

3. DESIGN :

(i) R.B.D. (ii) (a) 3. (b) N.A. (iii) 2. (iv) (a) 60.5'×24'. (b) 60.5'×18'. (v) One row on each side along the length. (vi) Yes.

4. GENERAL :

(i) N.A. (ii) N.A. (iii) No. of mature stalks, sucrose % and sugarcane yield, (iv) (a) 1951-1952. (b) No. (c) Nil. (v) (a) Dehri-on-Sone, Harinagar and Majhulia. (b) Nil. (vi) & (vii) Nil.

5. RESULTS :

- (i) 13.24 ton/ac.
 (ii) 1.49 ton/ac.
 (iii) Treatment differences are not significant.
 (iv) Av. yield of cane in ton/ac.

Treatment	Av. yield
1.	11.47
2.	13.40
3.	14.86
S.E./mean	= 1.05 ton./ac.

Crop :- Sugarcane.

Site :- Zonal Centre, Parsa.

Ref :- Bh. 52(50).

Type :- 'M'.

Object :—To find out the optimum yield potential of N and P₂O₅ combination.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) N.A. (c) N.A. (ii) (a) Alluvium calcareous. (b) N.A. (iii) N.A. (iv) (a) 4 ploughings by *deshi* plough. (b) Flat planting. (c) 60, three budded setts/row. (d) Rows 3' apart. (e) —. (v) Nil. (vi) B.O. 11. (vii) N.A. (viii) Earthing and weeding. (ix) N.A. (x) N.A.

2. TREATMENTS :

- No manure.
 - 40 lb./ac. of N+ 50 lb./ac. of P₂O₅.
 - 80 lb./ac. of N+100 lb./ac. of P₂O₅.
- N as A/S and P₂O₅ as Single Super. Time and method of application N.A.

3. DESIGN :

(i) R.B.D. (ii) (a) 3. (b) N.A. (iii) 2. (iv) (a) 60.5'×24'. (b) 60.5'×18'. (v) 3' on each side along the length. (vi) Yes.

4. GENERAL :

(i) N.A. (ii) Nil. (iii) Sucrose %, no. of mature stalks, sugarcane yield. (iv) (a) 1951-1952. (b) No. (c) Nil. (v) (a) Motipur, Dehri-on-Sone and Harinagar. (b) Nil. (vi) & (vii) Nil.

5. RESULTS :

- (i) 17.02 ton/ac.
 (ii) 1.12 ton/ac.
 (iii) Treatment differences are not significant.
 (iv) Av. yield of cane in ton/ac.

Treatment	Av. yield
1.	16.15
2.	16.29
3.	18.61
S.E./mean	= 0.79 ton/ac.

Crop :- Sugarcane.

Ref :- Bh.51 (12).

Site :- Sugarcane Sub. Stn. Patna.

Type :- 'M'.

Object :-To find the effect of organic (compost) and inorganic manures in combination with Single Super.

1. BASAL CONDITIONS :

(i) (a) No. (b) *Sanai*. (c) Nil. (ii) (a) Clay. (b) N.A. (iii) 1 to 2.3.51. (iv) (a) N.A. (b) Flat planting. (c) —. (d) & (e) N.A. (v) G.M.—*Sanai* sown at 25 srs./ac. *Sanai* buried 3 weeks before planting. (vi) CO. 453 (Med.) (vii) Irrigated. (viii) Hoeing and earthing up. (ix) 30.47". (x) N.A.

2. TREATMENTS :

All combinations of (1) and (2) + a Control (no manure).

(1) 2 sources of $N+P_2O_5$: A=Compost+Single Super and B= A/S+Single Super.

(2) 5 doses of $N+P_2O_5$: $M_1=40$ lb./ac. of N+50 lb./ac. of P_2O_5 , $M_2=80$ lb./ac. of N+100 lb./ac. of P_2O_5 , $M_3=120$ lb./ac. of N+150 lb./ac. of P_2O_5 , $M_4=160$ lb./ac. of N+200 lb./ac. of P_2O_5 and $M_5=200$ lb./ac. of N+250 lb./ac. of P_2O_5 .

Time & method of application N.A.

3. DESIGN :

(i) R.B.D. (ii) (a) 11. (b) N.A. (iii) 4. (iv) (a) 60.5'×24'. (b) 60.5'×18'. (v) Rows of 3' width on each side of length. (vi) Yes.

4. GENERAL :

(i) N.A. (ii) Nil. (iii) Cane yield. (iv) (a) 1951-1955. (b) No. (c) Nil. (v) (a) No. (b) Nil. (vi) & (vii) Nil.

5. RESULTS :

(i) 20.98 ton/ac.

(ii) 1.60 ton/ac.

(iii) Sources of $(N+P_2O_5)$ differ significantly. Interaction is significant. No other effect is significant.

(iv) Av. yield of cane in ton/ac.

	Control=18.89		Mean
	A	B	
M_1	18.77	21.77	20.27
M_2	21.36	24.10	22.73
M_3	19.54	21.21	20.38
M_4	20.99	24.31	22.65
M_5	17.29	22.50	19.90
Mean	19.59	22.78	21.19

S.E. of the body of the table =0.80 ton/ac.

S.E. of the row marginal mean =0.57 ton/ac.

S.E. of the column marginal mean =0.36 ton/ac.

Crop :- Sugarcane.

Ref :- Bh. 52(10).

Site :- Sugarcane Sub-Stn. Patna.

Type :- 'M'.

Object :-To find out the effect of organic (compost) and inorganic manures in combination with Single Super.

1. BASAL CONDITIONS :

(i) (a) *Sanai*-Sugarcane-Paddy-*Sanai*. (b) *Sanai* (G.M.). (c) Nil. (ii) (a) Heavy clay (b) N.A. (iii) 7.2.52 to 12.2.52. (iv) (a) Mould board ploughings followed by disc harrowing and then levelling. (b) N.A. (c) 60, three budded setts/row. (d) Row to row 3'. (e) —. (v) Nil. (vi) CO. 453-(Medium). (vii) Irrigated. (viii) After every irrigation one interculturing. (ix) 34.80". (x) 19.3.53 to 21.3.53.

2. TREATMENTS :

All combinations of (1) and (2) + a Control (no manure).

(1) 2 sources of N+P₂O₅ : A = Compost + Single Super and B = A/S + Single Super.

(2) 5 doses of N+P₂O₅ : M₁=40 lb./ac. of N+50 lb./ac. of P₂O₅, M₂=80 lb./ac. of N+100 lb./ac. of P₂O₅, M₃=120 lb./ac. of N+150 lb./ac. of P₂O₅, M₄=160 lb./ac. of N+200 lb./ac. of P₂O₅ and M₅=200 lb./ac. of N+250 lb./ac. of P₂O₅.

3. DESIGN :

(i) R.B.D. (ii) (a) 11. (b) N.A. (iii) 4. (iv) (a) 60.5' × 24'. (b) 60.5' × 18'. (v) Yes, two rows, one on either side of the plot as non experimental. (vi) Yes.

4. GENERAL :

(i) Good-no lodging. (ii) Nil. (iii) Germination %, sucrose %, no. of mature stalk and yield of cane. (iv) (a) 1951-1955. (b) No. (c) Nil. (v) (a) N.A. (b) Nil. (vi) and (vii) Nil.

5. RESULTS :

(i) 18.91 ton/ac.

(ii) 4.82 ton/ac.

(iii) Effects due to doses of (N+P₂O₅) and interaction are highly significant.

(iv) Av. yield of cane in ton/ac.

Control = 15.33 ton/ac.

	A	B	Mean
M ₁	18.34	17.59	17.97
M ₂	19.40	19.23	19.32
M ₃	21.22	18.16	19.69
M ₄	20.52	21.73	21.13
M ₅	15.70	20.84	18.27
Mean	19.04	19.51	19.28

S.E. of A or B marginal mean = 1.70 ton/ac.

S.E. of marginal mean of M = 1.08 ton/ac.

S.E. of body of the table = 2.41 ton/ac.

Crop :- Sugarcane.

Ref :- Bh. 53(52).

Site :- Sugarcane Sub-Stn., Patna.

Type :- 'M'.

Object :- To find the effect of organic (compost) and inorganic manures in combination with Single Super.

1. BASAL CONDITIONS :

(i) (a) *Sanai-Sugarcane-Sanai*. (b) *Sanai* (c) Nil. (ii) (a) Clay. (b) N.A. (iii) 15.2.53 to 16.2.53. (iv) (a) Mould board ploughings, then disc harrowing, and then levelling. (b) N.A. (c) 64, 3 budded setts/row. (d) N.A. (e) —. (v) Nil. (vi) CO. 453-(Medium). (vii) Irrigated. (viii) Interculture after each irrigation and then horse hoeing. (ix) 61.33". (x) 30.1.54. 4.2.54, 5.2.54.

2. TREATMENTS :

All combinations of (1) and (2) + a Control (no manure).

(1) 2 sources of N+P₂O₅ : A = Compost + Single Super and B = A/S + Single Super.

(2) 5 doses of N+P₂O₅ : M₁=40 lb./ac. of N+50 lb./ac. of P₂O₅, M₂=80 lb./ac. of N+100 lb./ac. of P₂O₅, M₃=120 lb./ac. of N+150 lb./ac. of P₂O₅, M₄=160 lb./ac. of N+200 lb./ac. of P₂O₅, and M₅=200 lb./ac. of N+250 lb./ac. of P₂O₅.

3. DESIGN :

(i) R.B.D. (ii) (a) 11. (b) N.A. (iii) 4. (iv) (a) 60.5' × 24'. (b) 60.5' × 18'. (v) 3' wide border on both sides along the length. (vi) Yes.

4. GENERAL:

(i) Good—no lodging. (ii) Nil. (iii) Germination %, sucrose %, no. of mature stalk, borer %, no. of tillers/row and yield at harvest. (iv) (a) 1951-1955. (b) No. (c) Nil. (v) (a) No. (b) No. (vi) and (vii) Nil.

5. RESULTS :

- (i) 17.84 ton/ac.
 (ii) 4.82 ton/ac.
 (iii) None of the effects is significant.
 (iv) Av. yield of cane in ton/ac.

Control = 15.98 ton/ac.

	A	B	Mean
M ₁	17.83	18.57	18.20
M ₂	18.36	17.23	17.80
M ₃	11.70	19.79	15.70
M ₄	19.32	18.42	18.87
M ₅	18.56	20.48	19.52
Mean	17.15	18.90	18.02

S.E. of the marginal mean of A or B = 1.70 ton/ac.
 S.E. of the marginal mean of M = 1.08 ton/ac.
 S.E. of body of table = 2.41 ton/ac.

Crop :- Sugarcane.

Ref :- Bh. 51(6)

Site :- Sugarcane Sub-Stn. Patna.

Type :- 'M'.

Object :—To compare organic and inorganic manures and their different combinations.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) N.A. (c) N.A. (ii) (a) Clay. (b) N.A. (iii) 13 to 15.2.51. (iv) N.A. (v) Nil. (vi) Bo. 11. (vii) Irrigated. (viii) Hoeing and earthing up. (ix) 30.47". (x) N.A.

2. TREATMENTS :

All the treatments to supply 120 lb./ac. of N+60 lb./ac of P₂O₅.

- Control (no manure).
- Castor cake+Single Super.
- F.Y.M.+Single Super.
- A/S+Single Super.
- $\frac{1}{2}$ F.Y.M.+ $\frac{1}{2}$ A/S+Single Super.
- $\frac{1}{3}$ Castor cake+ $\frac{2}{3}$ A/S+Single Super.
- $\frac{1}{3}$ F.Y.M.+ $\frac{2}{3}$ A/S+Single Super.
- $\frac{1}{2}$ Castor cake+ $\frac{1}{2}$ A/S+Single Super.

Note :— $\frac{1}{2}$ F.Y.M. means $\frac{1}{2}$ of the full dose of F.Y.M. applied in treatment 3 and so on.

Time and method of application of manures—N.A.

3. DESIGN :

(j) R.B.D. (ii) (a) 8. (b) N.A. (iii) 4. (iv) (a) 60.5'×24'. (b) 60.5'×18'. (v) Rows of 3' width. (vi) Yes.

4. GENERAL :

(i) Satisfactory. (ii) None. (iii) Cane yield. (iv) (a) 1951—continued. (b) No. (c) Nil. (v) (a) Pusa. (b) Nil. (vi) and (vii) Nil.

5. RESULTS :

- (i) 12.86 ton/ac.
 (ii) 1.32 ton/ac.
 (iii) Treatments differ significantly.
 (iv) Av. yield of cane in ton/ac.

Treatment	Av. yield
1.	11.13
2.	12.88
3.	11.38
4.	13.32
5.	14.35
6.	12.71
7.	13.75
8.	13.37
S.E./mean	=0.66 ton/ac.

Crop :- Sugarcane.

Ref :- Bh. 52(11).

Site :- Sugarcane Sub-Stn. Patna.

Type :- 'M'.

Object:—To find the effect of organic and inorganic manures and their different combinations.

1. BASAL CONDITIONS :

- (i) (a) *Sanai*-Sugarcane-Paddy. (b) *Sanai*. (c) Nil. (ii) (a) Clay. (b) N.A. (iii) 3.2.52 to 5.2.52. (iv) (a) Mould-board ploughings followed by disc harrowing and then levelling. (b) N.A. (c) 70, 3 budded setts/row. (d) Row to row 3'. (e) —. (v) Nil. (vi) BO. 11 (Early). (vii) Irrigated. (viii) After every irrigation one interculturing. (ix) 34.80". (x) 11th Mar. '53 to 13th Mar. '53.

2. TREATMENTS :

All the treatments to supply 120 lb./ac. of N+60 lb /ac. of P_2O_5 .

- Control (no manure).
- Castor cake+Single Super.
- F.Y.M.+Single Super.
- $\frac{1}{2}$ Castor cake+ $\frac{1}{2}$ A/S+Single Super.
- $\frac{1}{2}$ F.Y.M.+ $\frac{1}{2}$ A/S+Single Super.
- $\frac{1}{3}$ Castor cake+ $\frac{2}{3}$ A/S+Single Super.
- $\frac{1}{3}$ F.Y.M.+ $\frac{2}{3}$ A/S+Single Super.
- A/S+Single Super.

Treatments applied at the time of transplanting.

3. DESIGN :

- (i) R.B.D. (ii) (a) 8. (b) 60.5'×192'. (iii) 4. (iv) (a) 60.5'×24'. (b) 60.5'×18'. (v) 2 rows one on either side of the plot as non-experimental. (vi) Yes.

4. GENERAL :

- (i) Good-no lodging. (ii) Nil. (iii) Germination %, sucrose %, no. of mature stalks and yield at harvest. (iv) (a) 1951—contd. (b) No. (c) Nil. (v) (a) N.A. (b) N.A. (vi) and (vii) Nil.

5. RESULTS :

- (i) 9.86 ton/ac.
 (ii) 2.34 ton/ac.
 (iii) Treatments do not differ significantly.
 (iv) Av. yield of cane in ton/ac.

Treatment	Av. yield
1.	8.93
2.	8.45
3.	10.06
4.	10.33
5.	9.45
6.	10.09
7.	10.46
8.	11.12
S.E./mean	=1.17 ton/ac.

Crop :- Sugarcane.

Ref :- Bh. 53(58).

Site :- Sugarcane Sub-Stn. Patna.

Type :- 'M'.

Object :- To find the effect of organic and inorganic manures and their different combinations.

1. BASAL CONDITIONS :

(i) (a) *Sanai*—Paddy—Sugarcane (b) Paddy. (c) 40 lb/ac. of N+60 lb/ac. of P_2O_5 . (ii) (a) Clay. (b) N.A. (iii) 5th to 9th March 1953. (iv) (a) Mould-board ploughing followed by disc harrowing and then levelling. (c) 64, 3 budded setts/row. (d) N.A. (e)—(v) Nil. (vi) BO. 11. (vii) Irrigated. (viii) After every irrigation, one interculture and then horse-hoeing. (ix) 60.54". (x) 25.1.54. to 29.1.54.

2. TREATMENTS :

All the treatments to supply 120 lb/ac. of N+60 lb/ac. of P_2O_5 .

1. Control (no manure).
2. Castor cake+Single Super.
3. F.Y.M.+Single Super.
4. $\frac{1}{2}$ Castor cake+ $\frac{1}{2}$ A/S+Single Super.
5. $\frac{1}{2}$ F.Y.M.+ $\frac{1}{2}$ A/S+Single Super.
6. $\frac{1}{3}$ Castor cake+ $\frac{2}{3}$ A/S+Single Super.
7. $\frac{1}{3}$ F.Y.M.+ $\frac{2}{3}$ A/S+Single Super.
8. A/S+Single Super.

Treatments applied at the time of planting.

3. DESIGN :

(i) R.B.D. (ii) (a) 8. (b) N.A. (iii) 2. (iv) (a) 60.5'×24'. (b) 60.5'×18'. (v) 3' wide border on both sides along the width. (vi) Yes.

4. GENERAL :

(i) Good—no lodging. (ii) Nil. (iii) Germination %, no. of mature stalks, borer %, no. of tillers per row and yield at harvest. (iv) (a) 1951—continued. (b) No. (c) Nil. (v) (a) Nowhere. (b) No. (vi) Nil. (vii) The yield of two replications could not be obtained due to heavy water logging in the field. Hence there were only 2 replications.

5. RESULTS :

- (i) 8.39 ton/ac.
- (ii) 4.18 ton/ac.
- (iii) Treatments do not differ significantly.
- (iv) Av. yield of cane in ton/ac.

Treatment	Av. yield
1.	4.07
2.	12.78
3.	8.76
4.	9.07
5.	10.07
6.	7.47
7.	7.12
8.	7.81
S.E./mean	=2.09 ton/ac.

Crop :- Sugarcane.

Ref :- Bh. 51(7).

Site :- Sugarcane Sub-Stn. Patna.

Type :- 'M'.

Object :- To find out the effect of organic matter on the availability of manures in the two soil types at Pusa (calcareous) and Patna (heavy clay).

1. BASAL CONDITIONS :

(i) (a) None. (b) N.A. (c) N.A. (ii) (a) Heavy clay. (b) N.A. (iii) 15 & 16.2.51. (iv) (a) to (e) N.A. (v) Nil. (vi) BO. 11 (Early). (vii) Irrigated. (viii) Weeding and earthing up. (ix) 30.47". (x) N.A.

2. TREATMENTS :

All combinations of (1) and (2)

(1) 2 levels of organic matter : O_1 =No manure and O_2 =Organic matter (compost) at 100 lb/ac.(2) 2 levels of Manganese : M_1 =No Manganese and M_2 =Manganese at 20 lb/ac.

Time & method of application of manures :—N.A.

3. DESIGN :

(i) 2×2 Fact. in R.B.D. (ii) (a) 4. (b) N.A. (iii) 4. (iv) (a) 40'×33'. (b) 40'×27'. (v) Rows of 3' width. (vi) Yes.

4. GENERAL :

(i) Satisfactory. (ii) Stem borer attack noticed ; insecticide was sprayed. (iii) Sugarcane yield, sucrose % and counting of mature stalk. (iv) (a) 1951—1952. (b) No. (c) Nil. (v) (a) Pusa. (b) Nil. (vi) Nil. (vii) Experiment during 1952 was dropped due to lack of irrigation.

5. RESULTS :

- (i) 14.31 ton/ac.
 (ii) 1.776 ton/ac.
 (iii) None of the effects is significant.
 (iv) Av. yield of cane in ton/ac.

	O ₁	O ₂	Mean.
M ₁	14.30	15.54	14.92
M ₂	14.09	13.32	13.71
Mean.	14.20	14.43	14.31

S.E. of body of table = 0.89 ton/ac.

S E. of any marginal mean = 0.63 ton/ac.

Crop :- Sugarcane.

Site :- Sugarcane Sub-Stn. Patna.

Ref :- Bh. 52(9).

Type :- 'M'.

Object :- To find out the response to press-mud application.

1. BASAL CONDITIONS :

(i) (a) Paddy—Sugarcane—Paddy. (b) Paddy. (c) 40 lb/ac. of N+60 lb/ac. of P₂O₅ as A/S and Single Super. (ii) (a) Heavy clay. (b) N.A. (iii) 6.3.52 and 7.3.52. (iv) (a) Mould board ploughings followed by disc harrowing and then levelling (b) N.A. (c) 48, three budded setts/row. (d) Row to row 3' (e)—(v) Nil. (vi) BO. 11—(Early) (vii) Irrigated. (viii) After every irrigation one interculture (ix) 34.40". (x) 10th Feb, 53 to 13th Feb, 53.

2. TREATMENTS :

1. Control.
 2. Sulphitation press mud at 100 md/ac.
 3. Sulphitation press mud at 200 md/ac.
 4. Carbonation press mud at 100 md/ac.
 5. Carbonation press mud at 200 md/ac.
 6. Castorcake at 120 lb/ac. of N.
- Treatments applied at the time of planting.

3. DESIGN :

(i) R.B.D. (ii) (a) 6. (b) N.A. (iii) 4. (iv) (a) 40'×27'. (b) 40'×21'. (v) 2 rows one on either side of the plot as non-experimental. (vi) Yes.

4. GENERAL :

(i) Good—no lodging. (ii) Nil. (iii) Germination %, sucrose %, no. of mature stalks and yield at harvest. (iv) (a) 1952—1953. (b) No. (c) Nil. (v) (a) N.A. (b) Nil. (vi) & (vii) Nil.

5. RESULTS :

- (i) 6.34 ton/ac.
 (ii) 1.56 ton/ac.
 (iii) Treatment do not differ significantly.

(iv) Av. yield of cane in ton/ac.

Treatment	Av. yield
1.	6.84
2.	5.47
3.	6.79
4.	5.96
5.	5.95
6.	7.03
S.E./mean	=0.78 ton/ac.

Crop :- Sugarcane.

Ref :- Bh. 53 (62).

Site :- Sugarcane Sub-Stn. Patna.

Type :- 'M'.

Object :- To find out the response to press-mud application.

1. BASAL CONDITIONS :

(i) (a) *Sanai-Sugarcane-Sanai*. (b) *Sanai*. (c) Nil. (ii) (a) Clay. (b) N.A. (iii) 24.2.53 and 25.2.53. (iv) (a) Mould board ploughing, then disc harrowing and then levelling. (b) N.A. (c) 42, 3 budded setts/row. (d) Row to row 3'. (e)—. (v) Nil. (vi) BO. 11. (vii) Irrigated. (viii) After every irrigation, one interculture and then horse-hoeing. (ix) 60.83%. (x) 24.1.54.

2. TREATMENTS :

1. Control.
2. Sulphitation press mud at 100 md./ac.
3. Sulphitation press mud at 200 md./ac.
4. Castor cake at 120 md./ac.

3. DESIGN :

(i) R.B.D. (ii) (a) 4. (b) N.A. (iii) 6. (iv) (a) 40' × 27'. (b) 40' × 21'. (v) 3' border on both sides along the length. (vi) Yes.

4. GENERAL :

(i) Good—no lodging. (ii) Slight attack of white-fly. No control measures taken. (iii) Germination%, sucrose%, no. of mature stalk and yield, tiller, borer%. (iv) (a) 1952—1954. (b) No. (c) Nil. (v) (a) No. (b) N.A. (vi) and (vii) Nil.

5. RESULTS :

- (i) 11.40 ton/ac.
- (ii) 1.697 ton/ac.
- (iii) Treatments differ significantly.
- (iv) Av. yield of cane in ton/ac.

Treatment	Av. yield
1.	9.81
2.	10.94
3.	12.21
4.	12.63
S.E./mean	= 0.693 ton/ac.

Crop :- Sugarcane.

Ref :- Bh. 49 (3).

Site :- Sugarcane Sub-Stn. Patna.

Type :- 'M'.

Object :- To find the effect of Cakes with regard to their manurial values.

1. BASAL CONDITIONS :

(i) (a) *Maize-Sugarcane-Maize*. (b) *Maize*. (c) N.A. (ii) (a) Clay. (b) N.A. (iii) 8-10.2.49. (iv) N.A. (v) Nil. (vi) BO. 10 (Early). (vii) Irrigated. (viii) Earthing and hoeing. (ix) 69.88%. (x) 5.2.50 to 22.2.50.

2. TREATMENTS :

All combinations of (1) and (2)+a Control (no manure)

(1) 2 levels of N : $N_1=60$ and $N_2=120$ lb./ac.

(2) 5 sources of N : Castor cake (C.C.), Linseed cake (L.C.), Mustard cake (M.C.), G.N.C. and A/S.
Time and method of application of manures N.A.

3. DESIGN :

(i) R.B.D. (ii) (a) 11. (b) N.A. (iii) 6. (iv) (a) $21' \times 72.5'$. (b) $15' \times 72.5'$. (v) 3' wide border
(vi) Yes.

4. GENERAL :

(i) Poor. (ii) Cane borer removed and insecticide sprayed. (iii) Cane yield. (iv) (a) 1948-1950. (b) No.
(c) Nil. (v) (a) Pusa. (b) Nil. (vi) and (vii) Nil.

5. RESULTS :

(i) 9.33 ton/ac.
(ii) 2.086 ton/ac.
(iii) Sources and levels of N differ significantly.
(iv) Av. yield of cane in ton/ac.

	Control =8.06 ton/ac.		Mean
	N_1	N_2	
C.C.	12.06	10.30	11.18
L.C.	9.46	10.65	10.05
M.C.	9.52	8.52	9.02
G.N.C.	6.42	11.66	9.04
A/S.	7.04	8.97	8.00
Mean	8.90	10.02	9.46

S.E. of marginal mean of sources of N =0.60 ton/ac.
S.E. of marginal of mean of levels of N =0.38 ton/ac.
S.E. of body of table =0.85 ton/ac.

Crop :- Sugarcane.

Site :- Sugarcane Sub-Stn., Patna.

Ref :- Bh. 49 (1).

Type :- 'M'.

Object :-To find out the effect of organic and inorganic manures on Sugarcane.

1. BASAL CONDITIONS :

(i) (a) Paddy—Sugarcane—Paddy. (b) Paddy. (c) N.A. (ii) (a) Clayey. (b) N.A. (iii) 19-21.1.49. (iv) N.A. (v) None. (vi) BO. 10 (Med). (vii) Irrigated. (viii) Weeding, earthing up and hoeing. (ix) 69.88%.
(x) 26.2.50 to 10.3.50.

2. TREATMENTS :

- Control (No manure).
- 60 lb./ac. of N as Castor cake and 60 lb./ac. of N as A/S.
- 120 lb./ac. of N as A/S.
- 120 lb./ac. of N as Castor cake.
- 60 lb./ac. of N as Castor cake.
- 60 lb./ac. of N as A/S.
- 30 lb./ac. of N as A/S+30 lb./ac. of N as Castor cake.

Method of application of manures N.A.

Treatments 2, 3 and 4 applied half at planting time, 1/4 in May and the remaining 1/4 in June.
Treatments 5, 6 and 7 applied at planting time.

3. DESIGN :

(i) R.B.D. (ii) (a) 7. (b) N.A. (iii) 7. (iv) (a) $24' \times 61'$. (b) $18' \times 61'$. (v) 3' wide rows. (vi) Yes.

4. GENERAL :

- (i) Fair. (ii) Borer, white fly, scale insects and removal of deadhearts of borer and spraying of insecticides.
 (iii) Cane yield. (iv) (a) 1948—1950. (b) No. (c) Nil. (v) (a) Pusa. (b) Nil. (vi) and (vii) Nil.

5. RESULTS :

- (i) 19.04 ton/ac.
 (ii) 1.31 ton/ac.
 (iii) Treatments differ highly significantly.
 (iv) Av. yield of cane in ton/ac.

Treatment	Av. yield
1.	17.0
2.	19.2
3.	19.7
4.	23.7
5.	18.5
6.	17.8
7.	20.7
S.E./mean	= 0.49 ton/ac.

Crop :- Sugarcane.

Ref :- Bh. 50(6).

Site :- Sugarcane. Sub-Stn. Patna.

Type :- 'M'.

Object :- To find out the optimum yield potential of N and P_2O_5 combinations.

1. BASAL CONDITIONS :

- (i) (a) None. (b) Fallow. (c) Nil. (ii) (a) Clay. (b) N.A. (iii) 25.2.50. (iv) N.A. (v) N.A. (vi) BO. 11 (late).
 (vii) Irrigated. (viii) Hoeing and earthing up. (ix) 40.02". (x) 4.2.51 to 28.2.51.

2. TREATMENTS :

- Control (no manure).
 - 40 lb./ac. of N+ 50 lb./ac. of P_2O_5 .
 - 80 lb./ac. of N+100 lb./ac. of P_2O_5 .
- N & P_2O_5 obtained from Castorcake, Ammo. Phos. and double Super.
 Time & method of application of manures N.A.

3. DESIGN :

- (i) R.B.D. (ii) (a) 3. (b) N.A. (iii) 2. (iv) (a) 24' × 60.5'. (b) 18' × 60.5'. (v) Rows of 3' width along length.
 (vi) Yes.

4. GENERAL :

- (i) Satisfactory. (ii) N.A. (iii) Cane yield. (iv) (a) 1948—1950. (b) No. (c) Nil. (v) (a) Pusa. (b) Nil.
 (vi) & (vii) Nil.

5. RESULTS :

- (i) 8.44 ton/ac.
 (ii) 2.719 ton/ac.
 (iii) Treatments do not differ significantly.
 (iv) Av. yield of cane in ton/ac.

Treatments	Av. yield
1.	7.05
2.	9.08
3.	9.18
S.E./mean	=1.92 lb./ac.

Crop :- Sugarcane.

Ref :- Bh. 52(2).

Site :- Sugarcane Sub-Stn., Patna.

Type :- 'M'.

Object :- To find out the optimum yield potential of N and P₂O₅ combinations.

1. BASAL CONDITIONS :

(i) (a) Soyabean-Sugarcane-Paddy-G. M. (b) Soyabean (green manured). (c) Nil. (ii) (a) Clay loam. (b) N.A. (iii) 13.2.52 to 14.2.52. (iv) (a) Mould board ploughings followed by disc harrowing and then levelling. (b) N.A. (c) 70, three budded setts/row. (d) Row to row 3'. (e) — (v) Nil. (vi) BO. 11 (Early) (vii) Irrigated. (viii) After every irrigation one interculture & then horse hoeing. (ix) 34.80'. (x) 3.2.53.

2. TREATMENTS :

1. Control.
 2. 40 lb./ac. of N+ 50 lb./ac of P₂O₅.
 3. 80 lb./ac. of N+100 lb./ac. of P₂O₅.
- N and P₂O₅ in the form of A/S+Single Super.

3. DESIGN :

(i) R.B.D. (ii) (a) 3. (b) 60.5' × 72' (iii) 4. (iv) (a) 60.5' × 24'. (b) 60.5' × 18'. (v) Yes-2 rows on either side of the plot as non-experimental. (vi) Yes.

4. GENERAL :

(i) Good-no lodging. (ii) Nil. (iii) Germination %, sucrose %, no. of mature stalks, yield at harvest, borer %, (iv) (a) 1950—1952. (b) No. (c) Nil. (v) (a) N.A. (b) No. (vi) & (vii) Nil.

5. RESULTS :

- (i) 18.58 ton/ac.
- (ii) 3.53 ton/ac.
- (iii) Treatments do not differ significantly.
- (iv) Av. yield of cane in ton/ac.

Treatment	Av. yield
1.	18.20
2.	17.45
3.	20.10
S.E./mean	= 1.77 ton/ac.

Crop :-Sugarcane.

Ref :-Bh. 53(61).

Site :-Sugarcane Sub-Stn. Patna.

Type :-'M'.

Object :-To study the effects of N, P₂O₅ and K₂O applied alone and in combination.

1. BASAL CONDITIONS :

(i) (a) *Sanai*—Paddy—Sugarcane—*Sanai* (for 1953) : *Sanai*—Sugarcane—*Sanai* (later on). (b) Paddy. (c) 40 lb./ac. of N+60 lb./ac. of P₂O₅. (ii) (a) Clay. (b) N.A. (iii) 15.1.53 and 17.1.53. (iv) (a) Mould board ploughing followed by disc harrowing and then levelling. (b) N.A. (c) 64, 3 budded setts/row. (d) N.A. (e) —. (v) Nil. (vi) CO. 622. (vii) Irrigated. (viii) Interculture after each irrigation and then horse hoeing. (ix) 61-02". (x) 24th to 27th January, 1954.

2. TREATMENTS :

All combinations of (1), (2) and (3)

- (1) 3 levels of N : N₀=0, N₁=60 and N₂=120 lb./ac.
- (2) 3 levels of P₂O₅ : P₀=0, P₁=75 and P₂=150 lb./ac.
- (3) 2 levels of K₂O : K₀=0 and K₁=80 lb./ac.

Treatments applied at the time of planting.

3. DESIGN :

(i) 3 × 3 × 2 Fact. Confd. (ii) (a) 6 plots/block and 3 blocks/replication. (b) N.A. (iii) 4. (iv) (a) 60.5' × 24'. (b) 60.5' × 18'. (v) One row of 3' on either side along length. (vi) Yes.

4. GENERAL :

(i) Good (no lodging). (ii) Nil. (iii) Germination %, sucrose % ; no. of tillers per row ; no. of mature stalks ; borer %, and yield at harvest. (iv) (a) 1953—continued. (b) No. (c) Nil. (v) (a) N.A. (b) No. (vi) and (vii) Nil.

5. RESULTS :

- (i) 10.10 ton/ac.
(ii) 2.556 ton/ac.
(iii) Treatment differences are not significant.
(iv) Av. yield of cane in ton/ac.

	P ₀	P ₁	P ₂	Mean	K ₀	K ₁
N ₀	7.95	8.80	9.12	8.62	9.07	8.17
N ₁	11.38	9.90	10.65	10.64	10.76	10.52
N ₂	11.00	10.70	11.44	11.05	11.35	10.74
Mean	10.11	9.80	10.40	10.10	10.39	9.81
K ₀	10.35	10.23	10.59			
K ₁	9.86	9.36	10.21			

S.E. of marginal mean of N or P = 0.52 ton/ac.
S.E. of marginal mean of K = 0.43 ton/ac.
S.E. of the body of N×P table = 0.90 ton/ac.
S.E. of the body of N×K or P×K table = 0.74 ton/ac.

Crop :-Sugarcane.
Site :-C.S.R.S. Pusa.

Ref :-Bh. 48(2).
Type :-'M'.

Object :-To find out suitable time and method of application of Ammo. phos.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) N.A. (c) N.A. (ii) (a) Medium light loam. (b) N.A. (iii) 19/20.2.1948. (iv) (a) 4 times ploughed by *desi* plough followed by beaming. (b) Flat planting. (c) 60, 3 budded setts/row. (d) Rows 3' apart. (e) —. (v) F.Y.M. at 10 C.L./ac. (vi) BO. 11. (vii) Irrigated. (viii) Hoeing, weeding and earthing done twice. (ix) 48-00". (x) 14th to 20th Feb. 1949.

2. TREATMENTS :

All combinations of (1) and (2)

(1) 3 times of application of Ammo. Phos. : T₁=15 days before planting, T₂=at planting and T₃=30 days after planting.

(2) 3 methods of application : M₁=Broadcast and mixed, M₂=Applied 4" deep below surface and M₃=Applied 8" deep below surface.

Ammo. Phos. applied at 40 lb./ac. of N.

3. DESIGN :

(i) 3×3 Fact. in R.B.D. (ii) (a) 9. (b) N.A. (iii) 3. (iv) (a) 60.5'×24'. (b) 60.5'×18'. (v) One row on each side of width. (vi) Yes.

4. GENERAL :

(i) Nil. (ii) Nil. (iii) No. of mature stalks, sucrose % and sugarcane yield. (iv) (a) 1948—1954. (b) No. (c) Nil. (v) (a) None. (b) —. (vi) and (vii) Nil.

5. RESULTS :

- (i) 17.09 ton/ac.
(ii) 1.60 ton/ac.
(iii) None of the effects is significant.

(iv) Av. yield of cane in ton/ac.

	M ₁	M ₂	M ₃	Mean
T ₁	16.51	15.13	15.09	15.58
T ₂	17.44	16.71	16.12	16.76
T ₃	18.74	19.41	18.69	18.95
Mean	17.56	17.08	16.63	17.09

S.E. of any marginal mean = 0.535 ton/ac.
 S.E. of body of table = 0.927 ton/ac.

Crop :- Sugarcane.
 Site :- C.S.R.S. Pusa.

Ref :- Bh. 49(7).
 Type :- 'M'.

Object :- To find out suitable time and method of application of Ammo. Phos.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Sugarcane. (c) N.A. (ii) (a) Heavy loam soil. (b) N.A. (iii) 24th & 25th Jan. 1949.
 (iv) (a) 4 ploughings. (b) Row planting. (c) 64, 3 budded setts/row. (d) N.A. (e) —. (v) Nil.
 (vi) BO. 11. (vii) Unirrigated. (viii) weeding, hoeing & earthing up. (ix) 65.03". (x) 6th Feb. 1950.

2. TREATMENTS :

All combinations of (1) and (2)

(1) 3 times of application of Ammo. Phos. : T₁=15 days before planting, T₂=At planting and T₃=30 days after planting.

(2) 3 methods of application : M₁=Broadcast & mixed, M₂=Applied in 4" deep furrow and M₃=Applied in 8" deep furrow.

Time & method of application of Ammo. Phos. N.A. ; Ammo. Phos applied at 40 lb./ac. of N+50 lb./ac. of P₂O₅.

3. DESIGN :

(i) 3×3 Fact. in R.B.D. (ii) (a) 9. (b) N.A. (iii) 6. (iv) (a) 60.5'×24'. (b) 60.5'×18'. (v) Rows of 3' on each side of width. (vi) Yes.

4. GENERAL :

(i) N.A. (ii) Nil. (iii) Cane yield, count of mature stalk, sucrose %. (iv) (a) 1948-1954. (b) No. (c) Nil. (v) (a) No. (b) Nil. (vi) & (vii) Nil.

5. RESULTS :

(i) 25.40 ton/ac.

(ii) 0.288 ton/ac.

(iii) Main effect of T is highly significant, main effect of M is significant and interaction is not significant.

(iv) Av. yield of cane in ton/ac.

	M ₁	M ₂	M ₃	Mean
T ₁	26.25	25.65	26.83	26.24
T ₂	25.87	25.32	26.25	25.81
T ₃	23.71	24.51	24.24	24.15
Mean	25.28	25.16	25.77	25.40

S.E. of any marginal mean = 0.068 ton/ac.
 S.E. of body of table = 0.117 ton/ac.

Crop :- Sugarcane.
Site :- C.S.R.S. Pusa.

Ref :- Bh. 50(12).
Type :- 'M'.

Object :—To find out suitable time and method of application of Ammo. Phos.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Sugarcane. (c) N.A. (ii) (a) Light loam. (b) N.A. (iii) 24th Feb. 1950. (iv) (a) 4 ploughings. (b) Row planting. (c) 90, three budded setts/row. (d) Rows 3' apart. (e) —. (v) Nil. (vi) BO. 11. (vii) Unirrigated. (viii) Earthing, hoeing and weeding. (ix) 38.49". (x) 1st to 4th March 1951.

2. TREATMENTS :

All combinations of (1) & (2)

(1) 3 times of application of Ammo. Phos. : $T_1=15$ days before planting, $T_2=At$ planting and $T_3=30$ days after planting.

(2) 3 methods of application : $M_1=Broadcast$ & mixed, $M_2=4"$ deep in furrow and $M_3=8"$ deep in furrow.

Ammo. Phos. applied at 40 lb./ac. of N+50 lb./ac. of P_2O_5 .

3. DESIGN :

(i) 3×3 Fact. in R.B.D. (ii) (a) 9. (b) N.A. (iii) 4. (iv) (a) $60.5' \times 24'$. (b) $60.5' \times 12'$. (v) Rows of 6' width along each side of length. (vi) Yes.

4. GENERAL :

(i) N.A. (ii) N.A. (iii) Cane yield, sucrose %, counting of mature stalks. (iv) (a) 1948-1954. (b) No. (c) Nil. (v) (a) None. (b) Nil. (vi) & (vii) Nil.

5. RESULTS :

(i) 16.50 ton/ac.

(ii) 1.217 ton/ac.

(iii) None of the effects is significant.

(iv) Av. yield of sugarcane in ton/ac.

	M_1	M_2	M_3	Mean
T_1	17.63	18.50	16.22	17.45
T_2	18.39	13.95	17.21	16.52
T_3	17.22	14.11	15.25	15.53
Mean	17.75	15.52	16.23	16.50

S.E. of any marginal mean =0.351 ton/ac.

S.E. of the body of table =0.608 ton/ac.

Crop :- Sugarcane.
Site :- C.S.R.S. Pusa.

Ref :- Bh. 51(15).
Type :- 'M'.

Object :—To find out suitable time & method of application of Ammo. Phos. on sugarcane yield.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Sugarcane. (c) N.A. (ii) (a) Clay. (b) N.A. (iii) 5.3.51. (iv) (a) 4 ploughings. (b) Row planting. (c) 64, three budded setts/row. (d) 3' between rows. (e) —. (v) 5 md. and 20 seers of compost to the whole experiment. (vi) BO. 11. (vii) Unirrigated. (viii) Weeding & earthing up. (ix) 27.88". (x) 6.3.52. and 8.3.52.

2. TREATMENTS :

All combinations of (1) and (2)

(1) 3 times of application of Ammo. Phos. : $T_1=15$ days before planting, $T_2=At$ planting and $T_3=30$ days after planting.

(2) 3 methods of application : $M_1=Broadcast$ & mixed, $M_2=4"$ deep in furrow and $M_3=8"$ in deep furrow.

Ammo. Phos. applied at 40 lb./ac. of N+50 lb./ac. of P_2O_5 .

3. DESIGN :

(i) 3×3 Fact. in R.B.D. (ii) (a) 9. (b) N.A. (iii) 6. (iv) (a) 60.5'×24'. (b) 60.5'×18'. (v) Rows of 3' width on each side of breadth. (vi) Yes.

4. GENERAL :

(i) N.A. (ii) Attack of stem borer reported. (iii) Cane yield, sucrose % and count of mature stalks. (iv) (a) 1948-1954. (b) No. (c) No. (v) (a) No. (b) Nil. (vi) & (vii) Nil.

5. RESULTS :

(i) 9.98 ton/ac.
 (ii) 2.072 ton/ac.
 (iii) None of the effects is significant.
 (iv) Av. yield of sugarcane in ton/ac.

	M ₁	M ₂	M ₃	Mean
T ₁	10.34	9.17	10.48	10.00
T ₂	9.90	10.45	10.63	10.33
T ₃	10.92	8.91	9.03	9.62
Mean	10.39	9.51	10.05	9.98

S.E. of any marginal mean = 0.488 ton/ac.

S.E. of the body of the table = 0.846 ton/ac.

Crop :- Sugarcane.

Site :- C.S.R.S. Pusa.

Ref. :- Bh. 52 (31).

Type :- 'M'.

Object :—To find out suitable time and method of application of Ammo. Phos.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Sugarcane. (c) N.A. (ii) (a) Clay loam. (b) N.A. (iii) 20th, 21st February 1952. (iv) (a) 4 ploughings. (b) Row planting. (c) 64, three budded setts/row. (d) Rows 3' apart. (e) —. (v) Nil. (vi) BO. 11. (vii) Unirrigated. (viii) Hoeing, earthing & weeding. (ix) 47.85'' (x) 2nd & 5th January 1953.

2. TREATMENTS :

All combinations of (1) and (2)

(1) 3 times of application of Ammo. Phos. : T₁=15 days before planting. T₂=At planting and T₃=30 days after planting.

(2) 3 methods of application : M₁=Broadcast and mixed. M₂=Applied in 4" deep furrows and M₃=Applied in 8" deep furrows.

Fertilizer Ammo. Phos. applied at 40 lb./ac. of N+50 lb./ac. of P₂O₅.

3. DESIGN :

(i) 3×3 Fact. in R.B.D. (ii) (a) 9. (b) N.A. (iii) 6. (iv) (a) 60.5'×24'. (b) 60.5'×18'. (v) Rows of 3' width on each side of breadth. (vi) Yes.

4. GENERAL :

(i) N.A. (ii) Nil. (iii) Cane yield, sucrose % and count of mature stalks. (iv) (a) 1948—1954. (b) No. (c) Nil. (v) (a) No. (b) No. (vi) & (vii) Nil.

5. RESULTS :

(i) 3.28 ton/ac.
 (ii) 2.82 ton/ac.
 (iii) None of the effects is significant.

(iv) Av. yield of sugarcane in ton/ac.

	M ₁	M ₂	M ₃	Mean
T ₁	14.19	11.85	12.57	12.87
T ₂	12.67	12.56	14.56	13.26
T ₃	13.20	13.78	14.15	13.71
Mean	13.35	12.73	13.76	13.28

S.E. of any marginal mean = 0.664 ton/ac.
 S.E. body of table = 1.151 ton/ac.

Crop :- Sugarcane.

Ref. :- Bh. 53 (105).

Site :- C. S. R. S. Pusa.

Type :- 'M'.

Object :- To find out suitable time and method of application of Ammo. Phos.

1. BASAL CONDITIONS.

(i) (a) Sugarcane—Pulse—Barley—*Sanai* (G.M.). (b) *Sanai* (G.M.). (c) Nil. (ii) (a) Sandy clay-loam to loam in texture. (b) Org. N :- medium to low. C/N ratio narrow. Total Phosphate :- medium to high. Available Phosphate :- very low ; soil reaction strongly alkaline. (iii) 10.3.1953. (iv) (a) Harrowing once and mould-board plough, each followed by *Hinga* ; again discing followed by subsoiling. (b) Furrow planting. End to end planting. (c) 64, three budded sets/row. (d) Rows 3' apart. (e) —. (v) Nil. (vi) BO. 11 (Early). (vii) Nil. (viii) Fortnightly intercultural operations after germination till the end of May. Earthing up in mid. June. (ix) 45.09". (x) 4th week of Dec., 1953.

2. TREATMENTS :

All combinations of (1) and (2).

- (1) 3 times of application of Ammo. Phos. : T₁=15 days before planting, T₂=At planting and T₃=30 days after planting.
 (2) 3 methods of application : M₁=Broadcast and mixed, M₂=Applied in 4" deep furrow and M₃=Applied in 8" deep furrow.

Fertilizer Ammo. Phos. applied at 40 lb./ac. of N+50 lb./ac. of P₂O₅

3. DESIGN :

(i) R.B.D. Fact. (ii) (a) 9. (b) N.A. (iii) 6. (iv) (a) 60.5'×24'. (b) 60.5'×18'. (v) Two rows one on either side of the sub-plot as non-experimental. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Borer incidencce noted. Dead hearts removed, during the early period of growth, on controlling termite infection. Aldrine was applied at planting & 3 months after. (iii) Germination %, tillering, height, no. of mature stalks, sucrose % and yield of cane. (iv) (a) 1948—1954. (b) No. (c) Nil. (v) (a) No. (b) Nil. (vi) & (vii) Nil.

5. RESULTS :

- (i) 12.45 ton/ac.
 (ii) 2.73 ton/ac.
 (iii) Only the interaction is significant.
 (iv) Av. yield of sugarcane in ton/ac.

	M ₁	M ₂	M ₃	Mean
T ₁	14.00	12.53	10.14	12.22
T ₂	13.66	11.02	13.96	12.88
T ₃	10.95	13.08	12.75	12.26
Mean	12.87	12.21	12.28	12.45

S.E. of any marginal mean = 0.64 ton/ac.
 S.E. of the body of the table = 1.11 ton/ac.

Crop :- Sugarcane.
Site :- C.S.R.S. Pusa.

Ref :- Bh. 48(5).
Type :- 'M'.

Object :—To find out suitable time of application of organic and inorganic manures.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Sugarcane. (c) Nil. (ii) (a) Sandy loam. (b) N.A. (iii) 24/25.2.1948. (iv) (a) 4 ploughings followed by beaming. (b) Flat planting. (c) 60, three budded setts/row. (d) Rows 3' apart. (e) —. (v) Nil. (vi) BO. 11. (vii) Irrigated. (viii) Hoeing, weeding and earthing once. (ix) 45.10". (x) 13/14 14.2.49.

2. TREATMENTS :

All combinations of (1) and (2)

(1) 3 manures : M_1 =Castorcake, M_2 =A/S and M_3 =A/S+Castorcake.

(2) 3 times of application : T_1 =15 days before planting, T_2 =At planting and T_3 =30 days after planting.

Each manure in (1) to give 100 lb./ac. of N.

3. DESIGN :

(i) 3×3 Fact. in R.B.D. (ii) (a) 9. (b) N.A. (iii) 3. (iv) (a) 60.5'×24'. (b) 60.5'×18'. (v) One row on each side of width. (vi) Yes.

4. GENERAL :

(i) N.A. (ii) N.A. (iii) No. of mature stalks, [sucrose % and sugarcane yield. (iv) (a) 1948-1952. (b) No. (c) Nil. (v) (a) None. (b) Nil. (vi) and (vii) Nil.

5. RESULTS :

(i) 13.19 ton/ac.

(ii) 1.37 ton/ac.

(iii) Main effect of T is highly significant. Interaction $M \times T$ is significant. Main effect of M is not significant.

(iv) Av. yield of cane in ton/ac.

	T_1	T_2	T_3	Mean
M_1	14.89	15.70	10.01	13.53
M_2	15.72	13.49	8.75	12.65
M_3	13.17	12.54	14.44	13.38
Mean	14.59	13.91	11.07	13.19

S.E. of any marginal mean =0.457 ton/ac.

S.E. of body of table =0.791 ton/ac.

Crop :- Sugarcane.
Site :- C.S.R.S. Pusa.

Ref :- Bh. 49(8).
Type :- 'M'.

Object :—To find out the best time of application of organic and inorganic manures.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Sugarcane. (c) N.A. (ii) (a) Sandy loam. (b) N.A. (iii) 14th and 15th Feb. 1949. (iv) (a) 4 ploughings. (b) Row planting. (c) 65, three budded setts/row. (e) —. (v) Nil. (vi) BO. 11. (vii) Unirrigated. (viii) Hoeing, weeding and earthing up. (ix) 63.40". (x) 4th Jan. 1950.

2. TREATMENTS :

All combinations of (1) and (2)

(1) 3 manures : M_1 =G.N.C., M_2 =A/S and M_3 =A/S+G.N.C.

(2) 3 times of application : T_1 =15 days before planting, T_2 =At planting and T_3 =30 days after planting.

Each manure in (1) to give 100 lb./ac. of N.

3. DESIGN :

(i) 3×3 Fact. in R.B.D. (ii) (a) 9. (b) N.A. (iii) 5. (iv) (a) 60.5'×24'. (b) 60.5'×18'. (v) Rows of 3' on each side of width. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Nil. (iii) Cane yield, count of mature stalks and sucrose %. (iv) (a) 1948-1952. (b) No. (c) Nil. (v) (a) No. (b) Nil. (vi) and (vii) Nil.

5. RESULTS :

- (i) 24.67 ton/ac.
 (ii) 1.043 ton/ac.
 (iii) Main effect of M is highly significant. Main effect of T is significant. Interaction is not significant.
 (iv) Av. yield of cane in ton/ac.

	T ₁	T ₂	T ₃	Mean
M ₁	27.60	26.90	25.40	26.63
M ₂	21.45	23.88	21.15	22.16
M ₃	25.90	26.29	23.00	25.23
Mean	24.98	25.69	23.35	24.67

S.E. of any marginal mean = 0.269 ton/ac.
 S.E. of body of table = 0.466 ton/ac.

Crop :- Sugarcane.

Ref :- Bh. 50(19).

Site :- C.S.R.S. Pusa.

Type :- 'M'.

Object :- To find out suitable time of application of organic and inorganic manures.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Sunnhemp. (c) Nil. (ii) (a) Light loam. (b) N.A. (iii) 13.2.50. (iv) (a) 4 ploughings. (b) Row planting. (c) 64, three budded sets/row. (d) Between rows 3 ft. (e) —. (v) G.M. details N.A. (vi) BO. 11. (vii) N.A. (viii) Hoeing, weeding and earthing up. (ix) 38.57". (x) 14.2.51 to 6.2.51.

2. TREATMENTS :

All combinations of (1) and (2)

(1) 3 manures : M₁=G.N.C., M₂=A/S and M₃=A/S+G.N.C.

(2) 3 times of application : T₁=15 days before planting, T₂=At planting and T₃=30 days after planting.

Each manure at (1) to give 100 lb./ac. of N.

3. DESIGN :

(i) 3×3 Fact. in R.B.D. (ii) (a) 9. (b) N.A. (iii) 6. (iv) (a) 60.5'×24'. (b) 60.5'×18'. (v) 1 row of 3' width along length on both sides. (vi) Yes.

4. GENERAL :

(i) N.A. (ii) N.A. (iii) Cane yield, sucrose % and counting of mature stalks. (iv) (a) 1948-1952. (b) No (c) Nil. (v) (a) None. (b) Nil. (vi) and (vii) Nil.

5. RESULTS :

- (i) 22.75 ton/ac.
 (ii) 1.502 ton/ac.
 (iii) Main effects of M and T are significant, while their interaction is not significant.

(iv) Av. yield of cane in ton/ac.

	T ₁	T ₂	T ₃	Mean.
M ₁	24.58	25.15	22.49	24.07
M ₂	21.57	20.34	19.41	20.44
M ₃	25.75	24.39	21.07	23.74
Mean.	22.97	23.29	20.99	22.75

S.E. of any marginal mean =0.354 ton/ac.
 S.E. of body of table =0.613 ton/ac.

Crop :- Sugarcane.
 Site :- C.S.R.S. Pusa.

Ref :- Bh. 51(26).
 Type :- 'M'.

Object :—To find out the best time of application of organic and inorganic manures on Sugarcane yield.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Sugarcane. (c) N.A. (ii) (a) Medium loam. (b) N.A. (iii) 24.2.51. (iv) (a) 4 ploughings. (b) Row planting. (c) 64, three budded setts/row. (d) Between rows 3'. (e) —. (v) Nil. (vi) BO. 11 (vii) Irrigated. (viii) Hoeing, weeding & earthing up. (ix) 28.05%. (x) 1st week of March 1952.

2. TREATMENTS :

All combinations of (1) and (2)

(1) 3 manures : M₁=Mustard cake, M₂=A/S and M₃=Mustard cake+A/S.

(2) 3 times of application : T₁=15 days before planting, T₂=At planting and T₃=30 days after planting.

Each manure in (1) to give 100 lb./ac. of N. Method of application of manures N.A.

3. DESIGN :

(i) 3×3 Fact. in R.B.D. (ii) (a) 9. (b) N.A. (iii) 6. (iv) (a) 60.5'×24'. (b) 60.5'×18'. (v) Rows of 3' on either side of width. (vi) Yes.

4. GENERAL :

(i) N.A. (ii) N.A. (iii) Cane yield, sucrose % and count of mature stalks. (iv) (a) 1948–1952. (b) No. (c) Nil. (v) (a) No. (b)—. (vi) Nil. (vii) Information on experiment conducted during 1952 : N.A.

5. RESULTS :

(i) 23.94 ton/ac.

(ii) 1.105 ton/ac.

(iii) Main effect of M is highly significant. No other effect is significant.

(iv) Av. yield of sugarcane in ton/ac.

	T ₁	T ₂	T ₃	Mean
M ₁	25.81	25.65	24.50	25.32
M ₂	21.57	23.04	22.59	22.40
M ₃	24.56	24.51	23.20	24.09
Mean	23.98	24.40	23.43	23.94

S.E. of any marginal mean =0.260 ton/ac.
 S.E. of body of table =0.451 ton/ac.

Crop :- Sugarcane.
Site :- C.S.R.S. Pusa.

Ref. :- Bh. 51(20).
Type :- 'M'.

Object :- To compare organic manures (compost) with inorganic manures (A/S) in combination with Single Super on Sugarcane yield.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Sugarcane. (c) N.A. (ii) (a) Medium loam. (b) N.A. (iii) 23.2.51. (iv) (a) 4 ploughings (b) Row planting. (c) 60, three budded setts/row. (d) Between rows 3'. (e) —. (v) Nil. (vi) BO. 11. (vii) Unirrigated. (viii) Hoeing, weeding and earthing up. (ix) 28.19". (x) 27.3.52.

2. TREATMENTS :

1. Compost+Single Super to supply 40 lb. N/ac.+ 50 lb. P_2O_5 /ac.
2. A/S +Single Super to supply 40 lb. N/ac.+ 50 lb. P_2O_5 /ac.
3. Compost+Single Super to supply 80 lb. N/ac.+100 lb. P_2O_5 /ac.
4. A/S +Single Super to supply 80 lb. N/ac.+100 lb P_2O_5 /ac.
5. Compost+Single Super to supply 120 lb. N/ac.+150 lb. P_2O_5 /ac.
6. A/S +Single Super to supply 120 lb N/ac.+150 lb. P_2O_5 /ac.
7. Compost+Single Super to supply 160 lb. N/ac.+200 lb. P_2O_5 /ac.
8. A/S +Single Super to supply 160 lb. N/ac.+200 lb. P_2O_5 /ac.
9. Compost+Single Super to supply 200 lb. N/ac.+250 lb. P_2O_5 /ac.
10. A/S +Single Super to supply 200 lb. N/ac.+250 lb. P_2O_5 /ac.
11. Control (no manure).

3. DESIGN :

(i) B.I.B.D. Parameters are $r=5$, $t=11$, $k=5$, $b=11$, $\lambda=2$. (ii) (a) 5. (b) N.A. (iii) 5. (iv) (a) 60.5' x 24'. (b) 60.5' x 18'. (v) Rows of 3' on either side of width. (vi) Yes.

4. GENERAL .

(i) Satisfactory. (ii) N.A. (iii) Cane yield, sucrose % and count of mature stalks. (iv) (a) 1951—1954. (b) No. (c) Nil. (v) (a) No. (b) o. (vi) Nil. (vii) Data analysed as R.B.D.

5. RESULTS :

- (i) 14.78 ton/ac.
- (ii) 4.184 ton/ac.
- (iii) None of the effects is significant.
- (iv) Av. yield of cane in ton/ac.

Treatment	Av. yield	Treatment	Av. yield
1.	14.37	7.	14.20
2.	15.66	8.	12.28
3.	14.61	9.	15.67
4.	13.91	10.	15.35
5.	13.86	11.	16.33
6.	16.29		
S.E./mean	= 1.871 ton/ac.		

Crop :- Sugarcane.
Site :- C.S.R.S. Pusa.

Ref :- Bh. 52(30).
Type :- 'M'.

Object :- To compare organic manure (compost) with inorganic manures (A/S) in combination with Single Super.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Sugarcane. (c) N.A. (ii) (a) Clay loam. (b) N.A. (iii) 4.1.1952. (iv) (a) 4 bullock ploughings. (b) Row planting. (c) 60, three budded setts/rows. (d) Between rows 3'. (e) —. (v) Nil. (vi) BO. 11 (early). (vii) Unirrigated (viii) Hoeing, earthing and weeding. (ix) 47.71". (x) 2.1.1953.

2. TREATMENTS :

1. Compost+Single Super to supply 40 lb./ac. of N+50 lb./ac. of P_2O_5 .
2. A/S +Single Super to supply 40 lb./ac. of N+50 lb./ac. of P_2O_5 .
3. Compost+Single Super to supply 80 lb./ac. of N+100 lb./ac. of P_2O_5 .
4. A/S +Single Super to supply 80 lb./ac. of N+100 lb./ac. of P_2O_5 .
5. Compost +Single Super to supply 120 lb./ac. of N+150 lb./ac. of P_2O_5 .
6. A/S +Single Super to supply 120 lb./ac. of N+150 lb./ac. of P_2O_5 .

7. Compost + Single Super to supply 160 lb./ac. of N+200 lb./ac. of P_2O_5 .
8. A/S + Single Super to supply 160 lb./ac. of N+200 lb./ac. of P_2O_5 .
9. Compost + Single Super to supply 200 lb./ac. of N+250 lb./ac. of P_2O_5 .
10. A/S + Single Super to supply 200 lb./ac. of N +250 lb./ac. of P_2O_5 .
11. Control (no manure).

Time & method of application of manures : N.A.

3. DESIGN :

- (i) B.I.B.D. Parameters are $\lambda = 5$, $t = 11$. $\lambda = 5$, $b = 11$, $\lambda = 2$. (ii) (a) 5. (b) N.A. (iii) 5. (iv) (a) $60.5' \times 24'$. (b) $60.5' \times 18'$. (v) Rows of 3' on either side of width. (vi) Yes.

4. GENERAL :

- (i) Good. (ii) Nil. (iii) Cane yield, sucrose %, and count of mature stalks. (iv) 1951—1954. (b) No. (c) Nil. (v) (a) Zonal Centres, Pachrukhi, Motihari, Majhulia etc. (b) Nil. (vi) Nil. (vii) Data analysed as R.B.D.

5. RESULTS :

- (i) 20.35 ton/ac.
(ii) 1.84 ton/ac.
(iii) Treatment differences are highly significant.
(iv) Av. yield of cane in ton/ac.

Treatment	Av. yield	Treatment	Av. yield
1.	20.44	7.	22.86
2.	19.63	8.	17.95
3.	22.61	9.	18.94
4.	22.53	10.	22.09
5.	22.83	11.	15.71
6.	18.31		
S.E./mean	=0.823 ton/ac.		

Crop :- Sugarcane.
Site :- C.S.R.S. Pusa.

Ref :- Bh. 53(107).
Type :- 'M'.

Object :- To compare organic manures (compost) with inorganic manures (A/S) in combination with Single Super.

1. BASAL CONDITIONS :

- (i) (a) Sugarcane—Pulse—Barley—*Sanai* (G.M.). (b) *Sanai* (G.M.). (c) Nil. (ii) (a) Sandy clay loam to loam in texture. (b) Org. C. low, Org. N medium to low, C/N ratio narrow. Total Phosphate medium to high, Available Phosphate very low, Soil reaction strongly alkaline. (iii) 22.2.1953. (iv) (a) Harrowing once and mould-board ploughing each followed by Hinga. Again discing followed by sub-soiling. (b) Furrow planting; end to end planting. (c) 60, three budded setts/row. (d) 3' apart. (e) —. (v) Nil. (vi) BO. 11. (early). (vii) Nil. (viii) Fortnightly intercultural operations after germination till the end of May. Earthing up in mid-June. (ix) 46.03° . (x) 1st week of Jan. 1954.

2. TREATMENTS :

1. Compost + Single Super to supply 40 lb./ac. of N+ 50 lb./ac. of P_2O_5 .
2. A/S + Single Super to supply 40 lb./ac. of N+ 50 lb./ac. of P_2O_5 .
3. Compost + Single Super to supply 80 lb./ac. of N+100 lb./ac. of P_2O_5 .
4. A/s + Single Super to supply 80 lb./ac. of N+100 lb./ac. of P_2O_5 .
5. Compost + Single Super to supply 120 lb./ac. of N+150 lb./ac. of P_2O_5 .
6. A/S + Single Super to supply 120 lb./ac. of N+150 lb./ac. of P_2O_5 .
7. Compost + Single Super to supply 160 lb./ac. of N+200 lb./ac. of P_2O_5 .
8. A/S + Single Super to supply 160 lb./ac. of N+200 lb./ac. of P_2O_5 .
9. Compost + Single Super to supply 200 lb./ac. of N+250 lb./ac. of P_2O_5 .
10. A/S + Single Super to supply 200 lb./ac. of N+250 lb./ac. of P_2O_5 .
11. Control.

Time and method of application of manures N.A.

3. DESIGN :

(i) B.I.B.D. Parameters are $b=t=11$; $\lambda=2$, $k=5=r$. (ii) (a) 5. (b) N.A. (iii) 5. (iv) (a) 60.5'×24'. (b) 60.5'×18'. (v) Rows of 3' on either side of width. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Borer incidence noted—dead hearts removed during the early period of the growth. On controlling termite infection, Alderine was applied at planting and 3 months after. (iii) Germination %, tillering, height, no. of mature stalks, sucrose % and cane yield. (iv) (a) 1951—1954. (b) No. (c) Nil. (v) (a) No. (b) Nil. (vi) Nil (vii) Data analysed as R.B.D.

5. RESULTS :

- (i) 16.18 ton/ac.
 (ii) 2.81 ton/ac.
 (iii) Treatments do not differ significantly.
 (iv) Av. yield of cane in ton/ac.

Treatment	Av. yield	Treatment	Av. yield
1.	15.92	7.	17.24
2.	16.31	8.	16.97
3.	16.64	9.	15.04
4.	14.54	10.	15.41
5.	18.90	11.	15.17
6.	15.85		

S.E./mean = 1.25 ton/ac.

Crop :- Sugarcane.

Site :- C.S.R.S. Pusa.

Ref :- Bh. 48(4).

Type :- 'M'.

Object :- To find out the optimum dose of different cakes.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) N.A. (c) N.A. (ii) (a) Heavy loam. (b) N.A. (iii) 21/22.2.1948. (iv) (a) 4 ploughings followed by beaming. (b) Flat planting. (c) 60, three budded scotts/row. (d) Rows 3' apart. (e) —. (v) Nil. (vi) BO. 11. (vii) Irrigated. (viii) 2 hoeings, weedings and earthing up. (ix) 46.50". (x) 5th/8th Feb. 1949.

2. TREATMENTS :

All combinations of (1) and (2)+a Control.

- (1) 2 doses of $N+P_2O_5$
 $N_1P_1=40$ lb./ac. of N+50 lb./ac. of P_2O_5 .
 $N_2P_2=80$ lb./ac. of N+100 lb./ac. of P_2O_5 .
 (2) 4 sources of $N+P_2O_5$
 M_1 =Mustard cake+Triple Super.
 M_2 =Castor cake+Triple Super.
 M_3 =G.N.C.+Triple Super.
 M_4 =Linseed cake+Triple Super.

3. DESIGN :

(i) R.B.D. (ii) (a) 9. (b) N.A. (iii) 2. (iv) (a) 60.5'×24'. (b) 60.5'×18'. (v) One row of 3' on each side of width. (vi) Yes.

4. GENERAL :

(i) N.A. (ii) Nil. (iii) No. of mature stalks, sucrose %, and sugarcane yield. (iv) (a) 1948—1949. (b) F.O. (c) No. (v) (a) None. (b) No. (vi) and (vii) Nil.

5. RESULTS :

- (i) 18.96 ton/ac.
 (ii) 4.18 ton/ac.
 (iii) None of the effects is significant.

(iv) Av. yield of cane in ton/ac.

	Control = 16.07 ton/ac.				Mean
	M ₁	M ₂	M ₃	M ₄	
N ₁ P ₁	22.06	23.63	21.29	13.03	20.00
N ₂ P ₂	19.12	14.68	18.61	22.17	18.64
Mean	20.59	19.16	19.95	17.60	19.32

1. S.E. of body of table = 2.96 ton/ac.
2. S.E. of marginal mean of doses = 1.47 ton/ac.
3. S.E. of marginal mean of sources = 2.09 ton/ac.

Crop :- Sugarcane.
Site :- C.S.R.S. Pusa.

Ref :- Bh. 49(9).
Type :- 'M'.

Object :- To find out the optimum dose of different cakes in combination with triple Super.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Sugarcane. (c) N.A. (ii) (a) Light loam. (b) N.A. (iii) 20th Feb. 1949. (iv) (a) 4 ploughings. (b) Row planting. (c) 64 three budded setts/row. (d) N.A. (e) —. (v) Nil. (vi) BO. 11. (vii) Unirrigated. (viii) Hoeing, weeding etc. (ix) 63.25". (x) 16th January, 1950.

2. TREATMENTS :

All combinations of (1) & (2) + a Control (no manure).

(1) 2 doses of N+P₂O₅ : N₁P₁=40 lb./ac. of N+50 lb./ac. of P₂O₅, and
N₂P₂=80 lb./ac. of N+100 lb./ac. of P₂O₅.

(2) 4 sources of N+P₂O₅ : M₁=Mustard cake+Triple Super. M₂=Castor cake+Triple Super.
M₃=G.N.C.+Triple Super and M₄=Linseed cake+Triple Super.

3. DESIGN :

(i) R.B.D. (ii) (a) 9. (b) N.A. (iii) 6. (iv) 60.5' × 24' (b) 60.5' × 18' (v) 3' on each side of width. (vi) Yes.

4. GENERAL :

(i) N.A. (ii) Nil. (iii) Cane yield, mature stalk count and sucrose %. (iv) (a) 1948—1949. (b) Nil. (c) Nil. (v) (a) None. (b) Nil. (vi) & (vii) Nil.

5. RESULTS :

- (i) 27.51 ton/ac.
- (ii) 2.196 ton/ac.
- (iii) Overall treatment differences are significant. Control vs. other treatments is significant. Other effects & interaction are not significant.
- (iv) Av. yield of sugarcane in ton/ac.

	Control = 24.75 ton/ac.				Mean
	M ₁	M ₂	M ₃	M ₄	
N ₁ P ₁	28.37	27.53	26.75	27.43	27.52
N ₂ P ₂	27.72	28.17	27.28	29.59	28.19
Mean	28.04	27.85	27.01	28.51	27.85

- S.E. of mean in body of table = 0.897 ton/ac.
- S.E. of marginal mean of doses = 0.448 ton/ac.
- S.E. of marginal mean of sources = 0.634 ton/ac.

Crop :- Sugarcane.
Site :- C.S.R.S. Pusa.

Ref :- Bh. 51(23).
Type :- 'M'.

Object :- To find out the economic value of different cakes on Sugarcane yield.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Sugarcane. (c) N.A. (ii) (a) Medium loam. (b) N.A. (iii) 17th & 18th Feb. 1951. (iv) (a) 4 ploughings. (b) Row planting. (c) 64, three budded setts/row. (d) Nil. (e) — (v) Nil. (vi) BO. 11. (vii) Irrigated. (viii) Hoeing, earthing and weeding. (ix) 28.00". (x) 2nd week of March 1952.

2. TREATMENTS :

All combinations of (1) and (2); +a Control (no manure).

(1) 2 doses of N: $N_1=40$ and $N_2=80$ lb./ac.

(2) 4 sources of N: Mustard cake (M.C.), Castor cake (C.C.), G.N.C., and Linseed cake (L.C).

Time & method of application of treatments : N.A.

3. DESIGN :

(i) R.B.D. (ii) (a) 9. (b) N.A. (iii) 4. (iv) (a) $60.5' \times 24'$. (b) $60.5' \times 18'$. (v) Rows of 3' on each side of width. (vi) Yes.

4. GENERAL :

(i) N.A. (ii) Cane stem borers. (iii) Cane yield, sucrose % and counting of mature stalks. (iv) (a) No. (b) Nil. (c) Nil. (v) (a) No. (b) Nil. (vi) & (vii) Nil.

5. RESULTS :

(i) 23.76 ton/ac.

(ii) 2.459 ton/ac.

(iii) Overall treatment differences are highly significant. Further 'control vs. other treatments' is highly significant while all other effects are significant.

(iv) Av. yield of sugarcane in ton/ac.

Control = 18.64 ton/ac.

	M.C.	C.C.	G.N.C.	L.C.	Mean
N_1	24.11	22.06	23.38	23.56	23.28
N_2	27.56	22.90	25.29	26.31	25.52
Mean	25.84	22.48	24.34	24.94	24.40

S.E. of body of table = 1.23 ton/ac.

S.E. of marginal means of doses = 0.615 ton/ac.

S.E. of marginal means of sources = 0.869 ton/ac.

Crop :- Sugarcane.
Site :- C.S.R.S. Pusa.

Ref :- Bh. 48 (3).
Type :- 'M'.

Object :- To find the suitable method of application of Mustard cake and A/S.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Sugarcane. (c) N.A. (ii) (a) Heavy loam. (b) N.A. (iii) 24'/26.2.1948. (iv) (a) 4 ploughings followed by beaming. (b) Flat planting. (c) 60, three budded setts/row. (d) Rows 3' apart. (e) —. (v) Nil. (vi) BO. 11. (vii) Irrigated. (viii) 2 hoeings, weedings and earthings. (ix) 47.55". (x) 8th to 11th Feb. 1949.

2. TREATMENTS :

All combinations of (1) and (2)

(1) 2 sources of N : A/S and Mustard cake.

(2) 5 methods of application : M_1 =In rows 8" deep (before planting), M_2 =In rows 4" deep (before planting), M_3 =Broadcast (before planting), M_4 =In furrows along rows (after germination). and M_5 =Dibbling along rows (after germination).

Each source in (1) to give 40 lb./ac. of

3. DESIGN :

(i) R.B.D. (Fact.). (ii) (a) 10. (b) N.A. (iii) 3. (iv) (a) 60.5' × 24'. (b) 60.5' × 18'. (v) One row on each side of width. (vi) Yes.

4. GENERAL :

(i) N.A. (ii) Nil. (iii) No. of mature stalks, sucrose%, sugarcane yield. (iv) (a) 1948—1949. (b) No. (c) No. (v) (a) None. (b) N.A. (vi) Nil. (vii) Initially replications were laid out only 3 replications considered for analysis, as in replication IV yields of some plots were very low due to unfertile patch of land.

5. RESULTS :

- (i) 25.06 ton/ac.
 (ii) 3.78 ton/ac.
 (iii) None of the effects is significant.
 (iv) Av. yield of sugarcane in ton/ac.

	M ₁	M ₂	M ₃	M ₄	M ₅	Mean
A/S	25.48	23.93	24.6	23.67	23.7	23.87
Mustard cake	27.01	25.25	27.82	26.63	24.59	26.26
Mean	26.25	24.59	25.1	25.15	24.14	25.06

S.E. of the marginal mean of M = 1.54 ton/ac.
 S.E. of the marginal mean of source = 0.97 ton/ac.
 S.E. of body of table = 2.18 ton/ac.

Crop :- Sugarcane.

Ref :- Bh. 49 (13).

Site :- C.S.R.S. Pusa.

Type :- 'M'.

Object :- To find the suitable method of application of Mustard cake and A/S.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Sugarcane. (c) N.A. (ii) (a) Heavy loam soil. (b) N.A. (iii) 19th and 20th Jan. 1949. (iv) (a) 4 ploughings. (b) Row planting. (c) 60, three budded setts/row. (d) Rows 3' apart (e) —. (v) 40 lb./ac. of N as F.Y.M. one month before planting and 6 lb./ac. of N afterwards. (vi) BO. 11. (vii) Unirrigated. (viii) Hoeing, weeding and earthing. (ix) 66.5%. (x) 24th and 27th Feb. 1950.

2. TREATMENTS :

All combinations of (1) and (2)

- (1) 2 sources of N : A/S and Mustard cake
 (2) 5 methods of application :

M₁=In rows 8" deep, M₂=In rows 4" deep, M₃=Broadcast, M₄=In furrows along rows (after germination) and M₅=Dibbling along rows (after germination).

Amount of A/S and Mustard cake applied N.A.

3. DESIGN :

(i) 2×5 Fact. in R.B.D. (ii) (a) 10. (b) N.A. (iii) 4. (iv) (a) 60.5' × 24'. (b) 60.5' × 18'. (v) Rows of 3' on each side of width. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Top borers were noticed. (iii) Cane yield, mature stalk count and sucrose %. (iv) (a) 1948—1949. (b) No. (c) Nil. (v) (a) None. (b) No. (vi) and (vii) Nil.

5. RESULTS :

- (i) 26.60 ton/ac.
 (ii) 2.572 ton/ac.
 (iii) None of the effects is significant.

(iv) Av. yield of sugarcane in ton/ac.

	M ₁	M ₂	M ₃	M ₄	M ₅	Mean
A/S	27.12	26.88	25.74	26.43	27.48	26.73
Mustard cake	26.63	26.71	26.59	26.70	25.77	26.48
Mean	26.87	26.80	26.17	26.56	26.62	26.60

S.E. of the body of table = 1.286 ton/ac.

S.E. of marginal mean of sources = 0.575 ton/ac.

S.E. of marginal mean of methods of application = 0.909 ton/ac.

Crop :- Sugarcane.

Ref :- Bh. 52 (35).

Site :- C.S.R.S. Pusa.

Type :- 'M'.

Object :- To compare the mixture fertilizer with standard manures.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Sugarcane. (c) N.A. (ii) (a) Clay loam. (b) N.A. (iii) 5/6.4.52. (iv) (a) 4 ploughings. (b) Row planting. (c) 75, three-budded setts/row. (d) 3' between rows. (e) — (v) Nil. (vi) BO. 11 (early) (vii) Unirrigated. (viii) Hoeing, earthing and weeding. (ix) 46.90". (x) 23.4.53.

2. TREATMENTS :

1. Control (no manure).
 2. Mixture at 30 lb./ac. of N.
 3. Mixture at 60 lb./ac. of N.
 4. Standard dose at 40 lb./ac. of N+50 lb./ac. of P₂O₅.
 5. Standard dose at 60 lb./ac. of N+75 lb./ac. of P₂O₅.
 Mixture :- Castor cake, G.N.C. and Linseedcake in ratio of 1 : 1 : 1.

3. DESIGN

(i) R.B.D. (ii) (a) 5. (b) N.A. (iii) 6. (iv) (a) 72.5' × 21'. (b) 72.5' × 15'. (v) Rows of 3' on each side of width. (vi) Yes.

4. GENERAL :

(i) Very poor. (ii) Attack by termites noticed. (iii) Cane yield, sucrose% and count of mature stalks. (iv) (a) No. (b) No. (c) No. (v) (a) None. (b) No. (vi) and (vii) Nil.

5. RESULTS :

(i) 3.730 ton/ac.
 (ii) 1.825 ton/ac.
 (iii) Treatment differences are significant.
 (iv) Av. yield of sugarcane in ton/ac.

Treatment	Av. yield
1.	4.16
2.	1.81
3.	4.23
4.	2.66
5.	5.77
S.E./mean	= 0.745 ton/ac.

Crop :- Sugarcane.
Site :- C.S.R.S. Pusa.

Ref :- Bh. 53(117).
Type :- 'M'.

Object :- To test the release of available P_2O_5 and its uptake by Sugarcane in calcareous soil under conditions of organic manuring.

1. BASAL CONDITIONS :

(i) (a) *Sanai*—Sugarcane—*Sanai*. (b) *Sanai*. (c) Nil. (ii) (a) Sandy loam to silty loam with normal to deep saline phase (b) Org. C and Org. N are low and C : N ratio narrow to normal. Total P_2O_5 is medium to high. Available Phosphate very low. Soil reaction is strongly alkaline. (iii) 23rd and 24th February, 1953. (iv) (a) Harrowing once and mould board ploughing each followed by *Hinga*. Again discing followed by sub-soiling. (b) Furrow planting end to end planting. (c) 42, three-budded setts/row. (d) 3' apart. (e) —. (v) No manure. (vi) BO. 11 (Early). (vii) Irrigated. (viii) Fortnightly intercultural operations after germination till the end of May. Earthing up in mid. June. (ix) 46.03". (x) 21.1.54 to 24.1.54.

2. TREATMENTS :

1. Control (no manure).
 2. 25 lb./ac. of P_2O_5 as Single Super.
 3. 50 lb./ac. of P_2O_5 as Single Super.
 4. 25 lb./ac. of P_2O_5 as Single Super+400 lb./ac. of Cane trash compost.
 5. 50 lb./ac. of P_2O_5 as Single Super+800 lb./ac. of Cane trash compost.
- Time & method of application of manures N.A.

3. DESIGN :

(i) R.B.D. (ii) (a) 5. (b) N.A. (iii) 6. (iv) (a) 40' x 33'. (b) 40' x 27'. (v) Rows of 3' on each side of the width. (vi) Yes.

4. GENERAL :

(i) N.A. (ii) N.A. (iii) No of tillers and cane yield. (iv) (a) 1951—contd. (b) No. (c) Nil. (v) (a) Nowhere. (b) No. (vi) & (vii) Nil.

5. RESULTS :

- (i) 17.94 ton/ac.
(ii) 1.60 ton/ac.
(iii) Treatments differ highly significantly.
(iv) Av. yield of sugarcane in ton/ac.

Treatment	Av. yield
1.	15.89
2.	17.12
3.	18.24
4.	18.29
5.	20.18
S.E./mean	= 0.65 ton/ac.

Crop :- Sugarcane.
Site :- C.S.R.S. Pusa.

Ref :- Bh. 53(116).
Type :- 'M'.

Object :- To test the release of available P_2O_5 and its uptake by Sugarcane in calcareous soil under conditions of organic manuring (F.Y.M.)

1. BASAL CONDITIONS :

(i) (a) *Sanai*—Sugarcane—*Sanai*. (b) *Sanai*. (c) Nil. (ii) (a) Texture sandy loam to silty loam with normal to deep saline phase. (b) Org. C and Org. N are low and C : N ratio narrow to normal. Total P_2O_5 is medium to high. Available Phosphate very low. Soil reaction is strongly alkaline. (iii) 20th and 21st Feb., 1953 (iv) (a) Harrowing once and mould board ploughing each followed by *Hinga*. Again discing followed by sub-soiling. (b) Furrow planting. (c) 64, three budded setts/row. (d) 3' apart. (e) —. (v) Nil. (vi) BO. 11. (Early). (vii) Irrigated. (viii) Fortnightly intercultural operations after germination till the end of May. Earthing up in mid-June. (ix) 46.33". (x) 16.2.54 to 17.2.54.

2. TREATMENTS :

1. Control (no manure).
2. 25 lb./ac. of P_2O_5 as Single Super.
3. 50 lb./ac. of P_2O_5 as Single Super.
4. 25 lb./ac. of P_2O_5 as Single Super+400 lb./ac. of Cane trash compost.
5. 50 lb./ac. of P_2O_5 as Single Super+800 lb./ac. of Cane trash compost.

3. DESIGN :

(i) R.B.D. (ii) (a) 5. (b) N.A. (iii) 6. (iv) (a) 60.5' × 24'. (b) 60.5' × 18'. (v) Yes—one row of non-experimental on either side of the plot. (vi) Yes.

4. GENERAL :

(i) N.A. (ii) N.A. (iii) No. of tillers & cane yield. (iv) (a) 1951-1953. (b) No. (c) Nil. (v) (a) No. (b) No. (vi) & (vii) Nil.

5. RESULTS :

- (i) 21.64 ton/ac.
 (ii) 1.75 ton/ac.
 (iii) Treatments do not differ significantly.
 (iv) Av. yield of sugarcane in ton/ac.

Treatment	Av. yield
1.	20.50
2.	21.67
3.	21.80
4.	21.37
5.	22.88
S.E./mean	= 0.71 ton/ac.

Crop :- Sugarcane.
 Site :- C.S.R.S. Pusa.

Ref :- Bh. 50(13).
 Type :- 'M'.

Object :- To find out the effect of N, P₂O₅ and K₂O applied alone and in combinations.

1. BASAL CONDITIONS :

(i) (a) *Sanai*—Sugarcane—*Sanai*. (b) *Sanai*. (c) Nil. (ii) (a) Medium loamy soil. (b) N.A. (iii) 22nd to 25th July 1950. (iv) (a) 4 ploughings. (b) Row planting. (c) 90, three budded setts/row. (d) 3' between rows. (e) —. (v) G.M. (*Sanai*). (vi) BO. 11. (vii) Unirrigated. (viii) Hoeing, earthing & weeding. (ix) N.A. (x) N.A.

2. TREATMENTS :

All combinations of (1), (2) and (3)

- (1) 3 levels of N : N₀=0, N₁=40 and N₂=80 lb./ac.
 (2) 3 levels of P₂O₅ : P₀=0, P₁=50 and P₂=100 lb./ac.
 (3) 3 levels of K₂O : K₀=0, K₁=80 and K₂=160 lb./ac.

Time & method of application N.A.

3. DESIGN :

(i) 3³ Fact. Confd, with 2nd order interactions partially confd. (ii) (a) 3 blocks/replication. 9 plots/block (b) N.A. (iii) 4. (iv) (a) 80' × 24'. (b) 80' × 12'. (v) 6' wide rows along each side of breadth. (vi) Yes.

4. GENERAL :

(i) N.A. (ii) N.A. (iii) Cane yield, sucrose % and counting of mature stalks. (iv) (a) No. (b) No. (c) Nil. (v) (a) Nil. (b) N.A. (vi) & (vii) Nil.

5. RESULTS :

- (i) 21.69 ton/ac.
 (ii) 5.57 ton/ac.
 (iii) Only main effect of P is significant.

(iv) Av. yield of sugarcane in ton/ac.

	P ₀	P ₁	P ₂	Mean	K ₀	K ₁	K ₂
N ₀	19.75	21.35	21.77	20.96	21.04	21.96	19.88
N ₁	20.38	22.73	23.35	22.15	22.12	23.03	21.30
N ₂	19.19	23.76	22.94	21.97	21.82	20.53	23.56
Mean	19.77	22.61	22.69	21.69	21.66	21.84	21.58
K ₀	18.31	23.49	23.17				
K ₁	20.86	21.87	22.79				
K ₂	20.15	22.48	22.10				

S E. any marginal mean =0.93 ton/ac.
 S.E. of body of table =1.61 ton/ac.

Crop :- Sugarcane.
 Site :- C.S.R.S. Pusa.

Ref :- Bh. 52(34).
 Type :- 'M'.

Object :—To find out the increase in the availability of P₂O₅ in calcareous soil in depth placement and its effects on the yields of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) None. (b) Sugarcane. (c) N.A. (ii) (a) Clay loam. (b) N.A. (iii) 23/24. 2.1952. (iv) (a) 4 bullock ploughings. (b) Row planting. (c) 70, three budded setts/row. (d) 3' between rows. (e)—(v) Nil. (vi) BO. 11 (Early). (vii) Rainfed. (viii) Weeding, hoeing and earthing up. (ix) 48.02%. (x) 6/12. 1.1953.

2. TREATMENTS :

1. No manure.
2. 75 lb/ac. of P₂O₅ as usual.
3. 125 lb/ac. of P₂O₅ as usual.
4. 75 lb/ac. of P₂O₅ applied 8" deep.
5. 125 lb/ac. of P₂O₅ applied 8" deep.
6. 75 lb/ac. of P₂O₅ applied 8" deep with A/S at 300 lb/ac.
7. 125 lb/ac. of P₂O₅ applied 8" deep with A/S at 500 lb/ac.
8. 75 lb/ac. of P₂O₅ as usual with A/S at 300 lb/ac.
9. 125 lb/ac. of P₂O₅ as usual with A/S at 500 lb/ac.

Time and method of application of manures : N.A.

3. DESIGN :

(i) R.B.D. (ii) (a) 9. (b) N.A. (iii) 4. (iv) (a) 66'×21'. (b) 66'×15'. (v) Rows of 3' width along breadth on both sides. (vi) Yes.

4. GENERAL :

(i) Fair. (ii) Nil. (iii) Cane yield, sucrose %, and count of mature stalks. (iv) (a) No. (b) Nil. (c) No. (v) (a) None. (b) N.A. (vi) & (vii) Nil

5. RESULTS :

- (i) 13.83 ton/ac.
- (ii) 3.179 ton/ac.
- (iii) Treatments do not differ significantly.

(iv) Av. yield of sugarcane in ton/ac.

Treatment	Av. yield
1.	14.04
2.	15.03
3.	12.02
4.	14.51
5.	14.56
6.	15.92
7.	13.81
8.	11.58
9.	12.96
S.E./mean	= 1.59 ton/ac.

Crop :- Sugarcane.
Site :- C.S.R.S. Pusa.

Ref :- Bh. 53(108).
Type :- 'M'.

Object :- To find out the increase in the availability of phosphate in calcareous soil in depth placement and the effect on the yield of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) Sugarcane—Pulses—Barley—*Sanai* (G M.). (b) *Sanai* (G.M.). (c) Nil. (ii) (a) Sandy clay loam in texture. (b) Org. C. low, Org. N Medium to low. C/N Ratio narrow. Total Phosphate medium to high. Available Phosphate very low, soil reaction strongly alkaline. (iii) 24.2.53. (iv) (a) Harrowing once and mould board ploughing each followed by Hinga. Again discing followed by sub-soiling. (b) Furrow planting, end to end planting. (c) 60, three budded setts/row. (d) 3' apart. (e)—(v) Nil. (vi) BO. 11. (Early). (vii) Nil. (viii) Fortnightly intercultural operations after germination till the end of May. Earthing up in mid-June. (ix) 46.03%. (x) First week of Jan. 1954.

2. TREATMENTS :

1. No manure.
2. 75 lb/ac. of P_2O_5 at 4" depth.
3. 125 lb/ac. of P_2O_5 at 4" depth.
4. 75 lb/ac. of P_2O_5 at 8" depth.
5. 125 lb/ac. of P_2O_5 at 8" depth.
6. 75 lb/ac. of P_2O_5 at 8" depth + 300 lb/ac. of A/S.
7. 125 lb/ac. of P_2O_5 at 8" depth + 500 lb/ac. of A/S.
8. 75 lb/ac. of P_2O_5 at 4" depth + 300 lb/ac. of A/S.
9. 125 lb/ac. of P_2O_5 at 4" depth + 500 lb/ac. of A/S.

3. DESIGN :

(i) R.B.D. (ii) (a) 9. (b) N.A. (iii) 4. (iv) (a) 60.5' × 24'. (b) 60.5' × 18'. (v) Two rows, one on either side of the sub-plot as non-experimental. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Borer incidence noticed. Dead heart removed. Aldrine was applied at planting. (iii) Germination, tillering, height, no. of mature stalks, sucrose % & sugarcane yield. (iv) (a) 1953—contd. (b) No. (c) Nil. (v) (a) Nil. (b) No. (vi) & (vii) Nil.

5. RESULTS :

- (i) 19.90 ton/ac.
- (ii) 4.98 ton/ac.
- (iii) The treatments do not differ significantly.
- (iv) Av. yield of sugarcane in ton/ac.

Treatment	Av. yield
1.	17.02
2.	18.25
3.	19.85
4.	21.86
5.	21.40
6.	20.24
7.	20.47
8.	17.02
9.	23.02
S.E./mean	= 2.49 ton/ac.

Crop :- Sugarcane.
Site :- C.S.R.S. Pusa.

Ref :- Bh. 49(6).
Type :- 'M'.

Object :—To find out the optimum dose of N, P_2O_5 & K_2O .

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Sugarcane. (c) N.A. (ii) (a) Medium loam soil. (b) N.A. (iii) 24th Feb. 1949. (iv) (a) 4 ploughings. (b) Row planting. (c) 64, three budded setts/row. (d) 3' between rows. (e)—(v) Nil. (vi) BO. 11. (vii) Unirrigated. (viii) Hoeing, earthing and weeding. (ix) 63.07". (x) 24th March 1950.

2. TREATMENTS :

All combinations of (1), (2) and (3)

(1) 3 levels of N : $N_0=0$, $N_1=20$ and $N_2=40$ lb/ac.

(2) 3 levels of P_2O_5 : $P_0=0$, $P_1=25$ and $P_2=50$ lb/ac.

(3) 2 levels of K_2O : $K_0=0$, and $K_1=80$ lb/ac.

N as A/S & P_2O_5 as Super. Time and method of application of manures : N.A.

3. DESIGN :

(i) $3 \times 3 \times 2$ Fact. in R.B.D. (ii) (a) 18. (b) N.A. (iii) 2. (iv) (a) $60.5' \times 24'$. (b) $60.5' \times 18'$. (v) Rows of 3' on each side of width. (vi) Yes.

4. GENERAL :

(i) N.A. (ii) Nil. (iii) Cane yield, count of mature stalk and sucrose %. (iv) (a) N.A. (b) No. (c) Nil. (v) (a) Harinagar, Parsa, Majhulia, Motihari, and Motipur. (b) Nil. (vi) Nil. (vii) Information on experiment conducted during 1948 ; not traceable.

5. RESULTS :

(i) 23.00 ton/ac.
(ii) 1.042 ton/ac.
(iii) The interaction NP alone is highly significant.
(iv) Av. yield of sugarcane in ton/ac.

	P_0	P_1	P_2	Mean	K_0	K_1
N_0	22.09	23.25	22.20	22.51	23.01	22.01
N_1	23.41	22.81	22.18	22.80	23.57	22.03
N_2	24.41	22.69	23.96	23.69	23.92	23.46
Mean	23.30	22.92	22.78	23.00	23.50	22.50
K_0	24.06	23.55	22.89			
K_1	22.55	22.28	22.67			

S.E. of marginal mean of N or P = 0.301 ton/ac.
S.E. of marginal mean of K = 0.245 ton/ac.
S.E. of body of NP table = 0.521 ton/ac.
S.E. of body of NK or PK table = 0.425 ton/ac.

Crop :- Sugarcane.
Site :- C.S.R.S. Pusa.

Ref :- Bh. 50(14).
Type :- 'M'.

Object :—To study the effect of N, P_2O_5 and K_2O on Sugarcane crop.

1. BASAL CONDITIONS :

(i) (a) Maize-Sugarcane-Maize. (b) Maize. (c) N.A. (ii) (a) Medium loam soil. (b) N.A. (iii) 18th to 22nd Jan. 1950. (iv) (a) 4 ploughings. (b) Row planting. (c) 90, three budded setts/row. (d) 3' between rows. (e)—(v) Nil. (vi) BO. 11. (early) (vii) Rainfed. (viii) Hoeing, weeding and earthing up. (x) 38.70". (x) 2nd to 4th Feb. 1951.

2. TREATMENTS :

All combinations of (1), (2) and (3)

- (1) 3 levels of N : $N_0=0$, $N_1=40$ and $N_2=80$ lb./ac.
 (2) 3 levels of P_2O_5 : $P_0=0$, $P_1=50$ and $P_2=100$ lb./ac.
 (3) 3 levels of K_2O : $K_0=0$, $K_1=80$ and $K_2=160$ lb./ac.

N as A/S, P_2O_5 as Single Super and K_2O as Pot-Sul.

3. DESIGN :

- (i) 3rd Fact. in partially confd. (ii) (a) 9 plots/block ; 3 blocks/replication. (b) N.A. (iii) 4. (iv) (a) 80'×24'. (b) 80'×12'. (v) 6' wide rows on two sides of width. (vi) Yes.

4. GENERAL :

- (i) N.A. (ii) N.A. (iii) Cane yield, sucrose % and counting [of mature stalks. (iv) (a) N.A. (b) No. (c) Nil. (v) (a) None. (b) Nil. (vi) and (vii) Nil.

5. RESULTS :

- (i) 16.80 ton/ac.
 (ii) 1.45 ton/ac.
 (iii) Main effect of N is highly significant and main effect of P_2O_5 is significant, while no other effect is significant.
 (iv) Av. yield of cane in ton/ac.

	P_0	P_1	P_2	Mean	K_0	K_1	K_2
N_0	15.10	15.49	14.56	15.05	16.43	14.88	13.85
N_1	14.69	18.16	18.41	17.09	16.62	19.33	15.31
N_2	17.29	20.76	16.70	18.25	18.05	19.70	17.00
Mean	15.69	18.14	16.56	16.80	17.03	17.97	15.39
K_0	14.94	18.74	17.42				
K_1	17.23	17.40	19.28				
K_2	14.91	18.27	12.93				

S.E. of any marginal mean = 0.24 ton/ac.
 S.E. of body of table = 0.42 ton/ac.

Crop :- Sugarcane.

Ref :- Bh. 52 (56).

Site :- Zonal Centre Dehri-on-Sone.

Type :- 'MV'.

Object :- To compare Cakes in combination with Single Super against standard manures.

1. BASAL CONDITIONS :

- (i) (a) Nil. (b) N.A. (c) N.A. (ii) (a) Alluvial non-calcareous. (b) N.A. (iii) N.A. (iv) (a) 4 times ploughed by *Deshi* plough. (b) Flat planting. (c) 60, three budded setts/row. (d) Rows 3' apart. (e) — (v) Nil. (vi) As per treatments. (vii) N.A. (viii) Hoeing, weeding and earthing up. (ix) N.A. (x) N.A.

2. TREATMENTS :

Main-plot treatments :-

2 varieties : $V_1=BO. 11$ and $V_2=CO. 453$.

Sub-plot treatments :-

7 manure mixtures.

Common dose of 60 lb./ac. of N+75 lb./ac. of P_2O_5 in all treatments.

$M_1=A/N+Single\ Super.$

$M_2=Castor\ cake+Single\ Super.$

$M_3=Mustard\ cake+Single\ Super.$

$M_4=Linseed\ cake+Single\ Super.$

$M_5=Mahua\ cake+Single\ Super.$

$M_6=G.N.C.+Single\ Super.$

$M_7=Control\ (no\ manure).$

3. DESIGN :

(i) Split plot. (ii) (a) 2 main-plots/block, 7 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) 60.5'×24'. (b) 60.5'×18'. (v) One row on each side along length. (vi) Yes.

4. GENERAL :

(i) N.A. (ii) Nil. (iii) Sucrose %, no. of mature stalks and sugarcane yield. (iv) (a) 1952-1953. (b) No. (c) Nil. (v) (a) Harinagar, Parsa and Majhulia. (b) None. (vi) Nil. (vii) Experiment conducted during 1953 not traceable.

5. RESULTS :

- (i) 30.14 ton/ac.
 (ii) (a) 1.133 ton/ac.
 (b) 3.982 ton/ac.
 (iii) Main effects of variety and manures are highly significant. Interaction is significant.
 (iv) Av. yield of cane in ton/ac.

	M ₁	M ₂	M ₃	M ₄	M ₅	M ₆	M ₇	Mean
V ₁	33.47	38.17	36.64	32.74	34.63	26.38	25.83	32.55
V ₂	27.93	28.07	31.88	28.66	28.50	30.34	18.78	27.74
Mean	30.70	33.12	34.26	30.70	31.56	28.36	22.31	30.14

S.E. of difference of two

1. variety means =0.303 ton/ac.
 2. manure means =1.991 ton/ac.
 3. manure means at the same level of variety =2.815 ton/ac.
 4. variety means at the same level of manure =2.625 ton/ac.

Crop :- Sugarcane.

Ref :- Bh. 51(49).

Site :- Zonal Centre, Dehri-on-Sone.

Type :- 'MV'.

Object : -To compare effect of A/N with that of A/S in combination with Single Super.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) N.A. (c) N.A. (ii) Alluvial, (non-calareous). (b) N.A. (iii) N.A. (iv) (a) 4 ploughings by *Deshi* plough. (b) Flat planting. (c) 60, three budded setts/row. (d) Rows 3' apart. (e) — (v) N.A. (vi) As per treatment. (vii) N.A. (viii) Hoeing, weeding and earthing up. (ix) N.A. (x) N.A.

2. TREATMENTS :

Main-plot treatments :-

2 varieties : V₁=BO. 11 and V₂=CO. 453.

Sub-plot treatments :-

11 doses of manure :

- M₁ = A/N at 40 lb./ac. of N + Single Super at 50 lb./ac. of P₂O₅.
 M₂ = A/S at 40 lb./ac. of N + Single Super at 50 lb./ac. of P₂O₅.
 M₃ = A/N at 80 lb./ac. of N + Single Super at 100 lb./ac. of P₂O₅.
 M₄ = A/S at 80 lb./ac. of N + Single Super at 100 lb./ac. of P₂O₅.
 M₅ = A/N at 120 lb./ac. of N + Single Super at 150 lb./ac. of P₂O₅.
 M₆ = A/S at 120 lb./ac. of N + Single Super at 150 lb./ac. of P₂O₅.
 M₇ = A/N at 160 lb./ c. of N + Single Super at 200 lb./ac. of P₂O₅.
 M₈ = A/S at 160 lb./ac. of N + Single Super at 200 lb./ac. of P₂O₅.
 M₉ = A/N at 200 lb./ac. of N + Single Super at 250 lb./ac. of P₂O₅.
 M₁₀ = A/S at 200 lb./ac. of N + Single Super at 250 lb./ac. of P₂O₅.
 M₁₁ = Control (No manure).

3. DESIGN :

(i) Split plot. (ii) (a) 2 main-plots/block ; 11 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) 60.5'×24'. (b) 60.5'×18'. (v) One row on each side along length. (vi) Yes.

4. GENERAL :

- (i) N.A. (ii) N.A. (iii) No. of mature stalk, sucrose %, and sugarcane yield. (iv) (a) 1951-1953. (b) No. (c) Nil. (v) (a) Majhulia. (b) Nil. (vi) and (vii) Nil.

5. RESULTS :

- (i) 17.94 ton/ac.
 (ii) (a) 0.95 ton/ac.
 (b) 1.06 ton/ac.
 (iii) None of the effects is significant.
 (iv) Av. yield of cane in ton/ac.

	M ₁	M ₂	M ₃	M ₄	M ₅	M ₆	M ₇	M ₈	M ₉	M ₁₀	M ₁₁	Mean
V ₁	16.64	15.70	18.81	21.38	21.23	20.00	18.99	17.78	20.82	18.58	15.29	18.66
V ₂	16.65	18.24	17.37	15.95	16.63	17.40	18.41	19.82	17.77	18.53	12.67	17.22
Mean	16.65	16.97	18.09	18.66	18.93	18.70	18.70	18.80	19.29	18.56	13.98	17.94

S.E. of difference of two

1. variety means =0.20 ton/ac.
2. manure means =0.53 ton/ac.
3. manure means at the same level of variety =0.75 ton/ac.
4. variety means at the same level of manure =0.74 ton/ac.

Crop :- Sugarcane.

Ref :- Bh. 52(67).

Site :- Zonal Centre, Dehri-on-Sone.

Type :- 'MV'.

Object :- To compare the effect of A/N with that of A/S in combination with single super.

1. BASAL CONDITIONS :

- (i) (a) Nil. (b) N.A. (c) N.A. (ii) (a) Alluvial non-calcareous. (b) N.A. (iii) N.A. (iv) (a) 4 ploughings followed by beaming. (b) Flat planting. (c) 60, three budded setts/row. (d) Rows 3' apart. (e) Nil. (v) Nil. (vi) As per treatments. (vii) N.A. (viii) Hoeing, weeding and earthing up. (ix) N.A. (x) N.A.

2. TREATMENTS :

Main-plot treatments :-

2 Varieties : V₁=BO. 11 and V₂=CO. 453

Sub-plot treatments :-

All combinations of (1) & (2)+a Control (No manure).

(1) 2 sources of N : S₁=A/N and S₂=A/S.

(2) 5 levels of N : N₁=40, N₂=80, N₃=120, N₄=160 and N₅=200 lb./ac.

Manures applied at the time of planting.

3. DESIGN :

- (i) Split plot. (ii) (a) 2 main-plots/block ; 11 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) 60.5'×24'. (b) 60.5'×18'. (v) One row on each side along length. (vi) Yes.

4. GENERAL :

- (i) N.A. (ii) N.A. (iii) No. of mature stalks, sucrose%, and sugarcane yield. (iv) (a) 1951-1953. (b) No. (c) Nil. (v) (a) Majhulia. (b) Nil. (vi) & (vii) Nil.

5. RESULTS :

- (i) 12.54 ton/ac.
 (ii) (a) 9.30 ton/ac.
 (b) 3.47 ton/ac.
 (iii) Only main effect of manure and interaction manure×variety are highly significant.

(iv) Av. yield of cane in ton/ac.

	S ₁ N ₁	S ₂ N ₁	S ₁ N ₂	S ₂ N ₂	S ₁ N ₃	S ₂ N ₃	S ₁ N ₄	S ₂ N ₄	S ₁ N ₅	S ₂ N ₅	Control	Mean
V ₁	9.09	9.23	9.84	9.75	12.66	11.94	8.87	15.11	12.63	8.04	6.97	10.38
V ₂	12.16	17.70	14.60	14.23	17.76	17.11	12.86	14.42	12.82	19.12	9.00	14.71
Mean	10.63	13.46	12.22	11.99	15.21	14.52	10.86	14.76	12.73	13.58	7.98	12.54

S.E. of difference of two

1. variety means = 1.98 ton/ac.
2. manure means = 1.74 ton/ac.
3. manure means at the same level of variety = 2.46 ton/ac.
4. variety means at the same level of manure = 3.07 ton/ac.

Crop :- Sugarcane.

Ref :- Bh. 53(147).

Site :- Zonal Centre, Dehri-on-Sone.

Type :- 'MV'.

Object :- To compare the effect of A/N with that of A/S in combination with single Super.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) N.A. (c) N.A. (ii) (a) Alluvial, non-calcareous. (b) N.A. (iii) N.A. (iv) (a) 4 ploughings & horrowing. (b) Flat method of planting. (c) 65 m³/ac. or 60, three budded setts/row. (d) Rows 3' apart. (e) Nil. (v) Nil. (vi) As per treatments. (vii) N.A. (viii) Hoeing and weeding. (ix) N.A. (x) N.A.

2. TREATMENTS ;

Main-plot treatments :-

2 Varieties : V₁=CO. 453 and V₂=BO. 11.

Sub-plot treatments :-

All combinations of (1)&(2)+a Control (no manure).

(1) 2 sources of N : S₁=A/N and S₂=A/S.(2) 5 levels of N : N₁=40, N₂=80, N₃=120, N₄=160 and N₅=200 lb./ac.

3. DESIGN :

(i) Split Plot. (ii) (a) 2 main-plots/block : and 11 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 1/40 ac. (dimensions N.A.) (v) 1 row on either side. (vi) Yes.

4. GENERAL :

(i) N.A. (ii) N.A. (iii) Cane yield, mature stalks and juice content. (iv) (a) 1951—1953. (b) N.A. (c) Nil. (v) (a) Majhulia (b) Nil. (vi) & (vii) Nil.

5: RESULTS :

- (i) 10.73 ton/ac.
- (ii) (a) 2.58 ton/ac.
- (b) 3.60 ton/ac.
- (iii) Only the varietal differences and the sub-plot treatment differences are highly significant.
- (iv) Av. yield of cane in ton/ac.

	S ₁ N ₁	S ₂ N ₁	S ₁ N ₂	S ₂ N ₂	S ₁ N ₃	S ₂ N ₃	S ₁ N ₄	S ₂ N ₄	S ₁ N ₅	S ₂ N ₅	Control	Mean
V ₁	13.24	5.71	11.34	15.17	12.58	15.41	13.23	12.40	18.98	11.02	14.44	13.05
V ₂	9.55	7.20	4.45	6.24	6.85	12.25	6.06	11.78	10.65	9.36	7.98	8.40
Mean	11.40	6.46	7.90	10.71	9.72	13.83	9.65	12.09	14.82	10.19	11.21	10.73

S.E. of difference of two

1. variety means = 0.55 ton/ac.
2. manure means = 1.80 ton/ac.
3. manure means at the same level of variety = 2.55 ton/ac.
4. variety means at the same level of manure = 2.49 ton/ac.

Crop :-Sugarcane.

Ref :-Bh. 51(34).

Site :-Zonal Centre, Dehri-on-Sone.

Type :-'MV'.

Object :-To find out the optimum dose of Ammo. Phos.

1. BASAL CONDITIONS ;

(i) (a) Nil. (b) N.A. (c) N.A. (ii) Alluvial non-calcareous. (b) N.A. (iii) N.A. (iv) (a) 4 ploughings by *Desi* plough. (b) Flat planting. (c) 60, 3 budded setts/row. (d) Rows 3' apart. (e) —. (v) N.A. (vi) As per treatments. (vii) N.A. (viii) Weeding and earthing up. (ix) N.A. (x) N.A.

2. TREATMENTS :

All combinations of (1) and (2)

(1) 2 varieties ; $V_1=BO. 11$ and $V_2=CO. 453$.

(2) 5 levels of manures :—

 M_0 =Control (no manure). M_1 = 40 lb./ac. of N+ 50 lb./ac. of P_2O_5 . M_2 = 60 lb./ac. of N+ 75 lb./ac. of P_2O_5 . M_3 = 80 lb./ac. of N+100 lb./ac. of P_2O_5 . M_4 =100 lb./ac. of N+125 lb./ac. of P_2O_5 .N and P_2O_5 as Ammo. Phos. Manures applied at the time of planting.

3. DESIGN :

(i) 2×5 Fact. in R.B.D. (ii) (a) 10. (b) N.A. (iii) 6. (iv) (a) $60.5' \times 24'$. (b) $60.5' \times 18'$. (v) One border row of 3' along length. (vi) Yes.

4. GENERAL :

(i) N.A. (ii) N.A. (iii) Sucrose %, no. of matured stalks and sugarcane yield. (iv) (a) No. (b) No. (c) Nil. (v) (a) Parsa, Majhulia and Harinagar. (b) Nil. (vi) Nil. (vii) Repeated in 1953 only. Experiment not traceable.

5. RESULTS :

(i) 28.57 ton/ac.

(ii) 1.57 ton/ac.

(iii) Only main effect of manure is highly significant.

(iv) Av. yield of cane in ton/ac.

	M_0	M_1	M_2	M_3	M_4	Mean
V_1	25.00	27.00	29.42	31.70	33.00	29.22
V_2	24.38	26.25	28.39	30.28	30.31	27.92
Mean	24.69	26.62	28.90	30.99	31.65	28.57

S.E. of marginal mean of variety = 0.29 ton/ac.

S.E. of marginal mean of manure = 0.45 ton/ac.

S.E. of body of table = 0.64 ton/ac.

Crop :-Sugarcane.

Ref :-Bh. 50(40).

Site :-Zonal Centre, Harinagar.

Type :-'MV'.

Object :-To find out the optimum doses of N and P_2O_5 .

1. BASAL CONDITIONS :

(i) (a) G.M.—Sugarcane—G.M. (b) G.M. (*Sanai*). (c) Nil. (ii) (a) Sandy loam. (b) N.A. (iii) 19/23 Feb. 1950. (iv) (a) 4 ploughings. (b) Flat planting. (c) 60 md./ac. (d) Rows 3' apart. (e) —. (v) Castor cake at 78 md./ac. and Single Super at 22 md./ac., $\frac{1}{2}$ before planting and $\frac{1}{2}$ at earthing time. (vi) As per treatments. (vii) Irrigated. (viii) Nil. (ix) 48.85'. (x) 20.1.51.

2. TREATMENTS :

Main-plot treatments :—

2 varieties : $V_1=CO. 453$ and $V_2=BO. 11$.

Sub-plot treatments :—

All combinations of (1) and (2)

(1) 4 levels of N : $N_0=0$, $N_1=40$, $N_2=80$ and $N_3=120$ lb./ac.(2) 4 levels of P_2O_5 : $P_0=0$, $P_1=30$, $P_2=100$ and $P_3=150$ lb./ac.N as Castor cake and P_2O_5 as Super.

Treatments applied at the time of planting and mixed with soil.

3. DESIGN :

(i) Split plot. (ii) (a) 2 main-plots/block ; 16 sub-plots/main plot. (b) N.A. (iii) 4. (iv) (a) $60.5' \times 24'$. (b) $60.5' \times 18'$. (v) 3' on either side along width. (vi) Yes.

4. GENERAL :

(i) Normal. (ii) Nil. (iii) No. of mature stalks, sucrose %, and sugarcane yield. (iv) (a) 1950—1953. (b) No. (c) Nil. (v) (a) No. (b) Nil. (vi) and (vii) Nil.

5. RESULTS :

- (i) 15.00 ton/ac.
(ii) (a) 4.81 ton/ac.
(b) 8.96 ton/ac.
(iii) None of the effects is significant.
(iv) Av. yield of cane in ton/ac.

	N_0	N_1	N_2	N_3	Mean	P_0	P_1	P_2	P_3
V_1	16.68	15.73	13.74	21.74	16.97	15.10	20.07	16.20	16.52
V_2	12.24	11.63	13.29	14.94	13.02	12.12	12.29	13.14	14.54
Mean	14.46	13.68	13.52	18.34	15.00	13.61	16.18	14.67	15.53
P_0	14.61	10.17	11.36	18.28					
P_1	15.94	14.53	15.55	18.70					
P_2	13.13	13.58	13.27	18.70					
P_3	14.14	16.44	13.88	17.66					

S.E. of difference of two

1. variety marginal means = 0.85 ton/ac.
2. N or P marginal means = 2.24 ton/ac.
3. variety means at the same level of N or P = 2.87 ton/ac.
4. N or P means at the same level of variety = 3.17 ton/ac.
S.E. of body of $N \times P$ table = 3.17 ton/ac.

Crop :- Sugarcane.

Site :- Zonal Centre, Harinagar.

Ref. :- Bh. 51(53)

Type :- 'MV'.

Object :- To find out the optimum dose of N and P_2O_5 alone and in combination.

1. BASAL CONDITIONS :

- (i) (a) *Sanai*—Sugarcane—*Sanai*. (b) *Sanai*. (c) Nil. (ii) (a) Sandy loam. (b) N.A. (iii) 2.2.51. (iv) (a) 4 ploughings by *Deshi* plough. (b) Flat planting. (c) 60, three budded setts/row. (d) Rows 3' apart. (e)—. (v) *Sanai* and 10 C.L. of FYM./ac. (vi) As per treatments. (vii) Irrigated. (viii) Hoeing, weeding and earthing up. (ix) 42.79°. (x) 3/4.1.52.

2. TREATMENTS :

Main-plot treatments :

2 varieties : V_1 =CO. 453 and V_2 =BO. 11.

Sub-plot treatments :

All combinations of (1) and (2)

(1) 4 levels of N : $N_0=0$, $N_1=40$, $N_2=80$ and $N_3=120$ lb./ac.(3) 4 levels of P_2O_5 : $P_0=0$, $P_1=50$, $P_2=100$ and $P_3=150$ lb./ac.N as Castor cake and P_2O_5 as Single Super.

3. DESIGN :

(i) Split plot. (ii) (a) 2 main-plots/block and 16 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) 60.5'×24'. (b) 60.5'×24' (v) One row on each side along length. (vi) Yes.

4. GENERAL :

(i) Very good. (ii) Nil. (iii) No. of mature stalks, sucrose % and sugarcane yield. (iv) (a) 1950—1953. (b) No. (c) Nil. (v) (a) Parsa. (b) No. (vi) Nil. (vii) Experiment conducted during 1952 under type M. Sl. 52 (88).

5. RESULTS :

- (i) 21.06 ton/ac.
 (ii) (a) 1.16 ton/ac.
 (b) 1.41 ton/ac.
 (iii) Levels of P differ significantly. Interaction VNP is significant. No other effect is significant.
 (iv) Av. yield of sugarcane in ton/ac.

	N_0	N_1	N_2	N_3	Mean	P_0	P_1	P_2	P_3
V_1	18.47	25.26	24.40	21.18	22.33	23.88	21.77	20.96	22.71
V_2	20.34	18.98	19.67	19.99	19.79	24.61	16.20	16.25	22.11
Mean	19.40	22.12	22.13	20.59	21.06	24.24	18.99	18.60	22.41
P_0	22.90	23.96	25.13	24.98					
P_1	14.49	20.57	18.52	22.38					
P_2	17.87	21.71	17.79	17.05					
P_3	22.35	22.26	27.09	17.94					

S.E. of difference of two

1. V marginal means =0.28 ton/ac.
2. N marginal means =0.35 ton/ac.
3. P marginal means =0.35 ton/ac.
4. V means at the same level of N or P =0.52 ton/ac.
5. N or P means at the same level of V =0.50 ton/ac.
6. means in the body of N×P table =0.71 ton/ac.

Crop :- Sugarcane.

Ref. :- Bh. 53 (135)

Site :- Zonal Centre, Harinagar.

Type :- 'MV'.

Object :- To find out the optimum dose of N & P_2O_5 alone and in combination.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) N.A. (c) N.A. (ii) (a) Sandy loam. (b) N.A. (iii) As per treatments. (iv) (a) 4 ploughings and harrowings. (b) Flat method. (c) 65 md./ac. (d) Rows 3' apart. (e) —. (v) N.A. (vi) As per treatments. (vii) N.A. (viii) Hoing and weeding. (ix) N.A. (x) N.A.

2. TREATMENTS :

Main-plot treatments :2 varieties : $V_1=CO. 453$ and $V_2=B.O. 11$.**Sub-plot treatments :**

All combinations of (1) and (2)

(1) 4 levels of N : $N_0=0$, $N_1=40$, $N_2=80$ and $N_3=120$ lb./ac.(2) 4 levels of P_2O_5 : $P_0=0$, $P_1=50$, $P_2=100$ and $P_3=150$ lb./ac.
N as Castor cake and P_2O_5 as Super.

3. DESIGN :

(i) Split plot. (ii) (a) 2 main-plots/block ; 16 sub-plots/main plot. (b) N.A. (iii) 3. (iv) (a) 60.5'×24'
(b) 60.5'×18'. (v) 1 row on either side of width. (vi) Yes.

4. GENERAL :

(i) N.A. (ii) N.A. (iii) Cane yield, mature stalks and juice content. (iv) (a) 1950-1953. (b) No. (c) Nil.
(v) (a) Parsa. (b) —. (vi) Nil. (vii) Experiment conducted during 1952 : N.A.

5. RESULTS :

- (i) 25.98 ton/ac.
 (ii) (a) 4.39 ton/ac.
 (b) 3.20 ton/ac.
 (iii) No effect is significant.
 (iv) Av. yield of sugarcane in ton/ac.

	N_0	N_1	N_2	N_3	Mean	P_0	P_1	P_2	P_3
V_1	26.66	25.96	26.69	25.90	26.30	25.41	26.60	26.29	26.91
V_2	25.90	23.91	27.82	24.98	25.65	26.88	25.68	24.95	25.10
Mean	26.28	24.94	27.25	25.44	25.98	26.15	26.14	25.62	26.01
P_0	25.90	25.10	27.30	26.26					
P_1	29.32	25.16	26.45	26.63					
P_2	26.26	25.04	26.69	24.49					
P_3	26.63	24.43	28.59	24.37					

S.E. of difference of two

- | | |
|--|---------------|
| 1. variety marginal means | =0.89 ton/ac. |
| 2. V means at the same level of N or P | =1.44 ton/ac. |
| 3. N or P means at the same level of V | =1.31 ton/ac. |
| 4. means in the body of N×P table | =1.85 ton/ac. |
| 5. N or P marginal means | =0.93 ton/ac. |

Crop :- Sugarcane.

Site :- Zonal Centre, Harinagar.

Ref :- Bh. 50(34).

Type :- 'MV'.

Object :- To find out the optimum dose of A/N.

1. BASAL CONDITIONS :

(i) (a) G.M.—Sugarcane—G.M. (b) G.M. (c) Nil. (ii) (a) Sandy loam. (b) — N.A. (iii) 22.2.50.
 (iv) (a) One ploughing for turning up *Sana* and 4 more ploughings. (b) Flat planting. (c) 60 md./ac.
 (d) Rows 3' apart. (e) —. (v) F.Y.M. at 8 C.L./ac. (vi) As per treatments. (vii) Irrigated. (viii)
 Hoeing, weeding and earthing once. (ix) 48.85%. (x) 10.1.51 to 12.1.51.

2. TREATMENTS :

Main-plot treatments :-2 Varieties : $V_1=BO. 11$ and $V_2=CO. 453$.

Sub-plot treatments :-

11 levels of N (N as A/N) : $N_0=0$, $N_1=40$, $N_2=80$, $N_3=120$, $N_4=160$, $N_5=200$, $N_6=240$, $N_7=280$, $N_8=320$, $N_9=360$ and $N_{10}=400$ lb./ac.

Manures applied at the time of planting.

3. DESIGN :

(i) Split-plot. (ii) (a) 2 main-plots/block and 11 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) $60.5' \times 24'$. (b) $60.5' \times 18'$. (v) One row on each side of width. (vi) Yes.

4. GENERAL :

(i) Normal. (ii) Nil. (iii) No. of mature stalks, sucrose %, and sugarcane yield. (iv) (a) 1950-1952. (b) No. (c) Nil. (v) (a) Motihari, Parsa and Majhaulia. (b) Nil. (vi) & (vii) Nil.

5. RESULTS :

- (i) 18.23 ton/ac.
 (ii) (a) 0.47 ton/ac.
 (b) 2.61 ton/ac.
 (iii) All the effects are highly significant.
 (iv) Av. yield of sugarcane in ton/ac.

	N_0	N_1	N_2	N_3	N_4	N_5	N_6	N_7	N_8	N_9	N_{10}	Mean
V_1	7.51	9.43	14.01	17.31	13.83	14.93	15.93	14.10	9.52	12.36	11.90	12.80
V_2	15.66	26.92	25.09	24.82	28.39	23.99	25.14	22.62	27.93	19.51	20.24	23.66
Mean	11.58	18.18	19.55	21.06	21.11	19.46	20.53	18.36	18.72	15.94	16.07	18.23

S.E. of difference of two

1. variety means = 0.01 ton/ac.
 2. manure means = 1.32 ton/ac.
 3. manure means at the same level of variety = 1.84 ton/ac.
 4. variety means at the same level of manure = 1.76 ton/ac.

Crop :- Sugarcane.

Site :- Zonal Centre, Harinagar.

Ref :- Bh. 51(47).

Type :- 'MV'.

Object :- To find out the optimum dose of A/N.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) N.A. (c) N.A. (ii) (a) Sandy loam. (b) N.A. (iii) 22.2.51. (iv) (a) 4 ploughings followed by beaming. (b) Flat planting. (c) 60, 3 budded setts/row. (d) Rows 3' apart. (e) —. (v) 8 C.L./ac. of F.Y.M. (vi) As per treatments. (vii) Irrigated. (viii) Hoeing, weeding and earthing once. (ix) 42.79%. (x) 1.1.52.

2. TREATMENTS :**Main-plot treatments :-**

2 Varieties : $V_1=BO. 11$ and $V_2=CO. 453$.

Sub-plot treatments :-

11 levels of N (N as A/N) : $N_0=0$, $N_1=40$, $N_2=80$, $N_3=120$, $N_4=160$, $N_5=200$, $N_6=240$, $N_7=280$, $N_8=320$, $N_9=360$ and $N_{10}=400$ lb./ac.

Manures applied at the time of planting.

3. DESIGN :

(i) Split-plot. (ii) (a) 2 main-plots/block and 11 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) $60.5' \times 24'$. (b) $60.5' \times 18'$. (v) One row on each side along width. (vi) Yes.

4. GENERAL :

(i) N.A. (ii) No attack of major pests or diseases noticed. (iii) No. of mature stalks, sucrose % and sugarcane yield. (iv) (a) 1950-1952. (b) No. (c) Nil. (v) (a) Pachrukhi, Motihari and Parsa. (b) Nil. (vi) & (vii) Nil.

5. RESULTS :

- (i) 14.76 ton/ac.
 (ii) (a) 1.70 ton ac.
 (b) 2.99 ton/ac.
 (iii) Main effect of manure is significant while main effect of variety and interaction $V \times N$ are highly significant.
 (iv) Av. yield of sugarcane in ton./ac.

	N ₀	N ₁	N ₂	N ₃	N ₄	N ₅	N ₆	N ₇	N ₈	N ₉	N ₁₀	Mean
V ₁	13.13	22.49	22.37	20.28	19.70	16.12	18.21	22.44	8.86	22.72	15.82	18.38
V ₂	16.86	9.00	14.38	6.61	11.85	9.61	9.25	5.31	15.41	11.57	12.62	11.13
Mean	14.99	15.75	18.38	13.45	15.78	12.87	13.73	13.88	12.13	17.15	14.22	14.76

S.E. of difference of two

1. variety means =0.36 ton/ac.
 2. manure means =1.49 ton/ac.
 3. manure means at the same level of variety =2.11 ton/ac.
 4. variety means at the same level of manure =2.04 ton/ac.

Crop :- Sugarcane.

Ref :- Bh. 52(72).

Site :- Zonal Centre, Harinagar.

Type :- 'MV'.

Object :- To find out the optimum dose of A/N.

1. BASAL CONDITIONS :

- (i) (a) Nil. (b) G.M.—(*Sanai*). (c) Nil. (ii) (a) Sandy loam. (b) N.A. (iii) 22.10.52. (iv) (a) 1 ploughing for turning up *Sanai*, 4 ploughings for preparation of land. (b) Flat planting. (c) 60 md./ac. (d) Rows 3' apart. (e) —. (v) Nil. (vi) As per treatments. (vii) Irrigated. (viii) Hoeing, weeding & earthing up. (ix) c2.41". (x) 1.2.53 to 3.2.53.

2. TREATMENTS :

Main-plot treatments :—

2 Varieties : V₁=BO. 11 and V₂=CO. 453.

Sub-plot treatments :—

11 levels of N (N as A/N) : N₀=0, N₁=40, N₂=80, N₃=120, N₄=160, N₅=200, N₆=240, N₇=280, N₈=320, N₉=360, and N₁₀=400 lb./ac.

Manures applied at the time of planting.

3. DESIGN :

- (i) Split-plot. (ii) (a) 2 main-plots/block, 11 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) 60.5' × 24'. (b) 60.5' × 18'. (v) 1 row on each side of width. (vi) Yes.

4. GENERAL :

- (i) Normal. (ii) No major pest or disease noticed. (iii) Number of mature stalks, sucrose % and sugarcane yield. (iv) (a) 1950-1952. (b) No. (c) Nil. (v) (a) Parsa, Motihari, Motipur, Pachrukhi and Dehri-on-Sone, (b) Nil. (vi) & (vii) Nil.

5. RESULTS :

- (i) 10.40 ton/ac.
 (ii) (a) 7.56 ton/ac.
 (b) 4.79 ton/ac.
 (iii) Only manure effect is significant.

(iv) Av. yield of sugarcane in ton/ac.

	N ₀	N ₁	N ₂	N ₃	N ₄	N ₅	N ₆	N ₇	N ₈	N ₉	N ₁₀	Mean
V ₁	9.26	11.91	7.06	14.49	6.69	16.87	12.74	5.13	2.20	8.07	8.80	9.38
V ₂	7.33	16.27	11.83	8.44	14.85	11.83	14.85	8.99	7.51	9.26	14.49	11.42
Mean	8.30	14.09	9.45	11.46	10.77	14.35	13.79	7.06	4.85	8.67	11.65	10.40

S.E. of difference of two

1. variety means = 1.61 ton/ac.
2. manure means = 2.40 ton/ac.
3. manure means at the same level of variety = 3.38 ton/ac.
4. variety means at the same level of manure = 3.61 ton/ac.

Crop :- Sugarcane.

Ref :- Bh. 49(18).

Site :- Zonal Centre, Harinagar.

Type :- 'MV'.

Object :- To find out the effect of liming in heavy soils.

1. BASAL CONDITIONS :-

(i) (a) *Sanai-Sugarcane-Sanai*. (b) *Sanai*. (c) Nil. (ii) (a) Sandy loam (b) N.A. (iii) 6.2.49. (iv) (a) 4. ploughings. (b) Flat planting. (c) 60, three budded setts/row. (d) Rows 3' apart. (e) Nil. (v) N.A. (vi) BO. 11. (vii) Irrigated. (viii) Nil. (ix) 56.34". (x) 9.2.50.

2. TREATMENTS :

1. Control (no manure).
 2. Castor cake + Triple Super to supply 40 lb./ac. of N + 50 lb./ac. of P₂O₅.
 3. Treatment (2) + 5 md/ac. of lime.
 4. Treatment (2) + 10 md/ac. of lime
 5. Ammo. Phos. to supply 40 lb./ac. of N + 50 lb./ac. of P₂O₅ + 5 md/ac. of lime
 6. Ammo. Phos. to supply 40 lb./ac. of N + 50 lb./ac. of P₂O₅ + 10 md/ac. of lime.
- Treatments applied and mixed with soil at the time of planting.

3. DESIGN :

(i) R.B.D. (ii) (a) 6. (b) N.A. (iii) 4. (iv) (a) 60.5' × 24'. (b) 60.5' × 18'. (v) 3' on either side along width. (vi) Yes.

4. GENERAL :

(i) Normal. (ii) Nil. (iii) Counting of mature stalk, sucrose%, and sugarcane yield. (iv) (a) 1949-50. (b) No. (c) Nil. (v) (a) N.A. (b) N.A. (vi) Nil. (vii) Experiment was originally planned for two varieties but was conducted with only one variety. There was deviation from the original programme.

5. RESULTS :

- (i) 19.54 ton/ac.
- (ii) 3.04 ton/ac.
- (iii) Treatment differences are not significant.
- (iv) Av yield of sugarcane in ton/ac.

Treatment	Av. yield
1.	16.88
2.	21.47
3.	18.61
4.	18.63
5.	21.19
6.	20.46
S.E./mean	= 1.52 ton/ac.

Crop :- Sugarcane.
Site :- Zonal Centre, Harinagar.

Ref :- Bh. 49(27).
Type :- 'MV'.

Object :- To find out response due to different combinations of manures.

1. BASAL CONDITIONS :

(i) (a) *Sanai-sugarcane-Sanai*. (b) *Sanai*. (c) Nil. (ii) (a) Sandy loam. (b) N.A. (iii) N.A. (iv) (a) One ploughing for turning up *Sanai* and 4 ploughings later on. (b) Flat planting. (c) 60 md/ac. (d) Rows 3' apart (e) Nil. (v) Nil. (vi) As per treatments. (vii) Irrigated. (viii) Hoeing, weeding and earthing. (ix) 56.34". (x) N.A.

2. TREATMENTS :

Main-plot treatments :-

2 varieties : $V_1 = \text{CO. 453}$ and $V_2 = \text{BO.11}$.

Sub-plot treatments :-

Sources of 40 lb./ac. of N+50 lb./ac. of P_2O_5 .

$M_1 = \text{Ammo. Phos.}$

$M_2 = \text{Ammo. Phos. + Triple Super.}$

$M_3 = \text{Castor cake + Ammo. Phos. + Triple Super.}$

$M_4 = \text{Castor cake + Triple Super.}$

$M_5 = \text{Mustard cake + Ammo. Phos. + Triple Super.}$

$M_6 = \text{Mustard cake + Triple Super.}$

$M_7 = \text{Linseed cake + Ammo. Phos. + Triple Super.}$

$M_8 = \text{Linseed cake + Triple Super.}$

$M_9 = \text{No manure (control).}$

Treatments applied and mixed with soil at the time of planting.

3. DESIGN :

(i) Split-plot. (ii) (a) 2 main-plots/block. 9 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) 60.5' x 24'. (b) 60.5' x 18'. (v) One row on each side of width. (vi) Yes.

4. GENERAL :

(i) Normal. (ii) Nil. (iii) No. of mature stalk, sucrose% and sugarcane yield. (iv) (a) No. (b) No. (c) Nil. (v) (a) None. (b) Nil. (vi) & (vii) Nil.

5. RESULTS :

(i) 19.44 ton/ac.

(ii) (a) 1.92 ton/ac.

(b) 3.37 ton/ac.

(iii) None of the effects is significant.

(iv) Av. yield of sugarcane in ton/ac.

	M_1	M_2	M_3	M_4	M_5	M_6	M_7	M_8	M_9	Mean
V_1	27.85	24.38	26.61	25.52	23.97	28.53	26.41	20.39	21.78	25.05
V_2	11.22	9.81	15.27	8.95	22.99	11.80	20.65	13.81	9.95	13.83
Mean	19.54	17.09	20.94	17.23	23.48	20.16	23.53	17.10	15.87	10.44

S.E. of difference of two

- | | |
|--|---------------|
| 1. variety means | =0.45 ton/ac. |
| 2. manure means | =1.68 ton/ac. |
| 3. manure means at the same level of variety | =2.38 ton/ac. |
| 4. variety means at the same level of manure | =2.29 ton/ac. |

Crop :- Sugarcane.

Ref :- Bh. 50 (27).

Site :- Zonal Centre, Majhulia (Lalgarh).

Type :- 'MV'.

Object :- To compare the effect of A/N with that of A/S.

1. BASAL CONDITIONS :

(i) (a) Sugarcane—G.M.—Wheat—G.M.—Sugarcane. (b) *Sanai*. (c) Nil. (ii) (a) Alluvial calcareous. (b) N.A. (iii) 24.1.50. (iv) (a) 4 ploughings. (b) Flat planting. (c) 70 md./ac. (d) Rows 3' apart. (e)—. (v) Castor cake at 78 md./ac.+Single Super at 50 md./ac. Time and method of application N.A. (vi) As per treatments. (vii) N.A. (viii) N.A. (ix) 40.0". (x) 21.2.51 to 25.2.51.

2. TREATMENTS :

Main-plot treatments :—

2 Varieties : $V_1=BO. 11$ and $V_2=CO. 453$.

Sub-plot treatments :—

All combinations of (1) and (2)+a Control

(1) 5 levels of N : $N_1=40$, $N_2=80$, $N_3=120$, $N_4=160$ and $N_5=200$ lb./ac.(2) 2 sources of N : $S_1=A/N$ and $S_2=A/S$

Manures applied at the time of planting.

3. DESIGN :

(i) Split-plot. (ii) (a) 2 main-plots/block and 11 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) 60.5' × 24'. (b) 60.5' × 18'. (v) 3' border on either side of width. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Nil. (iii) Tiller count, mature stalk count and cane yield. (iv) (a) 1950—1952. (b) No. (c) Nil. (v) (a) Parsa and Harinagar. (b) Nil. (vi) and (vii) Nil.

5. RESULTS :

- (i) 21.15 ton/ac.
(ii) (a) 1.807 ton/ac.
(b) 3.450 ton/ac.
(iii) Main effects of variety and manure are highly significant. Interaction is not significant.
(iv) Av. yield of cane in ton/ac.

	N_1S_1	N_1S_2	N_2S_1	N_2S_2	N_3S_1	N_3S_2	N_4S_1	N_4S_2	N_5S_1	N_5S_2	Control	Mean
V_1	22.19	17.82	21.54	19.35	21.88	23.76	23.25	22.31	20.53	23.57	15.27	21.04
V_2	21.68	17.97	23.39	20.14	22.97	21.74	22.06	21.21	22.07	20.45	20.18	21.26
Mean	21.94	17.90	22.46	19.75	22.43	22.75	22.46	21.76	21.30	22.01	17.72	21.15

S.E. of difference of two

1. variety means =0.385 ton/ac.
2. manure means =1.725 ton/ac.
3. manure means at the same level of variety =2.439 ton/ac.
4. variety means at the same level of manure =2.357 ton/ac.

Crop :- Sugarcane.

Ref :- Bh. 51 (42).

Site :- Zonal Centre, Majhulia (Lalgarh).

Type :- 'MV'.

Object :- To compare the effect of A/N with that of A/S.

1. BASAL CONDITIONS :

(i) (a) Sugarcane—G.M.—Wheat—G.M. (b) *Sanai*. (c) Nil. (ii) (a) Alluvial calcareous. (b) N.A. (iii) 27/28.1.51. (iv) (a) 4 ploughings. (b) Flat planting. (c) 60, 3 budded. setts/row. (d) Rows 3' apart. (e)—. (v) Castor cake at 78 md./ac. Time and method of application N.A. (vi) As per treatments. (vii) N.A. (viii) Nil. (ix) 47.24". (x) 27.12.51 to 9.1.52.

2. TREATMENTS :

Main-plot treatments :—

2 varieties : $V_1=BO. 11$ and $V_2=CO. 453$.

Sub-plot treatments :—

All combinations of (1) and (2) + a Control (No manure)

(1) 5 levels of N : $N_1=40, N_2=80, N_3=120, N_4=160$ and $N_5=200$ lb./ac.(2) 2 sources of N : $S_1=A/N$ and $S_2=A/S$.

3. DESIGN :

(i) Split-plot. (ii) (a) 2 main-plots/block and 11 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) $60.5' \times 24'$
(b) $60.5' \times 18'$. (v) 3' border on either side of width. (vi) Yes.

4. GENERAL :

(i) Normal. (ii) Nil. (iii) Tiller and mature stalk counted, sucrose % and sugarcane yield. (iv) (a) 1950,—
1952. (b) No. (c) Nil. (v) (a) Dehri-on-Sone. (b) Nil. (vi) and (vii) Nil.

5. RESULTS :

(i) 27.20 ton/ac.

(ii) (a) 1.11 ton/ac.

(b) 1.80 ton/ac.

(iii) Main effect of variety alone is highly significant.

(iv) Av. yield of sugarcane in ton/ac.

	N_1S_1	N_1S_2	N_2S_1	N_2S_2	N_3S_1	N_3S_2	N_4S_1	N_4S_2	N_5S_1	N_5S_2	Control	Mean
V_1	25.55	23.47	25.17	26.29	24.29	24.72	24.38	25.59	26.07	23.76	24.16	21.86
V_2	29.06	32.00	28.54	30.19	30.45	31.08	31.09	31.47	29.26	29.67	23.03	29.53
Mean	27.30	27.74	26.85	28.24	27.37	27.90	27.74	28.03	27.67	26.73	23.59	27.20

S.E. of difference of two

1. variety means = 0.24 ton/ac.
2. manure means = 0.90 ton/ac.
3. manure means at the same level of variety = 1.27 ton/ac.
4. variety means at the same level of manure = 1.23 ton/ac.

Crop :- Sugarcane.

Ref :- Bh. 52 (52).

Site :- Zonal Centre, Majhulia (Lalgarh).

Type :- 'MV'.

Object :—To compare the effect of A/N with that of A/S.

1. BASAL CONDITIONS :

(i) (a) Sugarcane—G.M.—Wheat—G.M. (b) *Sanai*. (c) Nil. (ii) (a) Alluvial calcareous. (b) N.A. (iii) 30/31.1.52. (iv) (a) 4 ploughings. (b) Flat planting. (c) 60, 3—budded setts/row. (d) Rows ' apart. (e) —. (v) Castor cake 78 md/ac. Time and method of application N.A. (vi) As per treatments. (vii) N.A. (viii) Nil. (ix) 67.2'. (x) 20.3.53 to 31.3.53.

2. TREATMENTS :

Main-plot treatments :—

2 varieties : $V_1=BO. 11$ and $V_2=BO. 10$.

Sub-plot treatments :—

All combinations of (1) and (2) + a Control (no manure).

(1) 2 sources of N : $S_1=A/N$ and $S_2=A/S$.(2) 5 levels of N : $N_1=40, N_2=80, N_3=120, N_4=160$ and $N_5=200$ lb./ac.

Treatments applied at the time of planting.

3. DESIGN :

(i) Split plot (ii) (a) 2 main-plots/block : 11 sub-plots/main-plot. (b) N.A. (iii) 4 (iv) (a) $60.5' \times 24'$.
(b) $60.5' \times 18'$ (v) 3' border on either side of width. (vi) Yes.

4. GENERAL :

(i) Average. (ii) Nil. (iii) Tiller count, mature stalk count and sugarcane yield. (iv) (a) 1950—1952. Nil. (b) No. (c) No. (v) (a) Parsa. (b) Nil. (vi) and (vii) Nil.

5. RESULTS :

- (i) 22.80 ton/ac.
 (ii) (a) 5.083 ton/ac.
 (b) 3.784 ton/ac.
 (iii) None of the effects is significant.
 (iv) Av. yield of sugarcane in ton/ac.

	N ₁ S ₁	N ₁ S ₂	N ₂ S ₁	N ₂ S ₂	N ₃ S ₁	N ₃ S ₂	N ₄ S ₁	N ₄ S ₂	N ₅ S ₁	N ₅ S ₂	Control	Mean
V ₁	22.91	25.83	27.80	21.48	25.49	23.96	23.81	24.00	22.91	22.94	21.02	23.83
V ₂	22.18	20.06	21.35	20.98	23.04	21.04	20.99	20.91	17.90	25.50	25.57	21.77
Mean	22.55	22.94	24.57	21.23	24.27	22.50	22.40	22.45	20.41	24.22	23.30	22.80

S.E. of difference of two

- (1) variety means = 1.084 ton/ac.
 (2) manure means = 1.892 ton/ac.
 (3) manure means at the same level of variety = 2.676 ton/ac.
 (4) variety means at the same level of manure = 2.771 ton/ac.

Crop :- Sugarcane.

Ref :- Bh. 50 (32).

Site :- Zonal Centre, Majhulia.

Type :- 'MV'.

Object :—To compare the effect of A/N with that of A/S in combination with Single Super

1. BASAL CONDITIONS :

(i) (a) Sugarcane—G.M.—Wheat—*Sanai*—sugarcane. (b) *Sanai*. (c) Nil. (ii) (a) Alluvial calcareous. (b) N.A. (iii) 24/25.1.50. (iv) (a) 4 ploughings. (b) Flat planting. (c) 70 md./ac. (d) Rows 3' apart. (e)—. (v) Castor cake at 78 md./ac.+Single Super at 22.50 md./ac. Time and method of application N.A. (vi) As per treatments. (vii) N.A. (viii) N.A. (ix) 39.27". (x) 21.2.51 to 27.2.51.

2. TREATMENTS :

Main-plot treatments :—

2 varieties : V₁=BO. 11 and V₂=BO.10.

Sub-plot treatments :—

11 doses of manure :

- M₁ =A/N at 40 lb./ac. of N+Single Super at 50 lb./ac. of P₂O₅.
 M₂ =A/S at 40 lb./ac. of N+Single Super at 50 lb./ac. of P₂O₅.
 M₃ =A/N at 80 lb./ac. of N+Single Super at 100 lb./ac. of P₂O₅.
 M₄ =A/S at 80 lb./ac. of N+Single Super at 100 lb./ac. of P₂O₅.
 M₅ =A/N at 120 lb./ac. of N+Single Super at 150 lb./ac. of P₂O₅.
 M₆ =A/S at 120 lb./ac. of N+Single Super at 150 lb./ac. of P₂O₅.
 M₇ =A/N at 160 lb./ac. of N+Single Super at 200 lb./ac. of P₂O₅.
 M₈ =A/S at 160 lb./ac. of N+Single Super at 200 lb./ac. of P₂O₅.
 M₉ =A/N at 200 lb./ac. of N+Single Super at 250 lb./ac. of P₂O₅.
 M₁₀ =A/S at 200 lb./ac. of N+Single Super at 250 lb./ac. of P₂O₅.
 M₁₁ =Control (No manure).

3. DESIGN :

(i) Split plot. (ii) (a) 2 main-plots/block and 11 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) 60.5'×24'. (b) 60.5'×18'. (v) 3' border on either side of width. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Nil. (iii) Tiller and no. of mature stalks counted, sugarcane yield. (iv) (a) 1950—1951. (b) No. (c) Nil. (v) (a) Parsa. (b) Nil. (vi) and (vii) Nil.

5. RESULTS :

- (i) 19.30 ton/ac.
 (ii) (a) 1.05 ton/ac.
 (b) 0.69 ton/ac.
 (iii) Only main effect of manure is significant.
 (iv) Av. yield of sugarcane in ton/ac.

	M ₁	M ₂	M ₃	M ₄	M ₅	M ₆	M ₇	M ₈	M ₉	M ₁₀	M ₁₁	Mean
V ₁	17.72	15.80	20.27	20.05	21.66	20.53	19.12	21.49	21.68	19.13	17.19	19.51
V ₂	17.19	18.26	19.06	20.80	17.21	21.20	18.73	20.45	20.23	18.84	17.98	19.09
Mean	17.46	17.03	19.67	20.43	19.44	20.87	18.93	20.97	20.96	18.99	17.59	19.30

S.E. of difference of two

1. variety means = 0.22 ton/ac.
 2. manure means = 0.35 ton/ac.
 3. manure means at the same level of variety = 0.49 ton/ac.
 4. variety means at the same level of manure = 0.51 ton/ac.

Crop :- Sugarcane.

Ref :- Bh. 51(43).

Site :- Zonal Centre, Majhulia (Lalgarh).

Type :- 'MV'.

Object :- To compare the effect of A/N with that of A/S in combination with Single Super.

1. BASAL CONDITIONS :

- (i) (a) Sugarcane-G.M.-Wheat-G.M.-Sugarcane. (b) *Sanai*. (c) Nil. (ii) (a) Alluvial calcareous. (b) N.A. (iii) 8/9.2.51. (iv) (a) 4 ploughings. (b) Flat planting. (c) 60, three budded setts/row. (d) Rows 3' apart. (e) —. (v) Castor cake at 78 md./ac. (vi) As per treatments. (vii) N.A. (viii) Nil. (ix) 46.87". (x) 1.2.52.

2. TREATMENTS :

Main-plot treatments :-

2 varieties : V₁=BO. 11 and V₂=CO. 453.

Sub-plot treatments :-

11 doses of manure :

- M₁ = A/N at 40 lb./ac. of N+Single Super at 50 lb./ac. of P₂O₅.
 M₂ = A/S at 40 lb./ac. of N+Single Super at 50 lb./ac. of P₂O₅.
 M₃ = A/N at 80 lb./ac. of N+Single Super at 100 lb./ac. of P₂O₅.
 M₄ = A/S at 80 lb./ac. of N+Single Super at 100 lb./ac. of P₂O₅.
 M₅ = A/N at 120 lb./ac. of N+Single Super at 150 lb./ac. of P₂O₅.
 M₆ = A/S at 120 lb./ac. of N+Single Super at 150 lb./ac. of P₂O₅.
 M₇ = A/N at 160 lb./ac. of N+Single Super at 200 lb./ac. of P₂O₅.
 M₈ = A/S at 160 lb./ac. of N+Single Super at 200 lb./ac. of P₂O₅.
 M₉ = A/N at 200 lb./ac. of N+Single Super at 250 lb./ac. of P₂O₅.
 M₁₀ = A/S at 200 lb./ac. of N+Single Super at 250 lb./ac. of P₂O₅.
 M₁₁ = Control (no manure).

3. DESIGN :

- (i) Split plot. (ii) (a) 2 main-plots/block and 11 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) 60.5' × 24'. (b) 60.5' × 18'. (v) 3' border on either side of width. (vi) Yes.

4. GENERAL :

- (i) Normal. (ii) Nil. (iii) Count of tiller, mature stalk and sugarcane yield. (iv) (a) 19551—1952. (b) No. (c) Nil. (v) (a) Dehri-On-Sone. (b) Nil. (vi) and (vii) Nil.

5. RESULTS :

- (i) 26.34 ton/ac.
 (ii) (a) 1.50 ton/ac.
 (b) 1.55 ton/ac.
 (iii) None of the effects is significant.

(iv) Av. yield of sugarcane in ton/ac.

	M ₁	M ₂	M ₃	M ₄	M ₅	M ₆	M ₇	M ₈	M ₉	M ₁₀	M ₁₁	Mean
V ₁	26.09	23.53	25.31	25.74	28.35	23.32	26.99	25.64	24.22	25.60	25.09	25.44
V ₂	26.56	26.19	25.69	28.72	28.49	27.85	28.09	25.80	27.71	27.48	26.97	27.23
Mean	26.32	24.86	25.50	27.23	28.42	25.59	27.54	25.72	25.97	26.54	26.03	26.34

S.E. of difference of two.

1. variety marginal means =0.32 ton/ac.
2. manure marginal means =0.78 ton/ac.
3. manure means at same level of variety =1.09 ton/ac.
4. variety means at the same level of manure =1.09 ton/ac.

Crop :- Sugarcane.

Ref :- Bh. 50(25).

Site :- Zonal Centre, Majhulia.

Type :- 'MV'.

Object :- To find out the optimum dose of Ammo. phos to Sugarcane.

1. BASAL CONDITIONS :

- (i) (a) Nil. (b) N.A. (c) N.A. (ii) (a) Alluvial calcareous. (b) N.A. (iii) 18.2.50. (iv) (a) 4 ploughings by *deshi* plough. (b) Flat planting. (c) 60, three-budded setts/row. (d) Rows 3' apart. (e) — (v) N.A. (vi) As per treatments. (vii) N.A. (viii) Earthing and weeding. (ix) N.A. (x) N.A.

2. TREATMENTS :

All combinations of (1) and (2)

- (1) 3 varieties : V
- ₁
- =BO. 11, V
- ₂
- =BO. 10 and V
- ₃
- =CO. 513.

(2) 4 doses of manure :

M₀=Control (No manure).M₁=20 lb./ac. of N + 25 lb./ac. of P₂O₅M₂=40 " " + 50 " "M₃=60 " " + 75 " "N and P₂O₅ as Ammo. phos. Manures applied at the time of planting.

3. DESIGN :

- (i) 3×4 Fact. in R.B.D. (ii) (a) 12. (b) N.A. (iii) 6. (iv) (a) 60.5'×24'. (b) 60.5'×18'. (v) 3' border along length. (vi) Yes.

4. GENERAL :

- (i) N.A. (ii) Nil. (iii) Sucrose %, no. of mature stalks and sugarcane yield. (iv) (a) 1950-1951. (b) No. (c) Nil. (v) (a) Pachrukhi, Harinagar and Dehri-On-Sone. (b) Nil. (vi) and (vii) Nil.

5. RESULTS :

- (i) 14.68 ton/ac.
(ii) 2.56 ton/ac.
(iii) Only main effect of variety is highly significant. Other effects are not significant.
(iv) Av. yield of sugarcane in ton/ac.

	M ₀	M ₁	M ₂	M ₃	Mean
V ₁	12.64	11.90	13.26	13.93	12.93
V ₂	19.27	19.49	19.56	22.20	20.13
V ₃	10.79	11.55	10.28	11.25	10.97
Mean	14.23	14.31	14.37	15.79	14.68

- S.E. of marginal mean of variety =0.52 ton/ac.
S.E. of marginal mean of manure =0.60 ton/ac.
S.E. of body of table =1.05 ton/ac.

Crop :- Sugarcane.
Site :- Zonal Centre, Majhulia.

Ref :- Bh. 51(38).
Type :- 'MV'.

Object :- To find out the optimum dose of Ammo. phos. for Sugarcane.

1. BASAL CONDITIONS :

(i) (a) Sugarcane—G.M.—Wheat—G.M.—Sugarcane. (b) *Santai*. (c) Nil. (ii) (a) Alluvial soil. (b) N.A. (iii) 4.2.51. (iv) (a) 4 ploughings. (b) Flat planting. (c) 60, three-budded setts/row. (d) Rows 3' apart. (e) (v) Castor cake at 78 md/ac. Time & method of application N.A. (vi) As per treatments. (vii) N.A. (viii) Nil. (ix) 47.1". (x) 4/5.3.52.

2. TREATMENTS :

All combinations of (1) & (2)

(1) 2 Varieties :- $V_1=BO. 11$ and $V_2=BO. 10$.

(2) 5 levels of manures :-

$M_0=0$	
$M_1=40$ lb/ac. of N+50 lb/ac. of P_2O_5 .	
$M_2=60$ „ +75 „	
$M_3=80$ „ +100 „	
$M_4=100$ „ +125 „	

N and P_2O_5 as Ammo. phos. Manures applied at the time of planting.

3. DESIGN :

(i) 2×5 Fact. in R.B.D. (ii) (a) 10. (b) N.A. (iii) 6. (iv) (a) $60.5' \times 24'$. (b) $60.5' \times 18'$. (v) 3' borde on either side of width. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Nil. (iii) Count of tillers & mature stalk and sugarcane yield. (iv) (a) 1950—1952. (b) No. (c) Nil. (v) (a) Parsa and Pachrukhi. (b) Nil. (vi) & (vii) Nil.

5. RESULTS :

- (i) 19.29 ton/ac.
(ii) 4.133 ton/ac.
(iii) Main effect of levels of manure is significant, while all other effects are not significant.
(iv) Av. yield of cane in ton/ac.

	M_0	M_1	M_2	M_3	M_4	Mean
V_1	16.28	20.50	19.79	20.29	22.39	19.85
V_2	15.05	15.65	21.17	19.78	21.99	18.73
Mean	15.66	18.08	20.48	20.03	22.19	19.29

S.E. of marginal mean of manure = 1.19 ton/ac.

S.E. of marginal mean of Variety = 0.76 ton/ac.

S.E. of body of table = 1.69 ton/ac.

Crop :- Sugarcane.
Site :- Zonal Centre, Majhulia.

Ref :- Bh. 51(57).
Type :- 'MV'.

Object :- To find the optimum dose of N and P_2O_5 alone and in combination for CO. 453 and BO. 11.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) N.A. (c) N.A. (ii) (a) Alluvial calcareous (b) N.A. (iii) N.A. (iv) (a) 4 ploughings by *deshi* plough. (b) Flat planting. (c) 60, three-budded setts/row. (d) Rows 3' apart. (e)—(v) N.A. (vi) As per treatments. (vii) N.A. (viii) Hoeing, weeding and earthing up. (ix) N.A. (x) N.A.

2. TREATMENTS :

Main plot treatments :—

2 Varieties : V_1 =CO. 453 and V_2 =BO. 11.

Sub-plot treatments :—

All combinations of (1) and (2)

(1) 4 levels of N : $N_0=0$, $N_1=40$, $N_2=80$ and $N_3=120$ lb/ac.(2) 4 levels of P_2O_5 : $P_0=0$, $P_1=50$, $P_2=100$ and $P_3=150$ lb/ac.N as Castor cake and P_2O_5 as Single Super. All treatments applied at planting.

3. DESIGN :

(i) Split-plot. (ii) (a) 2 main-plots/block and 16 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) 60.5' x 4'. (b) 60.5' x 18'. (v) One row on either side of width. (vi) Yes.

4. GENERAL :

(i) N.A. (ii) N.A. (iii) No. of mature stalks and tillers, sucrose %, and cane yield. (iv) (a) 1949—1952. (b) No. (c) Nil. (v) (a) Parsa, Harinagar, Motipur and Motihari. (b) No. (vi) Nil. (vii) Experiments conducted during 1950 not available.

5. RESULTS :

- (i) 21.80 ton/ac.
 (ii) (a) 9.98 ton/ac.
 (b) 4.29 ton/ac.
 (iii) None of the effects is significant.
 (iv) Av. yield of sugarcane in ton/ac.

	N_0	N_1	N_2	N_3	Mean	P_0	P_1	P_2	P_3
V_1	23.09	20.57	23.46	23.06	22.54	21.95	22.46	23.30	22.47
V_2	20.44	20.28	21.94	21.61	21.07	21.18	20.01	22.44	20.64
Mean	21.76	20.42	22.70	22.34	21.80	21.56	21.23	22.87	21.55
P_0	23.03	21.24	22.31	19.65					
P_1	21.08	17.54	22.87	23.42					
P_2	21.31	23.01	22.85	24.27					
P_3	21.59	19.88	22.77	21.98					

S.E. of difference of two.

1. V marginal means = 1.76 ton/ac.
 2. N or P marginal means = 1.07 ton/ac.
 3. N or P means at the same level of V = 1.52 ton/ac.
 4. V means at the same level of N or P = 2.20 ton/ac.

Crop :- Sugarcane.

Site :- Zonal Centre, Majhulia.

Ref :- Bh. 52(74).

Type :- 'MV'.

Object :- To find out the optimum dose of N and P_2O_5 alone and in combinations.

1. BASAL CONDITIONS :

- (i) (a) Sugarcane-G.M.-Wheat-G.M.-Sugarcane, (b) *Sanai*. (c) Nil. (ii) (a) Alluvial calcareous. (b) N.A. (iii) 3/4.2.52. (iv) (a) 4 ploughings. (b) Flat planting. (c) 60, three-budded setts/row. (d) Rows 3' apart. (e) —. (v) Castor cake 78 md./ac (vi) As per treatments. (vii) N.A. (viii) N.A (ix) 65.78°. (x) 10.1.53 to 22.1.53.

2. TREATMENTS :

Main-plot treatments :—

2 Varieties : V_1 =CO. 453 and V_2 =BO. 11.

Sub-plot treatments :—

All combinations of (1) and (2)

(1) 4 levels of N : $N_0=0$, $N_1=40$, $N_2=80$, and $N_3=120$ lb./ac.(2) 4 levels of P_2O_5 : $P_0=0$, $P_1=50$, $P_2=100$ and $P_3=150$ lb./ac.N as Castor cake and P_2O_5 as Single Super. All treatments applied at planting.

3. DESIGN :

(i. Split plot. (ii) (a) 2 main-plots/block and 16 sub-plots/main-plot. (b) N.A. (iii) 5. (iv) (a) 60.5'×24'. (b) 60.5'×18'. (v) 3' border on either side of width. (vi) Yes.

4. GENERAL :

(i) Normal. (ii) Nil. (iii) No. of mature stalks, tiller count and sugarcane yield. (iv) (a) 1949-1952. (b) No. (c) Nil. (v) (a) Harinagar, Parsa, Motihari and Motipur. (b) No. (vi) and (vii) Nil.

5. RESULTS :

- (i) 24.50 ton/ac.
 (ii) (a) 13.64 ton/ac.
 (b) 28.38 ton/ac.
 (iii) None of the effects is significant.
 (iv) Av. yield of sugarcane in ton/ac.

	N_0	N_1	N_2	N_3	Mean	P_0	P_1	P_2	P_3
V_1	22.81	24.61	26.21	24.87	24.64	24.49	25.43	23.80	24.87
V_2	22.06	25.24	25.57	24.53	24.35	23.85	23.00	24.50	26.04
Mean	22.44	24.97	25.89	24.70	24.50	24.17	24.22	24.15	25.45
P_0	22.32	24.55	24.99	24.82					
P_1	21.63	24.97	25.83	24.43					
P_2	20.82	24.53	26.39	24.87					
P_3	21.97	25.82	26.35	24.68					

S.E. of difference of two

1. V marginal means = 2.16 ton/ac.
 2. N or P marginal means = 6.34 ton/ac.
 3. V means at the same level of N or P = 8.07 ton/ac.
 4. N or P means at the same level of V = 8.97 ton/ac.
 5. means in the body of $N \times P$ table = 12.69 ton/ac.

Crop :- Sugarcane.

Site :- Zonal Centre Majhulia (Lalgarh).

Ref :- Bh. 50(33).

Type :- 'MV'.

Object :—To compare oil cakes in combination with Single Super against standard manures.

1. BASAL CONDITIONS :

- (i) (a) Sugarcane-G.M.-Wheat-G.M.-Sugarcane. (b) *Santai*. (c) Nil. (ii) (a) Alluvial calcareous. (b) N.A. (iii) 6.2.50. (iv) (a) 4 ploughings. (b) Flat planting. (c) 70 md./ac. (d) Rows 3' apart. (e) — (v) N.A. (vi) As per treatments. (vii) N.A. (viii) N.A. (ix) 39.17". (x) 9.2.51 to 20.2.51.

2. TREATMENTS :

Main-plot treatments :—

2 Varieties : V_1 =BO. 11 and V_2 =BO. 10.

Sub-plot treatments :—

8 doses of manure :

 M_1 = Ammo. phos at 70 lb./ac. of N+ Ammo. phos. at 70 lb./ac. of P_2O_5 . M_2 = A/N at 70 lb./ac. of N+ Single Super at 70 lb./ac. of P_2O_5 . M_3 = Castor cake at 70 lb./ac. of N+ Single Super at 70 lb./ac. of P_2O_5 . M_4 = Mustard cake at 70 lb./ac. of N+ Single Super at 70 lb./ac. of P_2O_5 . M_5 = Linseed cake at 70 lb./ac. of N+ Single Super at 70 lb./ac. of P_2O_5 . M_6 = Mahua cake at 70 lb./ac. of N+ Single Super at 70 lb./ac. of P_2O_5 . M_7 = G.N.C. at 70 lb./ac. of N+ Single Super at 70 lb./ac. of P_2O_5 . M_8 = Control (No manure).

Manures applied at the time of planting.

3. DESIGN :

(i) Split plot. (ii) (a) 2 main-plots/block and 8 sub-plots/main-plot. (b) N.A. (iii) 6. (iv) (a) 60.5' × 24'. (b) 60.5' × 18'. (v) 3' border on either side of width. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Nil. (iii) No. of tillers and no. of mature stalks, and sugarcane yield. (iv) (a) 1950-1953. (b) Nil. (c) No. (v) (a) Parsa. (b) Nil. (vi) Nil. (vii) Experiment conducted in 1951 not available.

5. RESULTS :

- (i) 16.15 ton/ac.
 (ii) (a) 0.95 ton/ac.
 (b) 0.68 ton/ac.
 (iii) None of the effects is significant.
 (iv) Av. yield of sugarcane in ton/ac.

	M_1	M_2	M_3	M_4	M_5	M_6	M_7	M_8	Mean
V_1	16.02	16.92	15.85	17.15	15.91	16.74	16.23	13.75	16.07
V_2	17.28	17.00	16.71	15.94	14.70	15.98	16.70	15.48	16.22
Mean	16.65	16.96	16.28	16.55	15.32	16.36	16.47	14.61	16.15

S.E. of difference of two

1. variety marginal means = 0.19 ton/ac.
 2. manure marginal means = 0.28 ton/ac.
 3. manure means at the same level of variety = 0.39 ton/ac.
 4. variety means at the same level of manure = 0.41 ton/ac.

Crop :- Sugarcane.

Ref :- Bh. 52(76).

Site :- Zonal Centre, Majhulia.

Type :- 'MV'.

Object :—To compare oil cakes in combination with Single Super against standard manures.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) N.A. (c) N.A. (ii) (a) Alluvial calcareous. (b) N.A. (iii) N.A. (iv) (a) 4 ploughings and harrowing. (b) Flat method of planting. (c) 65 md./ac. (d) Rows 3' apart. (e) —. (v) N.A. (vi) As per treatments. (vii) N.A. (viii) N.A. (ix) N.A. (x) N.A.

2. TREATMENTS :

Main-plot treatments :—

2 varieties : V_1 =BO. 11 and V_2 =CO. 453.

Sub-plot treatments :—

7 doses of manure :

 M_1 = A/N at 60 lb./ac. of N+ Single Super at 75 lb./ac. of P_2O_5 . M_2 = Castor cake at 60 lb./ac. of N + Single Super at 75 lb./ac. of P_2O_5 . M_3 = Mustard cake at 60 lb./ac. of N + Single Super at 75 lb./ac. of P_2O_5 . M_4 = Linseed cake at 60 lb./ac. of N + Single Super at 75 lb./ac. of P_2O_5 . M_5 = Mahua. cake at 60 lb./ac. of N + Single Super at 75 lb./ac. of P_2O_5 . M_6 = G.N.C. at 60 lb./ac. of N + Single Super at 75 lb./ac. of P_2O_5 . M_7 = Control (No manure).

3. DESIGN :

- (i) Split-plot. (ii) (a) 2 main-plots/block and 6 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) 60.5' × 24'.
 (b) 60.5' × 18'. (v) 1 guard row on each side along the length. (vi) Yes.

4. GENERAL :

- (i) N.A. (ii) N.A. (iii) Height, tiller count no. of mature stalks and sugarcane yield. (iv) (a) 1950-1953.
 (b) No. (c) Nil. (v) (a) N.A. (b) Nil. (vi) Nil. (vii) Treatment M₇ was not tried.

5. RESULTS :

- (i) 24.43 ton/ac.
 (ii) (a) 5.61 ton/ac.
 (b) 3.00 ton/ac.
 (iii) No effect is significant.
 (iv) Av. yield of sugarcane in ton/ac.

	M ₁	M ₂	M ₃	M ₄	M ₅	M ₆	Mean
V ₁	28.61	24.45	24.52	24.67	24.56	24.49	25.11
V ₂	22.17	23.55	23.07	24.22	21.55	27.31	23.64
Mean	25.39	24.00	23.79	24.45	23.06	25.90	24.43

S.E. of difference of two

1. variety means = 1.62 ton/ac.
 2. manure means = 1.50 ton/ac.
 3. manure means at the same level of variety = 2.12 ton/ac.
 4. variety means at the same level of manure = 2.53 ton/ac.

Crop :- Sugarcane.

Site :- Zonal Centre, Majhulia.

Ref :- Bh. 53(136).

Type :- 'MV'.

Object :- To compare Oil cakes in combination with Single Super with the standard manure.

1. BASAL CONDITIONS :

- (i) (a) N.A. (b) N.A. (c) N.A. (ii) (a) Alluvial calcareous. (b) N.A. (iii) N.A. (iv) (a) 4 ploughings by *deshi* plough. (b) Flat method of planting. (c) 60; three-budded setts/row. (d) Rows 3' apart.
 (e) -. (v) N.A. (vi) As per treatments. (vii) N.A. (viii) Hoeing, weeding and earthing up. (ix) N.A.
 (x) N.A.

2. TREATMENTS :

Main-plot treatments :-

2 varieties : V₁=BO. 11 and V₂=CO. 453.

Sub-plot treatments :-

5 doses of manure.

- M₁= A.S.N. at 60 lb./ac. of N+Single Super at 75 lb./ac. of P₂O₅.
 M₂=Castor cake at 60 lb./ac. of N+Single Super at 75 lb./ac. of P₂O₅.
 M₃=Mustard cake at 60 lb./ac. of N+Single Super at 75 lb./ac. of P₂O₅.
 M₄=Linseed cake at 60 lb./ac. of N+Single Super at 75 lb./ac. of P₂O₅.
 M₅=Mahua. cake at 60 lb./ac. of N+Single Super at 75 lb./ac. of P₂O₅.

3. DESIGN :

- (i) Split-plot. (ii) (a) 2 main-plots/block and 5 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) 60.5' × 24'.
 (b) 60.5' × 18'. (v) One row on either side of width. (vi) Yes.

4. GENERAL :

- (i) N.A. (ii) N.A. (iii) Tiller no., no of mature stalks, sucrose % and sugarcane yield. (iv) (a) 1950-1953.
 (b) No. (c) Nil. (v) (a) N.A. (b) N.A. (vi) & (vii) Nil.

5. RESULTS :

- (i) 16.25 ton/ac.
 (ii) (a) 3.63 ton/ac.
 (b) 2.34 ton/ac.
 (iii) None of the effects is significant.
 (iv) Av. yield of sugarcane in ton/ac.

	M ₁	M ₂	M ₃	M ₄	M ₅	Mean
V ₁	16.22	15.62	15.71	17.85	16.40	16.36
V ₂	14.43	18.18	16.06	17.59	14.43	16.14
Mean	15.33	16.90	15.89	17.72	15.42	16.25

S.E. of difference of two

1. variety means = 1.15 ton/ac.
 2. manure means = 1.17 ton/ac.
 3. manure means at the same level of variety = 1.65 ton/ac.
 4. variety means at the same level of manure = 1.87 ton/ac.

Crop :- Sugarcane.

Site :- Zonal Centre, Majhulia.

Ref :- Bh. 49(29).

Type :- 'MV'.

Object :- To find out the response due to different combinations of manures.

1. BASAL CONDITIONS :

- (i) (a) N.A. (b) N.A. (c) N.A. (ii) (a) Alluvial calcareous. (b) N.A. (iii) N.A. (iv) (a) 4 ploughings.
 (b) Flat planting. (c) 60, three-budded setts/row. (d) Rows 3' apart. (e) —. (v) Nil. (vi) As per treatments. (vii) N.A. (viii) Hoeing and weeding in general. (ix) N.A. (x) N.A.

2. TREATMENTS :

Main-plot treatments :—

2 varieties : V₁=CO. 453 and V₂=BO. 11.

Sub-plot treatments :—

9 doses of manure :

- M₁=Ammo. Phos. at 40 lb./ac. of N+50 lb./ac. of P₂O₅.
 M₂=A/S at 40 lb./ac. of N+Triple Super at 50 lb./ac. of P₂O₅.
 M₃=Castor cake+Ammo. Phos.+Triple Super at 40 lb./ac. of N+50 lb./ac. of P₂O₅.
 M₄=Castor cake at 40 lb./ac. of N+Triple Super at 50 lb./ac. of P₂O₅.
 M₅=Mustard cake+Ammo. phos.+Triple Super at 40 lb./ac. of N+50 lb./ac. of P₂O₅.
 M₆=Mustard cake at 40 lb./ac. of N+Triple Super at 50 lb./ac. of P₂O₅.
 M₇=Linseed cake+Ammo. phos.+Triple Super at 40 lb./ac. of N+50 lb./ac. of P₂O₅.
 M₈=Linseed cake at 40 lb./ac. of N+Triple Super at 50 lb./ac. of P₂O₅.
 M₉=Control (no manure).

3. DESIGN :

- (i) Split-plot. (ii) (a) 2 main-plots/block and 9 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) 60.5'×24'.
 (b) 6\'.5'×18'. (v) 1 row on either side of width. (vi) Yes.

4. GENERAL :

- (i) N.A. (ii) N.A. (iii) No. of mature stalks, sucrose %, and sugarcane yield. (iv) (a) 1949-1953.
 (b) No. (c) Nil. (v) (a) None. (b) Nil. (vi) Nil. (vii) Treatments for experiment conducted during 1950 modified.

5. RESULTS :

- (i) 22.86 ton/ac.
 (ii) (a) 0.77 ton/ac.
 (b) 1.63 ton/ac.
 (iii) Main effect of variety alone is highly significant.

(iv) Av. yield of sugarcane in ton/ac.

	M ₁	M ₂	M ₃	M ₄	M ₅	M ₆	M ₇	M ₈	M ₉	Mean
V ₁	6.50	31.56	27.25	31.29	26.06	26.79	28.08	27.89	27.16	25.84
V ₂	18.20	16.78	21.80	20.68	17.25	19.90	22.57	21.24	20.46	19.88
Mean	12.35	24.17	24.53	25.98	21.65	23.35	25.32	24.57	23.81	22.86

S.E. of difference of two

1. variety means = 0.18 ton/ac.
2. manure means = 0.81 ton/ac.
3. manure means at the same level of variety = 1.15 ton/ac.
4. variety means at the same level of manure = 0.11 ton/ac.

Crop :- Sugarcane .
 Site : Zonal Centre, Majhulia.

Ref :- Bh. 50(44).
 Type :- 'MV'.

Object :- To find out the response to different combinations of manures.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) N.A. (c) N.A. (ii) (a) Alluvial calcareous. (b) N.A. (iii) N.A. (iv) (a) 4 ploughings by *deshi* plough. (b) Flat method of planting. (c) 60, three-budded setts/row. (d) Rows 3' apart. (e) Nil. (v) N.A. (vi) As per treatments. (vii) N.A. (viii) Hoeing, weeding and earthing up. (ix) N.A. (x) N.A.

2. TREATMENTS :

Main-plot treatments :-

2 varieties : V₁=BO. 11 and V₂=BO. 10.

Sub-plot treatments :-

Manures to give 60 lb./ac. of N+75 lb./ac. of P₂O₅.M₁= Ammo. Phos.M₂= Ammo. Phos.+Single Super.M₃= Castor cake+ Ammo Phos.+Single Super.M₄= Castor cake+Single Super.M₅= Mustard cake+ Ammo. Phos.+Single Super.M₆= Mustard cake+Single Super.M₇= Linseed cake+ Ammo. Phos. +Single Super.M₈= Linseed cake+Single Super.M₉= G.N.C.+ Ammo.Phos.+Single Super.M₁₀= G.N.C.+Single Super.M₁₁= Control (no manure).

Applied as mixture at planting.

3. DESIGN :

(i) Split plot. (ii) (a) 2 main-plots/block and 11 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) 60.5' x 24' with 8 rows 3' apart. (b) 60.5' x 18'. with 6 rows 3' apart. (v) One row on either side of width. (vi) Yes.

4. GENERAL :

(i) N.A. (ii) N.A. (iii) Tiller no., no. of mature stalks, sucrose% and sugarcane yield. (iv) (a) 1943-1953. (b) No. (c) Nil. (v) (a) Nil. (b) Nil. (vi) Nil. (vii) Experiment conducted in 1951. N.A. Modification of treatments after the year 1950.

5. RESULTS :

- (i) 20.11 ton/ac.
- (ii) (a) 3.73 ton/ac.
(b) 2.98 ton/ac.
- (iii) Main effect of variety is highly significant and the interaction V x M is significant. Manure effect is not significant.

(i) Av. yield of sugarcane in ton/ac.

	M ₁	M ₂	M ₃	M ₄	M ₅	M ₆	M ₇	M ₈	M ₉	M ₁₀	M ₁₁	Mean
V ₁	21.63	29.34	22.30	27.13	27.81	26.20	28.56	24.98	25.35	27.55	24.20	25.91
V ₂	14.69	15.29	16.07	14.61	12.65	13.89	12.53	15.66	14.51	14.97	12.41	14.30
Mean	18.16	22.32	19.19	20.87	20.23	20.04	20.55	20.32	19.93	21.26	18.31	20.11

S.E. of difference of two

1. variety means =0.80 ton/ac.
2. manure means =1.49 ton/ac.
3. manure means at the same level of variety =2.11 ton/ac.
4. variety means at the same level of manure =2.16 ton/ac.

Crop :- Sugarcane.

Ref :- Bh. 52(63)

Site :- Zonal Centre, Majhaulia. (Lalgah).

Type :- 'MV'.

Object :- To find out the response to different combinations of manures.

1. BASAL CONDITIONS :

(i) (a) *Sanai-Sugarcane-Sanai*. (b) *Sanai*. (c) Nil. (ii) (a) Alluvial calcareous. (b) N.A. (iii) 25.1.52. (iv) (a) One ploughing for turning up *sanai* and 4 ploughings. (b) Flat planting. (c) 60, three-budded setts/row. (d) Rows 3' apart. (e) Nil. (v) *Sanai* and F.Y.M. at 8 C.L./ac. (vi) As per treatments. (vii) N.A. (viii) Hoing, weeding and earthing up. (ix) 66.90°. (x) 14.3.53 to 18.3.53.

2. TREATMENTS :

Main-plot treatments :-

2 varieties :- V₁=BO. 10 and V₂=BO. 11.

Sub-plot treatments :-

6 manures :-

M₁=A/S at 60 lb./ac. of N+Single Super at 75 lb./ac. of P₂O₅.M₂=Castor cake at 60 lb./ac. of N+Single Super at 75 lb./ac. of P₂O₅.M₃=Castor cake at 45 lb./ac. of N+A/S at 15 lb./ac.+Single Super at 75 lb./ac. of P₂O₅.M₄=Castor cake at 30 lb./c. of N+A/S at 30 lb./ac.+Single Super at 75 lb./ac. of P₂O₅.M₅=Castor cake at 15 lb./ac. of N+A/S at 45 lb./ac.+Single Super at 75 lb./ac. of P₂O₅.M₆=Control (no manure).

3. DESIGN :

(i) Split-plot. (ii) (a) 2 main-plots/block, and 6 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) 60.5'×24'. (b) 60.5'×18'. (v) One row on each side of width (vi) Yes.

4. GENERAL :

(i) Normal. (iii) Nil. (iii) No. of mature stalk, sucrose %, and sugarcane yield. (iv) (a) 1949-1953. (b) No. (c) Nil. (v) (a) Parsa, Motipur and Motihari. (b) Nil. (vi) & (vii). Nil.

5. RESULTS :

(i) 22.28 ton/ac.

(ii) (a) 0.27 ton/ac.

(b) 1.28 ton/ac.

(iii) Varieties differ highly significantly. No other effect is significant.

(iv) Av. yield of sugarcane in ton/ac.

	M ₁	M ₂	M ₃	M ₄	M ₅	M ₆	Mean
V ₁	19.89	19.38	22.39	21.65	20.77	20.96	20.84
V ₂	21.47	23.60	23.56	24.15	25.32	24.22	23.72
Mean	20.68	21.49	22.98	22.90	23.05	22.59	22.28

S.E. of differences of two

1. variety means =0.078 ton/ac.
2. manure means =0.64 ton/ac.
3. manure means at the same level of variety =0.91 ton/ac.
4. variety means at the same level of manure =0.83 ton/ac.

Crop :- Sugarcane.

Ref :- Bh. 53(138).

Site :- Zonal Centre, Majhulia.

Type :- 'MV'.

Object :- To find out the response to different combinations of manures.

1. BASAL CONDITIONS :

(i) (a) No. (b) N.A. (c) N.A. (ii) (a) Alluvial calcareous. (b) N.A. (iii) N.A. (iv) (a) 4 ploughings and harrowing. (b) Flat method of planting. (c) 60 md/ac. (d) Rows 3' apart. (e) —(v) N.A. (vi) As per treatments (vii) N.A. (viii) Hoeing and weeding. (ix) N.A. (x) N.A.

2 TREATMENTS :

Main-plot treatments :—

2 varieties :— $V_1 = \text{CO. 453}$ and $V_2 = \text{BO. 11}$.

Sub-plot treatments :—

6 manures :—

 $M_1 = \text{A/S at 60 lb./ac. of N+Single Super at 75 lb./ac. of } P_2O_5$ $M_2 = \text{Castor cake at 60 lb./ac. of N+Single Super at 75 lb./ac. of } P_2O_5$ $M_3 = \text{Castor cake at 45 lb./ac. of N+A/S at 15 lb./ac. of N+Single Super at 75 lb./ac. of } P_2O_5$ $M_4 = \text{Castor cake at 30 lb./ac. of N+A/S at 30 lb./ac. of N+Single Super at 75 lb./ac. of } P_2O_5$ $M_5 = \text{Castor cake at 15 lb./ac. of N+A/S at 45 lb./ac. of N+Single Super at 75 lb./ac. of } P_2O_5$ $M_6 = \text{Control (no manure)}$.

3. DESIGN :

(i) Split-plot. (ii) (a) 2 main-plots/block and 6 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) 60.5' × 24'. (b) 60.5' × 18'. (v) One row on either side along length. (vi) Yes.

4. GENERAL :

(i) N.A. (ii) N.A. (iii) Cane yield and no. of mature stalks. (iv) (a) 1949—1953. (b) No. (c) Nil. (v) (a) N.A. (b) No. (vi) & (vii) Nil.

5. RESULTS :

- (i) 20.52 ton/ac.
 (ii) (a) 4.01 ton/ac.
 (b) 2.01 ton/ac.
 (iii) Only main effect of manure is significant.
 (iv) Av. yield of cane in ton/ac.

	M_1	M_2	M_3	M_4	M_5	M_6	Mean
V_1	19.53	19.16	22.37	19.61	22.57	20.09	20.55
V_2	20.44	20.18	21.13	20.46	22.19	18.54	20.49
Mean	19.98	13.67	21.75	20.03	22.38	19.31	20.52

S.E. of difference of two

1. variety means = 1.16 ton/ac.
 2. manure means = 1.00 ton/ac.
 3. manure means at the same level of variety = 1.42 ton/ac.
 4. variety means at the same level of manure = 1.74 ton/ac.

Crop :- Sugarcane.

Ref :- Bh. 50 (37).

Site :- Zonal Centre, Motihari.

Type :- 'MV'

Object :- To compare the effect of A/N with that of A/S.

BASAL CONDITIONS :

(i) (a) G.M.—Sugarcane—G.M. (b) G.M. (*Santai*). (c) 50 lb./ac. of P_2O_5 as Single Super. (ii) (a) Sandy loam (b) N.A. (iii) 21.2.50. (iv) (a) 4 ploughings. (b) Flat planting. (c) 60, three-budded setts/row. (d) Rows 3' apart. (e) —. (vi) As per treatments. (vii) Irrigated. (viii) Hoeing, weeding and earthing done thrice. (ix) 40°00'. (x) 12.2.51.

2. TREATMENTS :

Main-plot treatments :—

2 varieties : $V_1=BO. 11$ and $V_2=CO. 453$

Sub-plot treatments :—

All combinations of (1), (2) + a control (no manure)

(1) 2 sources of N : $S_1=A/S$ and $S_2=A/N$.(2) 5 levels of N : $N_1=40$, $N_2=80$, $N_3=120$, $N_4=160$ and $N_5=200$ lb./ac.

3. DESIGN :

(i) Split plot. (ii) (a) 2 main-plots/replication ; 11 sub-plots/main-plot. (b) N.A. (iii) 2. (iv) (a) $60.5' \times 24'$ (b) $60.5' \times 18'$. (v) One row on each side of width. (vi) Yes.

4. GENERAL :

(i) N.A. (ii) N.A. (iii) No. of tillers, sucrose%, and sugarcane yield. (iv) 1950—51, 1951—52. (b) No. (c) Nil. (v) (a) Parsa, Majhulia and Motipur. (b) Nil. (vi) and (vii) Nil.

5. RESULTS :

- (i) 18.41 ton/ac.
 (ii) (a) 6.37 ton/ac.
 (b) 2.87 ton/ac.
 (iii) Only sub-plot treatments differ significantly.
 (iv) Av. yield of cane in ton/ac.

	Control	S_2N_1	S_1N_1	S_2N_2	S_1N_2	S_2N_3	S_1N_3	S_2N_4	S_1N_4	S_2N_5	S_1N_5	Mean
V_1	15.77	19.83	16.46	14.41	18.57	17.10	15.94	15.36	15.80	17.86	13.89	16.45
V_2	21.14	24.35	17.84	19.12	21.71	21.03	17.24	18.54	22.67	18.95	21.41	20.36
Mean	18.46	22.09	17.15	16.76	20.14	19.06	16.59	16.95	19.24	18.40	17.65	18.41

S.E. of difference of two

1. variety means = 1.92 ton/ac.
 2. manure means = 2.03 ton/ac.
 3. manure means at the same level of variety = 2.87 ton/ac.
 4. variety means at the same level of manure = 3.35 ton/ac.

Crop :- Sugarcane.

Site :- Zonal Centre, Motihari.

Ref :- Bh. 51 (46).

Type :- 'MV'.

Object :- To compare the effect of A/N with that of A/S.

1. BASAL CONDITIONS :

(i) (a) *Sanai*—Sugarcane—*Sanai*. (b) *Sanai*. (c) Nil. (ii) (a) Loam. (b) N.A. (iii) 24/25.2.51. (iv) (a) One ploughing for turning up *Sanai* and 4 ploughings later on followed by beaming. (b) Flat planting. (c) 6, three-budded setts/row. (d) Rows 3' apart. (e) — (v) *Sanai* and F.Y.M. at 8 CL/ac. (vi) As per treatments. (vii) Irrigated. (viii) Hoeing, weeding and earthing done thrice. (ix) 37.40'. (x) 16.3.52 to 18.3.52.

2. TREATMENTS :

Main-plot treatments :

2 varieties : $V_1=BO. 11$ and $V_2=CO. 453$

Sub-plot treatments :

All combinations of (1), (2) + a control (no manure)

(1) 2 sources of N : $S_1=A/S$ and $S_2=A/N$.(2) 5 levels of N : $N_1=40$, $N_2=80$, $N_3=120$, $N_4=160$ and $N_5=200$ lb./ac.

3. DESIGN :

(i) Split-plot (ii) (a) 2 main-plots/block ; 11 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) $60.5' \times 24'$ (b) $60.5' \times 18'$. (v) One row on each side of width. (vi) Yes.

4. GENERAL :

- (i) N.A. (ii) N.A. (iii) No. of mature stalks, sucrose%, sugarcane yield. (iv) (a) 1950-51, 1951-52. (b) (b) No. (c) Nil. (v) (a) Majhulia, Parsa, and Harinagar. (vi) and (vii) Nil.

5. RESULTS :

- (i) 20.98 ton/ac.
 (ii) (a) 1.08 ton/ac.
 (b) 1.79 ton/ac.
 (iii) Only main-plot treatments differ highly significantly.
 (iv) Av. yield of cane in ton/ac.

	Control	S ₂ N ₁	S ₁ N ₁	S ₂ N ₂	S ₁ N ₂	S ₂ N ₃	S ₁ N ₃	S ₂ N ₄	S ₁ N ₄	S ₂ N ₅	S ₁ N ₅	Mean
V ₁	16.95	18.38	18.22	17.47	15.00	17.85	13.53	14.72	17.44	13.99	17.84	16.49
V ₂	27.88	24.81	25.00	27.58	25.28	22.71	27.53	23.77	24.47	23.35	27.71	25.46
Mean	22.42	21.59	21.61	22.52	20.14	20.28	20.53	19.25	20.56	18.67	22.78	20.98

S.E. of difference of two

1. variety means = 0.23 ton/ac.
2. manure means = 0.89 ton/ac.
3. manure means at the same level of variety = 1.27 ton/ac.
4. variety means at the same level of manure = 1.23 ton/ac.

Crop :- Sugarcane.

Ref :- Bh. 52(53).

Site :- Zonal Centre, Motihari.

Type :- 'MV'.

Object :- To compare the effect of A/N with that of A/S with Single Super.

1. BASAL CONDITIONS :

- (i) (a) G.M.-Sugarcane-G.M. (b) *Sanai* as G.M. (c) 50 lb./ac. of P₂O₅ as Single Super. (ii) (a) Sandy loam. (b) N.A. (iii) N.A. (iv) (a) Once ploughed to turn up *Sanai* and 4 more plougings by Bihar plough. (b) Flat planting. (c) 60, three budded setts/row. (d) Rows 3' apart. (e) Nil. (v) *Sanai* as G.M. and F.Y.M. (vi) As per treatments. (vii) Irrigated. (viii) 3 hoeings and 3 weedings. (ix) 50.01". (x) 12/13.3.53.

2. TREATMENTS :

Main-plot treatments -

2 varieties :- BO. 11 and V₂=CO. 453.

Sub-plot-treatments -

11 doses of manure :

- M₁ = A/N at 40 lb./ac. of N+Single Super at 80 lb./ac. of P₂O₅.
 M₂ = A/S at 40 lb./ac. of N+Single Super at 80 lb./ac. of P₂O₅.
 M₃ = A/N at 80 lb./ac. of N+Single Super at 100 lb./ac. of P₂O₅.
 M₄ = A/S at 80 lb./ac. of N+Single Super at 100 lb./ac. of P₂O₅.
 M₅ = A/N at 120 lb./ac. of N+Single Super at 150 lb./ac. of P₂O₅.
 M₆ = A/S at 120 lb./ac. of N+Single Super at 150 lb./ac. of P₂O₅.
 M₇ = A/N at 160 lb./ac. of N+Single Super at 200 lb./ac. of P₂O₅.
 M₈ = A/S at 160 lb./ac. of N+Single Super at 200 lb./ac. of P₂O₅.
 M₉ = A/N at 200 lb./ac. of N+Single Super at 250 lb./ac. of P₂O₅.
 M₁₀ = A/S at 200 lb./ac. of N+Single Super at 250 lb./ac. of P₂O₅.
 M₁₁ = Control (no manure).

3. DESIGN :

- (i) (a) Split-plot (ii) (a) 2 main-plots/block ; 11 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) 60.5' x 24'. (b) 60.5' x 18'. (v) One guard row along the length on both sides. (vi) Yes.

4. GENERAL :

- (i) Normal. (ii) No major pest. (iii) No. of tillers, mature stalk, sucrose% and sugarcane yield. (iv) (a) 1952.-1953. (b) No, (c) Nil. (v) (a) Majhulia, Dehri-on-Sone. (b) Nil. (vi) & (vii) Nil.

RESULTS :

- (i) 16.97 ton/ac.
 (ii) (a) 10.94 ton/ac.
 (b) 3.89 ton/ac.
 (iii) Only main effect of manure is significant.
 (iv) Av. yield of sugarcane in ton/ac.

	M ₁	M ₂	M ₃	M ₄	M ₅	M ₆	M ₇	M ₈	M ₉	M ₁₀	M ₁₁	Mean
V ₁	16.94	14.46	15.83	16.52	14.87	15.86	15.15	16.90	14.11	15.94	18.79	15.94
V ₂	21.72	16.60	15.33	18.73	17.80	13.49	14.58	23.96	17.42	18.20	20.20	18.00
Mean	19.33	15.53	15.58	17.63	16.34	14.68	14.86	20.43	15.77	17.07	19.49	16.97

S.E. of difference of two

1. variety means = 2.33 ton/ac.
2. manure means = 1.94 ton/ac.
3. manure means at the same level of variety = 2.75 ton/ac.
4. variety means at the same level of manure = 3.51 ton/ac.

Crop :- Sugarcane.

Ref :- Bh. 53(144).

Site :- Zonal Centre, Motihari.

Type :- 'MV'.

Object :- To compare the effect of A/N and A/S in combination with Super.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) N.A. (c) Nil. (ii) (a) Sandy loam. (b) N.A. (iii) N.A. (iv) (a) 4 ploughings, harrowing. (b) Flat method. (c) 65 md/ac. (d) rows 3' apart. (e) Nil. (v) Nil. (vi) As per treatments. (vii) N.A. (viii) Hoeing and weeding. (ix) N.A. (x) N.A.

2. TREATMENTS :

Main-plot treatments :

2 varieties : V₁=BO. 11 and V₂=CO. 453.

Sub-plot treatments :-

11 doses of manure :

- M₁ = A/N at 40 lb./ac. of N+Single Super at 50 lb./ac. of P₂O₅.
 M₂ = A/S at 40 lb./ac. of N+Single Super at 50 lb./ac. of P₂O₅.
 M₃ = A/N at 80 lb./ac. of N+Single Super at 100 lb./ac. of P₂O₅.
 M₄ = A/S at 80 lb./ac. of N+Single Super at 100 lb./ac. of P₂O₅.
 M₅ = A/N at 120 lb./ac. of N+Single Super at 150 lb./ac. of P₂O₅.
 M₆ = A/S at 120 lb./ac. of N+Single Super at 150 lb./ac. of P₂O₅.
 M₇ = A/N at 160 lb./ac. of N+Single Super at 200 lb./ac. of P₂O₅.
 M₈ = A/S at 160 lb./ac. of N+Single Super at 200 lb./ac. of P₂O₅.
 M₉ = A/N at 200 lb./ac. of N+Single Super at 250 lb./ac. of P₂O₅.
 M₁₀ = A/S at 200 lb./ac. of N+Single Super at 250 lb./ac. of P₂O₅.
 M₁₁ = Control (no manure).

3. DESIGN :

(i) Split plot. (ii) (a) 2 main-plots/replication ; 11 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 1/40 ac. (v) 1 row on either side. (vi) Yes.

4. GENERAL :

(i) N.A. (ii) N.A. (iii) Cane yield, number of mature stalks, height, and juice content. (iv) (a) 1952-1953. (b) No. (c) Nil. (v) (a) Majhauria, Dehri-on-Sone. (b) Nil. (vi) & (vii) Nil.

5. RESULTS :

- (i) 12.01 ton/ac.
 (ii) (a) 10.43 ton/ac.
 (b) 2.79 ton/ac.
 (iii) None of the effects is significant

(iv) Av. yield of cane in ton/ac.

	M ₁	M ₂	M ₃	M ₄	M ₅	M ₆	M ₇	M ₈	M ₉	M ₁₀	M ₁₁	Mean
V ₁	13.13	11.99	11.92	11.44	11.77	11.24	11.54	11.05	10.73	10.15	11.33	11.48
V ₂	11.02	11.85	10.86	14.60	11.94	13.44	16.80	12.92	11.28	13.98	9.27	12.54
Mean	12.08	11.92	11.39	13.02	11.86	12.34	14.17	11.99	11.01	12.07	10.30	12.01

S.E. of difference of two

1. variety means = 2.22 ton/ac.
2. manure means = 1.39 ton/ac.
3. manure means at the same level of variety = 1.97 ton/ac.
4. variety means at the same level of manure = 2.91 ton/ac.

Crop :- Sugarcane.

Ref :- Bh. 50(41).

Site :- Zonal Centre, Motihari.

Type :- 'MV'.

Object :- To find the optimum dose of N and P₂O₅.

1. BASAL CONDITIONS :

(i) (a) G.M.—Sugarcane—G.M. (b) *Sanai*. (c) 50 lb/ac. of P₂O₅ as Single Super. (ii) (a) Sandy loam. (b) N.A. (iii) 24.2.50 to 26.2.50. (iv) (a) 4 ploughings followed by beaming. (b) Flat planting. (c) 60, three budded setts/row. (d) Rows 3' apart. (e)—(v) G.M. (*Sanai*) and 100 md/ac. of F.Y.M. (vi) As per treatments. (vii) Irrigated. (viii) 3 hoeings and earthings. (ix) 40.00%. (x) 2.3.51 to 6.3.51.

2. TREATMENTS :

Main-plot treatments :-

2 Varieties :- V₁=CO. 453 and V₂=BO. 11.

Sub-plot treatments :-

All combinations of (1) & (2)

(1) 4 levels of N :- N₀=0, N₁=40, N₂=80, and N₃=120 lb/ac.(2) 4 levels of P₂O₅ :- P₀=0, P₁=50, P₂=100 and P₃=150 lb/ac.N as Castor cake and P₂O₅ as Single Super.

3. DESIGN :

(i) Split-plot. (ii) (a) 2 main-plots/block ; 16 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) 60.5' × 24'. (b) 60.5' × 18'. (v) One row on each side of width. (vi) Yes.

4. GENERAL :

(i) N.A. (ii) Nil. (iii) No. of tillers, sucrose %, and sugarcane yield. (iv) (a) 19.50—52. (b) No. (c) Nil. (v) (a) Parsa and Harinagar. (b) Nil. (vi) & (vii) Nil.

5. RESULTS :

(i) 28.36 ton/ac.

(ii) (a) 6.45 ton/ac:

(b) 5.69 ton/ac.

(iii) Main-plot treatments differ highly significantly. Others are not significant.

(iv) Av. yield of cane in ton/ac.

	N ₀	N ₁	N ₂	N ₃	Mean	P ₀	P ₁	P ₂	P ₃
V ₁	30.10	31.87	33.72	33.82	32.38	31.96	32.66	33.53	31.38
V ₂	25.22	23.56	24.39	24.22	24.35	25.90	23.48	22.48	25.52
Mean	27.66	27.71	29.06	29.02	28.36	28.93	28.07	28.00	28.45
P ₀	28.94	25.52	33.38	27.89					
P ₁	27.03	26.01	29.36	29.87					
P ₂	28.82	29.19	24.92	29.08					
P ₃	25.85	30.13	28.57	29.24					

S.E. of difference of two

1. V means =1.14 ton/ac.
2. N or P means =1.42 ton/ac.
3. N or P means at the same level of V =2.01 ton/ac.
4. V means at the same level of N or P =2.08 ton/ac.

S.E. of body of N×P table

=2.01 ton/ac.

Crop :- Sugarcane.

Site :- Zonal Centre, Motihari.

Ref :- Bh. 52(62).

Type :- 'MV'.

Object :- To find out the response to different combinations of manures.

1. BASAL CONDITIONS :

(i) (a) *Sanai*—Sugarcane—*Sanai*. (b) Sugarcane followed by *Sanai* (c) 50 lb/ac. of P₂O₅ as Single Super. for *Sanai* (ii) (a) Alluvial calcareous. (b) N.A. (iii) February planting. (iv) (a) One ploughing for upturning *Sanai* followed by 4 more ploughings. (b) Flat planting. (c) 60, three budded setts/row. (d) Rows 3' apart. (e)—(v) *Sanai* as G.M. and 10 C.L./ac. of F.Y.M. (vi) As per treatments. (vii) Irrigated. (viii) 3 hoeings, weeding and earthing. (ix) 50.01". (x) 19.2.1953.

2. TREATMENTS :

Main-plot treatments :-

2 varieties :- V₁=CO. 453 and V₂=BO. 11.

Sub-plot treatments :-

Manures :-

1. A/S at 60 lb/ac. of N+Single Super at 75 lb/ac. of P₂O₅.
2. Castor cake at 60 lb/ac. of N+Single Super at 75 lb/ac. of P₂O₅.
3. Castor cake at 45 lb/ac. of N+A/S at 15 lb/ac. of N+Single Super at 75 lb/ac.
4. Castor cake at 30 lb/ac. of N+A/S at 30 lb/ac. of N+Single Super at 75 lb/ac.
5. Castor cake at 15 lb/ac. of N+A/S at 45 lb/ac. of N+Single Super at 75 lb/ac.
6. Control (no manure).

3. DESIGN :

(i) Split-plot (ii) (a) 2 main-plots/block ; 6 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) 60.5'×24'. (b) 60.5'×18'. (v) One row on each side of width. (vi) Yes.

4. GENERAL :

(i) No lodging. (ii) Nil. (iii) No of mature stalks, sucrose % and sugarcane yield. (iv) (a) 1952—1953. (b) No. (c) Nil. (v) (a) Parsa, Motipur and Majhulia. (b) Nil. (vi) & (vii) Nil.

5. RESULTS :

- (i) 19.43 ton/ac.
- (ii) (a) 0.76 ton/ac.
- (b) 1.73 ton/ac.
- (iii) None of the effects is significant.

(iv) Av. yield of cane in ton/ac.

	1	2	3	4	5	6	Mean
V ₁	14.97	22.57	21.03	19.45	18.53	23.41	19.99
V ₂	19.82	18.72	15.52	21.29	17.43	20.37	18.86
Mean	17.40	20.65	18.27	20.37	17.98	21.89	19.43

S.E. of difference of two

1. variety means =0.22 ton/ac.
2. manure means =0.87 ton/ac.
3. manure means at the same level of variety =1.22 ton/ac.
4. variety means at the same level of manure =1.14 ton/ac.

Crop :- Sugarcane.

Ref :- Bh. 53(129).

Site :- Zonal Centre, Motihari.

Type :- 'MV'.

Object :- To compare the effect of Oilcakes in combination with Single Super on the yield of Sugarcane.

1. BASAL CONDITIONS :

- (i) (a) *Sanai*—Sugarcane—*Sanai*. (b) *Sanai* as green manure. (c) 50 lb./ac. of P₂O₅ as Single Super.
(ii) (a) Sandy loam. (b) N.A. (iii) N.A. (iv) (a) One ploughing for turning of *Sanai*, 4 more ploughings by *deshi* plough. (b) Flat planting. (c) 70 md./ac. (d) Rows 3' apart. (e) —. (v) *Sanai* as G.M. and F.Y.M. (amount N.A.) (vi) As per treatments. (vii) Irrigated. (viii) 3 hoeings and 3 weedings. (ix) N.A. (x) N.A.

TREATMENTS :

Main-plot treatments :—

2 varieties : V₁=BO. 11 and V₂=CO. 453.

Sub-plot treatments :—

1. A/N +Single Super at 60 lb./ac. of N+75 lb./ac. of P₂O₅.
2. Castorcake +Single Super at 60 lb./ac. of N+75 lb./ac. of P₂O₅.
3. Mustardcake +Single Super at 60 lb./ac. of N+75 lb./ac. of P₂O₅.
4. Linseedcake +Single Super at 60 lb./ac. of N+75 lb./ac. of P₂O₅.
5. G.N.C. +Single Super at 60 lb./ac. of N+75 lb./ac. of P₂O₅.
6. Control (no manure).

DESIGN :

- (i) Split-plot. (ii) (a) 2 main-plots/block ; 6 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) 60.5'×24'. (b) 60.5'×18'. (v) One guard row along the length on both side. (vi) Yes.

4. GENERAL :

- (i) N.A. (ii) Nil. (iii) No. of tillers and mature stalks, sucrose % and sugarcane yield. (iv) (a) 1952-1953. (b) No. (c) Nil. (v) (a) Pachrukhi and Harinagar. (b) Nil. (vi) & (vii) Nil.

RESULTS :

- (i) 12.91 ton/ac.
(ii) (a) 7.25 ton/ac.
(b) 3.48 ton/ac.
(iii) None of the effects is significant.
(iv) Av. yield of sugarcane in ton/ac.

	1	2	3	4	5	6	Mean
V ₁	11.38	14.87	14.73	11.29	11.84	11.16	12.55
V ₂	11.24	12.44	12.58	13.36	17.12	12.94	13.28
Mean	11.31	13.66	13.66	12.32	14.48	12.05	12.91

S.E. of difference of two

1. variety means =2.09 ton/ac.
2. manure means =1.74 ton/ac.
3. manure means at the same level of variety =2.46 ton/ac.
4. variety means at the same level of manure =3.07 ton/ac.

Crop :- Sugarcane.
Site :- Zonal Centre, Motihari.

Ref :- Bh. 50(31).
Type :- 'MV'.

Object :- To find out the optimum dose of A/N.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) *Sanai* as G.M. (c) 50 lb./ac. P_2O_5 as Single super. (ii) (a) Alluvial calcareous. (b) —. (iii) 22/23.2.50. (iv) (a) One ploughing for turning up *Sanai* and 4 ploughings for preparation of land. (b) Flat planting. (c) About 60, three budded setts/row. (d) Rows 3' apart. (e) —. (v) *Sanai* as G.M. and F.Y.M. before planting at 10 C.L./ac. (vi) As per treatments. (vii) Irrigated. (viii) Hoeing, weeding and earthing up. (ix) 40.0" (x) 22.2.51 to 28.2.51.

2. TREATMENTS :

Main-plot treatments :-

2 varieties : $V_1=CO. 453$ and $V_2=BO. 11$.

Sub-plot treatments :

11 levels of N as A/N : $N_0=0, N_1=40, N_2=80, N_3=120, N_4=160, N_5=200, N_6=240, N_7=280, N_8=320, N_9=360$ and $N_{10}=400$ lb./ac.

3. DESIGN :

(i) Split-plot. (ii) (a) 2 main-plots/block ; 11 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) 60.5' x 24'. (b) 60.5' x 18'. (v) 1 row on each side along length. (vi) Yes.

4. GENERAL :

(i) Good. (ii) N.A. (iii) No. of mature stalks, sucrose % and sugarcane yield. (iv) (a) 1950-1952. (b) No. (c) Nil. (v) (a) Parsa, Harinagar and Majhulia. (b) Nil. (vi) Nil. (vii) Design in year 1951 changed to R.B.D. Fact.

5. RESULTS :

(i) 16.34 ton/ac.
(ii) (a) 0.44 ton/ac.
(b) 0.59 ton/ac.
(iii) Only main-plot treatments differ significantly.
(iv) Av. yield of sugarcane in ton/ac.

	N_0	N_1	N_2	N_3	N_4	N_5	N_6	N_7	N_8	N_9	N_{10}	Mean
V_1	17.40	14.89	12.34	13.52	15.88	14.04	14.98	11.68	17.84	14.68	14.03	14.66
V_2	21.11	19.18	14.93	17.85	24.31	13.62	16.21	20.47	17.10	14.75	16.47	18.00
Mean	19.26	17.04	13.67	15.69	21.10	13.83	15.59	16.08	17.47	15.71	15.25	16.33

S.E. of difference of two

- | | |
|--|---------------|
| 1. variety means | =0.09 ton/ac. |
| 2. manure means | =0.29 ton/ac. |
| 3. manure means at the same level of variety | =0.42 ton/ac. |
| 4. variety means at the same level of manure | =0.41 ton/ac. |

Crop :- Sugarcane.
Site :- Zonal Centre, Motihari.

Ref :- Bh. 51(41).
Type :- 'MV'.

Object :- To find out the optimum dose of A/N.

1. BASAL CONDITIONS :

(i) (a) G.M. (*Sanai*). (b) *Sanai* as G.M. (c) 50 lb./ac. of P_2O_5 as Single Super. (ii) (a) Sandy loam. (b) N.A. (iii) N.A. (iv) (a) 4 ploughings by *deshi* plough. (b) Flat planting (c) 60, three budded setts/row. (d) Rows 3' apart. (e) —. (v) *Sanai* as G.M. and F.Y.M. (amount N.A.) (vi) As per treatments. (vii) Irrigated. (viii) Weeding and earthing up. (ix) 37.08". (x) 14 to 16 March 52.

2. TREATMENTS :

All combinations of (1) and (2)

(1) 2 varieties : $V_1=CO. 453$ and $V_2=BO. 11$.(2) 11 levels of N as A/N : $N_0=0, N_1=40, N_2=80, N_3=120, N_4=160, N_5=200, N_6=240, N_7=280, N_8=320, N_9=360$ and $N_{10}=400$ lb./ac.

3. DESIGN :

(i) 2×11 Fact. in R.B.D. (ii) (a) 22. (b) N.A. (iii) 4. (iv) (a) $60.5' \times 24'$. (b) $60.5' \times 18'$. (v) 1 guard row along length on both sides. (vi) Yes.

4. GENERAL :

(i) No lodging. (ii) N.A. (iii) Sucrose%, no. of matured stalks and sugarcane yield. (iv)(a) 1950—51 to 1952—1953. (b) No. (c) Nil. (v) (a) Parsa, Harinagar, and Majhulia. (c) Nil. (vi) and (vii) Nil.

5. RESULTS :

(i) 22.46 ton/ac.

(ii) 5.01 ton/ac.

(iii) Variety effect is highly significant while no other effect is significant.

(iv) Av. yield of sugarcane in ton/ac.

	N_0	N_1	N_2	N_3	N_4	N_5	N_6	N_7	N_8	N_9	N_{10}	Mean
V_1	28.89	30.11	27.44	26.60	25.01	26.88	28.60	26.80	25.56	28.33	25.98	27.29
V_2	18.25	21.36	14.33	19.82	14.88	18.55	18.26	15.31	17.96	18.66	16.27	17.63
Mean	23.57	25.74	20.88	23.21	19.94	22.8	23.43	21.06	21.76	23.49	21.12	22.46

S.E. of marginal mean of manures = 1.77 ton/ac.

S.E. of marginal mean of varieties = 0.76 ton/ac.

S.E. of body of table = 2.51 ton/ac.

Crop :-Sugarcane.

Site :-Zonal Centre, Motihari.

Ref :-Bh. 52 (54).

Type :-'MV'.

Object :-To find out the optimum dose of A/N.

1. BASAL CONDITIONS :

(i) (a) G.M.—Sugarcane—G.M. (b) *Sanai* as G.M. (c) 50 lb./ac. of P_2O_5 as Single Super. (ii) (a) Sandy loam. (b) N.A. (iii) February 1952. (iv) (a) 4 ploughings by *deshi* plough. (b) Flat planting. (c) 60, three budded setts/row. (d) Rows 3' apart. (e) —. (v) *Sanai* and F.Y.M. (vi) As per treatments. (vii) Irrigated. (viii) 3 times hoeings and weedings were done. (ix) 50.01". (x) 7.2.53 to 11.2.53.

2. TREATMENTS :

Main-plot-treatments :-

2 varieties : $V_1=CO. 453$ and $V_2=BO. 11$.

Sub-plot treatments :-

10 levels of N as A/N : $N_0=0, N_1=40, N_2=80, N_3=120, N_4=160, N_5=200, N_6=240, N_7=280, N_8=320,$ and $N_9=360$ lb./ac.

3. DESIGN :

(i) Split plot. (ii) (a) 2 main-plots/block ; 10 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) $60.5' \times 24'$. (b) $60.5' \times 18'$. (v) 1 guard row along the length on both sides. (vi) Yes.

4. GENERAL :

(i) Normal. (ii) No major pest. (iii) No. of tillers and mature stalks, sucrose % and sugarcane yield. (iv) (a) 1950—1952. (b) No. (c) Nil. (v) (a) Majhulia and Harinagar. (b) Nil. (vi) and (vii) Nil.

5. RESULTS :

(i) 18.50 ton/ac.

(ii) (a) 5.84 ton/ac.

(b) 4.47 ton/ac.

(iii) None of the effects is significant.

(iv) Av. yield of sugarcane in ton/ac.

	N ₀	N ₁	N ₂	N ₃	N ₄	N ₅	N ₆	N ₇	N ₈	N ₉	Mean
V ₁	19.64	20.32	18.35	22.43	17.65	23.81	18.76	16.87	18.25	21.91	19.80
V ₂	15.70	17.72	17.20	17.48	19.54	16.69	17.03	17.10	14.69	18.91	17.21
Mean	17.67	19.02	17.78	19.95	18.59	20.25	17.90	16.99	16.47	20.41	18.50

S.E. of difference of two

1. variety means = 1.31 ton/ac.
2. manure means = 2.23 ton/ac.
3. manure means at the same level of variety = 3.16 ton/ac.
4. variety means at the same level of manure = 3.27 ton/ac.

Crop :- Sugarcane.

Ref :- Bh. 52(86)

Site :- Zonal Centre, Motihari.

Type :- 'MV'.

Object :- To compare the effect of different Oilcakes in combination with Super.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) N.A. (c) N.A. (ii) (a) Sandy loam. (b) N.A. (iii) N.A. (iv) (a) 4 ploughings, harrowing. (b) Flat method. (c) 65 md./ac. (d) Rows 3' apart. (e) —. (v) Nil. (vi) As per treatments. (vii) N.A. (viii) Hoeing and weeding. (ix) N.A. (x) N.A.

2. TREATMENTS:

Main-plot treatments :-

2 varieties : V₁=BO. 11 and V₂=CO. 453.

Sub-plot treatments :-

1. A/N + Single Super at 40 lb./ac. of N + 50 lb./ac. of P₂O₅.
2. Castor cake + Single Super at 40 lb./ac. of N + 50 lb./ac. of P₂O₅.
3. Mustard cake + Single Super at 40 lb./ac. of N + 50 lb./ac. of P₂O₅.
4. Linseed cake + Single Super at 40 lb./ac. of N + 50 lb./ac. of P₂O₅.
5. G.N.C. + Single Super at 40 lb./ac. of N + 50 lb./ac. of P₂O₅.
6. Mohwa cake + Single Super at 40 lb./ac. of N + 50 lb./ac. of P₂O₅.

3. DESIGN :

(i) Split plot. (ii) (a) 2 main-plots/replication ; 6 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 1/40th acre. (v) 1 row on either side. (vi) Yes.

4. GENERAL :

(i) N.A. (ii) N.A. (iii) Sugarcane yield, no. of mature stalks and juice content. (iv) (a) 1952-1953. (b) N.A. (c) N.A. (v) (a) N.A. (b) No. (vi) Nil. (vii) Nil.

5. RESULTS :

- (i) 12.68 ton/ac.
- (ii) (a) 7.38 ton/ac.
- (b) 3.49 ton/ac.
- (iii) No effect is significant.
- (iv) Av. yield of sugarcane in ton/ac.

	1	2	3	4	5	6	Mean
V ₁	11.25	12.44	12.58	13.36	12.95	15.29	12.98
V ₂	11.39	14.88	14.74	11.30	10.98	10.93	12.37
Mean	11.32	13.66	13.66	12.33	11.97	13.11	12.68

S.E. of difference of two

1. variety marginal means = 2.13 ton/ac.
2. manure marginal means = 1.74 ton/ac.
3. manure means at the same level of variety = 2.47 ton/ac.
4. variety means at the same level of manure = 3.10 ton/ac.

Crop :- Sugarcane.

Ref :- Bh. 53(145).

Site :- Zonal Centre, Motihari.

Type :- 'MV'

Object :- To study the response to different combinations of manures on different varieties of Sugarcane.

BASAL CONDITIONS :

(i) (a) N.A. (b) N.A. (c) N.A. (ii) (a) Sandy loam. (b) N.A. (iii) N.A. (iv) (a) 4 ploughings and harrowing. (b) Flat method. (c) 65 md./ac. (d) Rows 3' apart. (e) Nil. (vi) As per treatments. (vii) Irrigated. (viii) Hoeing and weeding. (ix) N.A. (x) N.A.

2. TREATMENTS :

Main-plot treatments :-

2 varieties : $V_1 = CO. 453$ and $V_2 = BO. 11$.

Sub-plot treatments :-

1. A/S + Single Super at 60 lb./ac. of N + 75 lb./ac. of P_2O_5 .
2. Castorcake + Single Super at 60 lb./ac. of N + 75 lb./ac. of P_2O_5 .
3. Castorcake + Single Super at 45 lb./ac. of N + 75 lb./ac. of P_2O_5 + A/S at 15 lb./ac. of N
4. Castorcake + Single Super at 30 lb./ac. of N + 75 lb./ac. of P_2O_5 + A/S at 30 lb./ac. of N
5. Castorcake + Single Super at 15 lb./ac. of N + 75 lb./ac. of P_2O_5 + A/S at 45 lb./ac. of N
6. Control (no manure).

3. DESIGN :

(i) Split plot. (ii) (a) 2 main-plots/replication ; 6 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 1/40th acre. (v) 1 row on either side. (vi) Yes.

4. GENERAL :

(i) N.A. (ii) N.A. (iii) Sugarcane yield, no. of mature stalks and juice content. (iv) (a) 1952—1953. (b) No. (c) N.A. (v) (a) N.A. (b) No. (vi) and (vii) Nil.

5. RESULTS :

- (i) 14.52 ton/ac.
 (ii) (a) 1.93 ton/ac.
 (b) 2.46 ton/ac.
 (iii) Variety effect is highly significant. Sub-plot treatments differ significantly.
 (iv) Av. yield of sugarcane in ton/ac.

	1	2	3	4	5	6	Mean
V_1	16.16	19.32	17.86	18.83	16.18	14.70	17.18
V_2	11.52	12.41	12.46	12.68	12.71	9.33	11.85
Mean	13.84	15.87	15.16	15.76	14.45	12.02	14.52

S.E. of difference of two

1. variety means = 0.56 ton/ac.
2. manure means = 1.23 ton/ac.
3. manure means at the same level of variety = 1.74 ton/ac.
4. variety means at the same level of manure = 1.68 ton/ac.

Crop :- Sugarcane.

Ref :- Bh. 50 (28).

Site :- Zonal Centre, Motipur.

Type :- 'MV'.

Object :- To find out the optimum dose of Ammo. Phos. for Sugarcane.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) N.A. (c) N.A. (ii) (a) Sandy loam. (b) N.A. (iii) N.A. (iv) (a) 4 ploughings by *deshi* plough. (b) Flat planting. (c) 60, three budded setts/row. (d) Rows 3' apart. (e) Nil. (vi) As per treatments. (vii) N.A. (viii) Earthing and weeding. (ix) N.A. (x) N.A.

2. TREATMENTS :

All combinations of (1) and (2)

(1) 2 varieties :— V_1 =BO. 11 and V_2 =CO. 453

(2) 5 levels of manures :

 M_0 =Control (no manure). M_1 = 40 lb./ac. of N and 50 lb./ac. of P_2O_5 . M_2 = 60 lb./ac. of N and 75 lb./ac. of P_2O_5 . M_3 = 80 lb./ac. of N and 100 lb./ac. of P_2O_5 . M_4 =100 lb./ac. of N and 125 lb./ac. of P_2O_5 .N and P_2O_5 as Ammo. Phos. Manures applied at the time of planting.

3. DESIGN :

(i) 2×5 Fact. in R.B.D. (ii) (a) 10. (b) N.A. (iii) 6. (iv) (a) $60.5' \times 24'$. (b) $60.5' \times 18'$. (v) 3' on either side along length (vi) Yes.

4. GENERAL :

(i) N.A. (ii) Nil. (iii) Sucrose%, no. of mature stalks and sugarcane yield. (iv) (a) 1950—1953. (b) No. (c) Nil. (v) (a) Pachrukhi and Dehri-on-Sone. (b) Nil. (vi) Nil. (vii) Experiment was not conducted during 1952.

5. RESULTS :

(i) 16.72 ton/ac.

(ii) 4.34 ton/ac.

(iii) Main effects of variety and manure are highly significant. Interaction is not significant.

(iv) Av. yield of sugarcane in ton/ac.

	M_0	M_1	M_2	M_3	M_4	Mean
V_1	10.62	11.10	13.54	19.23	17.85	14.47
V_2	12.66	18.92	20.62	25.06	17.55	18.96
Mean	11.64	15.01	17.08	22.15	17.70	16.72

S.E. of marginal mean of variety

=0.79 ton/ac.

S.E. of marginal mean of manure

=1.25 ton/ac.

S.E. of body of table

=1.77 ton/ac.

Crop :- Sugarcane.

Ref :- Bh. 51 (40).

Site :- Zonal Centre, Motipur.

Type 'MV'.

Object :-To find out the optimum dose of Ammo. Phos. for Sugarcane

1. BASAL CONDITIONS :

(i) (a) Nil. (b) N.A. (c) N.A. (ii) (a) Sandy loam. (b) N.A. (iii) N.A. (iv) (a) 4 ploughings by *desi* plough. (v) Nil. (vi) As per treatments. (vii) N.A. (viii) Earthing up and weeding. (ix) N.A. (x) N.A.

2. TREATMENTS :

All combinations of (1) and (2)

(1) 2 varieties :— V_1 =BO. 11 and V_2 =CO. 453

(2) 5 levels of manures :

 M_0 =Control (no manure). M_1 = 40 lb./ac. of N and 50 lb./ac. of P_2O_5 . M_2 = 60 lb./ac. of N and 75 lb./ac. of P_2O_5 . M_3 = 80 lb./ac. of N and 100 lb./ac. of P_2O_5 . M_4 =100 lb./ac. of N and 125 lb./ac. of P_2O_5 .N and P_2O_5 as Ammo. Phos. Manures applied at the time of planting.

3. DESIGN :

(i) 2×5 Fact. in R.B.D. (ii) (a) 10. (b) N.A. (iii) 6. (iv) (a) $60.5' \times 24'$. (b) $60.5' \times 18'$. (v) 3' on either side along length. (vi) Yes.

4. GENERAL :

(i) N.A. (ii) Sucrose%, no. of matured stalks and sugarcane yield. (iv) (a) 1950—1953. (b) No. (c) Nil. (v) (a) Parsa, Majhulia and Dehri-on-Sone. (b) Nil. (vi) Nil. (vii) Experiment conducted during 1952 N.A. Experiment conducted during 1953 is under Type 'M'. at Ref. 53 (139).

5. RESULTS :

- (i) 20.71 ton/ac.
 (ii) 6.13 ton/ac.
 (iii) Only interaction is significant.
 (iv) Av. yield of sugarcane in ton/ac.

	M ₀	M ₁	M ₂	M ₃	M ₄	Mean
V ₁	21.47	26.18	20.00	14.25	19.63	20.31
V ₂	18.35	19.33	23.06	23.67	21.16	21.11
Mean	19.91	22.76	21.53	18.96	20.39	20.71

S.E. of marginal means of manure = 1.77 ton/ac.
 S.E. of marginal means of variety = 1.12 ton/ac.
 S.E. of body of table = 2.50 ton/ac.

Crop :- Sugarcane.
 Site :- Zonal Centre, Motipur.

Ref :- Bh. 51 (52).
 Type :- 'MV'.

Object :- To find out the optimum dose of N and P₂O₅ for Sugarcane.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Sugarcane. (c) N.A. (ii) (a) Alluvial (non-calcareous). (b) N.A. (iii) N.A. (iv) (a) 4 ploughings. (b) Flat planting. (c) 60, three-budded setts/row. (d) Rows 3' apart. (e) —. (v) N.A. (vi) As per treatments. (vii) N.A. (viii) N.A. (ix) N.A. (x) N.A.

2. TREATMENTS :

Main-plot treatments :

2 varieties : V₁=CO. 453 and V₂=BO. 11.

Sub-plot treatments :

All combinations of (1) and (2)

(1) 4 levels of N : N₀=0, N₁=40, N₂=80, and N₃=120 lb./ac.

(2) 4 levels of P₂O₅ : P₀=0, P₁=50, P₂=100 and P₃=150 lb./ac.

N as Castor cake and P₂O₅ as Single Super. Manures applied at the time of planting.

3. DESIGN :

(i) Split plot. (ii) (a) 2 main-plots/block ; 16 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) 60.5' × 24'. (b) 60.5' × 18'. (v) One outer row of 3' on each side of width. (vi) Yes.

4. GENERAL :

(i) N.A. (ii) Nil. (iii) No. of mature stalks, sucrose% and sugarcane yield. (iv) (a) 1951—1952. (b) No. (c) Nil. (v) (a) Harinagar, Motihari and Dehri-on-Sone. (b) Nil. (vi) Nil. (vii) Experiment conducted during 1952 is under category 'M'.

RESULTS :

- (i) 21.85 ton/ac.
 (ii) (a) 1.02 ton/ac.
 (b) 1.13 ton/ac.
 (iii) Main effect of N alone is significant.

(iv) Av. yield of sugarcane in ton/ac.

	N ₀	N ₁	N ₂	N ₃	Mean	P ₀	P ₁	P ₂	P ₃
V ₁	23.13	20.61	23.49	23.10	22.58	21.98	22.50	23.33	22.51
V ₂	20.49	20.32	21.98	21.67	21.11	21.24	20.05	22.48	20.68
Mean	21.81	20.46	22.73	22.39	21.85	21.61	21.28	22.91	21.60
P ₀	23.08	21.28	22.35	19.74					
P ₁	21.15	17.58	22.91	23.46					
P ₂	21.38	23.06	22.87	24.32					
P ₃	21.63	19.93	22.80	22.02					

S.E. of difference of two

1. V means = 0.18 ton/ac.
2. N or P means = 0.28 ton/ac.
3. V means at the same level of N or P = 0.39 ton/ac.
4. N or P means at the same level of V = 0.40 ton/ac.

Crop :- Sugarcane.

Ref :- Bh. 49(19).

Site :- Zonal Centre, Pachrukhi.

Type :- 'MV'.

Object :- To find out the optimum requirements of N and P₂O₅ for Sugarcane.

1. BASAL CONDITIONS :

- (i) (a) G.M.—Sugarcane. (b) G.M. (c) N.A. (ii) (a) Sandy loam. (b) N.A. (iii) 25/26. 2.1949.
 (iv) (a) 4 ploughings (b) Line sowing. (c) 60, three budded setts/row. (d) Rows 3' apart. (e)—(v) Nil.
 (vi) As per treatments. (vii) Irrigated. (viii) Two intercultures. (ix) N.A. (x) N.A.

2. TREATMENTS :

All combinations (1) and (2)

- (1) 2 varieties :- V
- ₁
- =CO. 453 and V
- ₂
- =BO. 11.

(2) 7 levels of manures :-

- M₁=40 lb./ac. of N + 50 lb./ac. of P₂O₅ as Ammo. Phos.
 M₂=60 lb./ac. of N + 75 lb./ac. of P₂O₅ as Ammo. Phos.
 M₃=40 lb./ac. of N + 50 lb./ac. of P₂O₅ as Castor cake + Triple Super.
 M₄=60 lb./ac. of N + 75 lb./ac. of P₂O₅ as Castor cake + Triple Super.
 M₅=40 lb./ac. of N + 50 lb./ac. of P₂O₅ as A/S + Triple Super.
 M₆=60 lb./ac. of N + 75 lb./ac. of P₂O₅ as A/S + Triple Super.
 M₇=Control (no manure).
 Manures applied at the time of planting.

3. DESIGN :

- (i) 2×7 Fact. in R.B.D. (ii) (a) 14. (b) 14/30th acre. (iii) 4. (iv) (a) 60.5'×24'. (b) 60.5'×18'. (v) 3' border on either side of width. (vi) Yes.

4. GENERAL :

- (i) Good. (ii) Nil. (iii) Sugarcane yield, no. of mature stalks. (iv) (a) No. (b) No. (c) None. (v) (a) Motihari. (b) N.A. (vi) & (vii) Nil.

5. RESULTS :

- (i) 17.22 ton/ac.
 (ii) 2.70 ton/ac.
 (iii) All the effects are highly significant.

(iv) Av. yield of sugarcane in ton/ac.

	M ₁	M ₂	M ₃	M ₄	M ₅	M ₆	M ₇	Mean
V ₁	19.99	24.06	22.62	25.47	22.17	22.63	15.16	21.76
V ₂	12.85	15.49	14.21	12.06	12.76	10.86	10.60	12.69
Mean	16.42	19.78	18.51	18.77	17.47	16.75	12.88	17.22

S.E. of marginal mean of manure = 0.95 ton/ac.
 S.E. of marginal mean of variety = 0.51 ton ac.
 S.E. of body of table = 1.35 ton/ac.

Crop :- Sugarcane.
 Site :- Zonal Centre, Pachrukhi.

Ref :- Bh. 49(20).
 Type :- 'MV'.

Object :- To find out the optimum dose of Ammo. Phos. for Sugarcane.

1. BASAL CONDITIONS :

(i) (a) G.M.—Sugarcane—G.M. (b) *Sanai* as G.M. (c) Nil. (ii) (a) Sandy loam. (b) N.A. (iii) 7.3.1949. (iv) (a) 4 ploughings. (b) Line planting. (c) 60, three budded setts/row length-wise. (d) Rows 3' apart. (e)—. (v) Castor cake 6 md./ac. + Single Super 3 md./ac. + A/S 1 md./ac. before planting + A/S 1.5 md./ac. at the time of earthing up. (vi) As per treatments. (vii) Irrigated (viii) 3 intercultures. (ix) N.A. (x) N.A.

2. TREATMENTS :

All combinations of (1) and (2)

(1) 3 varieties : V₁=BO. 11, V₂=CO. 453 and V₃=CO. 513.

(2) 4 doses of manure :

M₀=Control (no manure)

M₁=20 lb./ac. of N and 25 lb./ac. of P₂O₅.

M₂=40 lb./ac. of N and 50 lb./ac. of P₂O₅

M₃=60 lb./ac. of N and 75 lb./ac. of P₂O₅

N and P₂O₅ as Ammo. Phos. Manures applied at the time of planting.

3. DESIGN :

(i) 3×4 Fact. in R.B.D. (ii) (a) 12. (b) 12/30th ac. (iii) 6. (iv) (a) 60.5'×24'. (b) 60.5'×18'. (v) 3' border on each side of width. (vi) Yes.

4. GENERAL :

(i) Fair. (ii) Nil. (iii) Cane yield, no. of mature stalk and sucrose %. (iv) (a) 1949—contd. (b) No. (c) Nil. (v) Parsa, Majhauria. (b) No. (vi) Nil. (vii) Treatments modified for experiments conducted in 1950 and 1951.

5. RESULTS :

(i) 9.58 ton/ac.

(ii) 3.37 ton/ac.

(iii) Main effect of variety is highly significant while that of manure is significant. Interaction is not significant.

(iv) Av. yield of sugarcane in ton/ac.

	M ₀	M ₁	M ₂	M ₃	Mean
V ₁	7.13	7.06	5.17	7.95	6.83
V ₂	9.75	15.41	14.75	13.47	13.35
V ₃	7.00	11.24	6.75	9.30	8.57
Mean	7.96	11.24	8.89	10.24	9.58

S.E. of marginal mean of variety = 0.69 ton/ac.
 S.E. of marginal mean of manure = 0.79 ton/ac.
 S.E. of body of table = 1.36 ton/ac.

Crop :- Sugarcane.

Ref :- Bh. 50(22).

Site :- Zonal Centre, Pachrukhi.

Type :- 'MV'.

Object :- To find out the optimum dose of Ammo. Phos. for Sugarcane.

1. BASAL CONDITIONS :

(i) (a) G.M.—Sugarcane—G.M. (b) G.M. (c) Nil. (ii) (a) Sandy loam. (b) N.A. (iii) 27/28.2.1950. (iv) (a) Burying *Sanai* by one disc plough, (later) 2 ploughings. (b) Line planting. (c) N.A. (d) Rows 3' apart. (e) —. (v) Castor cake 6 md./ac.+Single Super 3 md./ac.+A/S 1 md./ac. at planting time and 1.5 md./ac. of A/S at the time of earthing up. (vi) As per treatments. (vii) N.A. (viii) 3 intercultures. (ix) N.A. (x) N.A.

2. TREATMENTS :

All combinations of (1) and (2)

(1) 2 varieties : $V_1=BO. 11$ and $V_2=CO. 453$.

(2) 5 levels of manures :

 M_0 = Control (no manure). M_1 = 40 lb./ac. of N and 50 lb./ac. of P_2O_5 . M_2 = 60 lb./ac. of N and 75 lb./ac. of P_2O_5 . M_3 = 80 lb./ac. of N and 100 lb./ac. of P_2O_5 . M_4 = 100 lb./ac. of N and 125 lb./ac. of P_2O_5 .N and P_2O_5 as Ammo. Phos. Manures applied at the time of planting.

3. DESIGN :

(i) 2×5 Fact. in R.B.D. (ii) (a) 10. (b) N.A. (iii) 6. (iv) (a) $60.5' \times 24'$. (b) $60.5' \times 18'$. (v) 3' border on each side of width. (vi) Yes.

4. GENERAL :

(i) Fair. (ii) Nil. (iii) Sugarcane yield, no. of tillers and mature stalks. (iv) (a) 1949—contd. (b) No. (c) Nil. (v) (a) Parsa, Mot.hari. (b) Nil. (vi) and (vii) Nil.

5. RESULTS :

(i) 14.37 ton/ac.

(ii) 2.78 ton/ac.

(iii) Only main effect of variety is highly significant.

(iv) Av. yield of sugarcane in ton/ac.

	M_0	M_1	M_2	M_3	M_4	Mean
V_1	9.98	11.16	10.81	13.21	13.26	11.68
V_2	12.41	15.10	15.74	20.86	21.16	17.05
Mean	11.20	13.13	13.28	17.04	17.21	14.37

S.E. of marginal mean of variety = 0.51 ton/ac.

S.E. of marginal mean of manure = 0.80 ton/ac.

S.E. of body of table = 1.13 ton/ac.

Crop :- Sugarcane.

Ref :- Bh. 51(29).

Site :- Zonal Centre, Pachrukhi.

Type :- 'MV'.

Object :- To find out the optimum dose of Ammo. Phos. for Sugarcane.

1. BASAL CONDITIONS :

(i) (a) G.M.-Sugarcane-G M. (b) *Sanai* as G.M. (c) Nil. (ii) (a) Sandy loam. (b) N.A. (iii) 24.2.51. (iv) (a) 4 ploughings. (b) Flat planting. (c) 63. three-budded setts/row. (d) Rows 3' apart. (e) —. (v) Nil. (vi) As per treatments. (vii) Irrigated. (viii) 2 interculturings, weedings etc. (ix) N.A. (x) N.A.

2. TREATMENTS :

All combinations of (1) and (2)

(1) 2 varieties : $V_1=BO. 11$ and $V_2=CO. 453$.

(2) 5 levels of manures :

M_0 = Control (no manure).

M_1 = 40 lb./ac. of N + 50 lb./ac. of P_2O_5 .

M_2 = 60 lb./ac. of N + 75 lb./ac. of P_2O_5

M_3 = 80 lb./ac. of N + 100 lb./ac. of P_2O_5

M_4 = 100 lb./ac. of N + 125 lb./ac. of P_2O_5

N and P_2O_5 as Ammo. Phos. Manures applied at the time of planting.

3. DESIGN :

(i) 2×5 Fact. in R.B.D. (ii) (a) 10. (b) N.A. (iii) 6. (iv) (a) $60.5' \times 24'$. (b) $60.5' \times 18'$. (x) 3' border on either side of width. (vi) Yes.

4. GENERAL :

(i) Good. (ii) N.A. (iii) Cane yield. (iv) (a) 1949—contd. (b) No. (c) Nil. (v) (a) Dehri-on-Sone, Majhulia and Pachrukhi. (b) No. (vi) Nil. (vii) Experiments conducted during 1952 and 1953 could not be traced.

5. RESULTS :

(i) 11.24 ton/ac.

(ii) 4.19 ton/ac.

(iii) Only main effect of varieties is highly significant.

(iv) Av. yield of cane in ton/ac.

	M_0	M_1	M_2	M_3	M_4	Mean
V_1	7.52	9.16	7.44	8.55	10.75	8.68
V_2	13.94	12.16	13.74	13.94	15.18	13.79
Mean.	10.73	10.66	10.59	11.25	12.97	11.24

S.E. of marginal mean of variety = 0.76 ton/ac.

S.E. of marginal mean of manure = 1.21 ton/ac.

S.E. of body of table = 1.71 ton/ac.

Crop :- Sugarcane.

Site :- Zonal Centre, Pachrukhi.

Ref :- Bh. 52(51).

Type :- 'MV'.

Object :- To compare the effect of Cakes in combination with Single Super against standard manures.

1. BASAL CONDITIONS :

(i) G.M.-Sugarcane-G.M. (b) G.M. (c) Nil. (ii) (a) Alluvial calcareous. (b) N.A. (iii) 2.2.1952. (iv) (a) Once ploughed to upturn *Sarai* and later on ploughed 4 times. (b) Flat planting. (c) 60, three budded setts/row. (d) Rows 3' apart. (e) —. (v) Nil. (vi) As per treatments. (vii) Irrigated. (viii) 2 hoeings, 3 weedings and earthings. (ix) 36.1". (x) 7.2.1953.

2. TREATMENTS :

Main-plot treatments :—

2 varieties : $V_1=BO. 11$ and $V_2=CO. 453$.

Sub-plot treatments :—

Manures to supply 60 lb./ac. of N + 75 lb./ac. of P_2O_5

1. Castor cake + Single Super.

2. Mustard cake + Single Super.

3. Linseed cake + Single Super.

4. G.N.C + Single Super.

5. Control (no manure).

Manures applied at the time of planting.

3. DESIGN :

(i) Split plot. (ii) (a) 2 main-plots/block ; 5 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) $60.5' \times 24'$. (b) $60.5' \times 18'$. (v) One row on each side of width. (vi) Yes.

4. GENERAL :

(i) N.A. (ii) Nil. (iii) Sucrose %, no. of mature stalks and sugarcane yield. (iv) (a) 1952-1953. (b) No. (c) Nil. (v) (a) Harinagar, Parsa and Majhulia. (b) Nil. (vi) Nil. (vii) Treatments changed and increased for experiment conducted during 1953.

5. RESULTS :

- (i) 15.94 ton/ac.
 (ii) (a) 8.81 ton/ac.
 (b) 4.68 ton/ac.
 (iii) None of the effects is significant.
 (iv) Av. yield of cane in ton/ac.

	1	2	3	4	5	Mean
V ₁	10.91	14.67	11.88	16.92	9.77	12.83
V ₂	23.70	19.07	22.37	17.10	12.97	19.04
Mean	17.31	16.87	17.13	17.01	11.37	15.94

S.E. of difference of two

- | | |
|--|----------------|
| 1. variety means | = 2.79 ton/ac. |
| 2. manure means | = 2.34 ton/ac. |
| 3. manure means at the same level of variety | = 3.31 ton/ac. |
| 4. variety means at the same level of manure | = 4.96 ton/ac. |

Crop :- Sugarcane.

Ref :- Bh. 53(140).

Site :- Zonal Centre, Pachrukhi.

Type :- 'MV'.

Object :- To compare the effect of Oil cakes in combination with Single Super against standard manures.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) N.A. (c) N.A. (ii) (a) Sandy loam (calcareous). (b) N.A. (iii) N.A. (iv) (a) 4 ploughings by *deshi* plough. (b) Flat method. (c) 60, three budded setts/row. (d) Rows 3' apart. (e) —. (v) N.A. (vi) As per treatments. (vii) N.A. (viii) Hoeing, weeding and earthing. (ix) N.A. (x) N.A.

2. TREATMENTS :

Main-plot treatments :-

2 varieties : V₁=BO. 11 and V₂=CO. 453.

Sub-plot treatments :-

1. A.S.N + Single Super at 60 lb./ac. of N + 75 lb./ac. of P₂O₅.
2. Castorcake + Single Super at 60 lb./ac. of N + 75 lb./ac. of P₂O₅.
3. Mustardcake + Single Super at 60 lb./ac. of N + 75 lb./ac. of P₂O₅.
4. Linseedcake + Single Super at 60 lb./ac. of N + 75 lb./ac. of P₂O₅.
5. Mahuacake + Single Super at 60 lb./ac. of N + 75 lb./ac. of P₂O₅.
6. G.N.C. + Single Super at 60 lb./ac. of N + 75 lb./ac. of P₂O₅.
7. Control (no manure).

Manures applied at the time of planting.

3. DESIGN :

(i) Split-plot. (ii) (a) 2 main-plots/blocks ; 7 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) 60.5'×24'. (b) 60.5'×18'. (v) One row on either side of width. (vi) Yes.

4. GENERAL :

(i) N.A. (ii) N.A. (iii) Tiller count, no. of mature stalks, sucrose % and sugarcane yield. (iv) (a) 1952-1953. (b) No. (c) Nil. (v) (a) Parsa, Majhulia and Motihari. (b) No. (vi) & (vii) Nil.

5. RESULTS :

- (i) 10.78 ton/ac.
 (ii) (a) 3.50 ton/ac.
 (b) 1.86 ton/ac.
 (iii) None of the effects is significant.

(iv) Av. yield of cane in ton/ac.

	1	2	3	4	5	6	7	Mean
V ₁	9.79	11.71	9.50	10.01	9.41	10.84	7.94	9.88
V ₂	10.80	12.99	11.04	11.71	12.90	12.21	10.10	11.68
Mean	10.30	12.35	10.27	10.86	11.16	11.53	9.02	10.78

S.E. of difference of two

1. variety means = 0.94 ton/ac.
2. manure means = 0.93 ton/ac.
3. manure means at the same level of variety = 1.32 ton/ac.
4. variety means at the same level of manure = 1.53 ton/ac.

Crop :- Sugarcane.

Ref :- Bh. 51(48).

Site :- Zonal Centre, Pachrukhi.

Type :- 'MV'.

Object :- To find out the optimum dose of A/N for Sugarcane.

1. BASAL CONDITIONS :

- (i) (a) G.M.—Sugarcane—G.M. (b) *Sanai* as G.M. (c) Nil. (ii) (a) Sandy loam. (b) N.A. (iii) 27.2.1951. (iv) (a) 4 ploughings. (b) Flat planting. (c) 60, three budded setts/row. (d) Rows 3' apart. (e) —. (v) Castor cake 6 md./ac. + Single Super 3 md./ac. + A/S 3 md./ac. (vi) As per treatments. (vii) Unirrigated. (viii) 2 intercultures. (ix) N.A. (x) N.A.

2. TREATMENTS :

Main-plot treatments :—

2 varieties : V₁=CO. 453 and V₂=BO. 11.

Sub-plot treatments :—

11 levels of N as A/N : N₀=0, N₁=40, N₂=80, N₃=120, N₄=160, N₅=200, N₆=240, N₇=280, N₈=320, N₉=360 and N₁₀=400 lb./ac.

3. DESIGN :

- (i) Split-plot. (ii) (a) 2 main-plots/block ; 11 sub-plots/main-plot. (b) 22/30 ac. (iii) 4. (iv) (a) 60.5' × 24'. (b) 60.5' × 18'. (v) 3' border on each side of width. (vi) No.

4. GENERAL :

- (i) N.A. (ii) Nil. (iii) Cane yield. (iv) (a) 1951-1955. (b) No. (c) Nil. (v) (a) Motihari, Majhulia and Motipur. (b) Nil. (vi) & (vii) Nil.

5. RESULTS :

- (i) 11.83 ton/ac.
 (ii) (a) 0.32 ton/ac.
 (b) 0.76 ton/ac.
 (iii) Main effect of variety and interaction "variety × manure" are significant. Manure effect is not significant.
 (iv) Av. yield of cane in ton/ac.

	N ₀	N ₁	N ₂	N ₃	N ₄	N ₅	N ₆	N ₇	N ₈	N ₉	N ₁₀	Mean
V ₁	7.18	8.55	8.78	8.83	9.47	9.60	10.63	9.74	9.56	9.05	9.99	9.22
V ₂	11.57	12.96	13.88	15.39	14.89	13.63	14.34	15.40	17.14	12.65	15.53	14.44
Mean	9.38	10.76	11.33	12.11	12.18	12.37	12.48	12.57	13.35	10.85	12.76	11.83

S.E. of difference of two

1. variety means = 0.07 ton/ac.
2. manure means = 0.38 ton/ac.
3. variety means at the same level of manure = 0.52 ton/ac.
4. manure means at the same level of variety = 0.54 ton/ac.

Crop :- Sugarcane.
Site :- Zonal Centre, Pachrukhi.

Ref :- Bh. 52(78).
Type :- 'MV'.

Object :- To find the optimum dose of A/N for Sugarcane.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) N.A. (c) N.A. (ii) (a) Sandy loam. (b) N.A. (iii) N.A. (iv) 4 ploughings by *deshi* plough. (b) Flat method. (c) 60 md./ac. (d) Rows 3' apart. (e) —. (iv) N.A. (vi) As per treatments. (vii) N.A. (viii) Hoeing, weeding and earthing. (ix) N.A. (x) N.A.

2. TREATMENTS :

Main-plot treatments :-

2 varieties : $V_1=CO. 453$ and $V_2=BO. 11$.

Sub-plot treatments :-

11 levels of N as A/N : $N_0=0, N_1=40, N_2=80, N_3=120, N_4=160, N_5=200, N_6=240, N_7=280, N_8=320, N_9=360$ and $N_{10}=400$ lb/ac.

3. DESIGN :

(i) Split plot. (ii) (a) 2 main-plots/replication ; 11 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) $60.5' \times 24'$. (b) $60.5' \times 18'$. (v) One row on either side of width. (vi) Yes.

4. GENERAL :

(i) N.A. (ii) N.A. (iii) Tiller no., no. of mature stalks, sucrose % and sugarcane yield. (iv) (a) 1951-1955. (b) No. (c) Nil. (v) (a) No. (b) Nil. (vi) Nil. (vii) Experiment conducted during 1953 could not be traced.

5. RESULTS :

(i) 12.93 ton/ac.
(ii) (a) 5.14 ton/ac.
(b) 3.10 ton/ac.
(iii) Only main effect of variety is highly significant.
(iv) Av. yield of cane in ton/ac.

	N_0	N_1	N_2	N_3	N_4	N_5	N_6	N_7	N_8	N_9	N_{10}	Mean
V_1	15.11	15.89	19.05	20.16	15.79	15.89	14.33	15.24	17.26	18.69	14.33	16.52
V_2	7.67	8.72	7.99	9.32	9.24	9.83	10.57	9.60	10.28	8.49	11.07	9.34
Mean	11.39	12.31	13.52	14.74	12.52	12.86	12.45	12.42	13.77	13.59	12.70	12.93

S.E. of difference of two

- | | |
|--|---------------|
| 1. variety means | =1.10 ton/ac. |
| 2. manure means | =1.55 ton/ac. |
| 3. manure means at the same level of variety | =2.19 ton/ac. |
| 4. variety means at the same level of manure | =2.36 ton/ac. |

Crop :- Sugarcane.
Site :- Zonal Centre, Parsa.

Ref :- Bh. 50(38).
Type :- 'MV'.

Object :- To compare the effect of A/N with that of A/S on the yield of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) N.A. (c) N.A. (ii) (a) Alluvial calcareous. (b) N.A. (iii) N.A. (iv) (a) 4 times ploughed by *deshi* plough. (b) Flat planting. (c) 60, three budded setts/row. (d) Rows 3' apart. (e) —. (v) N.A. (vi) As per treatments. (vii) Unirrigated. (viii) Hoeing, weeding and earthing. (ix) N.A. (x) N.A.

2. TREATMENTS :

Main-plot treatments :

2 varieties : $V_1=BO. 11$ and $CO. 453$.

Sub-plot treatments :-

All combinations of (1), (2) + a Control (no manure).

(1) 2 sources of N : $S_1=A/N$ and $S_2=A/S$.

(2) 5 levels of N : $N_1=40, N_2=80, N_3=120, N_4=160$ and $N_5=200$ lb./ac.

3. DESIGN :

- (i) Split plot. (ii) (a) 2 main-plots/block ; 11 sub-plots/main-plot. (b) N.A. (iii) 2. (iv) (a) 60.5' x 24'.
(b) 60.5' x 18'. (v) One row on either side of length. (vi) Yes.

4. GENERAL :

- (i) Fair. (ii) Nil. (iii) No of mature stalks, sucrose % and sugarcane yield. (iv) (a) 1950-1953. (b) No. (c) Nil. (v) (a) Motipur and Majhulia. (b) No. (vi) and (vii) Nil.

5. RESULTS :

- (i) 18.99 ton/ac.
(ii) (a) 3.63 ton/ac.
(b) 1.64 ton/ac.
(iii) Main effect of variety is highly significant, while that of manure and interaction are significant.
(iv) Av. yield of cane in ton/ac.

	S ₁ N ₁	S ₂ N ₁	S ₁ N ₂	S ₂ N ₂	S ₁ N ₃	S ₂ N ₃	S ₁ N ₄	S ₂ N ₄	S ₁ N ₅	S ₂ N ₅	Control	Mean
V ₁	17.19	15.40	15.77	11.65	12.10	14.58	14.30	11.00	13.76	13.20	15.22	14.02
V ₂	22.74	20.17	21.46	24.21	25.77	22.49	24.76	24.94	25.81	26.68	24.67	23.97
Mean	19.97	17.78	18.61	17.93	18.93	18.54	19.53	17.92	19.78	19.94	19.94	18.99

S.E. of difference of two

1. variety means = 1.09 ton/ac.
2. manure means = 1.16 ton/ac.
3. manure means at the same level of variety = 1.64 ton/ac.
4. variety means at the same level of manure = 1.91 ton/ac.

Crop :- Sugarcane.
Site Zonal Centre, Parsa.

Ref :- Bh. 51(44).
Type :- 'MV'.

Object :- To compare the effect of A/N with that of A/S on the yield of Sugarcane.

1. BASAL CONDITIONS :

- (i) (a) Nil. (b) N.A. (c) N.A. (ii) (a) Alluvial calcareous. (b) N.A. (iii) N.A. (iv) (a) 4 ploughings followed by beaming. (b) Flat planting. (c) 60, three budded setts/row. (d) Rows 3' apart. (e) Nil. (v) Nil. (vi) As per treatments. (vii) N.A. (viii) Hoing, weeding and earthing. (ix) N.A. (x) N.A.

2. TREATMENTS :

Main-plot treatments :-

2 varieties : V₁=BO. 11 and V₂=CO. 453.

Sub-plot treatments :-

All combinations of (1), (2) + a Control (no manure).

(1) 2 sources of N : S₁=A/N and S₂=A/S.

(2) 5 levels of N : N₁=40, N₂=80, N₃=120, N₄=160 and N₅=200 lb./ac.

3. DESIGN :

- (i) Split plot. (ii) (a) 2 main-plots/block ; 11 sub-plots/main-plot. (b) N.A. (iii) 4, (iv) (a) 60.5' x 24'.
(b) 60.5' x 18'. (v) One row on either side along length. (vi) Yes.

4. GENERAL :

- (i) N.A. (ii) Nil. (iii) No. of mature stalks, sucrose% and sugarcane yield. (iv) (a) 1950-1953. (b) No. (c) Nil. (v) (a) Motihari, Harinagar and Majhulia. (b) Nil. (vi) Nil. (vii) Experiment conducted during 1952 not traceable.

5. RESULTS :

- (i) 14.98 ton/ac.
(ii) (a) 1.50 ton/ac.
(b) 1.72 ton/ac.
(iii) None of the effects is significant.

(iv) Av. yield of cane in ton/ac.

	S ₁ N ₁	S ₂ N ₁	S ₁ N ₂	S ₂ N ₂	S ₁ N ₃	S ₂ N ₃	S ₁ N ₄	S ₂ N ₄	S ₁ N ₅	S ₂ N ₅	Control	Mean
V ₁	14.15	13.83	11.12	11.58	13.51	13.50	12.78	15.03	15.63	11.35	15.21	13.43
V ₂	11.76	12.45	21.78	19.39	16.36	20.91	16.82	15.26	13.88	12.36	20.73	16.52
Mean	12.96	13.14	16.45	15.49	14.94	17.20	14.80	15.14	14.76	11.86	17.97	14.98

S.E. of difference of two

1. variety means = 0.32 ton/ac.
2. manure means = 0.86 ton/ac.
3. manure means at the same level of variety = 1.22 ton/ac.
4. variety means at the same level of manure = 1.21 ton/ac.

Crop :- Sugarcane.

Ref :- Bh. 53(134).

Site :- Zonal Centre, Parsa.

Type :- 'MV'.

Object :- To compare the effect of A/N with that of A/S on the yield of Sugarcane.

I. BASAL CONDITIONS :

(i) (a) Nil. (b) Sugarcane. (c) N.A. (ii) (a) Calcareous alluvium. (b) N.A. (iii) N.A. (iv) (a) 4 ploughings followed by beaming. (b) Flat planting. (c) 60, three budded setts/row. (d) Rows 3' apart. (v) Nil. (vi) As per treatments. (vii) Unirrigated. (viii) Hoeing, weeding and earthing. (ix) N.A. (x) N.A.

2. TREATMENTS :

Main-plot treatments :

2 varieties : V₁=BO. 11 and V₂=CO. 453.

Sub-plot treatments :-

All combinations of (1), (2) + a Control (no manure).

(1) 2 sources of N : S₁=A/N and S₂=A/S.(2) 5 levels of N : N₁=40, N₂=80, N₃=120, N₄=160 and N₅=200 lb./ac.**3. DESIGN :**

(i) Split plot. (ii) (a) 2 main-plots/block, 11 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) 60.5' × 24'. (b) 60.5' × 18'. (v) One row on either side along length. (vi) Yes.

4. GENERAL :

(i) N.A. (ii) Nil. (iii) No. of mature stalks, sucrose% and sugarcane yield. (iv) (a) 1950-1953 (b) No. (c) Nil. (v) (a) Dehri-on-Sone. (b) Nil. (vi) & (viii) Nil.

5. RESULTS :

- (i) 7.30 ton/ac.
- (ii) (a) 4.47 ton/ac.
(b) 1.83 ton/ac.
- (iii) None of the effects is significant.
- (iv) Av. yield of cane in ton/ac.

	S ₁ N ₁	S ₂ N ₁	S ₁ N ₂	S ₂ N ₂	S ₁ N ₃	S ₂ N ₃	S ₁ N ₄	S ₂ N ₄	S ₁ N ₅	S ₂ N ₅	Control	Mean
V ₁	5.36	7.20	5.59	7.38	5.78	7.01	6.19	7.06	4.95	6.69	7.70	6.45
V ₂	10.41	8.51	7.52	7.98	6.51	8.07	9.35	7.43	7.24	8.30	8.25	8.14
Mean	7.89	7.85	6.56	7.68	6.15	7.54	7.77	7.25	6.09	7.50	7.98	7.30

S.E. of difference of two

1. variety means = 0.95 ton/ac.
2. manure means = 0.92 ton/ac.
3. manure means at the same level of variety = 1.29 ton/ac.
4. variety means at the same level of manure = 1.56 ton/ac.

Crop :- Sugarcane.
Site :- Zonal Centre, Parsa.

Ref :- Bh. 50(29)
Type :- 'MV'.

Object :- To find out the optimum dose of A/N for Sugarcane.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) N.A. (c) N.A. (ii) (a) Alluvial calcareous. (b) N.A. (iii) N.A. (iv) (a) 4 ploughings followed by beaming. (c) 60, three budded setts/row. (d) Rows 3' apart. (e) —. (v) 8 C.L./ac. of F.Y.M. (vi) As per treatments. (vii) N.A. (viii) Hoeing, earthing and weeding once. (ix) N.A. (x) N.A.

2. TREATMENTS :

Main-plot treatments :-

2 varieties : V_1 = BO. 11 and V_2 = CO. 453.

Sub-plot treatments :-

11 levels of N as A/N : $N_0=0$, $N_1=40$, $N_2=80$, $N_3=120$, $N_4=160$, $N_5=200$, $N_6=240$, $N_7=280$, $N_8=320$, $N_9=360$ and $N_{10}=400$ lb./ac.

Manures applied before sowing.

3. DESIGN :

(i) (a) Split plot. (ii) (a) 2 main-plots/block ; 11 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) 60.5' × 24'. (b) 60.5' × 18'. (v) 1 row on either side along length. (vi) Yes.

4. GENERAL :

(i) N.A. (ii) N.A. (iii) No. of mature stalks, sucrose % and sugarcane yield. (iv) (a) 1950—1952. (b) No. (c) Nil. (v) (a) Motihari, Harinagar, Majhulia, and Pachrukhi. (b) Nil. (vi) and (vii) Nil.

5. RESULTS :

- (i) 12.34 ton/ac.
(ii) (a) 2.68 ton/ac.
(b) 1.21 ton/ac.
(iii) None of the effects is significant.
(iv) Av yield of cane in ton/ac.

	N_0	N_1	N_2	N_3	N_4	N_5	N_6	N_7	N_8	N_9	N_{10}	Mean
V_1	10.77	12.72	11.90	11.09	11.05	9.89	10.09	10.97	10.89	12.26	9.83	11.04
V_2	14.10	13.62	15.32	12.18	13.58	14.45	14.33	14.60	13.80	13.23	10.71	13.63
Mean	12.44	13.17	13.61	11.64	12.32	12.17	12.21	12.78	12.35	12.75	10.27	12.34

S.E. of difference of two

1. variety means = 0.57 ton/ac.
2. manure means = 0.61 ton/ac.
3. manure means at the same level of variety = 0.86 ton/ac.
4. variety means at the same level of manure = 0.99 ton/ac.

Crop :- Sugarcane
Site :- Zonal Centre, Parsa.

Ref :- Bh. 51(45).
Type :- 'MV'.

Object :- To find out the optimum doses of A/N for Sugarcane.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) N.A. (c) N.A. (ii) (a) Alluvial calcareous. (b) N.A. (iii) N.A. (iv) (a) 4 ploughings followed by beaming. (b) Flat planting. (c) 60, three budded setts/row. (d) Rows 3' apart. (e) —. (v) F.Y.M. at 8 C.L./ac. (vi) As per treatments. (vii) N.A. (viii) Hoeing, weeding and earthing. (ix) N.A. (x) N.A.

2. TREATMENTS :

Main-plot treatments :—

2 varieties : $V_1=BO. 11$ and $V_2=CO. 453$.

Sub-plot treatments :—

11 levels of N as A/N : $N_0=0, N_1=40, N_2=80, N_3=120, N_4=160, N_5=200, N_6=240, N_7=280, N_8=320, N_9=360$ and $N_{10}=400$ lb./ac.

3. DESIGN :

(i) Split plot. (ii) (a) 2 main-plots/block ; 11 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) $60.5' \times 24'$. (b) $60.5' \times 18'$. (v) 1 row on either side along length. (vi) Yes.

4. GENERAL :

(i) N.A. (ii) Nil. (iii) No. of mature stalks, sucrose % and sugarcane yield. (iv) (a) 1950—1952. (b) No. (c) Nil. (v) (a) Pachrukhi, Harinagar, Majhulia, Dehri-on-Sone and Motihari. (b) Nil. (vi) and (vii) Nil.

5. RESULTS :

- (i) 16.67 ton/ac.
 (ii) (a) 1.37 ton/ac.
 (b) 1.82 ton/ac.
 (iii) None of the effects is significant.
 (iv) Av. yield of cane in ton/ac.

	N_0	N_1	N_2	N_3	N_4	N_5	N_6	N_7	N_8	N_9	N_{10}	Mean
V_1	17.39	18.49	15.54	13.81	17.84	16.38	13.14	13.62	15.18	14.59	19.77	16.00
V_2	17.52	13.67	18.53	16.56	17.43	17.43	15.83	17.11	16.47	16.93	23.30	17.34
Mean	17.45	16.08	17.04	15.19	17.63	16.91	14.63	15.36	15.83	15.76	21.54	16.67

S.E. of difference of two

1. variety means = 0.29 ton/ac.
 2. manure means = 0.91 ton/ac.
 3. manure means at the same level of variety = 1.29 ton/ac.
 4. variety means at the same level of manure = 1.26 ton/ac.

Crop :- Sugarcane.

Site :- Zonal Centre, Parsa.

Ref :- Bh. 52(71).

Type :- 'MV'.

Object :—To find out the optimum dose of A/N for Sugarcane.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) N.A. (c) N.A. (ii) (a) Alluvium calcareous. (b) N.A. (iii) N.A. (iv) (a) 4 ploughings. by *deshi* plough followed by beaming. (b) Flat planting. (c) 60, three budded setts/row. (d) Rows 3' apart. (e)—(v) 10 C.L./ac. of F.Y.M (vi) As per treatments. (vii) Unirrigated. (viii) Hoeing, weeding and earthing. (ix) N.A. (x) N.A.

2. TREATMENTS :

Main-plot treatments :—

2 varieties :— $V_1=BO. 11$ and $V_2=CO. 453$.

Sub-plot treatments :—

11 levels of N as A/N :— $N_0=0, N_1=40, N_2=80, N_3=120, N_4=160, N_5=200, N_6=240, N_7=280, N_8=320, N_9=360, N_{10}=400$ lb/ac.

3. DESIGN :

(i) Split plot. (ii) (a) 2 main-plots/block ; 11 sub plots/main-plot. (b) N.A. (iii) 4. (iv) (a) $60.5' \times 24'$ (b) $60.5' \times 18'$. (v) One row on each side along length. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Nil. (iii) No. of mature stalks, sucrose % and sugarcane yield. (iv) (a) 1950—1952. (b) No. (c) Nil. (v) (a) Harinagar, Motihari, Motipur, Pachrukhi and Dehri-on-Sone. (b) No. (vi) & (vii) Nil.

5. RESULTS :

- (i) 19.34 ton/ac.
 (ii) (a) 9.23 ton/ac.
 (b) 2.89 ton/ac.
 (iii) Variety effect and interaction variety \times manure are highly significant. Manure effect is not significant.
 (iv) Av. yield of cane in ton/ac.

	N ₀	N ₁	N ₂	N ₃	N ₄	N ₅	N ₆	N ₇	N ₈	N ₉	N ₁₀	Mean
V ₁	20.54	25.22	22.68	22.83	25.58	21.00	26.50	23.38	21.18	26.96	24.48	23.67
V ₂	14.76	14.95	13.94	17.61	13.85	12.19	14.31	18.32	15.15	14.76	15.77	15.06
Mean	17.63	20.06	18.29	20.20	19.69	16.58	20.38	20.83	18.15	20.84	20.11	19.34

S.E. of difference of two

1. variety means = 1.97 ton/ac.
 2. manure means = 1.45 ton/ac.
 3. manure means at the same level of variety = 2.04 ton/ac.
 4. variety means at the same level of manure = 2.77 ton/ac.

Crop :- Sugarcane.

Ref :- Bh. 50(25).

Site :- Zonal Centre, Parsa.

Type :- 'MV'.

Object :- To compare the effect of A/N with that of A/S in combination with Single Super.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) N.A. (c) N.A. (ii) (a) Alluvium calcareous (b) N.A. (iii) N.A. (iv) (a) 4 ploughings by *desi* plough. (b) Flat planting. (c) 60, three budded setts/row. (d) Rows 3' apart. (e)—(v) Nil. (vi) As per treatments. (vii) N.A. (viii) Hoing, weeding and earthing. (ix) N.A. (x) N.A.

2. TREATMENTS :

Main plot treatments :-

2 varieties :- V₁=BO. 11 and V₂=CO. 453.

Sub plot treatments :-

M₁ = A/N at 40 lb/ac. of N+Single Super at 50 lb/ac. of P₂O₅.
 M₂ = A/S at 40 lb/ac. of N+Single Super at 50 lb/ac. of P₂O₅.
 M₃ = A/N at 80 lb/ac. of N+Single Super at 100 lb/ac. of P₂O₅.
 M₄ = A/S at 80 lb/ac. of N+Single Super at 100 lb/ac. of P₂O₅.
 M₅ = A/N at 120 lb/ac. of N+Single Super at 150 lb/ac. of P₂O₅.
 M₆ = A/S at 120 lb/ac. of N+Single Super at 150 lb/ac. of P₂O₅.
 M₇ = A/N at 160 lb/ac. of N+Single Super at 200 lb/ac. of P₂O₅.
 M₈ = A/S at 160 lb/ac. of N+Single Super at 200 lb/ac. of P₂O₅.
 M₉ = A/N at 200 lb/ac. of N+Single Super at 250 lb/ac. of P₂O₅.
 M₁₀ = A/S at 200 lb/ac. of N+Single Super at 250 lb/ac. of P₂O₅.
 M₁₁ = Control (no manure).

3. DESIGN :

(i) Split plot. (ii) (a) 2 main-plots/block ; 11 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) 60.5' \times 24'. (b) 60.5' \times 18'. (v) One row on each side along length. (vi) Yes.

4. GENERAL :

(i) N.A. (ii) Nil. (iii) No. of mature stalks, sucrose % and sugarcane yield. (iv) (a) No. (b) No. (c) No. (v) (a) Majhulia and Dehri-on-Sone. (b) Nil. (vi) & (vii) Nil.

5. RESULTS :

- (i) 18.29 ton/ac.
 (ii) (a) 6.22 ton/ac.
 (b) 4.02 ton/ac.
 (iii) Only main effect of variety is highly significant.
 (iv) Av. yield of sugarcane in ton/ac.

	M ₁	M ₂	M ₃	M ₄	M ₅	M ₆	M ₇	M ₈	M ₉	M ₁₀	M ₁₁	Mean
V ₁	10.56	15.06	15.70	12.58	11.02	12.58	14.23	15.70	13.13	11.20	14.05	13.26
V ₂	25.70	20.56	25.43	22.95	23.04	26.62	17.12	26.35	23.96	21.30	23.68	23.34
Mean	18.13	17.81	20.57	17.77	17.03	19.60	15.68	21.03	18.55	16.25	18.87	18.29

S.E. of difference of two

1. variety means = 1.33 ton/ac.
 2. manure means = 2.01 ton/ac.
 3. manure means at the same level of variety = 2.84 ton/ac.
 4. variety means at the same level of manure = 3.02 ton/ac.

Crop :- Sugarcane.

Ref :- Bh. 49(22).

Site :- Zonal Centre, Parsa.

Type :- 'MV'.

Object :- To find out the optimum dose of Ammo. Phos. for Sugarcane.

1. BASAL CONDITIONS :

- (i) (a) N.A. (b) N.A. (c) N.A. (ii) (a) Alluvium calcareous. (b) N.A. (iii) N.A. (iv) (a) 4 ploughings by *deshi* plough. (b) Flat planting. (c) 60, three budded setts/row. (d) Rows 3' apart. (v) N.A. (vi) As per treatments. (vii) N.A. (viii) Hoing, weeding and earthing. (ix) N.A. (x) N.A.

2. TREATMENTS :

All combinations of (1) and (2)

- (1) 3 varieties : V
- ₁
- =BO. 11, V
- ₂
- =CO. 453 and V
- ₃
- =CO. 513.

(2) 4 doses of manure :

M₀=Control (no manure).M₁=20 lb./ac. of N + 25 lb./ac. of P₂O₅.M₂=40 lb./ac. of N + 50 lb./ac. of P₂O₅.M₃=50 lb./ac. of N + 75 lb./ac. of P₂O₅.N and P₂O₅ as Ammo. Phos. Manures applied at the time of planting.

3. DESIGN :

- (i) 3×4 Fact. in R.B.D. (ii) (a) 12. (b) N.A. (iii) 6. (iv) (a) 60.5'×24'. (b) 60.5'×18'. (v) One row on each side along length. (vi) Yes.

4. GENERAL :

- (i) N.A. (ii) No. of mature stalks, sucrose % and sugarcane yield. (iv) (a) 1949—1950. (b) No. (c) Nil. (v) (a) Harinagar, Pachrukhi and Majhauria. (b) Nil. (vi) Nil. (vii) Experiment in 1950 continued with certain modifications in treatments.

5. RESULTS :

- (i) 16.47 ton/ac.
 (ii) 2.77 ton/ac.
 (iii) Main effect of variety is highly significant while that of manure is not significant. Interaction is significant.

(iv) Av. yield of cane in ton/ac.

	M ₀	M ₁	M ₂	M ₃	Mean
V ₁	14.15	11.04	12.53	15.07	13.20
V ₂	22.48	20.89	23.67	19.08	21.53
V ₃	14.22	13.37	14.40	16.70	14.67
Mean	16.95	15.10	16.87	16.95	16.47

S.E. of marginal mean of variety = 0.57 ton/ac.
 S.E. of marginal mean of manure = 0.65 ton/ac.
 S.E. of body of table = 1.13 ton/ac.

Crop :- Sugarcane.

Ref :- Bh. 50(26).

Site :- Zonal Centre, Parsa.

Type :- 'MV'.

Object :- To find the optimum dose of Ammo. Phos. for Sugarcane.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) N.A. (c) N.A. (ii) (a) Alluvium calcareous. (b) N.A. (iii) N.A. (iv) (a) 4 ploughings by *deshi* plough. (b) Flat planting. (c) 60, three budded setts/row. (d) Rows 1' apart. (e) —. (v) N.A. (vi) As per treatments. (vii) N.A. (viii) Hoeing, weeding and earthing. (ix) N.A. (x) N.A.

2. TREATMENTS :

All combinations of (1) and (2)

(1) 2 varieties : V₁=BO. 11 and V₂=CO. 453.

(2) 5 levels of manure :

M₀= Control (no manure).M₁= 40 lb./ac. of N + 50 lb./ac. of P₂O₅.M₂= 60 lb./ac. of N + 75 lb./ac. of P₂O₅.M₃= 80 lb./ac. of N + 100 lb./ac. of P₂O₅.M₄= 100 lb./ac. of N + 125 lb./ac. of P₂O₅.N and P₂O₅ as Ammo. Phos. Manure applied at the time of planting.

3. DESIGN :

(i) 2 × 5 Fact. in R.B.D. (ii) (a) 10. (b) N.A. (iii) 6. (iv) (a) 60.5' × 24'. (b) 60.5' × 18'. (v) One row on each side along length. (vi) Yes.

4. GENERAL :

(i) N.A. (ii) N.A. (iii) No. of mature stalks, sucrose % and sugarcane yield. (iv) (a) 1949—1950. (b) No. (c) Nil. (v) (a) Harinagar, Pachrukhi and Majhaulia. (b) Nil. (vi) and (vii) Nil.

5. RESULTS :

(i) 17.85 ton/ac.
 (ii) 3.28 ton/ac.
 (iii) Only main effect of variety is highly significant.
 (iv) Av. yield of cane in ton/ac.

	M ₀	M ₁	M ₂	M ₃	M ₄	Mean
V ₀	12.30	12.54	11.72	15.30	13.74	13.12
V ₁	24.91	22.00	23.44	21.79	20.75	22.58
Mean	18.60	17.27	17.58	18.55	17.25	17.85

S.E. of marginal mean of variety = 0.60 ton/ac.
 S.E. of marginal mean of manure = 0.95 ton/ac.
 S.E. of body of table = 1.34 ton/ac.

Crop :- Sugarcane.

Ref :- Bh. 49 (23).

Site :- Zonal Centre, Parsa.

Type :- 'MV'.

Object :- To find out the optimum dose of N and P_2O_5 .

1. BASAL CONDITIONS :

(i) (a) N.A. (b) N.A. (c) N.A. (ii) (a) Alluvium calcareous. (b) N.A. (iii) N.A. (iv) (a) 4 ploughings by *deshi* plough. (b) Flat planting. (c) 60, three budded setts/row. (d) Rows 3' apart. (e) —. (v) N.A. (vi) As per treatments. (vii) N.A. (viii) Hoeing, weeding and earthing. (ix) N.A. (x) N.A.

2. TREATMENTS :

All combinations of (1) and (2)

(1) 2 varieties : $V_1=CO. 453$ and $V_2=BO.11$

(2) 7 doses of manures :

 $M_1=40$ lb./ac. of N + 50 lb./ac. of P_2O_5 as Ammo. Phos. $M_2=60$ lb./ac. of N + 75 lb./ac. of P_2O_5 as Ammo. Phos. $M_3=40$ lb./ac. of N + 50 lb./ac. of P_2O_5 as Castor cake + Triple Super. $M_4=60$ lb./ac. of N + 75 lb./ac. of P_2O_5 as Castor cake + Triple Super. $M_5=40$ lb./ac. of N + 50 lb./ac. of P_2O_5 as A/S + Triple Super. $M_6=60$ lb./ac. of N + 75 lb./ac. of P_2O_5 as A/S + Triple Super. M_7 =Control (no manure).

Manures applied at the time of planting.

3. DESIGN :

(i) 2×7 Fact. in R.B.D. (ii) (a) 14. (b) N.A. (iii) 4. (iv) (a) $60.5' \times 24'$. (b) $60.5' \times 18'$. (v) One row on each side along length. (vi) Yes.

4. GENERAL :

(i) N.A. (ii) N.A. (iii) No. of mature stalks, sucrose % and sugarcane yield. (iv) (a) No. (b) No. (c) No. (v) (a) None. (b) No. (vi) and (vii) Nil.

5. RESULTS :

(i) 22.81 ton/ac.

(ii) 1.76 ton/ac.

(iii) Main effect of variety is highly significant while that of manure is not significant. Interaction is significant.

(iv) Av. yield of cane in ton/ac.

	M_1	M_2	M_3	M_4	M_5	M_6	M_7	Mean
V_1	23.30	25.23	24.90	27.12	26.51	27.43	26.64	25.88
V_2	22.05	20.96	17.79	19.05	20.01	19.44	18.86	19.74
Mean	22.67	23.10	21.34	23.09	23.26	23.44	22.75	22.81

S.E. of marginal mean of variety

=0.33 ton/ac.

S.E. of marginal mean of manure

=0.62 ton/ac.

S.E. of body of table

=0.88 ton/ac.

Crop :- Sugarcane.

Ref :- Bh. 50 (42).

Site :- Zonal Centre, Parsa.

Type :- 'MV'.

Object :- To find out the optimum dose of N and P_2O_5 for Sugarcane.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Sugarcane. (c) N.A. (ii) (a) Alluvial calcareous. (b) N.A. (iii) N.A. (iv) (a) 4 times ploughed by *deshi* plough. (b) Flat planting. (c) 60, three budded setts/row. (d) Rows 3' apart. (e) N.A. (v) Nil. (vi) As per treatments. (vii) Irrigated. (viii) Hoeing, weeding and earthing. (ix) N.A. (x) N.A.

2. TREATMENTS :

Main-plot treatments :—

2 varieties : $V_1 = \text{CO. 453}$ and $V_2 = \text{BO. 11}$.

Sub-plot treatments :

All combinations of (1) and (2)

(1) 4 levels of N : $N_0 = 0$, $N_1 = 40$, $N_2 = 80$, and $N_3 = 120$ lb./ac.(2) 4 levels of P_2O_5 : $P_0 = 0$, $P_1 = 50$, $P_2 = 100$ and $P_3 = 150$ lb./ac.N as Castor cake and P_2O_5 as Single Super. Manures applied at the time of planting.

3. DESIGN :

(i) Split plot. (ii) (a) 2 main-plots/block ; 16 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) $60.5' \times 24'$. (b) $60.5' \times 18'$. (v) One row on each side along length. (vi) Yes.

4. GENERAL :

(i) Good. (ii) N.A. (iii) No. of mature stalks, sucrose% and sugarcane yield. (iv) (a) 1949—1953. (b) Yes. (c) Nil. (v) (a) Motipur and Harinagar. (b) Nil. (vi) and (vii) Nil.

5. RESULTS :

- (i) 17.91 ton/ac.
 (ii) (a) 12.11 ton/ac.
 (b) 11.69 ton/ac.
 (iii) None of the effects is significant.
 (iv) Av. yield of cane in ton/ac.

	N_0	N_1	N_2	N_3	Mean	P_0	P_1	P_2	P_3
V_1	20.31	20.04	21.90	22.92	21.29	19.26	23.35	21.20	21.37
V_2	14.04	13.54	15.15	15.37	14.52	14.15	14.77	13.77	15.40
Mean	17.17	16.79	18.52	19.15	17.91	16.71	19.06	17.48	18.39
P_0	16.68	15.67	15.58	18.90					
P_1	17.82	19.07	18.92	20.42					
P_2	17.00	15.40	19.31	18.21					
P_3	17.20	17.02	20.28	19.04					

S.E. of difference of two

1. V means = 2.14 ton/ac.
 2. N or P means = 2.92 ton/ac.
 3. N or P means at the same level of V = 4.13 ton/ac.
 4. V means at the same level of N or P = 4.37 ton/ac.
 S.E. of body of $N \times P$ table = 4.74 ton/ac.

Crop :—Sugarcane.

Ref :—Bh. 51(58).

Site :—Zonal Centre, Parsa.

Type :—'MV'.

Object :—To find out the optimum dose of N and P_2O_5 .

1. BASAL CONDITIONS :

(i) (a) N.A. (b) N.A. (c) N.A. (ii) (a) Alluvial calcareous. (b) N.A. (iii) N.A. (iv) (a) 4 ploughings, harrowing. (b) Flat method. (c) 65 md./ac. (d) Rows 3' apart. (e) —. (v) N.A. (vi) As per treatments. (vii) N.A. (viii) Hoeing and weeding. (ix) N.A. (x) N.A.

2. TREATMENTS :

Main-plot treatments :—

2 varieties : $V_1 = \text{CO. 453}$ and $V_2 = \text{BO. 11}$.

Sub-plot treatments :—

All combinations of (1) and (2)

(1) 4 levels of N : $N_0 = 0$, $N_1 = 40$, $N_2 = 80$ and $N_3 = 120$ lb./ac.(2) 4 levels of P_2O_5 : $P_0 = 0$, $P_1 = 50$, $P_2 = 100$ and $P_3 = 150$ lb./ac.N as Castor cake and P_2O_5 as Single Super.

3. DESIGN :

(i) Split plot. (ii) (a) 2 main-plots/block ; 16 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) 60.5'×24'. (b) 60.5'×18'. (v) 1 row on either side along length. (vi) Yes.

4. GENERAL .

(i) N.A. (ii) N.A. (iii) Cane yield, no. of mature stalks and juice content. (iv) (a) 1949—1953. (b) Yes. (c) Nil. (v) (a) Motipur and Harinagar. (b) N.A. (vi) and (vii) Nil.

5 RESULTS :

- (i) 16.36 ton/ac.
 (ii) (a) 5.17 ton/ac.
 (b) 4.23 ton/ac.
 (iii) Main effect of variety alone is significant.
 (iv) Av. yield of cane in ton/ac.

	N ₀	N ₁	N ₂	N ₃	Mean	P ₀	P ₁	P ₂	P ₃
V ₁	12.51	13.09	12.51	13.43	12.89	12.33	12.46	13.13	13.63
V ₂	17.50	20.33	20.84	20.62	19.82	19.97	19.72	20.65	18.94
Mean	15.02	16.71	16.68	17.03	16.36	16.15	16.09	16.89	16.29
P ₀	13.61	16.58	16.55	17.84					
P ₁	15.75	17.26	16.67	14.67					
P ₂	15.34	18.39	15.59	18.25					
P ₃	15.31	14.60	17.88	17.33					

S.E. of difference of two

1. V means = 0.91 ton/ac.
 2. N or P means = 1.06 ton/ac.
 3. N or P means at the same level of V = 1.50 ton/ac.
 4. V means at the same level of N or P = 1.59 ton/ac.
 S.E of body of N×P table = 1.70 ton/ac.

Crop :-Sugarcane.

Site :-Zonal Centre, Parsa.

Ref :-Bh. 53(142).

Type :-'MV'.

Object :-To find out the optimum dose of N and P.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) N.A. (c) N.A. (ii) (a) Alluvial calcareous. (b) N.A. (iii) N.A. (iv) (a) 4 ploughings by *deshi* plough. (b) Flat method. (c) 60, three budded setts/row. (d) Rows 3' apart. (e) —. (v) N.A. (vi) As per treatments. (vii) N.A. (viii) Hoeing, weeding and earthing (ix) N.A. (x) N.A.

2. TREATMENTS :

Main-plot treatments :-

2 varieties : V₁=CO. 453 and V₂=BO. 11.

Sub-plot treatments :-

All combinations of (1) and (2)

(1) 4 levels of N : N₀=0, N₁=40, N₂=80 and N₃=120 lb./ac.

(2) 4 levels of P₂O₅ : P₀=0, P₁=50, P₂=100 and P₃=150 lb./ac.

N as A/S and P₂O₅ as Single Super. Manures applied at the time of planting.

3. DESIGN :

(i) Split plot. (ii) (a) 2 main-plots/block ; 16 sub-plots/main-plot. (b) N.A. (iii) 5. (iv) (a) 60.5'×24', (b) 60.5'×18'. (v) One row on either side along length. (vi) Yes.

4. GENERAL :

(i) N.A. (ii) N.A. (iii) Tiller count, no. of mature stalks, sucrose % and sugarcane yield. (iv) (a) 1949—1953. (b) No. (c) Nil. (v) (a) N.A. (b) N.A. (vi) Nil. (vii) Experiment for the year 1949 and 1952 under category 'M'.

5. RESULTS :

- (i) 9.63 ton/ac.
 (ii) (a) 2.91 ton/ac.
 (b) 2.77 ton/ac.
 (iii) Only main effect of N is highly significant.
 (iv) Av. yield of cane in ton/ac.

	N ₀	N ₁	N ₂	N ₃	Mean	P ₀	P ₁	P ₂	P ₃
V ₁	7.85	8.84	9.55	9.72	8.99	9.27	9.04	9.17	8.47
V ₂	9.49	9.80	10.52	11.21	10.25	10.12	9.90	11.07	9.92
Mean	8.67	9.32	10.04	10.47	9.63	9.70	9.47	10.12	9.20
P ₀	8.64	8.92	9.38	11.84					
P ₁	8.50	9.29	9.46	10.63					
P ₂	9.09	9.84	11.00	10.57					
P ₃	8.45	9.22	10.30	8.84					

S.E. of difference of two

1. V means = 0.46 ton/ac.
 2. N or P means = 0.62 ton/ac.
 3. N or P means at the same level of V = 0.88 ton/ac.
 4. V means at the same level of N or P = 0.99 ton/ac.
 S.E. of body of N×P table = 1.12 ton/ac.

Crop :- Sugarcane.

Site :- Zonal Centre, Parsa.

Ref :- Bh. 50(30).

Type :- 'MV'.

Object :—To compare the effect of Oil cakes in combination with Single Super against standard manures.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) N.A. (c) N.A. (ii) (a) Alluvial calcareous. (b) N.A. (iii) N.A. (iv) (a) 4 ploughings followed by beaming. (b) Flat planting. (c) 60, three budded setts/row. (d) Rows 3' apart. (e) —. (v) Nil. (vi) As per treatments. (vii) Unirrigated. (viii) Hoeing, weeding and earthing. (ix) N.A. (x) N.A.

2. TREATMENTS :

Main-plot treatments :—

2 varieties : V₁=BO. 11 and V₂=CO. 453.

Sub-plot treatments :—

1. A/N + Single Super at 60 lb./ac. of N+75 lb./ac. of P₂O₅.
2. Castor cake + Single Super at 60 lb./ac. of N+75 lb./ac. of P₂O₅.
3. Mustard cake + Single Super at 60 lb./ac. of N+75 lb./ac. of P₂O₅.
4. Linseed cake + Single Super at 60 lb./ac. of N+75 lb./ac. of P₂O₅.
5. G.N.C. + Single Super at 60 lb./ac. of N+75 lb./ac. of P₂O₅.
6. Mahua cake + Single Super at 60 lb./ac. of N+75 lb./ac. of P₂O₅.
7. Ammo. Phos. at 60 lb./ac. of N+ at 75 lb./ac. of P₂O₅.
8. Control (no manure).

3. DESIGN :

(i) Split-plot. (ii) (a) 2 main-plots/block ; 8-sub-plots/main-plot. (b) N.A. (iii) 6. (iv) (a) 60.5'×24'. (b) 60.5'×18'. (v) 1 row on each side along length. (vi) Yes.

4. GENERAL :

(i) N.A. (ii) Nil. (iii) No. of mature stalks, sucrose % and sugarcane yield. (iv) (a) 1950-1953. (b) No. (c) Nil. (v) (a) Majhulia and Motihari. (b) Nil. (vi) Nil. (vii) Experiment conducted during 1951 not traceable.

5. RESULTS :

- (i) 15.48 ton/ac.
 (ii) (a) 0.53 ton/ac.
 (b) 0.97 ton/ac.
 (iii) Main effects of variety and manure are highly significant. Interaction is not significant.
 (iv) Av. yield of cane in ton/ac.

	1	2	3	4	5	6	7	8	Mean
V ₁	12.14	14.10	10.56	14.56	15.14	14.98	12.20	10.28	13.00
V ₂	14.89	17.76	18.92	24.17	18.99	18.43	17.88	12.70	17.97
Mean	13.52	15.93	14.74	19.37	17.06	16.71	15.04	11.49	15.48

S.E. of difference of two

1. variety means = 0.11 ton/ac.
2. manure means = 0.40 ton/ac.
3. manure means at the same level of variety = 0.56 ton/ac.
4. variety means at the same level of manure = 0.54 ton/ac.

Crop :- Sugarcane.

Site :- Zonal Centre, Parsa.

Ref :- Bh. 52(79).

Type :- 'MV'.

Object :- To compare the effect of Oilcakes in combination with Single Super against standard manures.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) N.A. (c) N.A. (ii) (a) Alluvial calcareous. (b) N.A. (iii) N.A. (iv) (a) 4 ploughings by *deshi* plough. (b) Flat planting. (c) 60, three budded sets/row. (d) Rows 3' apart. (e) —. (v) N.A. (vi) As per treatments. (vii) N.A. (viii) Hoeing, weeding and earthing. (ix) N.A. (x) N.A.

2. TREATMENTS :

Main-plot treatments :-

2 varieties : V₁=BO. 11 and V₂=CO. 453.

Sub-plot treatments :-

7 manures :

1. A/N at 60 lb./ac. of N + Single Super at 75 lb./ac. of P₂O₅.
2. Castor cake + Single Super at 60 lb./ac. of N + 75 lb./ac. of P₂O₅.
3. Mustard cake + Single Super at 60 lb./ac. of N + 75 lb./ac. of P₂O₅.
4. Linseed cake + Single Super at 60 lb./ac. of N + 75 lb./ac. of P₂O₅.
5. G.N.C. + Single Super at 60 lb./ac. of N + 75 lb./ac. of P₂O₅.
6. Mahua cake + Single Super at 60 lb./ac. of N + 75 lb./ac. of P₂O₅.
7. Control (no manure).

Note : Treatments 6 and 7 were subsequently dropped.

3. DESIGN:

(i) Split-plot. (ii) (a) 2 main-plots/block, 5 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) 60.5' × 24' (b) 60.5' × 18'. (v) 1 row on either side along length. (vi) Yes.

4. GENERAL :

(i) N.A. (ii) N.A. (iii) Tiller count, no. of mature stalks, sucrose % and sugarcane yield. (iv) (a) 1950—1953. (b) No. (c) Nil. (v) (a) Motihari and Majhulia. (b) N.A. (vi) Nil. (vii) Experiment conducted with 5 treatments only.

5. RESULTS :

- (i) 18.29 ton/ac.
 (ii) (a) 5.75 ton/ac.
 (b) 3.36 ton/ac.
 (iii) Only main effect of manure is significant.
 (iv) Av. yield of cane in ton/ac.

	1	2	3	4	5	Mean
V ₁	18.46	21.17	21.81	18.64	17.52	19.52
V ₂	18.83	15.75	22.13	16.85	11.75	17.06
Mean	18.65	18.46	21.97	17.75	14.64	18.29

S.E. of difference of two

1. variety means = 1.82 ton/ac.
 2. manure means = 1.68 ton/ac.
 3. manure means at the same level of variety = 2.38 ton/ac.
 4. variety means at the same level of manure = 2.79 ton/ac.

Crop :- Sugarcane.

Ref :- Bh. 53(143).

Site :- Zonal Centre, Parsa.

Type :- 'MV'.

Object :—To compare the effect of Oilcakes in combination with Super against standard manures.

1. BASAL CONDITIONS :

- (i) (a) N.A. (b) N.A. (c) N.A. (ii) (a) Alluvial calcareous. (b) N.A. (iii) N.A. (iv) (a) 4 ploughings, harrowing and beaming. (b) Flat method. (c) 65 md./ac. (d) Rows 3' apart. (e) —. (v) N.A. (vi) As per treatments. (vii) N.A. (viii) Hoeing and weeding. (ix) N.A. (x) N.A.

2. TREATMENTS :

Main-plot treatments :—

2 varieties : V₁=BO. 11 and V₂=CO. 453.

Sub-plot treatments :—

7 manures :

1. A.S.N. at 60 lb./ac. of N + Single Super at 75 lb./ac. of P₂O₅.
 2. Castor cake + Single Super at 60 lb./ac. of N + 75 lb./ac. of P₂O₅.
 3. Mustard cake + Single Super at 60 lb./ac. of N + 75 lb./ac. of P₂O₅.
 4. Linseed cake + Single Super at 60 lb./ac. of N + 75 lb./ac. of P₂O₅.
 5. G.N.C. + Single Super at 60 lb./ac. of N + 75 lb./ac. of P₂O₅.
 6. Mahua cake + Single Super at 60 lb./ac. of N + 75 lb./ac. of P₂O₅.
 7. Control (no manure).

3. DESIGN :

- (i) Split-plot. (ii) (a) 2 main-plots/block ; 7 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) 60.5'×24'. (b) 60.5'×18'. (v) One row on either side along length. (vi) Yes.

4. GENERAL :

- (i) N.A. (ii) N.A. (iii) Cane yield, no. of mature stalks and tillers. (iv) (a) 1950—1953. (b) No. (c) No. (v) (a) N.A. (b) Nil. (vi) and (vii) Nil.

5. RESULTS :

- (i) 7.99 ton/ac.
 (ii) (a) 6.74 ton/ac.
 (b) 1.48 ton/ac.
 (iii) None of the effects is significant.

(iv) Av. yield of sugarcane in ton/ac.

	1	2	3	4	5	6	7	Mean
V ₁	6.75	6.80	9.00	8.08	9.32	9.32	7.25	8.07
V ₂	7.76	7.12	7.99	9.64	7.48	7.44	7.85	7.90
Mean	7.26	6.96	8.50	8.86	8.40	8.38	7.55	7.99

S.E. of difference of two

1. variety means = 1.80 ton/ac.
2. manure means = 0.74 ton/ac.
3. manure means at the same level of variety = 1.05 ton/ac.
4. variety means at the same level of manure = 2.05 ton/ac.

Crop :- Sugarcane.

Site :- Zonal Centre, Parsa.

Ref :- Bh. 50(45).

Type :- 'MV'.

Object :- To find out the response to different combinations of manures.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) N.A. (c) N.A. (ii) (a) Alluvial calcareous. (b) N.A. (iii) N.A. (iv) (a) 4 ploughings, harrowing and beaming. (b) Flat method. (c) 65 md./ac. (d) Rows 3' apart. (e) —. (v) N.A. (vi) As per treatments. (vii) N.A. (viii) Hoeing and weeding. (ix) N.A. (x) N.A.

2. TREATMENTS :

Main-plot treatments :—

2 varieties : V₁=CO. 453 and V₂=BO. 11.

Sub-plot treatments :—

11 manures :

- M₁ = Ammo. Phos. at 60 lb./ac. of N and 75 lb./ac. of P₂O₅.
M₂ = Ammo. Phos. + Super at 60 lb./ac. of N + 75 lb./ac. of P₂O₅.
M₃ = Castor cake + Ammo. Phos. + Super at 60 lb./ac. of N + 75 lb./ac. of P₂O₅.
M₄ = Castor cake + Super at 60 lb./ac. of N + 75 lb./ac. of P₂O₅.
M₅ = Ammo. Phos. + Mustard cake + Super at 60 lb./ac. of N + 75 lb./ac. of P₂O₅.
M₆ = Mustard cake + Super at 60 lb./ac. of N + 75 lb./ac. of P₂O₅.
M₇ = Ammo. Phos. + Linseed cake + Super at 60 lb./ac. of N + 75 lb./ac. of P₂O₅.
M₈ = Ammo. Phos. + G.N.C. + Super at 60 lb./ac. of N + 75 lb./ac. of P₂O₅.
M₉ = Linseed cake + Super at 60 lb./ac. of N + 75 lb./ac. of P₂O₅.
M₁₀ = G.N.C. + Super at 60 lb./ac. of N + 75 lb./ac. of P₂O₅.
M₁₁ = Control (no manure).

3. DESIGN :

(i) Split-plot. (ii) (a) 2 main-plots/replication ; 11 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) 60.5' × 24'. (b) 60.5' × 18'. (v) 1 row on either side along length. (vi) Yes.

4. GENERAL :

(i) N.A. (ii) N.A. (iii) Cane yield, no. of mature stalks and juice content. (iv) (a) 1950–1953. (b) No. (c) No. (v) (a) N.A. (b) No. (vi) Nil. (vii) Experiment conducted during 1951 N.A.

5. RESULTS :

- (i) 20.01 ton/ac.
- (ii) (a) 3.960 ton/ac.
- (b) 2.825 ton/ac.
- (iii) Main effect of varieties and interaction of varieties × manures are significant.

(iv) Av. yield of sugarcane in ton/ac.

	1	2	3	4	5	6	7	8	9	10	11	Mean
V ₁	21.63	27.50	22.30	27.14	27.81	26.20	28.56	24.98	25.35	27.55	24.20	25.75
V ₂	14.69	15.04	16.07	14.61	12.65	13.89	12.53	15.66	14.51	14.97	12.41	14.28
Mean	18.16	21.27	19.18	20.88	20.23	20.05	20.55	20.32	19.93	21.26	18.31	20.01

S.E. of difference of two

1. variety means = 0.84 ton/ac.
2. manure means = 1.41 ton/ac.
3. manure means at the same level of variety = 2.00 ton/ac.
4. variety means at the same level of manure = 2.08 ton/ac.

Crop :- Sugarcane.

Ref :- Bh. 52 (65).

Site :- Zonal Centre, Parsa.

Type :- 'MV'.

Object :- To find out the response due to different combinations of manures.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) N.A. (c) N.A. (ii) (a) Alluvial calcareous. (b) N.A. (iii) N.A. (iv) (a) 4 ploughings followed by beaming. (b) Flat planting. (c) 60, three budded setts/row. (d) Rows 3' apart. (e) —. (v) Nil. (vi) As per treatments. (vii) N.A. (viii) Hoeing, weeding and earthing each once. (ix) N.A. (x) N.A.

2. TREATMENTS :

Main-plot treatments :—

2 varieties: V₁=CO. 453 and V₂=BO. 11

Sub-plot treatments :—

6 manures :—

1. A/S at 60 lb./ac. of N + Single Super at 75 lb./ac. of P₂O₅.
2. Castor cake + Single Super at 60 lb./ac. of N + 75 lb./ac. of P₂O₅.
3. Castor cake + Single Super at 45 lb./ac. of N + 75 lb./ac. of P₂O₅. + A/S at 15 lb./ac. of N
4. Castor cake + Single Super at 30 lb./ac. of N + 75 lb./ac. of P₂O₅. + A/S at 30 lb./ac. of N
5. Castor cake + Single Super at 15 lb./ac. of N + 75 lb./ac. of P₂O₅. + A/S at 45 lb./ac. of N
6. Control (No manure)

Manures applied at the time of planting.

3. DESIGN :

(i) Split-plot. (ii) (a) 2 main-plots/block ; 6 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) 60.5' × 24' (b) 60.5' × 18'. (v) One row on each side along length. (vi) Yes.

4. GENERAL :

(i) N.A. (ii) N.A. (iii) No. of mature stalks, sucrose% and sugarcane yield. (iv) (a) 1950—1953. (b) No. (c) Nil. (v) (a) Majhauia, Motihari and Motipur. (b) N.A. (vi) and (vii) Nil.

5. RESULTS :

- (i) 17.29 ton/ac.
- (ii) (a) 1.08 ton/ac.
- (b) 0.88 ton/ac.
- (iii) Only main effect of manures is significant.

(iv) Av. yield of sugarcane in ton/ac.

	1	2	3	4	5	6	Mean
V ₁	18.39	21.54	17.91	19.08	19.78	15.27	18.66
V ₂	17.21	16.00	18.09	15.45	15.19	13.61	15.92
Mean	17.80	18.77	18.00	17.27	17.48	14.44	17.29

S.E. of difference of two

1. variety means = 0.31 ton/ac.
2. manure means = 0.44 ton/ac.
3. manure means at the same level of variety = 0.62 ton/ac.
4. variety means at the same level of manure = 0.64 ton/ac.

Crop :- Sugarcane.

Ref :- Bh. 53 (141).

Site :- Zonal Centre, Parsa.

Type :- 'MV'.

Object :—To find out the response due to different combinations of manures.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) N.A. (c) N.A. (ii) (a) Alluvial calcareous. (b) N.A. (iii) N.A. (iv) (a) 4 ploughings by *deshi* plough. (b) Flat method. (c) 60 md/ac. (d) Rows 3' apart. (e) —. (v) N.A. (vi) As per treatments. (vii) N.A. (viii) Hoeing, weeding and earthing. (ix) N.A. (x) N.A.

2. TREATMENTS :

Main-plot treatments :

2 varieties : V₁=BO. 10 and V₂=BO. 21

Sub-plot treatments :—

6 manures :—

1. A/S at 60 lb./ac. of N+Single Super at 75 lb./ac. of P₂O₅.
2. Castor cake +Single Super at 60 lb./ac. of N+75 lb./ac. of P₂O₅.
3. Castor cake +Single Super at 45 lb./ac. of N+75 lb./ac. of P₂O₅. +A/S at 15 lb./ac. of N
4. Castor cake +Single Super at 30 lb./ac. of N+75 lb./ac. of P₂O₅. +A/S at 30 lb./ac. of N
5. Castor cake +Single Super at 15 lb./ac. of N+75 lb./ac. of P₂O₅. +A/S at 45 lb./ac. of N
6. Control (no manure)

3. DESIGN :

(i) Split-plot. (ii) (a) 2 main-plots/block ; 6 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) 60.5'×24', with 8 rows 3' apart. (b) 60.5'×18' with 6 rows 3' apart. (v) One row on either side along length. (vi) Yes.

4. GENERAL :

(i) N.A. (ii) N.A. (iii) No. of tillers, no. of mature stalks, sucrose % and sugarcane yield. (iv) (a) 1950—1953. (b) No. (c) Nil. (v) (a) N.A. (b) N.A. (vi) and (vii) Nil.

5. RESULTS :

- (i) 10.90 ton/ac.
- (ii) (a) 0.46 ton/ac.
- (b) 2.06 ton/ac.
- (iii) Main effect of variety alone is highly significant.

(iv) Av. yield of sugarcane in ton/ac.

	1	2	3	4	5	6	Mean
V ₁	8.91	9.46	10.10	9.60	8.49	10.01	9.43
V ₂	11.30	11.97	11.75	12.40	14.60	12.21	12.37
Mean	10.11	10.72	10.93	11.00	11.55	11.11	10.90

S.E. of difference of two

1. variety means =0.13 ton/ac.
2. manure means =1.03 ton/ac.
3. manure means at the same level of variety =1.46 ton/ac.
4. variety means at the same level of manure =1.33 ton/ac.

Crop :- Sugarcane.

Ref :- Bh. 50(2).

Site :- Sugarcane Sub-Stn., Patna.

Type :- 'MV'.

Object :- To find out the optimum dose of Ammo. Phos. for Sugarcane.

1. BASAL CONDITIONS :

(i) (a) None. (b) Fallow. (c) Nil. (ii) (a) Clay. (b) N.A. (iii) 4 to 6.2.50. (iv) (a) to (e) N.A. (v) No. (vi) As per treatments. (vii) Irrigated. (viii) Hoeing and earthing. (ix) 40.02". (x) 5.2.51 to 20.2.51.

2. TREATMENTS :

All combinations of (1) & (2)

(1) 2 varieties :- V₁=BO. 11 & V₂=CO. 453.

(2) 5 levels of manure :

M₀=Control (no manure).M₁= 40 lb./ac. of N and 50 lb./ac. of P₂O₅.M₂= 60 lb./ac. of N and 75 lb./ac. of P₂O₅.M₃= 80 lb./ac. of N and 100 lb./ac. of P₂O₅.M₄=100 lb./ac. of N and 125 lb./ac. of P₂O₅.N and P₂O₅ as Ammo. Phos.

3. DESIGN :

(i) 2×5 Fact. in R.B.D. (ii) (a) 10. (b) N.A. (iii) 6. (iv) (a) 24'×60.5'. (b) 18'×60.5' (v) One row on each side along length (vi) Yes.

4. GENERAL :

(i) Partly good and partly bad. (ii) None. (iii) Cane yield. (iv) (a) 1950-1951. (b) No. (c) Nil. (v) (a) Pusa. (b) Nil. (vi) & (vii) Nil.

5. RESULTS :

- (i) 11.36 ton/ac.
- (ii) 3.12 ton/ac.
- (iii) Main effect of varieties alone is highly significant.
- (iv) Av. yield of sugarcane in ton/ac.

	M ₀	M ₁	M ₂	M ₃	M ₄	Mean
V ₁	8.29	8.60	8.00	8.56	7.72	8.23
V ₂	14.60	13.12	14.37	15.62	14.75	14.49
Mean	11.45	10.86	11.18	12.09	11.24	11.36

- S.E. of marginal mean of variety =0.57 ton/ac.
 S.E. of marginal mean of manure =0.91 ton/ac.
 S.E. of body of table =1.28 ton/ac.

Crop :- Sugarcane.

Ref :- Bh. 51(5).

Site :- Sugarcane Sub-Stn., Patna.

Type :- 'MV'.

Object :- To find out the optimum dose of Ammo. Phos. for Sugarcane.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) N.A. (c) N.A. (ii) (a) Clay. (b) N.A. (iii) 11 to 13.2.51. (iv) (a) to (e) N.A. (v) Nil. (vi) As per treatments. (vii) Irrigated. (viii) Weeding. (ix) 30.47". (x) N.A.

2. TREATMENTS :

All combinations of (1) & (2)

(1) 2 varieties :- $V_1=BO. 11$ & $V_2=CO. 453$.

(2) 5 levels of manure :

 $M_0=$ Control (no manure). $M_1=$ 40 lb./ac. of N and 50 lb./ac. of P_2O_5 . $M_2=$ 60 lb./ac. of N and 75 lb./ac. of P_2O_5 . $M_3=$ 80 lb./ac. of N and 100 lb./ac. of P_2O_5 . $M_4=$ 100 lb./ac. of N and 125 lb./ac. of P_2O_5 .N and P_2O_5 as Ammo. Phos.

3. DESIGN :

(i) 2×5 Fact. in R.B.D. (ii) (a) 10. (b) N.A. (iii) 4. (iv) (a) $60.5' \times 24'$. (b) $60.5' \times 18'$. (v) Rows of 3' along length. (vi) Yes.

4. GENERAL :

(i) Satisfactory. (ii) Incidence of cane borer reported. Spray of insecticides. (iii) Cane yield. (iv) (a) 1950-1951. (b) No. (c) Nil. (v) (a) Pusa. (b) Nil. (vi) & (vii) Nil.

5. RESULTS :

(i) 15.05 ton/ac.

(ii) 2.35 ton/ac.

(iii) "Variety" and "Manurial doses" effects are highly significant while interaction "Variety \times Manurial doses" is not significant.

(iv) Av. yield of sugarcane in ton/ac.

	M_0	M_1	M_2	M_3	M_4	Mean
V_1	13.29	12.06	14.76	13.99	12.99	13.42
V_2	15.50	19.47	15.44	15.72	17.27	16.68
Mean	14.40	15.77	15.10	14.85	15.13	15.05

S.E. of marginal mean of variety = 0.53 ton/ac.

S.E. of marginal mean of manure = 0.85 ton/ac.

S.E. of body of table = 1.18 ton/ac.

Crop :- Sugarcane.

Ref :- Bh. 52(12).

Site :- Sugarcane Sub-Stn., Patna.

Type :- 'MV'.

Object :- To find out the optimum dose of Ammo. Phos. for Sugarcane.

1. BASAL CONDITIONS :

(i) (a) *Sanai*—Sugarcane—Paddy—*Sanai*. (b) *Sanai*. (c) Nil. (ii) (a) Clay. (b) N.A. (iii) 4.2.52 to 6.2.52. (iv) (a) Mould board ploughings followed by disc harrowing and then levelling. (b) N.A. (c) 70, three budded setts/row. (d) Row to row 3' apart. (e) —. (v) Nil. (vi) As per treatments. (vii) Irrigated. (viii) After every irrigation one interculture. (ix) 34.80". (x) 13th Feb. 53 to 15th Feb. 53.

2. TREATMENTS :

All combinations of (1) and (2)

(1) 2 varieties : $V_1=BO. 11$ and $V_2=CO. 453$.

(2) 5 levels of manure :

M_0 =Control (no manure).

M_1 = 40 lb./ac. of N and 50 lb./ac. of P_2O_5 .

M_2 = 60 lb./ac. of N and 75 lb./ac. of P_2O_5 .

M_3 = 80 lb./ac. of N and 100 lb./ac. of P_2O_5 .

M_4 =100 lb./ac. of N and 125 lb./ac. of P_2O_5 .

N and P_2O_5 as Ammo. Phos.

3. DESIGN :

(i) 2×5 Fact. in R.B.D. (ii) (a) 10. (b) $60.5' \times 240'$. (iii) 4. (iv) (a) $60.5' \times 24'$. (b) $60.5' \times 18'$. (v) Two rows on either side of the plot as non-experimental. (vi) Yes.

4. GENERAL :

(i) Good. No lodging. (ii) Nil. (iii) Germination %, sucrose %, no. of mature stalks and yield at harvest.

(iv) (a) 1950—1952. (b) No. (c) Nil. (v) (a) N.A. (b) Nil. (vi) and (vii) Nil.

5. RESULTS :

(i) 11.91 ton/ac.

(ii) 3.61 ton/ac.

(iii) Variety effect alone is highly significant.

(iv) Av. yield of sugarcane in ton/ac.

	M_0	M_1	M_2	M_3	M_4	Mean
V_1	7.31	6.07	5.92	6.20	6.66	6.43
V_2	16.53	18.35	17.56	16.83	17.72	17.40
Mean	11.92	12.21	11.74	11.51	12.19	11.91

S.E. of marginal mean of manure = 1.28 ton/ac.

S.E. of marginal mean of variety = 0.81 ton/ac.

S.E. of body of table = 1.81 ton/ac.

Crop :-Sugarcane.

Site :-Sugarcane Sub-Stn., Patna.

Ref :-Bh. 49(2).

Type :-'MV'.

Object :-To study the response to different combinations of N and P_2O_5 .

1. BASAL CONDITIONS :

(i) (a) Nil (b) N.A. (c) Nil. (ii) (a) Clay. (b) N.A. (iii) 22.1.49. (iv) (a) to (e) N.A. (v) Nil. (vi) As per treatments. (vii) Irrigated. (viii) Weeding, earthing and hoeing. (ix) 69.88%. (x) 17.2.50 to 2.3.50.

2. TREATMENTS :

All combinations of (1), (2) and (3)

(1) 2 varieties : $V_1=CO. 453$ and $V_2=BO. 11$.

(2) 3 levels of N : $N_1=40$, $N_2=80$ and $N_3=120$ lb./ac.

(3) 3 levels of P_2O_5 : $P_1=50$, $P_2=100$ and $P_3=150$ lb./ac.

Other details N.A.

3. DESIGN :

(i) $2 \times 3 \times 3$ Fact. in R.B.D. (ii) (a) 18. (b) N.A. (iii) 4. (iv) (a) $21' \times 68'$. (b) $15' \times 68'$. (v) 3' wide rows on either side of width. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Borer scale insect. Removal of dead hearts of borers and spraying of insecticides was done.

(iii) Sugarcane yield, sucrose % and counting of mature stalks. (iv) (a) 1948—1950. (b) No. (c) Nil. (v) (a) Pusa. (b) Nil. (vi) and (vii) Nil.

5. RESULTS :

- (i) 14.43 ton/ac.
 (ii) 2.51 ton/ac.
 (iii) Main effect of V is highly significant and interaction 'V×N×P' is significant. Others are not significant.
 (iv) Av. yield of sugarcane in ton/ac.

	N ₁	N ₂	N ₃	Mean	P ₁	P ₂	P ₃
V ₁	17.64	18.10	17.62	17.79	18.35	17.70	17.31
V ₂	9.57	11.04	12.62	11.08	10.62	11.52	11.09
Mean	13.61	14.57	15.12	14.43	14.48	14.61	14.20
P ₁	14.18	14.21	15.06				
P ₂	13.06	15.17	15.60				
P ₃	13.59	14.32	14.69				

S.E. of marginal mean of N or P = 0.51 ton/ac.
 S.E. of marginal mean of V = 0.42 ton/ac.
 S.E. of body of table V×N or V×P = 0.72 ton/ac.
 S.E. of body of table N×P = 0.89 ton/ac.

Crop :- Sugarcane.

Ref :- Bh. 50(3).

Site :- Sugarcane Sub-Stn., Patna.

Type :- 'MV'.

Object :— To study the response of Sugarcane to different combinations of N and P₂O₅.

1. BASAL CONDITIONS :

(i) (a) None. (b) Green manuring. (c) No. (ii) (a) Clay. (b) N.A. (iii) 29.1.50 to 2.2.50. (iv) (a) to (c) N.A. (v) Nil. (vi) As per treatments. (vii) Irrigated. (viii) Hoeing and weeding. (ix) 40.02°. (x) 1.2.51 to 14.3.51.

2. TREATMENTS :

All combinations of (1), (2) and (3)

(1) 2 varieties : V₁=CO. 453 and V₂=BO. 11.

(2) 3 levels of N : N₁=40, N₂=80 and N₃=120 lb./ac.

(3) 3 levels P₂O₅ : P₁=50, P₂=100 and P₃= 150 lb./ac.

N as A/N and P₂O₅ as Super applied at the time of planting.

3. DESIGN :

(i) 2×3×3 Fact. in R.B.D. (ii) (a) 18. (b) N.A. (iii) 4. (iv) (a) 24'×62.5'. (b) 18'×62.5'. (v) Rows of 3' on each side of width. (vi) Yes.

4. GENERAL :

(i) Poor. (ii) None. (iii) Cane yield. (iv) (a) 1948—1950. (b) No. (c) Nil. (v) (a) Pusa. (b) Nil. (vi) and (vii) Nil.

5. RESULTS :

- (i) 6.91 ton/ac.
 (ii) 2.67 ton/ac.
 (iii) Only main effect of variety is highly significant.

(iv) Av. yield of sugarcane in ton/ac.

	N ₁	N ₂	N ₃	Mean	P ₁	P ₂	P ₃
V ₁	8.57	9.80	8.26	8.88	8.64	9.45	8.53
V ₂	5.59	4.20	5.06	4.95	5.31	4.63	4.90
Mean	7.08	7.00	6.66	6.91	6.98	7.04	6.72
P ₁	7.12	7.30	6.51				
P ₂	7.68	6.68	6.77				
P ₃	6.43	7.01	6.71				

S.E. of marginal mean of N or P = 0.54 ton/ac.
 S.E. of marginal mean of V = 0.44 ton/ac.
 S.E. of body of table V × N or V × P = 0.77 ton/ac.
 S.E. of body of table N × P = 0.94 ton/ac.

Crop :- Sugarcane.
 Site :- Sugarcane Sub-Stn., Patna.

Ref :- Bh. 50(4).
 Type :- 'MV'.

Object :- To compare A/N with A/S in combination with Single Super.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) G.M. (c) None. (ii) (a) Clay. (b) N.A. (iii) 12 to 16.2.50. (iv) (a) to (e) N.A. (v) Nil. (vi) As per treatments. (vii) Irrigated. (viii) Hoeing & earthing. (ix) 40.02'. (x) 10.2.51 to 24.2.51.

2. TREATMENTS :

Main-plot treatments :-

2 varieties : V₁=BO. 11 and V₂=CO. 453.

Sub-plot treatments :-

11 doses of manure :

M₁ = A/N at 40 lb./ac. of N+Single Super at 50 lb./ac. of P₂O₅.
 M₂ = A/S at 40 lb./ac. of N+Single Super at 50 lb./ac. of P₂O₅.
 M₃ = A/N at 80 lb./ac. of N+Single Super at 100 lb./ac. of P₂O₅.
 M₄ = A/S at 80 lb./ac. of N+Single Super at 100 lb./ac. of P₂O₅.
 M₅ = A/N at 120 lb./ac. of N+Single Super at 150 lb./ac. of P₂O₅.
 M₆ = A/S at 120 lb./ac. of N+Single Super at 150 lb./ac. of P₂O₅.
 M₇ = A/N at 160 lb./ac. of N+Single Super at 200 lb./ac. of P₂O₅.
 M₈ = A/S at 160 lb./ac. of N+Single Super at 200 lb./ac. of P₂O₅.
 M₉ = A/N at 200 lb./ac. of N+Single Super at 250 lb./ac. of P₂O₅.
 M₁₀ = A/S at 200 lb./ac. of N+Single Super at 250 lb./ac. of P₂O₅.
 M₁₁ = Control (No manure).

3. DESIGN :

(i) Split-plot. (ii) (a) 2 main-plots/block ; 11 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) 24' × 60.5'. (b) 18' × 60.5' (v) Rows of 3' on each side of width. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Nil. (iii) Cane yield. (iv) (a) 1950-1952. (b) No. (c) Nil. (v) (a) Pusa. (b) Nil. (vi) Nil. (vii) Data analysed as R.B.D. Fact.

5. RESULTS :

(i) 7.63 ton/ac.
 (ii) 4.38 ton/ac. See (vi) under GENERAL above.
 (iii) None of the effects is significant.

(iv) Av. yield of sugarcane in ton/ac.

	M ₁	M ₂	M ₃	M ₄	M ₅	M ₆	M ₇	M ₈	M ₉	M ₁₀	M ₁₁	Mean
V ₁	5.38	4.60	5.39	5.60	3.92	4.30	5.84	5.31	4.32	5.93	5.13	5.07
V ₂	11.13	9.74	14.75	9.32	7.59	10.45	9.56	10.16	10.46	7.97	10.91	10.19
Mean	8.26	7.17	10.07	7.46	5.76	7.38	7.70	7.74	7.39	6.95	8.02	7.63

S.E. of marginal mean of variety = 0.66 ton/ac.
 S.E. of marginal mean of manure = 1.55 ton/ac.
 S.E. of body of table = 2.19 ton/ac.

Crop :- Sugarcane.

Ref :- Bh. 51(8).

Site :- Sugarcane Sub-Stn., Patna.

Type :- 'MV'.

Object :- To compare A/N with A/S in combination with Single Super.

1. BASAL CONDITIONS :

(i) (a) None. (b) N.A. (c) N.A. (ii) (a) Clay. (b) N.A. (iii) 16 to 19.2.57. (iv) (a) to (e) N.A. (v) Nil. (vi) As per treatments. (vii) Irrigated. (viii) Weeding and earthing. (ix) 30.47". (x) N.A.

2. TREATMENTS :

Main-plot treatments :-

2 varieties : V₁=BO. 11 and V₂=CO. 453.

Sub-plot treatments :-

11 doses of manure :

M₁ = A/N at 40 lb./ac. of N + Single Super at 50 lb./ac. of P₂O₅.
 M₂ = A/S at 40 lb./ac. of N + Single Super at 50 lb./ac. of P₂O₅.
 M₃ = A/N at 80 lb./ac. of N + Single Super at 100 lb./ac. of P₂O₅.
 M₄ = A/S at 80 lb./ac. of N + Single Super at 100 lb./ac. of P₂O₅.
 M₅ = A/N at 120 lb./ac. of N + Single Super at 150 lb./ac. of P₂O₅.
 M₆ = A/S at 120 lb./ac. of N + Single Super at 150 lb./ac. of P₂O₅.
 M₇ = A/N at 160 lb./ac. of N + Single Super at 200 lb./ac. of P₂O₅.
 M₈ = A/S at 160 lb./ac. of N + Single Super at 200 lb./ac. of P₂O₅.
 M₉ = A/N at 200 lb./ac. of N + Single Super at 250 lb./ac. of P₂O₅.
 M₁₀ = A/S at 200 lb./ac. of N + Single Super at 250 lb./ac. of P₂O₅.
 M₁₁ = Control (No manure).

3. DESIGN :

(i) Split-plot. (ii) (a) 2 main-plots/block ; 11 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) 60.5' × 24' (b) 60.5' × 18'. (v) Rows of 3' on each side of width. (vi) Yes.

4. GENERAL :

(i) N.A. (ii) N.A. (iii) Cane yield. (iv) (a) 1950-1952. (b) No. (c) Nil. (v) (a) None. (b) No. (vi) Nil. (vii) Data analysed as R.B.D. Fact.

5. RESULTS :

(i) 19.34 ton/ac.
 (ii) 3.54 ton/ac. See (vii) under GENERAL above.
 (iii) None of the effects is significant.
 (iv) Av. yield of sugarcane in ton/ac.

	M ₁	M ₂	M ₃	M ₄	M ₅	M ₆	M ₇	M ₈	M ₉	M ₁₀	M ₁₁	Mean
V ₁	16.23	15.84	16.80	14.81	18.03	16.43	14.54	15.48	16.71	14.74	15.95	15.96
V ₂	22.62	22.06	22.73	26.02	18.04	22.98	22.25	23.54	23.05	24.96	21.77	22.73
Mean	19.42	18.95	19.76	20.41	18.03	19.70	18.39	19.51	19.88	19.85	18.86	19.34

S.E. marginal mean of variety = 0.53 ton/ac.
 S.E. of marginal mean of manure = 1.25 ton/ac.
 S.E. of body of table = 1.77 ton/ac.

Crop :- Sugarcane.

Ref :- Bh. 52(14).

Site :- Sugarcane Sub-Strn., Patna.

Type :- 'MV'.

Object :- To compare A/N with A/S in combination with Single Super.

1. BASAL CONDITIONS :

(i) (a) *Sanai-Sugarcane-Paddy-Sanai*. (b) *Sanai*. (c) None. (ii) (a) Heavy clay. (b) N.A. (iii) 24.2.52 to 29.2.52. (iv) (a) Mould board ploughing followed by disc harrowing and then levelling. (b) N.A. (c) 70, three budded setts/row. (d) Row to row distance. 3' (e) —. (v) Nil. (vi) As per treatments. (vii) Irrigated. (viii) N.A. (ix) 35.42". (x) 22.2.53 to 26.2.53.

2. TREATMENTS :

Main-plot treatments :—

2 varieties : V_1 =BO. 11 and V_2 =CO. 453.

Sub-plot treatments :—

11 doses of manure :

- M_1 = A/N at 40 lb./ac. of N + Single Super at 50 lb./ac. of P_2O_5 .
 M_2 = A/S at 40 lb./ac. of N + Single Super at 50 lb./ac. of P_2O_5 .
 M_3 = A/N at 80 lb./ac. of N + Single Super at 100 lb./ac. of P_2O_5 .
 M_4 = A/S at 80 lb./ac. of N + Single Super at 100 lb./ac. of P_2O_5 .
 M_5 = A/N at 120 lb./ac. of N + Single Super at 150 lb./ac. of P_2O_5 .
 M_6 = A/S at 120 lb./ac. of N + Single Super at 150 lb./ac. of P_2O_5 .
 M_7 = A/N at 160 lb./ac. of N + Single Super at 200 lb./ac. of P_2O_5 .
 M_8 = A/S at 160 lb./ac. of N + Single Super at 200 lb./ac. of P_2O_5 .
 M_9 = A/N at 200 lb./ac. of N + Single Super at 250 lb./ac. of P_2O_5 .
 M_{10} = A/S at 200 lb./ac. of N + Single Super at 250 lb./ac. of P_2O_5 .
 M_{11} = Control (no manure).

3. DESIGN :

(i) Split-plot. (ii) (a) 2 main-plots/block ; 11 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) 60 5' × 24'. (b) 60.5' × 18'. (v) 3' on each side of width (vi) Yes.

4. GENERAL :

(i) Good. No lodging. (ii) None. (iii) Germination %, borer %, no. of mature stalks and cane yield. (iv) (a) 1950—1952. (b) No. (c) Nil. (v) (a) Pusa. (b) Nil. (vi) and (vii) Nil.

5. RESULTS :

- (i) 11.81 ton/ac.
(ii) (a) 25.75 ton/ac.
(b) 4.04 ton/ac.
(iii) None of the effects is significant.
(iv) Av. yield of sugarcane in ton/ac.

	M_1	M_2	M_3	M_4	M_5	M_6	M_7	M_8	M_9	M_{10}	M_{11}	Mean
V_1	7.64	12.00	7.71	8.82	7.64	11.31	7.99	8.22	13.72	6.32	11.43	9.35
V_2	11.06	12.39	13.02	16.34	15.98	14.00	13.74	16.45	14.20	15.83	13.88	14.26
Mean	9.35	12.20	10.37	12.58	11.81	12.66	10.87	12.34	13.96	11.08	12.66	11.81

S.E. of the difference of two

- (1) V marginal means = 5.490 ton/ac.
(2) M marginal means = 2.022 ton/ac.
(3) M means at the same level of V = 2.860 ton/ac.
(4) V means at the same level of M = 6.129 ton/ac.

Crop :-Sugarcane.
Site :-Sugarcane Sub-Stn., Patna.

Ref :-Bh. 51(2).
Type :-'MV'.

Object :-To find out the response to different combinations of manures.

BASAL CONDITIONS :

(i) (a) None. (b) Fallow. (c) Nil. (ii) (a) Clay. (b) N.A. (iii) 5 to 8.2.51. (iv) (a) to (e) N.A. (v) N.A. (vi) As per treatments. (vii) Irrigated. (viii) Hoeing and earthing. (ix) 30.47". (x) N.A.

TREATMENTS :

Main-plot treatments :-

2 varieties : $V_1=CO. 453$ and $V_2=BO. 11$.

Sub-plot treatments :-

11 doses of manure :

M_1 = Ammo. Phos. + Castor Cake at 120 lb./ac. of N + 60 lb./ac. of P_2O_5 .

M_2 = A/S + Single Super at 120 lb./ac. of N + 60 lb./ac. of P_2O_5 .

M_3 = Ammo. Phos. + Castor cake + Single Super at 120 lb./ac. of N + 60 lb./ac. of P_2O_5 .

M_4 = Castor cake + Single Super at 120 lb./ac. of N + 60 lb./ac. of P_2O_5 .

M_5 = Ammo. Phos. + Mustard cake + Single Super at 120 lb./ac. of N + 60 lb./ac. of P_2O_5 .

M_6 = Mustard cake + Single Super at 120 lb./ac. of N + 60 lb./ac. of P_2O_5 .

M_7 = Ammo. Phos. + Linseed cake + Single Super at 120 lb./ac. of N + 60 lb./ac. P_2O_5 .

M_8 = Linseed cake + Single Super at 120 lb./ac. of N + 60 lb./ac. of P_2O_5 .

M_9 = Ammo. Phos. + G.N.C. + Single Super at 120 lb./ac. of N + 120 lb./ac. of P_2O_5 .

M_{10} = G.N.C. + Single Super at 120 lb./ac. of N + 60 lb./ac. of P_2O_5 .

M_{11} = Control (no manure).

3. DESIGN :

(i) Split-plot. (ii) (a) 2 main-plots/block ; 11 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) 53' x 24'. (b) 53' x 18'. (v) Rows of 3', on either side of width. (vi) Yes.

4. GENERAL :

(i) Satisfactory. (ii) None. (iii) Sugarcane yield. (iv) (a) 1951—1954. (b) No. (c) Nil. (v) (a) Pusa. (b) Nil. (vi) Nil. (vii) As layout of the experiment was N.A., it was analysed as R.S.D.

5. RESULTS :

(i) 12.38 ton/ac.

(ii) 3.75 ton/ac.

(iii) None of the effects is significant.

(iv) Av. yield of sugarcane in ton/ac.

	M_1	M_2	M_3	M_4	M_5	M_6	M_7	M_8	M_9	M_{10}	M_{11}	Mean
V_1	16.60	16.66	15.25	14.97	16.59	16.46	14.08	12.29	16.63	16.68	13.33	15.41
V_2	10.47	8.15	9.37	7.84	10.02	10.20	9.18	9.72	10.26	8.45	9.04	9.34
Mean	13.54	12.41	12.31	11.41	13.31	13.33	11.63	11.01	13.45	12.57	11.19	12.38

S.E. of marginal mean of variety = 0.57 ton/ac.

S.E. of marginal mean of manure = 1.33 ton/ac.

S.E. of body of table = 1.88 ton/ac.

Crop :-Sugarcane.
Site :-Sugarcane Sub-Stn., Patna.

Ref :-Bh. 52(13).
Type :-'MV'.

Object :-To find out the response to different combinations of manures.

1. BASAL CONDITIONS :

(i) (a) Soyabean—Sugarcane—Paddy—Soyabean. (b) Soyabean. (c) Nil. (ii) (a) Heavy clay. (b) N.A. (iii) 13.2.52 to 16.2.52. (iv) (a) Mould board ploughing followed by harrowing and then levelling. (b) N.A. (c) 60, three-budded setts/row. (d) N.A. (e) —. (v) Nil. (vi) As per treatments. (vii) Irrigated. (viii) After every irrigation one interculture and then horse hoeing. (ix) 35.42". (x) 23.3.53 to 29.3.53.

2. TREATMENTS :

Main-plot treatments :—

2 Varieties : V_1 =CO. 453 and V_2 =BO. 11.

Sub-plot treatments :—

11 doses of manures :

 M_1 = Ammo. Phos. + Castor cake at 120 lb./ac. of N+ 60 lb./ac. of P_2O_5 . M_2 = A/S + Single Super at 120 lb./ac. of N+60 lb./ac. of P_2O_5 . M_3 = (Ammo. Phos. + Castor cake + Single Super at 120 lb./ac. of N+ 60 lb./ac. of P_2O_5 . M_4 = Castor Cake + Single Super at 120 lb./ac. of N+60 lb./ac. of P_2O_5 . M_5 = (Ammo. Phos. + Mustard cake + Single Super at 120 lb./ac. of N+ 60 lb./ac. of P_2O_5 . M_6 = Mustard cake + Single Super at 120 lb./ac. of N+ 60 lb./ac. of P_2O_5 . M_7 = (Ammo. Phos. + Linseed cake + Single Super at 120 lb./ac. of N+ 60 lb./ac. of P_2O_5 . M_8 = Linseed cake + Single Super at 120 lb./ac. of N+ 60 lb./ac. of P_2O_5 . M_9 = Ammo. Phos. + G.N.C. + Single Super at 120 lb./ac. of N+ 60 lb./ac. of P_2O_5 . M_{10} = G.N.C. + Single Super at 120 lb./ac. of N+60 lb./ac. of P_2O_5 . M_{11} = Control (no manure).

3. DESIGN :

(i) Split-plot. (ii) (a) 2 main-plots/block ; 11 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (sub) (a) 53'×24'. (b) 53'×18'. (v) 6' wide channel at the end of each plot. (vi) Yes.

4. GENERAL :

(i) Good (no lodging). (ii) Nil. (iii) Germination %, borer %, no. of mature stalk and sugarcane yield. (iv) (a) 1951—1954. (b) No. (c) Nil. (v) (a) Nil. (b) Nil. (vi) and (vii) Nil.

5. RESULTS :

(i) 12.13 ton/ac.

(ii) (a) 1.25 ton/ac.

(b) 1.30 ton/ac.

(iii) Only main effect of variety is significant.

(iv) Av. yield of sugarcane in ton/ac.

	M_1	M_2	M_3	M_4	M_5	M_6	M_7	M_8	M_9	M_{10}	M_{11}	Mean
V_1	15.32	15.14	15.96	13.84	15.54	16.54	17.46	17.78	18.05	9.39	12.55	15.22
V_2	8.05	8.79	8.59	8.72	9.58	12.95	7.77	9.73	9.34	8.26	7.75	9.04
Mean	11.67	11.97	12.28	11.28	12.55	14.74	12.62	13.75	13.69	8.82	10.14	12.13

S.E. of difference of two

1. variety means = 0.27 ton/ac.
2. manure means = 0.65 ton/ac.
3. manure means at the same level of variety = 0.92 ton/ac.
4. variety means at the same level of manure = 0.91 ton/ac.

Crop :- Sugarcane.

Site :- Sugarcane Sub.-Stn., Patna.

Ref :- Bh. 53(51)

Type :- 'MV'.

Object :—To find out the response to different combinations of manures.

1. BASAL CONDITIONS :

(i) (a) *Sanai*—Sugarcane—*Sanai*. (b) *Sanai*. (c) Nil. (ii) (a) Clay. (b) N.A. (iii) 9 to 14.2.53. (iv) (a) Mould board ploughing, disc harrowing and then levelling. (b) N.A. (c) 56, three budded setts/row (d) N.A. (e)—(v) Nil. (vi) As per treatments. (vii) Irrigated. (viii) Interculture after each irrigation, and then horse hoeing. (ix) 61.33". (x) 13th to 19th February. 1954.

2. TREATMENTS :**Main-plot treatments :—**2 varieties :— V_1 =CO. 453 and V_2 =BO. 11.**Sub-plot treatments :—**

11 doses of manures :—

 M_1 = Castor cake + Ammo. Phos. at 120 lb./ac. of N + 60 lb./ac. of P_2O_5 . M_2 = A/S + Single Super at 120 lb./ac. of N + 60 lb./ac. of P_2O_5 . M_3 = Ammo. Phos. + Castor cake + Single Super at 120 lb./ac. of N + 60 lb./ac. of P_2O_5 . M_4 = Castor cake + Single Super at 120 lb./ac. of N + 60 lb./ac. of P_2O_5 . M_5 = Ammo. Phos. + Mustard cake + Single Super at 120 lb./ac. of N + 60 lb./ac. of P_2O_5 . M_6 = Mustard cake + Single Super at 120 lb./ac. of N + 60 lb./ac. of P_2O_5 . M_7 = Ammo. Phos. + Linseed cake + Single Super at 120 lb./ac. of N + 60 lb./ac. of P_2O_5 . M_8 = Linseed cake + Single Super at 120 lb./ac. of N + 60 lb./ac. of P_2O_5 . M_9 = Ammo. Phos. + G.N.C. + Single Super at 120 lb./ac. of N + 60 lb./ac. of P_2O_5 . M_{10} = G.N.C. + Single Super at 120 lb./ac. of N + 60 lb./ac. of P_2O_5 . M_{11} = Control (no manure).**3. DESIGN :**(i) Split-plot. (ii) (a) 2 main-plots/block ; 11 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) 53' x 24'.
(b) 33' x 18'. (v) N.A. (vi) Yes.**4. GENERAL :**

(i) Good—No lodging. (ii) Nil. (iii) Germination %, sucrose %, no. of mature stalk, borer %, yield at harvest and no. of tillers/row. (iv) (a) 1951—1954. (b) No. (c) Nil. (v) (a) Nil. (b) No. (vi) & (vii) Nil.

5. RESULTS :

- (i) 15.32 ton/ac.
 (ii) (a) 7.18 ton/ac.
 (b) 4.18 ton/ac.
 (iii) None of the effects is significant.
 (iv) Av. yield of sugarcane in ton/ac.

	M_1	M_2	M_3	M_4	M_5	M_6	M_7	M_8	M_9	M_{10}	M_{11}	Mean
V_1	18.76	15.13	15.57	18.57	15.57	19.03	15.35	15.37	17.36	18.69	16.34	17.05
V_2	11.14	16.66	12.84	16.17	13.07	15.91	15.91	11.48	12.05	11.08	13.73	13.60
Mean	14.99	15.87	14.16	17.31	14.29	17.44	15.59	14.22	14.84	14.90	14.99	15.32

S.E. of difference of two

1. variety means = 1.53 ton/ac.
 2. manure means = 2.09 ton/ac.
 3. manure means at the same level of variety = 2.97 ton/ac.
 4. variety means at the same level of manure = 3.21 ton/ac.

Crop :- Sugarcane.

Ref :- Bh. 52(6).

Site :- Sugarcane Sub-Stn., Patna.

Type :- 'MV'.

Object :- To study the effect of P manuring of crop on subsequent crop yield.

1. BASAL CONDITIONS :

(i) (a) G.M.—Sugarcane-Paddy. (b) G.M. with *Sanai* and Soyabean. (c) Nil. (ii) (a) Clay. (b) N.A.
 (iii) 22.2.52. to 29.2.52. (iv) (a) Mould board ploughings followed by disc harrowing and then levelling (c) 60, three budded setts/row. (d) row to Row-3' apart. (e)—(v) Nil. (vi) CO. 622. (vii) Irrigated. (viii) After every irrigation one interculture. (ix) 34.32". (x) 10th to 12th Dec. 52.

2. TREATMENTS :

All combinations of (1) and (2)

(1) 2 varieties : V_1 =*Sanai* and V_2 =Soyabean.(2) 6 levels of P_2O_5 : $P_0=0$, $P_1=50$, $P_2=100$, $P_3=150$, $P_4=200$ and $P_5=250$ lb./ac. P_2O_5 as Super applied at the time of planting.

3. DESIGN :

(i) 2×6 Fact. in R.B.D. (ii) (a) 12. (b) 321'×144'. (iii) 4. (iv) (a) 60.5'×24'. (b) 60.5'×18'. (v) Yes—Two rows one on either side of the plot as non-experimental. (vi) Yes.

4. GENERAL :

(i) Good—No lodging. (ii) Nil. (iii) Germination %, sucrose %, no. of mature stalks, yield at harvest, borer %. (iv) (a) No. (b) No. (c) Nil. (v) (a) N.A. (b) N.A. (vi) & (vii) Nil.

5. RESULTS :

- (i) 7.23 ton/ac.
 (ii) 1.78 ton/ac.
 (iii) None of the effects is significant.
 (iv) Av. yield of sugarcane in ton/ac.

	P ₀	P ₁	P ₂	P ₃	P ₄	P ₅	Mean
V ₁	7.29	7.37	7.30	9.07	8.08	6.41	7.59
V ₂	7.09	7.26	7.27	6.51	6.68	6.37	6.86
Mean	7.19	7.31	7.29	7.79	7.38	6.39	7.23

S.E. of marginal mean of variety =0.36 ton/ac.
 S.E. of marginal mean of manure =0.63 ton/ac.
 S.E. of body of table =0.89 ton/ac.

Crop :- Sugarcane.

Site :- C.S. R. S., Pusa.

Ref :- Bh. 53 (103).

Type :- 'MV'.

Object :-To compare the effect of A/N with that of A/S in combination with Single Super.

1. BASAL CONDITIONS :

(i) (a) Sugarcane—pulse—Barley—*Sanai* (G.M.) (b) *Sanai* (G.M.) (c) Nil. (ii) (a) Sandy clay loam to loam in texture. (b) N.A. (iii) 24th—25th Feb., 1953. (iv) (a) Harrowing once and mould board plough each followed by *Hinga*. Again discing followed by sub-soiling. (b) Furrow planting. End to end planting. (c) 60, three budded setts/row. (d) 3' apart. (e) —. (v) Nil. (vi) As per treatments. (vii) Nil. (viii) Fortnightly intercultural operation after germination till the end of May. Earthing up in mid-June. (ix) 46.03°. (x) 1st week of January, 1954.

2. TREATMENTS :

Main-plot treatments :-

2 varieties : V₁=BO. 11 and V₂=CO. 453.

Sub-plot treatments :

11 doses of manure :

- M₁ = A/N at 40 lb./ac. of N+Single Super at 50 lb./ac. of P₂O₅.
 M₂ = A/S at 40 lb./ac. of N+Single Super at 50 lb./ac. of P₂O₅.
 M₃ = A/N at 80 lb./ac. of N+Single Super at 100 lb./ac. of P₂O₅.
 M₄ = A/S at 80 lb./ac. of N+Single Super at 100 lb./ac. of P₂O₅.
 M₅ = A/N at 120 lb./ac. of N+Single Super at 150 lb./ac. of P₂O₅.
 M₆ = A/S at 120 lb./ac. of N+Single Super at 150 lb./ac. of P₂O₅.
 M₇ = A/N at 160 lb./ac. of N+Single Super at 200 lb./ac. of P₂O₅.
 M₈ = A/S at 160 lb./ac. of N+Single Super at 200 lb./ac. of P₂O₅.
 M₉ = A/N at 200 lb./ac. of N+Single Super at 250 lb./ac. of P₂O₅.
 M₁₀ = A/S at 200 lb./ac. of N+Single Super at 250 lb./ac. of P₂O₅.
 M₁₁ = Control (no manure)

3. DESIGN:

(i) Split-plot. (ii) (a) 2 main-plots/block ; 11 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) 60.5'×24'. (b) 60.5'×18'. (v) Yes, 2 rows as non experimental one on either side of the sub-plot. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Borer incidence noted. Dead hearts removed in the early period of growth. On controlling termite infection Aldrin was applied at planting and 3 months after. (iii) Germination%, tillering, height, no. of mature stalk, sucrose% in cane and the yield at the time of harvest. (iv) (a) 1950—N.A. (b) No. (c) Nil. (v) (a) Parsa, Motihari, Motipur, Hathua, Pachrukhi, Dehri-on-Sone and Bihta. (vi) and (vii) Nil.

5. RESULTS :

- (i) 16.90 ton/ac.
 (ii) (a) 12.39 ton/ac.
 (b) 4.00 ton/ac.
 (iii) None of the effects is significant.
 (iv) Av. yield of sugarcane in ton/ac.

	M ₁	M ₂	M ₃	M ₄	M ₅	M ₆	M ₇	M ₈	M ₉	M ₁₀	M ₁₁	Mean
V ₁	16.23	21.33	18.80	19.40	23.53	19.84	19.59	18.12	21.41	21.12	17.26	19.60
V ₂	12.61	15.69	13.19	14.75	12.60	16.23	15.54	13.33	16.02	15.23	11.00	14.20
Mean	14.42	18.01	16.00	17.08	18.07	18.04	17.57	15.73	18.72	18.18	14.13	16.90

S.E. of the difference of two

1. V marginal means = 2.64 ton/ac.
 2. M marginal means = 2.00 ton/ac.
 3. M means at the same level of V = 2.83 ton/ac.
 4. V means at the same level of M = 3.77 ton/ac.

Crop :- Sugarcane.
 Site :- C.S.R.S. Pusa.

Ref :- Bh. 50 (9).
 Type :- 'MV'.

Object :- To find out the optimum dose of A/N for Sugarcane.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Sunnhemp. (c) Nil (ii) (a) Light sandy loam soil. (b) N.A. (iii) 21st and 22nd January, 1950. (iv) (a) 4 ploughings. (b) Row planting. (c) 64, three budded setts/row. (d) 3' between rows. (e) — (v) Nil. (vi) As per treatments. (vii) Irrigated. (viii) Earthing and hoeing. (ix) 38.70". (x) 30.1.51 to 22 2.51.

2. TREATMENTS :

Main-plot treatments :—

2 varieties : V₁=CO. 453 and V₂=BO. 11

Sub-plot treatments :—

11 levels of N as A/N : N₀=0, N₁=40, N₂=80, N₃=120, N₄=160, N₅=200, N₆=240, N₇=280, N₈=320, N₉=360. and N₁₀=400 lb./ac.

3. DESIGN :

(i) Split-plot. (ii) (a) 2 main-plots/block ; 11 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) 60.5' × 24'. (b) 60.5' × 18'. (v) Rows of 3' on either side of width. (vi) Yes.

4. GENERAL :

(i) N.A. (ii) N.A. (iii) Cane yield, sucrose % and counting of germination. (iv) (a) 1950—1954 (b) No. (c) Nil. (v) (a) Harinagar, Parsa, Majhulia, Pachrukhi, Motipur and Narkatiaganj. (b) Nil. (vi) and (vii) Nil.

5. RESULTS :

- (i) 17.52 ton/ac.
 (ii) (a) 6.13 ton/ac.
 (b) 1.52 ton/ac.
 (iii) Main effect of manure alone is significant.

(iv) Av. yield of sugarcane in ton/ac.

	N ₀	N ₁	N ₂	N ₃	N ₄	N ₅	N ₆	N ₇	N ₈	N ₉	N ₁₀	Mean
V ₁	14.34	19.13	17.46	18.27	21.05	20.49	19.56	18.49	19.04	20.66	20.31	18.98
V ₂	13.23	13.69	15.72	17.33	15.29	15.68	14.77	20.04	16.28	18.06	16.63	18.47
Mean	13.78	16.41	16.59	17.80	18.17	18.09	17.16	19.27	17.66	19.36	18.47	17.52

S.E. of difference of two

1. variety means = 1.31 ton/ac.
2. manure means = 0.76 ton/ac.
3. manure means at the same level of variety = 1.08 ton/ac.
4. variety means at the same level of manure = 1.66 ton/ac.

Crop :- Sugarcane.

Ref :- Bh. 51(21).

Site :- C.S.R.S. Pusa.

Type :- 'MV'.

Object :- To find out the optimum dose of A/N for sugarcane.

1. BASAL CONDITIONS :

- (i) (a) Nil. (b) Sugarcane. (c) N.A. (ii) (a) Medium loam. (b) N.A. (iii) 31st Jan. and 1st Feb. 1951. (iv) (a) 4 ploughings. (b) Row planting. (c) 64, three budded setts/row. (d) 3' between rows. (e) — (v) Nil. (vi) As per treatments. (vii) Rainfed. (viii) Hoeing, earthing and weeding. (ix) 27.77°. (x) 2nd week of Feb. 1952.

2. TREATMENTS :

All combinations of (1) and (2)

- (1) 2 varieties : V
- ₁
- =Co. 453 and V
- ₂
- =BO. 11.

- (2) 11 doses of N as A/N : N
- ₀
- =0, N
- ₁
- =40, N
- ₂
- =80, N
- ₃
- =120, N
- ₄
- =160, N
- ₅
- =200, N
- ₆
- =240, N
- ₇
- =280, N
- ₈
- =320, N
- ₉
- =360 and N
- ₁₀
- =400 lb./ac.

3. DESIGN :

- (i) 2×11 Fact. in R.B.D. (ii) (a) 22. (b) N.A. (iii) 4. (iv) (a) 60.5'×24'. (b) 60.5'×18'. (v) 3' wide rows on either side of width. (vi) Yes.

4. GENERAL :

- (i) Good. (ii) N.A. (iii) Cane yield, sucrose% and counting of mature stalk. (iv) (a) 1950—1954. (b) No. (c) Nil. (v) (a) Pachrukhi, Motihari, Harinagar. and Parsa. (b) Nil. (vi) & (vii) Nil.

5. RESULTS :

- (i) 31.97 ton/ac.
(ii) 2.74 ton/ac.
(iii) Only main effect of variety is highly significant.
(iv) Av. yield of sugarcane in ton/ac.

	N ₀	N ₁	N ₂	N ₃	N ₄	N ₅	N ₆	N ₇	N ₈	N ₉	N ₁₀	Mean
V ₁	34.72	36.59	35.54	37.14	37.35	37.88	38.92	38.00	38.19	38.03	35.59	37.09
V ₂	26.24	27.70	28.86	26.57	28.74	25.94	27.54	26.64	25.38	26.32	25.52	26.86
Mean	30.48	32.15	32.20	31.85	33.05	31.91	33.23	32.32	31.78	32.18	30.56	31.97

- S.E. of marginal mean of variety = 0.41 ton/ac.
S.E. of marginal mean of manure = 0.97 ton/ac.
S.E. of body of table = 1.37 ton/ac.

Crop :- Sugarcane.
Site :- C.S.R.S., Pusa.

Ref :- Bh. 52(29).
Type :- 'MV'.

Object :- To find out the optimum dose of A/N for Sugarcane.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Sugarcane. (c) N.A. (ii) (a) Medium loam. (b) N.A. (iii) 30.1.52. (iv) (a) 4 bullock ploughings. (b) Row planting. (c) 64, three budded setts/row. (d) 3' between rows. (e) - (v) Nil. (vi) As per treatments. (vii) Unirrigated. (viii) Hoeing, earthing & weeding. (ix) 50.14". (x) 18.2.53 to 7.3.53.

2. TREATMENTS :

Main-plot treatments :-

2 varieties : $V_1=BO. 11$ and $V_2=CO. 453$.

Sub-plot treatments :-

11 levels of N (N as A/N) :- $N_0=0, N_1=40, N_2=80, N_3=120, N_4=160, N_5=200, N_6=240, N_7=280, N_8=320, N_9=360, \& N_{10}=400$ lb./ac.

3. DESIGN :

(i) Split-plot. (ii) (a) 2 main-plots/block ; 11 sub-p'ots/main-plot. (b) N.A. (iii) 4. (iv) (a) 60.5' x 24'. (b) 60.5' x 18'. (v) Rows of 3' either side of width. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Nil. (iii) Cane yield, sucrose% and mature stalk count. (iv) (a) 1950-1954. (b) No. (c) Nil. (v) (a) Zonal centres Pachrukhi, Majhauria, Motihari, Motipur, etc. (b) Nil. (vi) & (vii) Nil.

5. RESULTS :

- (i) 22.71 ton/ac.
(ii) (a) 0.62 ton/ac.
(b) 0.55 ton/ac.
(iii) Main effects of variety and manure are highly significant. Interaction is not significant.
(iv) Av. yield of sugarcane in ton/ac.

	N_0	N_1	N_2	N_3	N_4	N_5	N_6	N_7	N_8	N_9	N_{10}	Mean
V_1	18.36	21.20	20.40	21.51	19.56	20.89	18.37	19.93	19.77	21.10	18.00	19.92
V_2	22.61	26.30	25.59	29.16	25.37	26.73	26.70	25.38	24.77	24.97	22.97	25.50
Mean	20.49	23.75	23.00	25.33	22.46	23.81	22.54	22.65	22.27	23.04	20.49	22.71

S.E. of difference of two

1. variety means = 0.13 ton/ac.
2. manure means = 0.28 ton/ac.
3. manure means at the same level of variety = 0.39 ton/ac.
4. variety means at same level of manure = 0.39 ton/ac.

Crop :- Sugarcane.
Site :- C.S.R.S., Pusa.

Ref :- Bh. 53(104).
Type :- 'MV'.

Object :- To find out the optimum dose of A/N for Sugarcane.

1. BASAL CONDITIONS :

(i) (a) Sugarcane-Sanai (G.M)-Wheat-Mung (b) Mung used as green manured after pods are picked up. (c) Nil. (ii) (a) Texture is sandy loam to silty loam with normal to deep saline phase. (b) N.A. (iii) 12.2.1953. (iv) (a) Harrow plough and mould board plough each followed by Hinga. Again discing followed by sub-soiling. (b) Furrow planting. (c) 64 three budded setts/row. (d) 3' apart rows also kept end to end. (e) Nil. (vi) As per treatments. (vii) Irrigated. (viii) Fortnightly intercultural operation after germination till the end of May earthing up in mid. June. (ix) 46.33". (x) 3rd week of February, 1954.

2. TREATMENTS :

Main-plot treatments :—

2 varieties :— V_1 =CO. 453 and V_2 =BO. 11.

Sub-plot treatments ;

11 levels of N as A/N :— $N_0=0$, $N_1=40$, $N_2=80$, $N_3=120$, $N_4=160$, $N_5=200$, $N_6=240$, $N_7=280$, $N_8=320$, $N_9=360$, & $N_{10}=400$ lb./ac.

3. DESIGN :

(i) Split-plot. (ii) (a) 2 main-plots/block ; 11 sub-plots/main plot. (b) N.A. (iii) 4. (iv) (a) 60.5'×24'. (b) 60'×18'. (v) Two rows of non experimental, one on either side of the plot. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Borer incidence noted. Dead heart removed during the early period of growth on controlling termite infection. Aldrine was applied at planting and then 3 months after. (iii) Germination%, no. of tillers, height, no. of mature stalk, sucrose% and cane yield. (iv) (a) 1950-1954. (b) No. (c) Nil. (v) (a) Nil. (b) Nil. (vi) & (vii) Nil.

5. RESULTS :

- (i) 17.78 ton/ac.
 (ii) (a) 1.85 ton/ac.
 (b) 1.31 ton/ac.
 (iii) Only main effect of manure is highly significant.
 (iv) Av. yield of sugarcane in ton/ac.

	N_0	N_1	N_2	N_3	N_4	N_5	N_6	N_7	N_8	N_9	N_{10}	Mean
V_1	17.48	15.06	16.64	16.90	20.39	21.53	17.37	21.23	18.77	17.78	18.88	18.37
V_2	15.83	15.54	15.87	17.23	19.10	18.37	16.86	18.55	16.86	17.70	17.19	17.19
Mean	16.66	15.30	16.26	17.07	19.75	19.95	17.12	19.89	17.82	17.74	18.04	17.78

S.E. of difference of two

1. variety means =0.41 ton/ac.
 2. manure means =0.78 ton/ac.
 3. manure means at the same level of variety =1.07 ton/ac.
 4. variety means at the same level of manure =1.09 ton/ac.

Crop :- Sugarcane.

Site :- C.S.R.S. Pusa.

Ref :- Bh. 50(18).

Type :- 'MV'.

Object :- To find out the optimum dose of Ammo. Phos. for Sugarcane.

1. BASAL CONDITIONS :

- (i) (a) Nil. (b) Sugarcane. (c) N.A. (ii) (a) Medium loam. (b) N.A. (iii) 18th, 19th Feb. 1950.
 (iv) (a) 4 ploughings. (b) Row planting. (c) 60, three budded sets/row. (d) 3' between rows. (e) —.
 (v) None. (vi) As per treatments. (vii) Irrigated. (viii) Hoeing, weeding and earthing. (ix) 38.47%.
 (x) 20th March 1951.

2. TREATMENTS :

All combinations of (1) & (2)

- (1) 2 varieties : V_1 =BO. 11 and V_2 =CO. 453.
 (2) 5 levels of manure :

 M_0 =Control (no manure) M_1 = 40 lb./ac. of N+ 50 lb./ac. of P_2O_5 . M_2 = 60 lb./ac. of N+ 75 lb./ac. of P_2O_5 . M_3 = 80 lb./ac. of N+ 100 lb./ac. of P_2O_5 . M_4 = 100 lb./ac. of N+ 125 lb./ac. of P_2O_5 .N and P_2O_5 as Ammo. Phos.

3. DESIGN :

(i) 2×5 Fact. in R.B.D. (ii) (a) 10. (b) N.A. (iii) 6. (iv) (a) 60.5'×24'. (b) 60.5'×18'. (v) Rows of 3' on either side of width. (vi) Yes.

4. GENERAL :

(i) N.A. (ii) N.A. (iii) Cane yield, mature stalk count and sucrose %. (iv) (a) 1950-1954. (b) No. (c) Nil. (v) (a) Sepaya, Harinagar, Parsa, Majhulia and Pachrukhi. (b) Nil. (vi) & (vii) Nil.

5. RESULTS :

- (i) 23.66 ton/ac.
 (ii) 3.75 ton/ac.
 (iii) None of the effects is significant.
 (iv) Av. yield of sugarcane in ton/ac.

	M ₀	M ₁	M ₂	M ₃	M ₄	Mean
V ₁	18.63	20.25	19.42	19.08	21.03	19.98
V ₂	25.80	28.32	28.01	29.46	26.58	27.63
Mean	22.22	24.28	23.72	24.27	23.80	23.66

S.E. of marginal mean of variety = 0.68 ton/ac.
 S.E. of marginal mean of manure = 1.53 ton/ac.
 S.E. of body of table = 1.08 ton/ac.

Crop :- Sugarcane.

Site :- C.S.R.S. Pusa.

Ref :- Bh. 51(18).

Type :- 'MV'.

Object :- To find out the optimum dose of Ammo. Phos. for Sugarcane.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Sugarcane. (c) N.A. (ii) (a) Medium loam. (b) N.A. (iii) 21.251. (iv) (a) 4 ploughings. (b) Row planting. (c) 60, three budded setts/row. (d) 3' between rows. (e) —. (v) Nil. (vi) As per treatments. (vii) Rainfed. (viii) Hoeing, weeding and earthing. (ix) 28.01". (x) 4th and 5th March 1952.

2. TREATMENTS :

All combinations of (1) & (2)

- (1) 2 varieties : V₁=BO. 11 and V₂=CO. 453.
 (2) 5 levels of manure :

M₀=Control (no manure).
 M₁= 40 lb./ac. of N+ 50 lb./ac. of P₂O₅.
 M₂= 60 lb./ac. of N+ 75 lb./ac. of P₂O₅.
 M₃= 80 lb./ac. of N+ 100 lb./ac. of P₂O₅.
 M₄= 100 lb./ac. of N+ 125 lb./ac. of P₂O₅.
 N and P₂O₅ as Ammo. Phos.

3. DESIGN :

(i) 2×5 Fact. in R.B.D. (ii) (a) 10. (b) N.A. (iii) 6. (iv) (a) 60.5'×24'. (b) 60.5'×18'. (v) Rows 3' on either side of width. (vi) Yes.

4. GENERAL :

(i) N.A. (ii) Nil. (iii) Cane yield, sucrose % and count of mature stalk. (iv) (a) 1950—1954. (b) No. (c) Nil. (v) (a) Zonal centres, Majhulia. Parsa etc. (b) Nil. (vi) & (vii) Nil.

5. RESULTS :

- (i) 20.35 ton/ac.
 (ii) 3.89 ton/ac.
 (iii) Only main effect of variety is highly significant.

(iv) Av. yield of sugarcane in ton/ac.

	M ₀	M ₁	M ₂	M ₃	M ₄	Mean
V ₁	22.61	20.11	21.32	22.33	21.42	21.56
V ₂	17.43	21.20	18.06	20.70	18.33	19.14
Mean	20.02	20.66	19.69	21.52	19.88	20.35

S.E. of marginal mean of variety = 0.71 ton/ac.
 S.E. of marginal mean of manure = 1.12 ton/ac.
 S.E. of body of table = 1.59 ton/ac.

Crop :- Sugarcane.
 Site :- C.S.R.S. Pusa.

Ref :- Bh. 52(32).
 Type :- 'MV'.

Object :- To find out the optimum dose of Ammo. Phos. for Sugarcane.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Sugarcane. (c) N.A. (ii) (a) Light loam. (b) N.A. (iii) 3.1.1952. (iv) (a) 4 ploughings. (b) Row planting. (c) 60, three budded setts/row. (d) 3' between row. (e) —. (v) Nil. (vi) As per treatments. (vii) Unirrigated. (viii) Hoeing, earthing and weeding. (ix) 50.14". (x) 12th March to 30th March 1953.

2. TREATMENTS :

All combinations of (1) & (2)

(1) 2 varieties : V₁=BO. 11 and V₂=CO. 453.

(2) 5 levels of manure :

M₀=Control (no manure)
 M₁= 40 lb./ac. of N+ 50 lb./ac. of P₂O₅.
 M₂= 60 lb./ac. of N+ 75 lb./ac. of P₂O₅.
 M₃= 80 lb./ac. of N+100 lb./ac. of P₂O₅.
 M₄=100 lb./ac. of N+125 lb./ac. of P₂O₅.
 N and P₂O₅ as Ammo. Phos.

3. DESIGN :

(i) 2×5 Fact. in R.B.D. (ii) (a) 10. (b) N.A. (iii) 6. (iv) (a) 60.5'×24'. (b) 60.5'×18'. (v) Rows of 3' on either side of width. (vi) Yes.

4. GENERAL :

(i) N.A. (ii) N.A. (iii) Cane yield, sucrose % and count of mature stalk. (iv) (a) 1950-1954. (b) No. (c) Nil. (v) (a) Pachrukhi, Motihari and Majhauria. (b) Nil. (vi) & (vii) Nil.

5. RESULTS :

(i) 17.88 ton/ac.
 (ii) 2.60 ton/ac.
 (iii) All effects are highly significant.
 (iv) Av. yield of sugarcane in ton/ac.

	M ₀	M ₁	M ₂	M ₃	M ₄	Mean
V ₁	15.09	14.16	12.91	16.53	17.45	15.23
V ₂	15.64	20.25	22.93	21.40	22.43	20.53
Mean	15.37	17.21	17.92	18.97	19.94	17.88

S.E. of marginal mean of variety = 0.47 ton/ac.
 S.E. of marginal mean of manure = 0.75 ton/ac.
 S.E. of body of table = 1.06 ton/ac.

Crop :- Sugarcane.
Site :- C.S.R.S., Pusa.

Ref :- Bk. 53(106).
Type :- 'MV'.

Object :- To find out the optimum dose of Ammo. Phos. for Sugarcane.

1. BASAL CONDITIONS :

(i) (a) Sugarcane-Maize-Barley-Mung. (b) Mung (green manured). (c) Nil. (ii) (a) Sandy loam to silty loam with normal to deep saline phase. (b) N.A. (iii) 15.2.1953. (iv) (a) Harrowed once and mould board ploughing each followed by Hinga, and discing followed by subsoiling. (b) Furrow planting, end to end planting. (c) 60 three-budded setts/row. (d) 3' apart. (e) —. (v) Nil. (vi) As per treatments. (vii) Irrigated. (viii) Fortnightly intercultural operations after germination till the end of May, earthing up in mid-June. (ix) 45.26". (x) 4th week of Dec. 1953.

2. TREATMENTS :

Main-plot treatments :-

2 varieties : V_1 =CO. 453 and V_2 =BO. 11.

Sub-plot treatments :-

5 levels of manure :-

M_0 =Control (no manure).

M_1 =40 lb./ac of N + 50 lb./ac. of P_2O_5 .

M_2 =60 lb./ac. of N + 75 lb./ac. of P_2O_5 .

M_3 =80 lb./ac of N + 100 lb./ac. of P_2O_5 .

M_4 =100 lb./ac. of N + 125 lb./ac. of P_2O_5 .

N and P_2O_5 as Ammo. Phos.

3. DESIGN :

(i) Split plot. (ii) (a) 2 main-plots/block ; 5 sub-plots/main-plot. (b) N.A. (iii) 6. (iv) (a) 60.5' × 24'. (b) 60.5' × 18'. (v) Two rows as non-experimental one on either side of the plot. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Borer infection noted. Dead heart removed during the early period of growth. For controlling termite infection, Aldrine was applied at planting. (iii) Germination, %, tiller count, height, no. of mature stalk and sugarcane yield. (iv) (a) 1950-1954. (b) No. (c) Nil. (v) (a) Nil. (b) Nil. (vi) and (vii) Nil.

5. RESULTS :

(i) 20.53 ton/ac.

(ii) (a) 3.12 ton/ac.

(b) 1.77 ton/ac.

(iii) Only manure effect is highly significant.

(iv) Av. yield of sugarcane in ton/ac.

	M_0	M_1	M_2	M_3	M_4	Mean.
V_1	18.15	21.12	21.45	22.74	23.14	21.32
V_2	16.60	19.50	19.83	20.79	21.93	19.73
Mean.	17.38	20.31	20.64	21.77	22.54	20.53

S.E. of difference of two

1. variety means = 0.81 ton/ac.

2. manure means = 0.72 ton/ac.

3. manure means at the same level of variety = 1.02 ton/ac.

4. variety means at the same level of manure = 1.17 ton/ac.

Crop :- Sugarcane.
Site :- C.S.R.S, Pusa.

Ref :- Bh. 50(10).
Type :- 'MV'.

Object :- To study the response to different combinations of manures.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Sugarcane. (c) Nil. (ii) (a) Light loam. (b) N.A. (iii) 15th and 16th Feb. 1950. (iv) (a) 4 ploughings. (b) Row planting. (c) 60, three budded setts/row. (d) Between rows 3'. (e) —. (v) Nil. (vi) As per treatments. (vii) Irrigated. (viii) Hoeing, weeding and earthing. (ix) 38.49". (x) 17th March 1951.

2. TREATMENTS :

Main-plot treatments :-

2 varieties : V_1 =CO. 453 and V_2 =BO. 11.

Sub-plot treatments :-

M_1 = Ammo. Phos. at 60 lb./ac. of N + 75 lb./ac. of P_2O_5 .
 M_2 = A/S + Single Super at 60 lb./ac. of N + 75 lb./ac. of P_2O_5 .
 M_3 = Ammo. Phos + Castor cake + Single Super at 60 lb./ac. of N + 75 lb./ac. of P_2O_5 .
 M_4 = Castor cake + Single Super at 60 lb./ac. of N + 75 lb./ac. of P_2O_5 .
 M_5 = Ammo. Phos. + Mustard cake + Single Super at 60 lb./ac. of N + 75 lb./ac. of P_2O_5 .
 M_6 = Mustard cake + Single Super at 60 lb./ac. of N + 75 lb./ac. of P_2O_5 .
 M_7 = Ammo. Phos. + Linseed cake + Single Super at 60 lb./ac. of N + 75 lb./ac. of P_2O_5 .
 M_8 = Linseed cake + Single Super at 60 lb./ac. of N + 75 lb./ac. of P_2O_5 .
 M_9 = Ammo. Phos. + G.N.C. + Single Super at 60 lb./ac. of N + 75 lb./ac. of P_2O_5 .
 M_{10} = G.N.C. + Single Super at 60 lb./ac. of N + 75 lb./ac. of P_2O_5 .
 M_{11} = Control (no manure).

3. DESIGN :

(i) Split-plot. (ii) (a) 2 main-plots/block ; 11 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) 60.5' x 24'. (b) 60.5' x 18'. (v) Rows of 3' on both sides of width. (vi) Yes.

4. GENERAL :

(i) N.A. (ii) N.A. (iii) Cane yield, sucrose % and counting of mature stalk. (iv) (a) 1950—1952. (b) No. (c) Nil. (v) (a) None. (b) No. (vi) Nil. (vii) Experiment for 1948, 1949 N.A.

5. RESULTS :

(i) 16.79 ton/ac.
(ii) (a) 5.27 ton/ac.
(b) 1.86 ton/ac.
(iii) None of the effects is significant.
(iv) Av. yield of sugarcane in ton/ac.

	M_1	M_2	M_3	M_4	M_5	M_6	M_7	M_8	M_9	M_{10}	M_{11}	Mean
V_1	19.52	18.36	16.81	17.19	18.66	17.08	20.04	16.24	17.35	17.32	16.57	17.74
V_2	19.58	14.79	14.72	15.90	18.04	13.69	16.08	15.45	15.59	15.53	15.01	15.85
Mean	19.55	16.57	15.76	16.54	15.35	15.38	18.06	15.84	16.47	16.43	15.79	16.79

S.E. of difference two

- variety of means = 1.12 ton/ac.
- manure means = 0.93 ton/ac.
- manure means at same level of variety = 1.68 ton/ac.
- variety means at the same level of manure = 1.32 ton/ac.

Crop :- Sugarcane.
Site :- C.S.R.S., Pusa.

Ref :- Bh. 51(16).
Type :- 'MV'.

Object :- To find the response to different combinations of manures on Sugarcane yield.

1. BASAL CONDITIONS :

(i)(a) Nil. (b) Sugarcane. (c) N.A. (ii) (a) Medium loam. (b) N.A. (iii) 20.2.51. (iv) (a) 4 ploughings. (b) Row planting. (c) 60, three budded setts/row. (d) Between rows 3'. (e) —. (v) Nil. (vi) As per treatments. (vii) N.A. (viii) Hoeing, weeding and earthing. (ix) 28.02". (x) 2nd and 3rd March 1952.

2. TREATMENTS :

Main-plot treatments :—

2 varieties : $V_1 = \text{CO. 453}$ and $V_2 = \text{BO. 11}$.

Sub-plot treatments :—

$M_1 = \text{Ammo. Phos. + Single Super at 60 lb./ac. of N + 75 lb./ac. of } P_2O_5.$
 $M_2 = \text{A/S + Single Super at 60 lb./ac. of N + 75 lb./ac. of } P_2O_5.$
 $M_3 = \text{Ammo. Phos. + Castor cake + Single Super at 60 lb./ac. of N + 75 lb./ac. of } P_2O_5.$
 $M_4 = \text{Castor cake + Single Super at 60 lb./ac. of N + 75 lb./ac. of } P_2O_5.$
 $M_5 = \text{Ammo. Phos. + Mustard cake + Single Super at 60 lb./ac. of N + 75 lb./ac. of } P_2O_5.$
 $M_6 = \text{Mustard cake + Single Super at 60 lb./ac. of N + 75 lb./ac. of } P_2O_5.$
 $M_7 = \text{Ammo. Phos. + Linseed cake + Single Super at 60 lb./ac. of N + 75 lb./ac. of } P_2O_5.$
 $M_8 = \text{Linseed cake + Single Super at 60 lb./ac. of N + 75 lb./ac. of } P_2O_5.$
 $M_9 = \text{Ammo. Phos. + G.N.C. + Single Super at 60 lb./ac. of N + 75 lb./ac. of } P_2O_5.$
 $M_{10} = \text{G.N.C. + Single Super at 60 lb./ac. of N + 75 lb./ac. of } P_2O_5.$
 $M_{11} = \text{Control (no manure).}$

3. DESIGN :

(i) Split-plot. (ii) (a) 2 main-plots/block; 11 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) 60.5' × 24'. (b) 60.5' × 18'. (v) Rows of 3' on either side of width. (vi) Yes.

4. GENERAL :

(i) N.A. (ii) N.A. (iii) Sugarcane yield, sucrose % and counting of mature stalk. (iv) (a) 1950—1952. (b) No. (c) Nil. (v) (a) No. (b) No. (vi) and (vii) Nil.

5. RESULTS :

(i) 21.11 ton/ac.
(ii) (a) 10.02 ton/ae.
(b) 2.67 ton/ac.
(iii) None of the effects is significant.
(iv) Av. yield of sugarcane in ton/ac.

	M_1	M_2	M_3	M_4	M_5	M_6	M_7	M_8	M_9	M_{10}	M_{11}	Mean
V_1	21.90	22.25	20.38	23.33	24.61	21.62	23.00	23.25	22.05	22.12	22.84	22.49
V_2	21.01	19.54	19.27	19.91	21.38	19.63	16.97	22.66	16.58	21.97	18.00	19.72
Mean	21.46	20.89	19.83	21.62	22.99	20.63	19.98	22.95	19.32	22.04	20.42	21.11

S.E. of difference of two

- | | |
|--|---------------|
| 1. variety means | =2.14 ton/ac. |
| 2. manure means | =1.34 ton/ac. |
| 4. manure means at the same level of variety | =1.89 ton/ac. |
| 4. variety means at the same level of manure | =2.79 ton/ac. |

Crop :-Sugarcane.

Ref :-Bh. 52(37).

Site :-C.S.R.S , Pusa.

Type :-'MV'.

Object :-To find out the response to different combinations of manures.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Sugarcane. (c) Nil. (ii) (a) Heavy loam. (b) N.A. (iii) 22/23.1.52. (iv) (a) 4 ploughings. (b) Row planting. (c) 60, three-budded setts/row. (d) Between rows 3' apart. (e) —. (v) Nil. (vi) As per treatments. (vii) Unirrigated. (viii) Hoeing, weeding and earthing. (ix) 48.90". (x) 15th to 19th Jan. 1953.

2. TREATMENTS :

Main-plot treatments :-

2 varieties : V_1 =CO. 453 and V_2 =BO. 11.

Sub-plot treatments :-

M_1 = Ammo. Phos. at 60 lb./ac. of N + 75 lb./ac. of P_2O_5 .
 M_2 = A/S + Single Super at 60 lb./ac. of N + 75 lb./ac. of P_2O_5 .
 M_3 = Ammo. Phos. + Castor cake + Single Super at 60 lb./ac. of N + 75 lb./ac. of P_2O_5 .
 M_4 = Castor Cake + Single Super at 60 lb./ac. of N + 75 lb./ac. of P_2O_5 .
 M_5 = Ammo. Phos. + Mustard cake + Single Super at 60 lb./ac. of N + 75 lb./ac. of P_2O_5 .
 M_6 = Mustard cake + Single Super at 60 lb./ac. of N + 75 lb./ac. of P_2O_5 .
 M_7 = Ammo. Phos. + Linseed cake + Single Super at 60 lb./ac. of N + 75 lb./ac. of P_2O_5 .
 M_8 = Linseed cake + Single Super at 60 lb./ac. of N + 75 lb./ac. of P_2O_5 .
 M_9 = Ammo. Phos. + G.N.C. + Single Super at 60 lb./ac. of N + 75 lb./ac. of P_2O_5 .
 M_{10} = G.N.C. + Single Super at 60 lb./ac. of N + 75 lb./ac. of P_2O_5 .
 M_{11} = Control (no manure).

3. DESIGN :

(i) Split plot. (ii) (a) 2 main-plots/block ; 11 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) 60.5' × 24'. (b) 60.5' × 18'. (v) Rows of 3' on either side of width. (vi) Yes.

4. GENERAL :

(i) N.A. (ii) Nil. (iii) Sugarcane yield, sucrose % and count of mature stalk. (iv) (a) 1950—1952. (b) No. (c) Nil. (v) (a) None. (b) No. (vi) and (vii) Nil.

5. RESULTS :

(i) 14.32 ton/ac.
(ii) (a) 1.17 ton/ac.
(b) 1.42 ton/ac.
(iii) Only main effect of variety is highly significant.
(iv) Av. yield of sugarcane in ton/ac.

	M_1	M_2	M_3	M_4	M_5	M_6	M_7	M_8	M_9	M_{10}	M_{11}	Mean
V_1	16.33	16.64	16.80	15.05	16.99	16.34	16.20	17.43	16.71	16.25	13.00	16.16
V_2	13.70	12.64	11.99	11.88	12.45	12.53	11.38	12.08	12.63	13.82	12.11	12.47
Mean	15.02	14.64	14.40	13.47	14.72	14.44	13.79	14.76	14.67	15.04	12.56	14.32

S.E. of difference of two

1. variety means = 0.25 ton/ac.
2. manure means = 0.71 ton/ac.
3. manure means at the same level of variety = 1.00 ton/ac.
4. variety means at the same level of manure = 0.99 ton/ac.

Crop :- Sugarcane.
Site :- C.S.R.S., Pusa.

Ref :- Bh. 48 (6).
Type :- 'MV'.

Object :- To find the optimum dose of Castor cake and G.N.C. for Sugarcane.

1. BASAL CONDITIONS :

(i) (a) Sugarcane—*Sanai*—Sugarcane. (b) *Sanai*. (c) Nil. (ii) (a) Sandy loam. (b) N.A. (iii) 1st to 3rd Feb. 1948. (iv) (a) One ploughing for burying *Sanai*, 4 ploughings for preparation of land. (b) Flat planting. (c) 60, three budded setts/row. (d) Rows 3' apart. (e) —. (v) *Sanai* only. (vi) As per treatments. (vii) Irrigated. (viii) Hoeing, weeding and earthing. (ix) 45.90°. (x) 13th Jan. to 1st Feb 1949.

2. TREATMENTS :

All combinations of (1), (2) and (3)

- (1) 2 varieties : $V_1=CO. 453$, and $V_2=BO. 11$.
(2) 2 sources of N : $S_1=Castor\ cake$ and $S_2=G.N.C.$
(3) 4 levels of N : $N_0=0$, $N_1=40$, $N_2=80$ and $N_3=120\ lb./ac.$

3. DESIGN :

(i) $2 \times 2 \times 4$ Fact. in R.B.D. (ii) (a) 16. (b) [N.A. (iii) 3. (iv) (a) $60.5' \times 24'$. (b) $60.5' \times 18'$. (v) One row 3' wide on each side. (vi) Yes.

4. GENERAL :

(i) N.A. (ii) N.A. (iii) No. of mature stalks, sucrose % and sugarcane yield. (iv) (a) 1948—1953. (b) No. (c) Nil. (v) (a) N.A. (b) No. (vi) and (vii) Nil.

5. RESULTS :

- (i) 15.88 ton/ac.
(ii) 2.196 ton/ac.
(iii) Variety effect and levels of N effect are highly significant, while no other effect is significant.
(iv) Av. yield of sugarcane in ton/ac.

	N_0	N_1	N_2	N_3	Mean	S_1	S_2
V_1	16.59	18.79	18.20	21.47	18.75	21.54	15.96
V_2	9.18	15.89	16.48	10.48	13.01	12.66	15.05
Mean	12.88	17.34	17.34	15.98	15.88	17.10	15.50
S_1	—	18.97	16.40	20.70	18.69		
S_2	—	15.71	18.24	17.21	17.05		

S.E. of the marginal mean of V = 0.45 ton/ac.
S.E. of the marginal mean of N = 0.63 ton/ac.
S.E. of the marginal mean of S = 0.45 ton/ac.
S.E. of body of $N \times V$ or $N \times S$ table = 0.90 ton/ac.
S.E. of body of $V \times S$ table = 0.63 ton/ac.

Crop :- Sugarcane.
Site :- C.S.R.S. Pusa.

Ref :- Bh. 49 (10).
Type :- 'MV'.

Object :- To find out the optimum dose of Castor cake and G.N.C. for Sugarcane.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Sugarcane. (c) N.A. (ii) (a) Light Loam. (b) N.A. (iii) 31st Jan. to 2nd Feb. 1949. (iv) (a) 4 ploughings. (b) Row planting. (c) 60, three budded setts/row. (d) N.A. (e) —. (v) Nil. (vi) As per treatments. (vii) Rainfed. (viii) Hoeing, weeding and earthing. (ix) 65.34°. (x) 17th and 18th March 1950.

2. TREATMENTS :

All combinations of (1), (2) and (3)

- (1) 2 varieties : $V_1 = \text{CO. 453}$ and $V_2 = \text{BO. 11}$.
- (2) 2 sources of N : $S_1 = \text{Castor cake}$ and $S_2 = \text{G.N.C.}$
- (3) 4 levels of N : $N_0 = 0$, $N_1 = 40$, $N_2 = 80$ and $N_3 = 120 \text{ lb./ac.}$

3. DESIGN :

(i) $2 \times 2 \times 4$ Fact. in R.B.D. (ii) (a) 16. (b) N.A. (iii) 6. (iv) (a) $60.5' \times 24'$. (b) $60.5' \times 18'$. (v) 3' on either side of width. (vi) Yes.

4. GENERAL :

(i) N.A. (ii) N.A. (iii) Cane yield, count of mature stalk and sucrose%. (iv) (a) 1948—1953. (b) No. (c) Nil. (v) (a) None. (b) Nil. (vi) and (vii) Nil.

5. RESULTS :

- (i) 23.16 ton/ac.
- (ii) 2.22 ton/ac.
- (iii) Main effects of V, N and interaction $S \times V$ are highly significant. Other effects are not significant.
- (iv) Av. yield of sugarcane in ton/ac.

	N_0	N_1	N_2	N_3	Mean	S_1	S_2
V_1	21.29	25.93	28.46	30.69	26.59	27.07	26.12
V_2	16.51	21.15	20.09	21.16	19.73	19.97	19.48
Mean	18.90	23.54	24.28	25.92	23.16	23.52	22.80
S_1	—	23.33	24.60	27.15	25.03		
S_2	—	23.75	23.95	24.70	24.13		

S.E. of the marginal mean of S or V = 0.32 ton/ac.
 S.E. of the marginal mean of N = 0.45 ton/ac.
 S.E. of body of $N \times V$ or $N \times S$ table = 0.64 ton/ac.
 S.E. of body of $S \times V$ table = 0.45 ton/ac.

Crop :- Sugarcane.

Site :- C.S.R.S. Pusa.

Ref :- Bh. 50(15).

Type :- 'MV'.

Object :- To find the optimum dose of Castor cake and G.N.C. for Sugarcane.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Sugarcane. (c) N.A. (ii) (a) Light loam. (b) N.A. (iii) 20th Feb. 1950. (iv) (a) 4 ploughings. (b) Row planting. (c) 64, three budded setts/row. (d) between rows 3'. (e) — (v) Nil. (vi) As per treatments. (vii) Irrigated. (viii) Hoeing, weeding & earthing. (ix) 38.71. (x) 22nd to 26 th Feb. 1951.

2. TREATMENTS :

All combinations of (1), (2) & (3)

- (1) 2 varieties :- $V_1 = \text{CO. 453}$, and $V_2 = \text{BO. 11}$.
- (2) 2 sources of N :- $S_1 = \text{Castor Cake}$ and $S_2 = \text{G.N.C.}$
- (3) 4 levels of N :- $N_0 = 0$, $N_1 = 40$, $N_2 = 80$, and $N_3 = 120 \text{ lb./ac.}$

3. DESIGN :

(i) $2 \times 2 \times 4$ Fact. in R.B.D. (ii) (a) 16. (b) N.A. (iii) 4. (iv) (a) $60.5' \times 24'$. (b) $60.5' \times 18'$. (v) Rows of 3' width on 2 sides. (vi) Yes.

4. GENERAL :

- (i) N.A. (ii) N.A. (iii) Cane yield, sucrose %, count of mature stalks. (iv) (a) 1948-1953. (b) No. (c) Nil. (v) (a) Majhulia, Parsa and Pachrukhi. (b) Nil. (vi) & (vii) Nil.

5. RESULTS :

- (i) 21.34 ton/ac.
(ii) 1.90 ton/ac.
(iii) None of the effects is significant.
(iv) Av. yield of sugarcane in ton/ac.

	N ₀	N ₁	N ₂	N ₃	Mean	S ₁	S ₂
V ₁	22.83	20.80	25.60	25.05	23.57	23.67	23.47
V ₂	17.03	18.76	20.79	20.01	19.15	18.19	20.10
Mean	19.93	19.78	23.20	22.53	21.36	20.93	21.79
S ₁	---	20.74	22.08	24.49			
S ₂	---	18.83	24.31	22.57			

S.E. of the marginal mean of S or V = 0.34 ton/ac.
S.E. of marginal mean of N = 0.47 ton/ac.
S.E. of body of tables (N×S or N×V) = 0.67 ton/ac.
S.E. of body of table V×S = 0.47 ton/ac.

Crop :- Sugarcane.

Site :- C.S.R.S. Pusa.

Ref :- .Bh. 51(22).

Type :- 'MV'.

Object :- To find out optimum dose of Castor cake and G.N.C. for Sugarcane.

1. BASAL CONDITIONS :

- (i) (a) Nil. (b) Sugarcane. (c) N.A. (ii) (a) Clay. (b) N.A. (iii) 23.2.51. (iv) (a) 4 ploughings. (b) Row planting. (c) 64, three budded setts/row. (d) N.A. (e) — (v) Nil. (vi) As per treatments. (vii) Unirrigated. (viii) Hoeing, earthing & weeding. (ix) 27.90°. (x) 25/26.2.52.

2. TREATMENTS :

All combinations of (1), (2) & (3)

- (1) 2 varieties : V₁=CO.453, and V₂=BO. 11.
(2) 2 sources of N : S₁=Castor cake and S₂=G.N.C.
(3) 4 levels of N : N₀=0, N₁=40, N₂=80 and N₃=120 lb./ac.

3. DESIGN :

- (i) (a) 2×2×4. Fact. in R.B.D. (ii) (a) 16. (b) N.A. (iii) 4. (iv) (a) 60.5'×24'. (b) 60.5'×18'. (v) Two rows of 3' width. (vi) Yes.

4. GENERAL :

- (i) N.A. (ii) N.A. (iii) Cane yield, sucrose % and count of mature stalk. (iv) (a) 1948—1953. (b) No. (c) Nil. (v) (a) Zonal centres, Parsa, Majhulia, Pachrukhi, etc. (b) Nil. (vi) & (vii) Nil.

5. RESULTS :

- (i) 14.25 ton/ac.
(ii) 3.82 ton/ac.
(iii) None of the effects is significant.

(iv) Av. yield of sugarcane in ton/ac.

	N ₀	N ₁	N ₂	N ₃	Mean	S ₁	S ₂
V ₁	15.78	16.46	15.25	15.52	15.75	16.10	15.40
V ₂	12.07	14.40	13.33	11.19	12.75	12.51	12.99
Mean	13.93	15.43	14.29	13.36	14.25	14.31	14.20
S ₁	—	14.98	15.02	14.43			
S ₂	—	15.89	13.56	12.29			

S.E. of marginal mean of S or V =0.68 ton/ac.

S.E. of marginal mean of N =0.95 ton/ac.

S.E. of body of N×S or N×V table =1.35 ton/ac.

S.E. of body of S×V table =0.95 ton/ac.

Crop :- Sugarcane.

Ref :- Bh. 52(38).

Site :- C.S.R.S. Pusa.

Type :- 'MV'.

Object :- To find out the optimum dose of Castor cake and G.N.C.

1. BASAL CONDITIONS :

- (i) (a) N.A. (b) Sugarcane. (c) N.A. (ii) (a) Clay loam. (b) N.A. (iii) 26.1.52. (iv) (a) 5 bullock ploughings. (b) Row planting. (c) 64, three budded setts/row. (d) N.A. (e) Nil. (v) Nil. (vi) As per treatments. (vii) Unirrigated. (viii) Hoeing, weeding and earthing. (ix) 48.14". (x) 8th & 13th March 1953.

2. TREATMENTS :

Main-plot treatments :

2 varieties : V₁=CO. 453 and V₂=BO. 11

Sub-plot treatments :—

All combinations of (1) and (2)

- (1) 4 doses of N : N₀=0, N₁=40, N₂=80 and N₃=120 lb./ac.
 (2) 2 sources of N : S₁= Castor cake and S₂=G.N.C.

3. DESIGN :

- (i) Split-plot. (ii) (a) 2 main-plots/block ; 8 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) 64.5'×24' (b) 60.5'×18' (v) Two rows of 3' width. (vi) Yes.

4. GENERAL :

- (i) Fair. (ii) Nil. (iii) Cane yield, sucrose % and count of mature stalk. (iv) (a) 1948—1953. (b) No. (c) Nil. (v) (a) & (b) Nil. (vi) Nil. (vii) Only the information given under results is available in the printed reports. Data appears to be analysed as Fact. in R.B.D. Plot wise yield data not available.

(i) 14.63 ton/ac.

(ii) 2.56 ton/ac.

(iii) N.A.

(iv) Av. yield of sugarcane in ton/ac.

	N ₀	N ₁	N ₂	N ₃	Mean
S ₁	14.39	15.37	14.69	14.28	14.67
S ₂	13.57	15.84	13.52	15.37	14.58
Mean	13.98	15.59	14.11	14.83	14.63

S.E. of marginal mean of levels =0.64 ton/ac.

S.E. of marginal mean of sources =0.46 ton/ac.

S.E. of body of table =0.91 ton/ac.

Crop :- Sugarcane.
Site :- C.S.R.S. Pusa.

Ref :- Bh. 50 (8).
Type :- 'MV'.

Object :-To compare the effect of A/N with that of A/S in combination with Single Super.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Sugarcane. (c) N.A. (ii) (a) Light Loam. (b) N.A. (iii) 22nd and 23rd Feb. 1950.
(iv) (a) 4 ploughings (b) Row planting. (c) 60, three-budded setts/row. (d) N.A. (e) —. (v) Nil. (vi) As per treatments. (vii) Irrigated. (viii) Hoeing, earthing and weeding. (ix) 38.24". (x) 5th Jan., 1951.

2. TREATMENTS :

Main-plot treatments :—

2 varieties : $V_1=BO. 11$ and $V_2=CO. 453$.

Sub-plot treatments :—

$M_1 = A/N$ at 40 lb./ac. of N+Single Super at 50 lb./ac. of P_2O_5 .
 $M_2 = A/S$ at 40 lb./ac. of N+Single Super at 50 lb./ac. of P_2O_5 .
 $M_3 = A/N$ at 80 lb./ac. of N+Single Super at 100 lb./ac. of P_2O_5 .
 $M_4 = A/S$ at 80 lb./ac. of N+Single Super at 100 lb./ac. of P_2O_5 .
 $M_5 = A/N$ at 120 lb./ac. of N+Single Super at 150 lb./ac. of P_2O_5 .
 $M_6 = A/S$ at 120 lb./ac. of N+Single Super at 150 lb./ac. of P_2O_5 .
 $M_7 = A/N$ at 160 lb./ac. of N+Single Super at 200 lb./ac. of P_2O_5 .
 $M_8 = A/S$ at 160 lb./ac. of N+Single Super at 200 lb./ac. of P_2O_5 .
 $M_9 = A/N$ at 200 lb./ac. of N+Single Super at 250 lb./ac. of P_2O_5 .
 $M_{10} = A/S$ at 200 lb./ac. of N+Single Super at 250 lb./ac. of P_2O_5 .
 $M_{11} =$ Control (no manure)

3. DESIGN :

(i) Split plot. (ii) (a) 2 main-plots/block ; 11 sub-plots/main-plot. (b) N.A. (iii) 3. (iv) (a) 60.5' × 24'
(b) 60.5' × 18'. (v) Rows of 3' on each side of width. (vi) Yes.

4. GENERAL :

(i) N.A. (ii) N.A. (iii) Cane yield, sucrose%, count of mature stalk. (iv) (a) 1950—1954. (b) No. (c) Nil. (v) (a) Sepaya, Harinagar, Parsa, Majhauria, Pachrukhi, etc. (b) Nil. (vi) and (vii) Nil.

5. RESULTS :

(i) 23.68 ton/ac.
(ii) (a) 10.02 ton/ac.
(b) 2.51 ton/ac.
(iii) None of the effects is significant.
(iv) Av. yield of sugarcane in ton/ac.

	M_1	M_2	M_3	M_4	M_5	M_6	M_7	M_8	M_9	M_{10}	M_{11}	Mean
V_1	23.12	22.01	20.78	21.15	19.98	22.47	25.27	21.09	22.51	23.44	22.64	22.22
V_2	22.94	25.78	27.96	24.19	29.00	27.96	25.34	25.02	22.07	23.74	22.60	25.15
Mean	23.03	23.89	24.37	22.67	24.49	25.22	25.31	23.05	22.29	23.59	22.62	23.68

S.E. of the difference of two

1. V means = 2.47 ton/ac.
2. M means = 1.45 ton/ac.
3. M means at the same level of V = 2.05 ton/ac.
4. V means at the same level of M = 3.14 ton/ac.

Crop :- Sugarcane.
Site :- C.S.R.S., Pusa.

Ref :- Bh. 51 (14).
Type :- 'MV'.

Object :-To find out the effect of A/N with that of A/S in combination with Single Super.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Sugarcane. (c) N.A. (ii) (a) Medium loam soil (clay). (b) N.A. (iii) 19.2.51. (iv) (a) 4 ploughings. (b) Row planting. (c) 60, three budded setts/row. (d) N.A. (e) —. (v) Nil. (vi) As per treatments. (vii) N.A. (viii) Hoeing, earthing and weeding. (ix) 27.90". (x) 27th and 28th Feb. 1952.

2. TREATMENTS :—

Main-plot treatments :

2 varieties : V_1 =BO. 11 and V_2 =CO. 453.

Sub-plot treatments :—

- M_1 = A/N at 40 lb./ac. of N+Single Super at 50 lb./ac. of P_2O_5 .
 M_2 = A/S at 40 lb./ac. of N+Single Super at 50 lb./ac. of P_2O_5 .
 M_3 = A/N at 80 lb./ac. of N+Single Super at 100 lb./ac. of P_2O_5 .
 M_4 = A/S at 80 lb./ac. of N+Single Super at 100 lb./ac. of P_2O_5 .
 M_5 = A/N at 120 lb./ac. of N+Single Super at 150 lb./ac. of P_2O_5 .
 M_6 = A/S at 120 lb./ac. of N+Single Super at 150 lb./ac. of P_2O_5 .
 M_7 = A/N at 160 lb./ac. of N+Single Super at 200 lb./ac. of P_2O_5 .
 M_8 = A/S at 160 lb./ac. of N+Single Super at 200 lb./ac. of P_2O_5 .
 M_9 = A/N at 200 lb./ac. of N+Single Super at 250 lb./ac. of P_2O_5 .
 M_{10} = A/S at 200 lb./ac. of N+Single Super at 250 lb./ac. of P_2O_5 .
 M_{11} = Control (no manure).

3. DESIGN :

- (i) Split plot. (ii) (a) 2 main-plots/block ; 11 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) 60.5'×24' (b) 60.5'×18'. (v) Rows of 3' on each side of width. (vi) Yes.

4. GENERAL :

- (i) N.A. (ii) N.A. (iii) Cane yield, sucrose % and count of mature stalks. (iv) (a) 1950—54. (b) No. (c) Nil. (v) (a) Zonal centres, Pachrukhi, Motihari, Majhulia etc. (b) Nil. (vi) and (vii) Nil.

5. RESULTS :

- (i) 19.95 ton/ac.
(ii) (a) 2.28 ton/ac.
(b) 1.67 ton/ac.
(iii) None of the effects is significant.
(iv) Av. yield of sugarcane in ton/ac.

	M_1	M_2	M_3	M_4	M_5	M_6	M_7	M_8	M_9	M_{10}	M_{11}	Mean
V_1	21.95	21.51	22.43	21.10	22.94	21.43	22.71	22.66	24.21	19.90	21.47	22.03
V_2	17.02	18.14	18.62	17.05	16.28	18.46	20.47	18.72	17.58	17.70	16.50	17.87
Mean	19.48	19.82	20.52	19.08	19.61	19.94	21.59	20.69	20.89	18.80	18.99	19.95

S.E. of the difference of two

1. V means = 0.56 ton/ac.
2. M means = 0.84 ton/ac.
3. M means at the same level of V = 1.18 ton/ac.
4. V means at the same level of M = 2.23 ton/ac.

Crop :-Sugarcane.

Ref :-Bh. 52(39).

Site :-C.S.R.S., Pusa.

Type :-'MV'.

Object :—To compare the effect of A/N with that of A/S in combination with Single Super.

1. BASAL CONDITIONS :

- (i) (a) None. (b) Sugarcane. (c) N.A. (ii) (a) Clay loam soil. (b) N.A. (iii) 5th, 6th and 19th Feb. 1952. (iv) (a) 4 ploughings. (b) Row planting. (c) 60, three budded setts/row. (d) N.A. (e) —. (v) Nil. (vi) As per treatments. (vii) N.A. (viii) Hoeing, weeding and earthing. (ix) 49.11". (x) 18th to 20th Jan. 1953.

3. DESIGN :

(i) R.B.D. (ii) (a) 9. (b) N.A. (iii) 2. (iv) (a) 60.5'×24'. (b) 60.5'×18'. (v) Rows of 3' on either side of width. (vi) Yes.

4. GENERAL :

(i) N.A. (ii) Nil. (iii) Cane yield. (iv) (a) 1951—contd. (b) N.A. (c) N.A. (v) (a) None. (b) No. (vi) & (vii) Nil.

5. RESULTS :

- (i) 27.23 ton/ac.
 (ii) 2.34 ton/ac.
 (iii) Treatments are not significantly different.
 (iv) Av. yield of sugarcane in ton/ac.

Treatment	Av. yield
1.	27.92
2.	27.80
3.	23.88
4.	27.88
5.	28.13
6.	31.29
7.	22.70
8.	30.14
9.	25.36
S.E./mean	= 1.66 ton/ac.

Crop :- Sugarcane.

Site :- Sugarcane Sub-Stn., Patna.

Ref :- Bh. 52(8).

Type :- 'C'.

Object :- To find out the optimum number of setts/row.

1. BASAL CONDITIONS :

(i) (a) Paddy—Sugarcane—Paddy. (b) Paddy. (c) 40 lb./ac. of N as A/S+60 lb./ac. of P₂O₅ as Single Super. (ii) (a) Heavy clay. (b) N.A. (iii) 18.2.52 to 19.2.52. (iv) (a) Mould board ploughings followed by disc harrowing and then levelling. (b) N.A. (c) As per treatments. (d) Row to row 3' apart. (e) —. (v) 80 lb./ac. of N+60 lb./ac. of P₂O₅ in the form of A/S and Super at planting and 40 lb./ac. of N in the form of A/S at earthing up. (vi) CO. 453—(Medium). (vii) Irrigated. (viii) After every irrigation one interculture. (ix) 34.80". (x) 7.2.53 and 11.2.53.

2. TREATMENTS :

- | | |
|---------------------|---------------------|
| 1. 10,000 setts/ac. | 6. 35,000 setts/ac. |
| 2. 15,000 setts/ac. | 7. 40,000 setts/ac. |
| 3. 20,000 setts/ac. | 8. 45,000 setts/ac. |
| 4. 25,000 setts/ac. | 9. 50,000 setts/ac. |
| 5. 30,000 setts/ac. | |

3. DESIGN :

(i) R.B.D. (ii) (a) 9. (b) 60.5'×216'. (iii) 2. (iv) (a) 60.5'×24'. (b) 60.5'×18'. (v) One rows on either side of the plot as non-experimental. (vi) Yes.

4. GENERAL :

(i) Good. No lodging. (ii) Nil. (iii) Germination %, sucrose %, no. of mature stalks, cane yield at harvest, and borer %. (iv) (a) 1951—contd. (b) No. (c) N.A. (v) (a) N.A. (b) N.A. (vi) & (vii) Nil.

5. RESULTS :

- (i) 12.77 ton/ac.
 (ii) 3.69 ton/ac.
 (iii) Treatments are not significantly different.

(iv) Av. yield of sugarcane in ton/ac.

Treatment	Av. yield
1.	11.70
2.	11.23
3.	11.94
4.	13.74
5.	12.89
6.	13.39
7.	16.09
8.	12.80
9.	11.19
S.E./mean	= 2.61 ton/ac.

Crop :- Sugarcane.

Site :- Sugarcane Sub-Stn., Patna.

Ref :- Bh. 53(55).

Type :- 'C'.

Object :- To find out the optimum number of setts/ac.

1. BASAL CONDITIONS :

(i) (a) Sugarcane—*Sanai*—Sugarcane. (b) *Sanai*. (c) Nil. (ii) (a) Loam. (b) N.A. (iii) 26.2.53 to 27.2.53. (iv) (a) Mould board ploughing, then disc harrowing and then levelling. (b) N.A. (c) As per treatments. (d) Row to row distance 3'. (e) —. (v) 80 lb./ac. of N and 60 lb./ac. of P_2O_5 as A/S and Super respectively at the time of planting. 40 lb./ac. of N as A/S at earthing. (vi) CO. 453 (Medium). (vii) Irrigated. (viii) After every irrigation one interculture upto July; and then horse-hoeing. (ix) 60.83". (x) 17.1.54; 18.1.54.

2. TREATMENTS :

1. 10,000 setts/ac.	6. 35,000 setts/ac.
2. 15,000 setts/ac.	7. 40,000 setts/ac.
3. 20,000 setts/ac.	8. 45,000 setts/ac.
4. 25,000 setts/ac.	9. 50,000 setts/ac.
5. 30,000 setts/ac.	

3. DESIGN :

(i) R.B.D. (ii) (a) 9. (b) N.A. (iii) 4. (iv) (a) 60.5' × 24'. (b) 60.5' × 18'. (v) Border 3' wide on both sides along the length. (vi) Yes.

4. GENERAL :

(i) Good ; no lodging). (ii) Nil. (iii) Germination %, sucrose % ; no. of mature stalks and sugarcane yield at harvest. (iv) (a) 1951—contd. (b) No. (c) Nil. (v) (a) N.A. (b) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 9.17 ton/ac.
(ii) 2.30 ton/ac.
(iii) Treatments are not significantly different.
(iv) Av. yield of sugarcane in ton/ac.

Treatment	Av. yield
1.	7.32
2.	8.79
3.	7.41
4.	9.81
5.	11.16
6.	8.67
7.	9.68
8.	9.53
9.	10.14
S.E./mean	= 1.15 ton/ac.

Crop :- Sugarcane.

Ref :- Bh. 53(64).

Site :- Sugarcane Sub-Stn., Patna.

Type :- 'C'.

Object :- To find out the optimum number of setts/ac. to be planted.

1. BASAL CONDITIONS :

(i) (a) *Sanai*—Sugarcane—Paddy—*Sanai*. (b) *Sanai*. (c) Nil. (ii) (a) Clay. (b) N.A. (iii) 16.12.53 to 19.12.53. (iv) (a) Mould board ploughing followed by disc harrowing and then levelling. (b) N.A. (c) As per treatments. (d) N.A. (e) —. (v) 80 lb./ac. of N as A/S and 60 lb./ac. of P_2O_5 as Super. (vi) CO. 453. (vii) Irrigated. (viii) After every irrigation, one interculture. (ix) 37.02". (x) 6.1.55 to 13.1.55.

2. TREATMENTS :

- | | |
|---------------------|---------------------|
| 1. 10,000 setts/ac. | 6. 35,000 setts/ac. |
| 2. 15,000 setts/ac. | 7. 40,000 setts/ac. |
| 3. 20,000 setts/ac. | 8. 45,000 setts/ac. |
| 4. 25,000 setts/ac. | 9. 50,000 setts/ac. |
| 5. 30,000 setts/ac. | |

3. DESIGN :

(i) R.B.D. (ii) (a) 9. (b) N.A. (iii) 4. (iv) (a) 60.5' × 24'. (b) 60.5' × 18'. (v) Border 3' wide on both sides along length. (vi) Yes.

4. GENERAL :

(i) Good ; no lodging. (ii) Nil. (iii) Germination %, sucrose %, no. of mature stalks ; sugarcane yield at harvest and borer %. (iv) (a) 1953—contd. (b) No. (c) Nil. (v) (a) Nil. (b) No. (vi) and (vii) Nil.

5. RESULTS :

- (i) 27.84 ton/ac.
(ii) 4.47 ton/ac.
(iii) Treatments are not significantly different.
(iv) Av. yield of sugarcane in ton/ac.

Treatment	Av. yield
1.	27.24
2.	27.55
3.	26.05
4.	27.25
5.	27.76
6.	29.47
7.	28.92
8.	26.55
9.	29.73
S.E./mean	= 2.23 ton/ac.

Crop :- Sugarcane.

Ref :- Bh. 53(56).

Site :- Sugarcane Sub-Stn. Patna.

Type :- 'C'.

Object :- To study the economics of stubble harvesting.

1. BASAL CONDITIONS :

(i) (a) *Sanai*—Sugarcane—*Sanai*. (b) *Sanai*. (c) Nil. (ii) (a) Clay. (b) N.A. (iii) 11.1.53 ; 12.1.53. (iv) (a) Mould board ploughing, disc harrowing and then levelling. (b) N.A. (c) 32, three-budded setts/row. (d) Row to row 3'. (e) —. (v) 80 lb./ac. of N + 60 lb./ac. of P_2O_5 at the time of planting and 40 lb./ac. of N at earthing. N as A/S and P_2O_5 as Super. (vi) CO. 453 (Medium). (vii) Irrigated. (viii) After every irrigation one interculture and horse hoeing. (ix) 61.52". (x) As per treatments.

2. TREATMENTS :

Main-plot treatments :-

3 times of harvest : T_1 = January, 1954 ; T_2 = Feb., 1954 and T_3 = Mar., 1954.

Sub-plot treatments :-

2 systems of harvesting : S_1 = Flat and S_2 = Stubble.

3. DESIGN :

(i) Split plot. (ii) (a) 3 main-plots/block ; 2 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 30'×18'. (v) N.A. (vi) Yes.

4. GENERAL :

(i) Fair ; no lodging. (ii) Borer incidence noted. (iii) Germination %, no. of mature stalks and cane yield at harvest. (iv) (a) 1953—1955. (b) No. (c) Nil. (v) (a) Nil. (b) No. (vi) and (vii) Nil.

5. RESULTS :

- (i) 9.55 ton/ac.
 (ii) (a) 3.904 ton/ac.
 (b) 1.496 ton/ac.
 (iii) Only the effect of T is highly significant.
 (iv) Av. yield of sugarcane in ton/ac.

	T ₁	T ₂	T ₃	Mean
S ₁	14.26	6.00	6.88	9.03
S ₂	16.40	7.02	6.70	10.05
Mean	15.28	6.57	6.79	9.55

S.E. of difference of two

1. T marginal means = 1.952 ton/ac.
 2. S marginal means = 0.611 ton/ac.
 3. S means at a level of T = 1.059 ton/ac.
 4. T means at a level of S = 2.090 ton/ac.

Crop :- Sugarcane.

Site :- Sugarcane Sub-Stn. Patna.

Ref :- Bh. 53(63).

Type :- 'C'.

Object :-To study the economics of stubble harvesting.

1. BASAL CONDITIONS :

(i) (a) *Sanai*-Sugarcane Paddy-*Sanai*. (b) *Sanai*. (c) Nil. (ii) (a) Clay. (b) N.A. (iii) 25.12.53. (iv) (a) Mould board ploughing, followed by disc harrowing and then levelling. (b) N.A. (c) 32, three budded setts/row. (d) N.A. (e) —. (v) 80 lb./ac. of N as A/S+60 lb./ac. of P₂O₅. as Super on the date of planting. (vi) CO. 419. (vii) Irrigated. (viii) After every irrigation, one interculture. (ix) 37.19". (x) As per treatments.

2. TREATMENTS :

Main-plot treatments :-

4 times of harvesting : T₁=January, 1955 ; T₂=February, 1955 ; T₃=March, 1955 and T₄=April, 1955.

Sub-plot treatments :-

2 systems of harvesting : S₁=Flat and S₂=Stubble.

3. DESIGN :

(i) Split plot. (ii) (a) 4 main-plots/block ; 2 sub-plots/main-plot. (b) N.A. (iii) 3. (iv) (a) 30'×18'. (b) 30'×18'. (v) No. (vi) Yes.

4. GENERAL :

(i) Good—no lodging. (ii) Nil. (iii) Germination %, sucrose %, no. of mature stalks, cane yield at harvest and borer %. (iv) (a) 1953—1955. (b) No. (c) Nil. (v) (a) N.A. (b) Nil. (vi) Nil. (vii) The experiment was laid out with 4 replications. The yield of one replication could not be recorded due to some unavoidable circumstances. Hence the experiment was analysed with 3 replications.

5. RESULTS :

- (i) 16.82 ton/ac.
 (ii) (a) 2.80 ton/ac.
 (b) 5.84 ton/ac.
 (iii) Only the effect of T is highly significant.

(iv) Av. yield of sugarcane in ton/ac.

	T ₁	T ₂	T ₃	T ₄	Mean
S ₁	18.73	15.93	12.48	20.81	16.99
S ₂	21.24	16.29	11.43	17.64	16.65
Mean	19.98	16.11	11.96	19.23	16.82

S.E. of difference of two

1. T marginal means = 1.625 ton/ac.
2. S marginal means = 2.385 ton/ac.
3. S means at a level of T = 4.769 ton/ac.
4. T means at a level of S = 3.744 ton/ac.

Crop :- Sugarcane.

Ref :- Bh. 53(112).

Site :- C.S.R.S., Pusa.

Type :- 'C'.

Object :- To study the selection of types of setts and to evaluate a relationship between top, middle and bottom setts of canes with respect to growth and yield.

1. BASAL CONDITIONS :

(i) (a) *Sanai-Sugarcane-Sanai*. (b) *Sanai*. (c) Nil. (ii) (a) Sandy clay loam to loam in texture. (b) Org. C low, Org. N medium to low, C/N ratio narrow. Total phosphate : medium to high, available phosphate very low. Soil reaction strongly alkaline. (iii) 5.3.1953. (iv) (a) Harrow once and mould board ploughing each followed by *Hinga*. Again discing followed by sub-soiling. (b) Furrow planting, end to end planting. (c) 60, 3 budded setts/row. (d) 3' apart. (e) —. (v) No manuring. (vi) BO. 11 (Early). (vii) Unirrigated (viii) Fortnightly intercultural operations after germination till the end of May. Earthing up in mid-June. (ix) 45.09%. (x) 4th week of Dec. 1953.

2. TREATMENTS :

- | | |
|-------|-------|
| 1. Tt | 6. Mb |
| 2. Tm | 7. Bt |
| 3. Tb | 8. Bm |
| 4. Mt | 9. Bb |
| 5. Mm | |

Where t,m,b are top, middle and bottom setts of canes raised from top, middle and bottom setts in 1952-53

3. DESIGN :

(i) R.B.D. (ii) (a) 9. (b) N.A. (iii) 4. (iv) (a) 1/60 th ac. (b) 1/48th ac. (v) N.A. (vi) Yes.

4. GENERAL :

(i) N.A. (ii) N.A. (iii) Sugarcane yield only. (iv) (a) 1952—1953. (b) No. (c) N.A. (v) (a) Nil. (b) Nil. (vi) & (vii) Nil.

5. RESULTS :

- (i) 12.60 ton/ac.
- (ii) 0.98 ton/ac.
- (iii) Treatments are not significantly different.
- (iv) Av. yield of sugarcane in ton/ac.

Treatment	Av. yield
1.	12.59
2.	12.89
3.	13.11
4.	12.92
5.	11.93
6.	11.79
7.	13.69
8.	11.96
9.	12.53
S.E./mean	= 0.49 ton/ac.

Crop :- Sugarcane.

Site :- Zonal Centre, Dehri-on-Sone.

Ref :- Bh. 51(35).

Type :- 'CV'.

Object :-To find out the best time of planting Sugarcane.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) N.A. (c) N.A. (ii) (a) Alluvial (non-calcareous). (b) N.A. (iii) As per treatments. (iv) (a) 4 ploughings by *desi* plough. (b) Flat planting. (c) 60 three budded setts/row. (d) Rows 3' apart. (e) —. (v) N.A. (vi) As per treatments. (vii) N.A. (viii) Weeding and earthing up. (ix) N.A. (x) N.A.

2. TREATMENTS :

All combinations of (1) and (2).

1. 3 varieties :- $V_1=CO. 453$, $V_2=BO. 11$ and $V_3=BO. 10$ 2. 6 dates of planting : $T_1=mid\text{-}October$, $T_2=mid\text{-}November$, $T_3=mid\text{-}December$, $T_4=mid\text{-}January$, $T_5=mid\text{-}February$ and $T_6=mid\text{-}March$.

3. DESIGN :

(i) 6×3 Fact. in R.B.D. (ii) (a) 18. (b) N.A. (iii) 6. (iv) (a) $60.5' \times 24'$. (b) $60.5' \times 18'$. (v) 3' on either side along length. (vi) Yes.

4. GENERAL :

(i) N.A. (ii) Nil. (iii) Sucrose %, no. of mature stalks and sugarcane yield. (iv) (a) No. (b) No. (c) Nil. (v) (a) Majhulia, Harinagar and Parsa. (b) Nil. (vi) & (vii) Nil.

5. RESULTS :

- (i) 17.45 ton/ac.
(ii) 4.84 ton/ac.
(iii) Main effect of T is highly significant. Main effect of V and interaction $T \times V$ are significant.
(iv) Av. yield of sugarcane in ton/ac.

	T_1	T_2	T_3	T_4	T_5	T_6	Mean
V_1	28.22	24.22	20.23	16.39	12.99	9.31	18.56
V_2	23.98	21.38	18.79	15.15	11.76	8.09	16.52
V_3	26.03	22.24	19.12	15.26	12.20	8.82	17.28
Mean	26.08	22.61	19.38	15.60	12.32	8.74	17.45

S.E. of V marginal mean = 0.807 ton/ac.
S.E. of T marginal mean = 1.141 ton/ac.
S.E. of body of table = 1.976 ton/ac.

Crop :- Sugarcane.

Site :- Zonal Centre, Dehri-on-Sone.

Ref :- Bh. 50(43).

Type :- 'CV'.

Object :-To find out the best time of planting Sugarcane.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) N.A. (c) N.A. (ii) (a) Alluvial (non calcareous) (b) N.A. (iii) As per treatments. (iv) (a) 4 ploughings by *deshi* plough. (b) Flat planting. (c) 60, three budded setts/row. (d) Rows 3' apart. (e) —(v) N.A. (vi) As per treatments. (vii) N.A. (viii) Hoeing, weeding and earthing. (ix) N.A. (x) N.A.

2. TREATMENTS :

All combinations of (1) & (2)

(1) 3 varieties :- $V_1=CO. 453$, $V_2=CO. 622$ and $V_3=BO. 11$.(2) 6 dates of planting :- $T_1=mid\text{-}October$, $T_2=mid\text{-}November$, $T_3=mid\text{-}December$, $T_4=mid\text{-}January$, and $T_5=mid\text{-}February$ and $T_6=mid\text{-}March$.

3. DESIGN :

- (i) 6×3 Fact. in R.B.D. (ii) (a) 18. (b) N.A. (iii) 6. (iv) (a) 60.5'×24'. (b) 60.5'×18'. (v) One row on either side along length. (vi) Yes.

4. GENERAL :

- (i) N.A. (ii) N.A. (iii) No. of mature stalks, sucrose % and cane yield. (iv) (a) 1950—1953. (b) No. (c) Nil. (v) (a) N.A. (b) N.A. (vi) Nil. (vii) Raw data N.A. In the annual report of the Institute, it is mentioned that due to abnormal yields in different plots the statistical analysis was not under taken.

5. RESULTS :

- (i) 12.33 ton/ac.
 (ii) N.A.
 (iii) N.A.
 (iv) Av. yield of sugarcane in ton/ac.

	T ₁	T ₂	T ₃	T ₄	T ₅	T ₆	Mean
V ₁	24.65	26.41	16.73	18.77	12.94	28.75	21.38
V ₂	11.28	13.44	10.44	8.10	12.56	7.62	10.57
V ₃	8.07	4.48	4.83	4.52	4.43	3.86	5.04
Mean	14.69	14.78	10.68	10.46	9.98	13.41	12.33

Crop :- Sugarcane.

Ref :- Bh.51(55).

Site :- Zonal Centre, Dehri-on-Sone.

Type :- 'CV'.

Object :—To find out the best time of planting Sugarcane.

1. BASAL CONDITIONS :

- (i) (a) N.A. (b) N.A. (c) N.A. (ii) (a) Alluvial (non-calcareous) (b) N.A. (iii) As per treatments. (iv) (a) Four ploughings by *deshi* plough. (b) Flat method. (c) 60 md/ac. (d) Rows 3' apart. (e)—(v), N.A. (vi) As per treatments. (vii) N.A. (viii) Hoeing, weeding and earthing. (ix) N.A. (x) N.A.

2. TREATMENTS :

All combinations of (1) & (2)

(1) 3 varieties :—V₁=CO. 453, V₂=CO. 622 and V₃=CO. 632.

(2) 6 dates of planting :—T₁=mid-October, T₂=mid-November, T₃=mid-December, T₄=mid-January, T₅=mid-February, and T₆=mid-March.

3. DESIGN :

- (i) 6×3 Fact. in R.B.D. (ii) (a) 18. (b) N.A. (iii) 6. (iv) (a) 60.5'×24' (b) 60.5'×18' (v) One row on either side along length. (vi) Yes.

4. GENERAL :

- (i) N.A. (ii) N.A. (iii) Tiller no, no. of mature stalks, sucrose % and sugarcane yield. (iv) (a) 1950—1953. (b) No. (c) No. (v) (a) N.A. (b) N.A. (vi) & (vii) Nil.

5. RESULTS :

- (i) 17.42 ton/ac.
 (ii) 1.54 ton/ac.
 (iii) Main effect of V and interactions T×V are significant. Main effect of T is highly significant.
 (iv) Av. yield of sugarcane in ton/ac.

	T ₁	T ₂	T ₃	T ₄	T ₅	T ₆	Mean
V ₁	28.17	24.17	20.20	16.36	12.97	9.30	18.53
V ₂	23.94	21.35	18.74	15.12	11.74	8.07	16.49
V ₃	25.98	22.20	19.08	15.23	12.18	8.81	17.24
Mean	26.03	22.57	19.34	15.57	12.30	8.73	17.42

S.E. of V marginal mean =0.26 ton/ac.

S.E. of T marginal mean =0.36 ton/ac.

S.E. of body of table =0.63 ton/ac.

Crop :- Sugarcane.

Ref :- Bh. 52(73).

Site :- Zonal Centre, Dehri-on-Sone.

Type :- 'CV'.

Object :- To find the best time of planting Sugarcane.

1. BASAL CONDITIONS :

- (i) (a) Nil. (b) N.A. (c) N.A. (ii) (a) Alluvial (non-calcareous). (b) N.A. (iii) As per treatments. (iv) (a) 4 ploughings followed by beaming. (b) Flat planting. (c) 60, three budded setts/row. (d) Rows 3' apart. (e) —. (v) 120 lb./ac. of N as A/S + 60 lb./ac. of P_2O_5 as Single Super before planting. (vi) As per treatments. (vii) N.A. (viii) Hoeing, weeding and earthing. (ix) N.A. (x) N.A.

2. TREATMENTS :

Main-plot treatments ;—

3 varieties : $V_1=CO. 453$; $V_2=CO. 622$ and $V_3=CO. 32$.

Sub-plot treatments :—

6 times of planting : $T_1=mid\text{-}October$; $T_2=mid\text{-}November$; $T_3=mid\text{-}December$; $T_4=mid\text{-}January$; $T_5=mid\text{-}February$ and $T_6=mid\text{-}March$.

3. DESIGN :

- (i) Split-plot. (ii) (a) 3 main-plots/block ; 6 sub-plots/main-plot. (b) N.A. (iii) 6. (iv) (a) $60.5' \times 24'$. (b) $60.5' \times 18'$. (v) One row on each side along length. (vi) Yes.

4. GENERAL :

- (i) Good. (ii) Nil. (iii) No. of tillers, sugarcane yield and sucrose %. (iv) (a) 1950—1953. (b) No. (c) Nil. (v) (a) Harinagar, Parsa, Majhulia and Motihari. (b) Nil. (vi) Nil. (vii) Experiment conducted during 1953 not traceable.

5. RESULTS :

- (i) 19.31 ton/ac.
 (ii) (a) 1.80 ton/ac.
 (b) 0.53 ton/ac.
 (iii) All the main effects and interaction are highly significant.
 (iv) Av. yield of sugarcane in ton/ac.

	T_1	T_2	T_3	T_4	T_5	T_6	Mean
V_1	26.28	25.99	23.10	21.30	19.18	16.11	21.99
V_2	19.08	19.39	17.26	17.81	15.34	13.47	17.06
V_3	22.90	22.40	18.65	19.21	16.82	13.22	18.87
Mean	22.75	22.59	19.67	19.44	17.11	14.27	19.31

S.E. of difference of two

1. V marginal means =0.42 ton/ac.
 2. T marginal means =0.18 ton/ac.
 3. T means at the same level of V =0.31 ton/ac.
 4. V means at the same level of T =0.16 ton/ac.

Crop :- Sugarcane.

Ref :- Bh. 50(24).

Site :- Zonal Centre-Chanki Farm, Pachrukhi.

Type :- 'CV'.

Object :- To find out the best time of planting Sugarcane.

1. BASAL CONDITIONS :

- (i) (a) G.M.-Sugarcane-G.M. (b) *Sanai* for G.M. (c) Nil. (ii) (a) Sandy loam. (b) N.A. (iii) As per treatments. (iv) (a) One disc plough for burning *Sanai*, one disc plough and one harrow later on. (b) Line planting. (c) N.A. (d) Rows 3' apart. (e) —. (v) Castorcake at 6 md./ac. + Super at 3 md./ac. + A/S at 1 md./ac. before planting and A/S at 1.5 md./ac. at the time of earthing up. (vi) As per treatments. (vii) Unirrigated. (viii) 2 intercultures. (ix) N.A. (x) N.A.

2. TREATMENTS :

All combinations of (1) and (2)

(1) 3 varieties : V_1 =CO. 453 ; V_2 =BO. 10 and V_3 =BO. 11.

(2) 6 times of planting : T_1 =mid-October ; T_2 =mid-November ; T_3 =mid-December ;
 T_4 =mid-January ; T_5 =mid-February and T_6 =mid-March.

3. DESIGN :

(i) 6×3 Fact. in R.B.D. (ii) (a) 18. (b) 18/30 ac. (iii) 6. (iv) (a) $60.5' \times 24'$. (b) $60.5' \times 18'$. (v) 3' wide row on both sides along the length. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Cane yield and counting of mature stalks. (iv) (a) No. (b) Nil. (c) Nil. (v) (a) None. (b) No. (vi) and (vii) Nil.

5. RESULTS :

(i) 14.41 ton/ac.

(ii) 1.38 ton/ac.

(iii) Main effect of V alone is highly significant.

(iv) Av. yield of sugarcane in ton/ac.

	T_1	T_2	T_3	T_4	T_5	T_6	Mean
V_1	18.03	20.72	20.79	18.09	15.34	19.00	18.66
V_2	13.05	12.49	10.87	13.03	13.69	14.72	12.98
V_3	9.08	13.00	10.94	12.49	12.30	11.75	11.59
Mean	13.39	15.40	14.20	14.54	13.78	15.16	14.41

S.E. of V marginal mean = 0.23 ton/ac.

S.E. of T marginal mean = 0.32 ton/ac.

S.E. of body of table = 0.56 ton/ac.

Crop :- Sugarcane.
Site :- Zonal Centre, Parsa.

Ref :- Bh. 50 (48).

Type :- 'CV'.

Object :—To find out the best time of planting of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) N.A. (c) N.A. (ii) (a) Alluvial calcareous. (b) N.A. (iii) As per treatments. (iv) (a) 4 ploughings by *desi* plough. (b) Flat method. (c) 60, three budded setts/row. (d) Rows 3' apart (e) —. (v) N.A. (vi) As per treatments. (vii) N.A. (viii) Hosing, weeding and earthing. (ix) N.A. (x) N.A.

2. TREATMENTS :

All combinations of (1) and (2)

(1) 3 varieties : V_1 =CO. 453, V_2 =BO. 10 and V_3 =BO. 11.

(2) 6 dates of planting : T_1 =mid-October, 1950 ; T_2 =mid-November, 1950 ; T_3 =mid-December, 1950 ;
 T_4 =mid-January, 1951 ; T_5 =mid-February, 1951 and T_6 =mid-March 1951

3. DESIGN :

(i) 6×3 Fact. in R.B.D. (ii) (a) 18. (b) N.A. (iii) 5. (iv) (a) $60.5' \times 24'$. (b) $60.5' \times 18'$. (v) One row on each side along length. (vi) Yes.

4. GENERAL :

(i) N.A. (ii) N.A. (iii) Tiller no., no of mature stalks, sucrose % and sugarcane yield. (iv) (a) 1950—1953. (b) No. (c) Nil. (v) (a) No. (b) Nil. (vi) Nil. (vii) Raw data of this expt. could not be traced and the table of mean yields was taken down from the annual report of the Sugarcane Research Station Pusa. The S.E./plot is not available. Also the yield of T_6 is not available.

5. RESULTS :

- (i) 17.90 ton/ac.
 (ii) N.A.
 (iii) N.A.
 (iv) Av. yield of sugarcane in ton/ac.

	T ₁	T ₂	T ₃	T ₄	T ₅	Mean
V ₁	29.57	23.58	24.13	23.40	21.49	24.43
V ₂	17.82	16.42	16.09	20.20	17.23	17.55
V ₃	12.20	14.47	14.25	10.17	7.46	11.71
Mean.	19.86	18.16	18.16	17.92	15.39	17.90

S.E.s :—N.A.

Note :—Please see item number (vii) under 'General'.

Crop :- Sugarcane.

Site :- Zonal Centre, Parsa.

Ref :- Bh. 51 (59).

Type :- 'CV'.

Object :—To find out the best time of planting of Sugarcane.

1. BASAL CONDITIONS :

- (i) (a) N.A. (b) N.A. (c) N.A. (ii) (a) Alluvial calcareous. (b) N.A. (iii) As per treatments.
 (iv) (a) 4 ploughings and harrowing. (b) Flat method. (c) 65 md./ac. (d) Rows 3' apart. (e)—. (v) N.A.
 (vi) As per treatments. (vii) N.A. (viii) Hoeing and weeding. (ix) N.A. (x) N.A.

2. TREATMENTS :

All combinations of (1) and (2)

(1) 3 varieties : V₁=CO. 453 ; V₂=CO. 622 and V₃=BO. 11.

(2) 6 dates of planting : T₁=mid-October ; T₂=mid-November ; T₃=mid-December ; T₄=mid-January ;
 T₅=mid-February and T₆=mid-March.

3. DESIGN :

- (i) 6×3 Fact. in R.B.D. (ii) (a) 18. (b) N.A. (iii) 6. (iv) (a) 60.5'×24'. (b) 60.5'×18'. (v) One row on either side along length. (vi) Yes.

4. GENERAL :

- (i) N.A. (ii) N.A. (iii) Cane yield, no. of mature stalks, and juice content. (iv) (a) 1950—1953. (b) N.A. (c) N.A. (v) (a) No. (b) N.A. (vi) Nil. (vii) Experiment conducted during the year 1952 not available.

5. RESULTS :

- (i) 10.64 ton/ac.
 (ii) 3.419 ton/ac.
 (iii) All the effects are highly significant.
 (iv) Av. yield of sugarcane in ton/ac.

	T ₁	T ₂	T ₃	T ₄	T ₅	T ₆	Mean
V ₁	20.24	19.47	19.98	20.02	12.60	4.59	14.65
V ₂	9.88	8.49	8.37	7.46	7.64	6.46	8.05
V ₃	12.20	11.83	7.27	10.32	8.19	5.51	9.22
Mean	14.11	13.26	8.87	12.60	9.48	5.52	10.64

1. S.E. of N marginal mean
 2. S.E. of T marginal mean
 3. S.E. of body of table

0.578 ton/ac.
 0.306 ton/ac.
 1.996 ton/ac.

Crop :- Sugarcane.
Site :- Zonal Centre, Parsa.

Ref :- Bh. 53(133)
Type 'CV'.

Object :- To find the best time of planting of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Sugarcane. (c) N.A. (ii) (a) Alluvial calcareous. (b) N.A. (iii) As per treatments. (iv) (a) 4 ploughings followed by beaming. (b) Flat planting. (c) 60, three budded setts/row. (d) Rows 3' apart. (e) —. (v) A/S at 40 lb/ac. of N and 10 C.L./ac. of F.Y.M. (vi) As per treatments. (vii) Unirrigated. (viii) Hoeing, weeding and earthing. (ix) N.A. (x) N.A.

2. TREATMENTS :

Main-plot treatments :—

3 varieties :— $V_1=CO. 453$, $V_2=BO. 10$ and $V_3=BO. 11$.

Sub-plot treatments :

7 times of planting :— T_1 =mid-September, T_2 =mid-October, T_3 =mid-November, T_4 =mid-December, T_5 =mid-January, T_6 =mid-February and T_7 =mid-March.

3. DESIGN:

(i) Split-plot. (ii) (a) 3 main-plots/block ; 7 sub-plots/main-plot, (b) N.A. (iii) 6. (iv) (a) 60.5' × 24'. (b) 60.5' × 18'. (v) One row on each side along length. (vi) Yes.

4. GENERAL :

(i) Fair. (ii) Nil. (iii) No. of mature stalks, sucrose % and sugarcane yield. (iv) (a) 1950–1953. (b) No. (c) Nil. (v) (a) Harinagar, Majhulia, Motihari, Motipur and Dehri-on-Sone. (b) No. (vi) & (vii) Nil.

5. RESULTS :

- (i) 19.71 ton/ac.
(ii) (a) 5.20 ton/ac.
(b) 2.68 ton/ac.
(iii) Main effect of V is significant ; main effect of T is highly significant. Interaction $V \times T$ is not significant.
(iv) Av. yield of sugarcane in ton/ac.

	T_1	T_2	T_3	T_4	T_5	T_6	T_7	Mean
V_1	23.73	24.34	25.07	19.97	17.92	19.33	16.97	21.05
V_2	23.73	24.52	19.81	19.57	19.39	19.14	19.51	20.81
V_3	20.55	19.20	19.33	15.72	16.70	15.04	14.34	17.27
Mean	22.67	22.69	21.40	18.42	18.00	17.84	16.94	19.71

S.E. of difference of two

1. V marginal means = 1.13 ton/ac.
2. T marginal means = 0.89 ton/ac.
3. T means at the same level of V = 1.55 ton/ac.
4. V means at the same level of T = 1.83 ton/ac.

Crop :- Sugarcane.
Site :- Sugarcane Sub-Stn., Patna.

Ref :- Bh. 51(3).
Type :- 'CV'.

Object :- To find out the best frequency of earthing operation.

1. BASAL CONDITIONS :

(i) (a) None. (b) Fallow. (c) No. (ii) (a) Clay. (b) N.A. (iii) 22 to 23.2.51. (iv) (a) to (e) N.A. (v) 80 lb/ac. of N as A/S and 60 lb/ac. of P_2O_5 as Single Super. Time & method of application : N.A. (vi) As per treatments. (vii) Irrigated. (viii) Earthing as per treatments and hoeing. (ix) 30.47" (x) N.A.

2. TREATMENTS :

All combinations of (1) & (2)

(1) 2 varieties :— V_1 =CO. 622 and V_2 =CO. 453(late).

(2) No. of earthings :— E_0 =No earthing, E_1 =1 earthing, E_2 =2 earthings and E_3 =3 earthings.

3. DESIGN :

(i) 4×2 Fact in R.B.D. (ii) (a) 8. (b) N.A. (iii) 4. (iv) (a) $60.5' \times 21'$. (b) $60.5' \times 15'$. (v) Rows of 3' on each side of width. (vi) Yes.

4. GENERAL :

(i) Satisfactory. (ii) None. (iii) Cane yield (iv) (a) 1951—1952. (b) No. (c) Nil. (v) (a) Pusa. (b) Nil. (vi) & (vii) Nil.

5. RESULTS :

- (i) 20.06 ton/ac.
 (ii) 3.183 ton/ac.
 (iii) Effect of varieties alone is highly significant.
 (iv) Av. yield of sugarcane in ton/ac.

	E_0	E_1	E_2	E_3	Mean
V_1	17.85	17.47	17.33	19.38	18.01
V_2	23.04	20.89	22.59	21.92	22.11
Mean	20.45	19.18	19.96	20.65	20.06

S.E. of marginal mean of V = 0.796 ton/ac.

S.E. of marginal mean of E = 1.125 ton/ac.

S.E. of body of table = 1.591 ton/ac.

Crop :- Sugarcane.

Ref :- Bh. 52(3).

Site :- Sugarcane Sub-Stn., Patna.

Type :- 'CV'.

Object :- To find out the best frequency of earthing operation.

1. BASAL CONDITIONS :

(i) (a) Sunnhemp—Sugarcane—Paddy. (b) Sunnhemp. (c) Nil. (ii) (a) Heavy clay. (b) N.A. (iii) 28.1.52 to 29.1.52. (iv) (a) Mould board ploughings followed by disc harrowing and then levelling. (b) N.A. (c) 64, three budded setts/row. (d) Row to row 3' (e) —. (v) 80 lb/ac. of N+60 lb./ac. of P_2O_5 in the form of A/S and Super at the time of planting+40 lb./ac. of N as A/S at earthing. (vi) As per treatments. (vii) Irrigated. (viii) After every irrigation one interculture and then horse hoeing. (ix) 34.51". (x) 12th to 15th Jan. 53, 21.1.53 and 24.1.53.

2. TREATMENTS :

All combinations of (1) and (2)

(1) 2 varieties : V_1 =CO. 622 and V_2 =CO. 453.

(2) No. of earthings : E_0 =no earthing, E_1 =1 earthing, E_2 =2 earthings, and E_3 =3 earthings.

3. DESIGN :

(i) 4×2 Fact. in R.B.D. (ii)(a) 8. (b) $60.5' \times 168'$. (iii) 4. (iv) (a) $60.5' \times 21'$. (b) $60.5' \times 15'$. (v) Two rows, one on either side of the plot as non-experimental. (vi) Yes.

4. GENERAL :

(i) Good. No lodging. (ii) Nil. (iii) Germination %; sucrose %; no. of mature stalks, sugarcane yield at harvest and borer %. (iv) (a) 1951—1952. (b) No. (c) Nil. (v) (a) N.A. (b) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 17.95 ton/ac.

(ii) 2.531 ton/ac.

(iii) Only variety effect is highly significant.

(iv) Av. yield of sugarcane in ton/ac.

	E ₀	E ₁	E ₂	E ₃	Mean
V ₁	13.09	15.33	12.71	15.27	14.10
V ₂	20.93	23.33	22.09	20.81	21.79
Mean	17.01	19.33	17.40	18.04	17.95

S.E. of marginal mean of V = 0.63 ton/ac.
 S.E. of marginal mean of E = 0.89 ton/ac.
 S.E. of body of table = 1.27 ton/ac.

Crop :-Sugarcane.

Ref :-Bh. 49(5).

Site :-Sugarcane Sub-Stn., Patna.

Type :-'CV'.

Object :-To find out the best time of planting of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Fallow. (c) Nil. (ii) (a) Clay. (b) N.A. (iii) As per treatments. (iv) (a) to (c) N.A. (v) 87 md./ac. of Castor cake+4.65 md./ac. of Triple Super. Time and method of application of manures : N.A. (vi) As per treatments. (vii) Irrigated. (viii) Weeding and earthing. (ix) 69.88". (x) 18.1.51 to 8.3.51.

2. TREATMENTS :

All combinations of (1) and (2)

(1) 3 varieties : V₁=CO. 453 (late), V₂=CO. 622 (early) and V₃=BO. 11 (early).(2) 5 dates of planting : T₁=23.11.49, T₂=20.12.49, T₃=17.1.50, T₄=18.2.50 and T₅=16.3.50.

3. DESIGN :

(i) 5×3 Fact. in R.B.D. (ii) (a) 15. (b) N.A. (iii) 6. (iv) (a) 30'×48'. (b) 24'×48'. (v) Rows of 3' on either side of width. (vi) Yes.

4. GENERAL :

(i) Ordinary. (ii) N.A. (iii) Sugarcane yield. (iv) (a) No. (b) No. (c) Nil. (v) (a) Pusa. (b) Nil. (vi) and (vii) Nil.

5. RESULTS :

(i) 9.11 ton/ac.

(ii) 1.51 ton/ac.

(iii) V and T effects are highly significant, while interation is not significant.

(iv) Av. yield of sugarcane in ton/ac.

	T ₁	T ₂	T ₃	T ₄	T ₅	Mean
V ₁	15.78	15.74	14.30	8.41	10.95	13.04
V ₂	12.70	10.29	10.08	4.27	4.79	8.43
V ₃	7.53	6.43	7.08	3.91	4.38	5.87
Mean	12.00	10.82	10.49	5.53	6.71	9.11

S.E. of marginal mean of V = 0.28 ton/ac.
 S.E. of marginal mean of T = 0.36 ton/ac.
 S.E. of body of table = 0.62 ton/ac.

Crop :- Sugarcane.

Ref :- Bh. 53(57).

Site :- Sugarcane Sub-Stn., Patna.

Type :- 'CV'.

Object :- To find out the response to flat and trenching methods of planting.

1. BASAL CONDITIONS :

(i) (a) Sugarcane-Paddy-Sugarcane. (b) Paddy. (c) 40 lb./ac. of N+60 lb./ac. of P_2O_5 . (ii) (a) Clay. (b) N.A. (iii) 21.1.53. (iv) (a) Mould board ploughing, disc harrowing and then levelling. (b) As per treatments. (c) 64 three budded setts/row. (d) & (e) N.A. (v) 80 lb./ac. of N and 60 lb./ac. P_2O_5 as A/S and Super respectively. (vi) As per treatments. (vii) Irrigated. (viii) After every irrigation one interculture and then horse-hoeing. (ix) 61.02%. (x) 25.1.54 to 27.1.54.

2. TREATMENTS :

All combinations of (1) & (2)

(1) 2 varieties :- $V_1=CO. 453$ and $V_2=BO. 11$.

(2) 2 systems of planting :- (a) Flat and (b) Trenching.

3. DESIGN :

(i) 2×2 Fact. in R.B.D. (ii) (a) 4. (b) N.A. (iii) 4. (iv) (a) $60.5' \times 24'$. (b) $60.5' \times 18'$. (v) One row on each side along the length. (vi) Yes.

4. GENERAL :

(i) Good; no lodging. (ii) Nil. (iii) Germination %, sucrose %, no. of mature stalk, borer %, no. of tillers/row and cane yield at harvest. (iv)(a) 1953-1955. (b) No. (c) Nil. (v) (a) N.A. (b) Nil. (vi) & (vii) Nil.

5. RESULTS :

- (i) 8.27 ton/ac.
 (ii) 4.228 ton/ac.
 (iii) None of the effects is significant.
 (iv) Av. yield of sugarcane in ton/ac.

	V_1	V_2	Mean
Flat	9.46	10.64	10.05
Trenching	6.89	6.07	6.48
Mean	8.18	8.36	8.27

S.E. of any marginal mean = 1.495 ton/ac.
 S.E. of body of table = 2.114 ton/ac.

Crop :- Sugarcane.

Ref :- Bh. 49(12).

Site :- C.S.R.S. Pusa.

Type :- 'CV'.

Object :- To find out the best time of planting of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Sugarcane. (c) N.A. (ii) (a) Light loam. (b) N.A. (iii) As per treatments. (iv) (a) 4 ploughings. (b) Row planting. (c) 64, three budded setts/row. (d) 3' between rows. (e) —. (v) G.N.C. 20 md/ac. and Triple Super 3 mds. 30 seers/ac. (vi) As per treatments. (vii) Unirrigated. (viii) Hoeing, weeding and earthing. (ix) N.A. (x) N.A.

2. TREATMENTS :

All combinations of (1) & (2)

(1) 2 varieties :- $V_1=CO. 453$ and $V_2=BO. 11$.(2) 5 times of planting :- $T_1=11.11.48$; $T_2=11.12.48$; $T_3=11.1.49$; $T_4=18.2.49$ and $T_5=11.3.49$.

3. DESIGN :

(i) 5×2 Fact. in R.B.D. (ii) (a) 10. (b) N.A. (iii) 8. (iv) (a) $60.5' \times 24'$. (b) $60.5' \times 18'$. (v) Rows of 3' on each side of width. (vi) Yes.

4. GENERAL :

- (i) N.A. (ii) Nil. (iii) Cane yield, mature stalk count, and sucrose %. (iv) (a) 1949—1954. (b) N.A. (c) Nil.
 (v) (a) Harinagar, Parsa, Majhauha Pachrukhi, Narkatiaganj and Motipur. (b) Nil. (vi) & (vii) Nil.

5. RESULTS :

- (i) 26.40 ton/ac.
 (ii) 2.192 ton/ac.
 (iii) V and T effects are highly significant, while their interaction is not significant.
 (iv) Av. yield of sugarcane in ton/ac.

	T ₁	T ₂	T ₃	T ₄	T ₅	Mean
V ₁	30.97	30.51	28.12	30.51	24.58	28.94
V ₂	25.24	25.41	22.34	23.63	22.61	23.85
Mean	28.10	27.96	25.23	27.07	23.60	26.40

S.E. of marginal mean of V = 0.347 ton/ac.

S.E. of marginal mean of T = 0.490 ton/ac.

S.E. of body of table = 0.775 ton/ac.

Crop :- Sugarcane.

Site :- C.S.R.S. Pusa.

Ref :- Bh. 50(17).

Type :- 'CV'.

Object :- To find out the best time of planting of Sugarcane.

1. BASAL CONDITIONS :

- (i) (a) Nil. (b) Sunnhemp. (c) Nil. (ii) (a) Light loamy soil. (b) N.A. (iii) As per treatments. (iv) (a) 4 ploughings. (b) Row planting. (c) 64, three budded setts/row. (d) 3' between rows. (e) —. (f) G.M., G.N.C. 24 md. to whole experiment and Ammo. Phos. at 4 mds. 32 srs. for whole experiment. Time and method of application N.A. (vi) As per treatments. (vii) Irrigated. (viii) Hoeing and earthing. (ix) 41.49". (x) 23.2.51 to 28.2.51.

2. TREATMENTS :

All combinations of (1) and (2)

(1) 2 varieties : V₁=CO. 453 and V₂=BO. 11.

(2) 6 times of planting : T₁=Oct., '49 ; T₂=Nov., '49 ; T₃=Dec., '49 ; T₄=Jan., '50 ; T₅=Feb., '50 ; and T₆=March, '50.

3. DESIGN :

- (i) 6×2 Fact. in R.B.D. (ii) (a) 12. (b) N.A. (iii) 6. (iv) (a) 60.5'×24'. (b) 60.5'×18'. (v) Rows of 3' on each side of width. (vi) Yes.

4. GENERAL :

- (i) N.A. (ii) N.A. (iii) Cane yield, counting of mature stalks and sucrose %. (iv) (a) 1949—1954. (b) No. (c) Nil. (v) (a) Harinagar, Parsa, Majhauha, Pachrukhi, Narkatiaganj and Motipur. (b) Nil. (vi) and (vii) Nil.

5. RESULTS :

- (i) 19.13 ton/ac.
 (ii) 2.480 ton/ac.
 (iii) V and T effect are highly significant, while their interaction is not significant.

(iv) Av. yield of sugarcane in ton/ac.

	T ₁	T ₂	T ₃	T ₄	T ₅	T ₆	Mean
V ₁	28.31	23.59	22.50	24.41	19.10	15.81	22.29
V ₂	18.25	17.25	18.15	16.92	14.45	10.80	15.97
Mean	23.28	20.42	20.33	20.67	16.78	13.30	19.13

S.E. of marginal mean of V = 0.413 ton/ac.
 S.E. of marginal mean of T = 0.716 ton/ac.
 S.E. of body of table = 1.012 ton/ac.

Crop :- Sugarcane.

Ref :- Bh. 51 (25).

Site :- C.S.R.S. Pusa.

Type :- 'CV'.

Object :—To find out the best time of planting of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Sugarcane. (c) N.A. (ii) (a) Medium loam. (b) N.A. (iii) As per treatments. (iv) (a) 4 ploughings. (b) Row planting. (c) 64, three budded setts/row. (d) Row to row—3'. (e) —. (v) A/S 2 mds. to the whole experiment. Time and method of application of A/S : N.A. (vi) As per treatments. (vii) Irrigated. (viii) Hoing, earthing and weeding. (ix) N.A. (x) N.A.

2. TREATMENTS :

All possible combinations of (1) and (2)

(1) 2 varieties : V₁=CO. 453 and V₂=BO. 11.(2) 6 times of planting : T₁=mid-Oct., '50 ; T₂=mid-Nov., '50 ; T₃=mid-Dec., '50 ; T₄=mid-Jan., '51 ; T₅=mid-Feb., '51 and T₆=mid-march, '51:

3. DESIGN :

(i) 6×2 Fact. in R.B.D. (ii) (a) 12. (b) N.A. (iii) 6. (iv) (a) 60.5'×24'. (b) 60.5'×18'. (v) 3' rows on each side of width. (vi) Yes.

4. GENERAL :

(i) N.A. (ii) N.A. (iii) Cane yield, sucrose % and mature stalk count. (iv) (a) 1949—1954. (b) No. (c) Nil. (v) (a) None. (b) No. (vi) and (vii) Nil.

5. RESULTS :

(i) 34.39 ton/ac.

(ii) 2.734 ton/ac.

(iii) V and T effects are highly significant, while their interaction is not significant.

(iv) Av. yield of sugarcane in ton/ac.

	T ₁	T ₂	T ₃	T ₄	T ₅	T ₆	Mean
V ₁	41.57	41.50	40.64	37.68	34.78	31.11	37.88
V ₂	29.55	28.59	29.02	28.37	25.94	23.89	27.56
Mean	35.56	35.05	34.83	33.02	30.36	27.50	34.39

S.E. of marginal mean of V = 0.456 ton/ac.
 S.E. of marginal mean of T = 0.789 ton/ac.
 S.E. of body of table = 1.116 ton/ac.

Crop :- Sugarcane.
Site :- C.S.R.S. Pusa.

Ref :- Bh. 52 (36).
Type :- 'CV'.

Object :- To find out the best time of planting of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Sugarcane. (c) N.A. (ii) (a) Medium loam. (b) N.A. (iii) As per treatments. (iv) (a) 4 bullock ploughings. (b) Row planting. (c) 64, three budded setts/row. (d) Row to row 3'. (e) —. (v) G.N.C. at 24 md./ac. ; Super at 8 md./ac. Time and method of application of manures : N.A. (vi) As per treatments. (vii) Rainfed. (viii) Hoeing, earthing and weeding. (ix) Varies from 46.89° to 48.80°. (x) 3.1.53 to 14.2.53.

2. TREATMENTS :

All combinations of (1) and (2)

(1) 2 varieties : V_1 =CO. 453 and V_2 =BO. 11.

(2) 6 times of planting : T_1 =Oct., 1951 ; T_2 =Nov., 1951 ; T_3 =Dec., 1951 ; T_4 =Jan., 1952 ; T_5 =Feb, 1952 and T_6 =March, 1952.

3. DESIGN :

(i) 6×2 Fact. in R.B.D. (ii) (a) 12. (b) N.A. (iii) 12. (iv) (a) 60.5'×24'. (b) 60.5'×18'. (v) Rows of 3' on each side of width. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Nil. (iii) Cane yield, sucrose % and mature stalk count. (iv) (a) 1949—1954. (b) No. (c) Nil. (v) (a) Patna and Zonal centres at Motihari Motipur, Pachrukhi, and Majhulia. (b) Nil. (vi) and (vii) Nil.

5. RESULTS :

(i) 21.77 ton/ac.
(ii) 4.779 ton/ac.
(iii) V and T effects are highly significant, while their interaction is not significant.
(iv) Av. yield of sugarcane in ton/ac.

	T_1	T_2	T_3	T_4	T_5	T_6	Mean
V_1	32.52	27.93	23.86	23.78	22.02	22.31	25.41
V_2	20.40	21.40	18.31	17.94	17.18	13.51	18.12
Mean	26.46	24.67	21.09	20.86	19.60	17.91	21.77

S.E. of the marginal mean of V = 0.797 ton/ac.
S.E. of the marginal mean of T = 1.379 ton/ac.
S.E. of body of table = 1.951 ton/ac.

Crop :- Sugarcane.
Site :- C.S.R.S., Pusa.

Ref :- Bh. 53 (109).
Type :- 'CV'.

Object :- To find out the best time of planting of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) Sugarcane—*Sanai* (G.M.)—Wheat—*Mung* (G.M.). (b) *Mung* (G.M.). (c) Nil. (ii) (a) Texture is sandy loam to silty loam with normal to deep saline phase. (b) Org. C and Org. N are low and C/N ratio : narrow to normal. Total P_2O_5 is medium to high. Available phosphate very low. Soil reaction is strongly alkaline. (iii) As per treatments. (iv) (a) Harrow once and mould board ploughing each followed by *Hinga*. Again discing followed by sub-soiling (b) Furrow planting, end to end planting. (c) N.A. (d) 3' apart. (e) —. (v) 12 md./ac. of G.N.C.+7 md. 8 sr./ac. of Super+5 md./ac. of Castor cake+3 md./ac. of Super. (vi) As per treatments. (vii) Irrigated. (viii) Fortnightly inter-cultural operation after germination till the end of May. Earthing up in Mid-June. (ix) 49.31°. (x) 1st week of January, 1954.

2. TREATMENTS :

All combinations of (1) and (2)

(1) 2 varieties : V_1 =BO. 11 (early) and V_2 =BO. 14 (early).(2) 6 times of planting : T_1 =20th Oct., 1952 ; T_2 =20th Nov., 1952 ; T_3 =20th Dec, 1952 ; T_4 =20th Jan., 1953 ; T_5 =20th Feb., 1953 and T_6 =20th March, 1953.

3. DESIGN :

(i) 6×2 Fact. in R.B.D. (ii) (a) 12. (b) N.A. (iii) 6. (iv) (a) $60.5' \times 24'$. (b) $60.5' \times 18'$. (v) Two rows, one on either side of the sub-plot as non experimental. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Borer incidence noted. Dead heart removed. During the early period of growth, on controlling termite infection Aldrine was applied at planting and the other dose 3 months after. (iii) Germination % tillering, weight, no. of mature stalks, sucrose % and yield. (iv) (a) 1952—1954. (b) No. (c) Nil. (v) (a) Nil. (b) Nil. (vi) and (vii) Nil.

5. RESULTS :

(i) 22.79 ton/ac.

(ii) 2.69 ton/ac.

(iii) V and T effects are highly significant, while interaction $V \times T$ is significant.

(iv) Av. yield of sugarcane in ton/ac.

	T_1	T_2	T_3	T_4	T_5	T_6	Mean
V_1	23.88	23.77	20.90	22.96	21.45	17.04	21.67
V_2	25.20	27.18	26.22	25.68	24.21	15.02	23.92
Mean	24.54	25.48	23.56	24.32	22.83	16.03	22.79

S.E. of marginal mean of V

=0.45 ton/ac.

S.E. of marginal mean of T

=0.78 ton/ac.

S.E. of body of table

=1.10 ton/ac.

Crop :- Sugarcane.

Ref :- Bh. 49(11).

Site :- C.S.R.S. Pusa.

Type :- 'CV'.

Object :- To find out the optimum spacing and no. of setts/ac. for different varieties of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Sugarcane. (c) N.A. (ii) (a) Medium loam. (b) N.A. (iii) 17th and 18th Jan. 1949. (iv) (a) 4 ploughings. (b) Row planting. (c) As per treatments. (d) As per treatments. (e) —. (v) G.N.C. 20 md. to the whole experiment. Time and method of application of manures N.A. (vi) As per treatments. (vii) Rainfed. (viii) Hoeing, weeding and earthing. (ix) 65.70° . (x) 26th and 28th Feb. 1950.

2. TREATMENTS :

All combinations of (1) and (2)

(1) 2 varieties : V_1 =CO. 453 and V_2 =BO. 11.

(2) No. of setts planted/ac. :

A. 15,000 (Normal single setts eye to eye).

B. 30,000 (Normal double setts eye to eye).

C. 15,000 ($1\frac{1}{2}'$ apart single setts eye to eye).D. 15,000 ($1\frac{1}{2}'$ apart double setts eye to eye).E. 5,000 ($1\frac{1}{2}'$ apart single setts eye to eye).F. 10,000 ($1\frac{1}{2}'$ apart double setts eye to eye).G. 15,000 ($1\frac{1}{2}'$ apart triple setts eye to eye).

3. DESIGN :

(i) 7×2 Fact. in R.B.D. (ii) (a) 14. (b) N.A. (iii) 4. (iv) (a) $60.5' \times 24'$. (b) $60.5' \times 18'$. (v) Rows of 3' on either side of width. (vi) Yes.

4. GENERAL :

- (i) N.A. (ii) Nil. (iii) Sugarcane yield, count of mature stalks and sucrose %. (iv) (a) No. (b) No. (c) Nil. (v) (a) Nons. (b) No. (vi) and (vii) Nil.

5. RESULTS :

- (i) 22.84 ton/ac.
 (ii) 2.634 ton/ac.
 (iii) Effects of variety and number of setts/row are highly significant, while interaction is not significant.
 (iv) Av. yield of sugarcane in ton/ac.

	A	B	C	D	E	F	G	Mean
V ₁	25.36	29.43	22.18	24.78	20.51	24.04	25.14	24.49
V ₂	21.80	24.24	21.30	24.27	13.61	20.72	22.36	21.19
Mean	23.58	26.84	21.74	24.53	17.06	22.38	23.75	22.84

S.E. of marginal mean of variety = 0.498 ton/ac.

S.E. of marginal mean of setts = 0.931 ton/ac.

S.E. of body of table = 1.317 ton/ac.

Crop :- Sugarcane.

Site :- C.S.R.S. Pusa.

Ref :- Bh. 50(16).

Type :- 'CV'.

Object :- To find out the optimum number of setts/ac. to get maximum yield.

1. BASAL CONDITIONS :

- (i) (a) Nil. (b) Sunnhemp. (c) Nil. (ii) (a) Loamy soil. (b) N.A. (iii) 24th and 25th Jan. 1950. (iv) (a) 4 ploughings. (b) Row planting. (c) As per treatments. (d) 3' between rows. (e) —. (v) G.M. ; G.N.C. at 1 seer and 12½ chh./row. (net plot has 6 rows). Time and method of application of manures N.A. (vi) As per treatments. (vii) Irrigated. (viii) Hoeing, earthing and weeding. (ix) 36.69°. (x) 9th and 10th March, 1951.

2. TREATMENTS :

All combinations of (1) and (2)

(1) 2 varieties : V₁=CO. 453 and V₂=BO. 11.

(2) No. of setts/ac.planted.

- A. 10,000 (42, three; budded setts/row).
 B. 15,000 (control 64, three ; budded setts/row).
 C. 20,000 (85, three ; budded setts/row).
 D. 25,000 (106, three ; budded setts/row).
 E. 30,000 (128, three ; budded setts/row).
 F. 35,000 (148, three ; budded setts/row).
 G. 40,000 (170, three ; budded setts/row).

3. DESIGN :

- (i) 7×2 Fact. in R.B.D. (ii) (a) 14. (b) N.A. (iii) 4. (iv) (a) 60.5'×24'. (b) 60.5'×18'. (v) Rows of 3' on either side of width. (vi) Yes.

4. GENERAL :

- (i) Good. (ii) N.A. (iii) Sugarcane yield, sucrose % and counting of mature stalk. (iv) (a) 1950—1951. (b) No. (c) Nil. (v) (a) None. (b) No. (vi) and (vii) Nil.

5. RESULTS :

- (i) 21.42 ton/ac.
 (ii) 1.377 ton/ac.
 (iii) Effects of variety and number of setts/ac. are highly significant, while interaction is not significant.

(iv) Av. yield of sugarcane in ton/ac.

	A	B	C	D	E	F	G	Mean
V ₁	19.26	22.95	23.09	22.14	22.24	23.86	21.91	22.21
V ₂	17.18	19.38	22.28	21.07	21.64	22.02	20.82	20.63
Mean	18.22	21.17	22.69	21.60	21.94	22.94	21.36	21.42

S.E. of marginal mean of varieties = 0.260 ton/ac.

S.E. of marginal mean of setts = 0.487 ton/ac.

S.E. of body of table = 0.689 ton/ac.

Crop :- Sugarcane.

Ref :- Bh. 51(19).

Site :- C.S.R.S. Pusa.

Type :- 'CV'.

Object .—To find out the optimum number of setts/ac. to obtain maximum yield.

1. BASAL CONDITIONS :

- (i) (a) Nil. (b) Sugarcane. (c) N.A. (ii) (a) Medium loam. (b) N.A. (iii) 28th & 29th January 1951.
 (iv) (a) 4 ploughings. (b) Row planting. (c) As per treatments. (d) 3 between rows. (e) —.
 (v) 60 lb./ac. of N. (vi) As per treatments. (vii) Irrigated. (viii) Weeding and earthing. (ix) 27.66%.
 (x) 4th week of Feb. 1952.

2. TREATMENTS :

All combinations of (1) & (2)

(1) 2 varieties : V₁=CO. 453 and V₂=BO. 11.

(2) No. of setts planted/ac :

- A. 10,000 (42, three budded setts/row).
 B. 15,000 (64, three budded setts/row).
 C. 20,000 (85, three budded setts/row).
 D. 25,000 (106, three budded setts/row).
 E. 30,000 (128, three budded setts/row).
 F. 35,000 (148, three budded setts/row).
 G. 40,000 (170, three budded setts/row).

3. DESIGN :

- (i) 7×2 Fact. in R.B.D. (ii) (a) 14. (b) N.A. (iii) 3. (iv) (a) 60.5'×24'. (b) 60.5'×18'. (v) Rows of 3' on each side of width. (vi) Yes.

4. GENERAL :

- (i) N.A. (ii) N.A. (iii) Cane yield, sucrose % and mature stalks counting. (iv) (a) 1950-1951. (b) No.
 (c) Nil. (v) (a) None. (b) Nil. (vi) & (vii) Nil.

5. RESULTS :

(i) 27.21 ton/ac.

(ii) 2.831 ton/ac.

(iii) Effects of Variety and Number of setts/row are highly significant. Interaction is significant.

(iv) Av. yield of sugarcane in ton/ac.

	A	B	C	D	E	F	G	Mean
V ₁	27.01	28.55	31.60	30.42	30.61	33.21	35.19	30.94
V ₂	21.32	20.48	27.89	21.73	23.41	25.07	24.41	23.47
Mean	24.16	24.52	29.75	26.08	27.01	29.14	29.80	27.21

S.E. of marginal mean of variety = 0.618 ton/ac.

S.E. of marginal mean of setts = 1.156 ton/ac.

S.E. body of the table = 1.635 ton/ac.

Crop :- Sugarcane.
Site :- C.S.R.S. Pusa.

Ref :- Bh. 53(148).
Type :- 'CV'.

Object :- To find out the best time of planting of Sugarcane.

1. BASAL CONDITIONS :

(i)(a) Sugarcane—Maize—Barley—*Sanai* (G.M.) (b) *Sanai*. (G.M.) (c) Nil. (ii) (a) Formally sandy loam in texture with normal to deep phase character. (b) Org. C is low, Org. N medium to low and having a variable C/N. Total phosphate is usually low and available phosphate extremely low. Soil reaction varies from alkaline to extremely alkaline. (iii) As per treatments. (iv) (a) Harrow, plough & mould board ploughing each followed by *Hinga*. (b) Furrow planting. (c) N.A. (d) 3' between rows. (e) N.A. (v) 60 lb./ac. of N as A/S+75 lb./ac. of P₂O₅ as Super applied by sub-soiling. (vi) As per treatments. (vii) Irrigated. (viii) Fortnightly intercultural operations after germination till the end of May. Earthing up in mid-June. (ix) 47.94%. (x) 3rd week of Feb. 1955.

2. TREATMENTS :

All combinations of (1) and (2)

(1) 2 varieties : V₁=BO. 11 and V₂=BO. 14.

(2) 5 dates of planting : T₁=Nov. 1953 ; T₂=Dec. 1953 ; T₃=Jan. 1954. T₄=Feb. 1954 and T₅=March, 1954.

3. DESIGN :

(i) 5×2 Fact. in R.B.D. (ii) (a) 10. (b) N.A. (iii) 6. (iv) (a) 60.5'×24'. (b) 60.5'×18'. (v) Two rows, one on either side along length (vi) Yes.

4. GENERAL :

(i) Good. Earlier plants were badly damaged by termites and no significant yield differences accrued out of the time of planting factor. (ii) Borer incidence noted. Dead hearts removed during the early period of the growth. For controlling termite infection, Aldrine was applied at planting and the other dose 3 months after. (iii) Germination, tillering, height, no. of mature stalk, sucrose % in cane and cane yield. (iv) (a) 1948-1954. (b) No. (c) Nil. (v) (a) No. (b) Nil. (vi) & (vii) Nil.

5. RESULTS :

(i) 22.737 ton/ac.

(ii) 5.497 ton/ac.

(iii) The effect of V alone is highly significant.

(iv) Av. yield of sugarcane in ton/ac.

	T ₁	T ₂	T ₃	T ₄	T ₅	Mean
V ₁	18.072	21.194	23.288	20.313	20.864	20.680
V ₂	23.105	27.806	24.721	24.464	23.729	24.757
Mean	20.607	24.500	23.802	22.370	22.296	22.737

S.E. of marginal mean of V =0.709 ton/ac.

S.E. of marginal mean of T =1.128 ton/ac.

S.E. of body of table =1.587 ton/ac.

Crop :- Sugarcane.
Site :- Sugarcane Sub-Stn. Patna.

Ref :- Bh. 52(4).
Type :- 'CMV'.

Object :- To Compare the different doses of N and P on different varieties with different depths of planting.

1. BASAL CONDITIONS :

(i)(a) *Sanai*-Sugarcane-Paddy-*Sanai*. (b) *Sanai*. (c) Nil. (ii)(a) Heavy clay. (b) N.A. (iii) 30.1.52 to 2.2.52. (iv) (a) Mould board ploughing followed by disc harrowing and then levelling. (b) As per treatments. (c) 64, three budded setts/row. (d) N.A. (e) —. (v) Nil. (vi) As per treatments. (vii) Irrigated. (viii) Hoeing & earthing. (ix) 35.42%. (x) 9.1.53 to 21.1.53.

2. TREATMENTS :

All combinations of (1), (2), (3) and (4)

- (1) 2 varieties : $V_1=CO. 453$ and $V_2=BO.11.$
- (2) 2 levels of N as Castor cake : $N_1=40$ and $N_2=80$ lb./ac.
- (3) 2 levels of P_2O_5 as Single Super : $P_1=50$ and $P_2=100$ lb./ac.
- (4) 2 depths of planting : $D_1=6''$ deep and $D_2=12''$ deep.

3. DESIGN :

(i) 2⁴ Fact. in R.B.D. (ii) (a) 16. (b) N.A. (iii) 4. (iv) (a) $60.5' \times 24'$. (b) $60.5' \times 18'$. (v) Rows of 3' on either side of the width. (vi) Yes.

4. GENERAL :

(i) Good ; no lodging, (ii) Nil. (iii) Cane yield. (iv) (a) 1950—1952. (b) No. (c) Nil. (v) (a) Pusa. (b) Nil. (vi) & (vii) Nil.

5. RESULTS :

- (i) 14.1 ton/ac.
- (ii) 3.348 ton/ac.
- (iii) Variety effect is highly significant. Interaction $V \times P \times D$ is also significant.
- (iv) Table of mean and differential response in ton/ac.

Differential response

	Mean response	V		N		P		D	
		v_1	v_2	n_1	n_2	p_1	p_2	d_1	d_2
V	-5.85	—	—	-7.0	-4.7	-6.1	-5.6	-6.4	-5.3
N	-0.60	-1.8	+0.6	—	—	-0.9	-0.3	-0.2	-1.0
P	-0.10	-0.4	+0.2	-0.4	+0.2	—	—	-1.6	+1.4
D	+0.10	-0.4	+0.6	+0.5	-0.3	-1.4	+1.6	—	—
S.E.	0.837 ton/ac.	1.184 ton/ac.							

Crop :- Sugarcane.

Site :- Sugarcane Sub-Stn., Patna.

Ref :- Bh. 51(4).

Type :- 'CMV'.

Object :- To compare the application of different doses of N and P on different varieties planted at different depths.

1. BASAL CONDITIONS :

(i) (a) None. (b) N.A. (c) N.A. (ii) (a) Clay. (b) N.A. (iii) 25 to 28.2.51. (iv) (a) 4 ploughings. (b) Line planting ; as per treatment (c) 64, three budded setts/row or about 15000 three budded setts/ac. (d) Rows 2' apart (e)— (v) N.A. (vi) As per treatments. (vii) Irrigated. (viii) Hoeing and earthing. (ix) 30.47". (x) N.A.

2. TREATMENTS :

All combinations of (1), (2), (3) and (4)

- (1) 2 varieties : $V_1=CO. 453$ and $V_2=BO. 11.$
- (2) 2 levels of N as Castor cake : $N_1=40$ and $N_2=80$ lb./ac.
- (3) 2 levels of P_2O_5 as Triple Super : $P_1=50$ and $P_2=100$ lb./ac.
- (4) 2 depths of planting : $D_1=6''$ deep and $D_2=12''$ deep.

3. DESIGN :

(i) 2⁴ Fact. in R.B.D. (ii) (a) 16. (b) N.A. (iii) 4. (iv) (a) $60.5' \times 24'$. (b) $60.5' \times 18'$. (v) Rows of 3' on either side of width (vi) Yes.

4. GENERAL :

(i) Satisfactory. (ii) Nil. (iii) Cane yield. (iv) (a) 1950—1952. (b) No. (c) Nil (v) (a) Pusa. (b) No (vi) Nil. (vii) Experiment conducted in 1950 not traceable.

5. RESULTS :

- (i) 13.78 ton/ac.
- (ii) 2.91 ton/ac.
- (iii) Only variety effect is highly significant.
- (iv) Table of mean and differential response in ton/ac.

Differential response

	Mean response	V		N		P		D	
		v ₁	v ₂	n ₁	n ₂	p ₁	p ₂	d ₁	d ₂
V	-4.97	—	—	-5.10	-4.84	-6.19	-3.75	-4.40	-5.54
N	-0.42	-0.55	-0.29	—	—	-0.55	-0.29	-1.07	+0.22
P	+0.39	-0.83	+1.61	+0.26	+0.52	—	—	-0.66	+1.44
D	-.68	-0.11	-1.25	-1.33	-0.04	-1.73	+0.37	—	—
S.E.	0.727 ton/ac.	1.028 ton/ac.							

Crop :- Sugarcane.

Ref :- Bh. 52(111).

Site :- C.S.R.S. Pusa.

Type :- 'TV'.

Object :- To study the influence of irrigation and varieties on growth, yield and juice quality of Sugarcane.

1. BASAL CONDITIONS :

- (i) (a) *Sanai-Sugarcane-Sanai*. (b) *Sanai*. (c) Nil. (ii) (a) Sandy loam to silty loam. (b) N.A. (iii) 25.2.53 & 26.2.53. (iv) (a) Harrow once and mould board ploughing each followed by Hinga. Again disking followed by sub-soiling. (b) Furrow planting, end to end planting. (c) N.A. (d) 3' apart. (e)-(v) 40 lb/ac. of N+50 lb/ac. of P₂O₅ as Castor cake and Single Super respectively. (vi) As per treatments. (vii) Irrigated. (viii) Fortnightly intercultural operations after germination till the end of May. Earthing up in mid-June. (ix) N.A. (x) First week of January, 1954.

2. TREATMENTS :

Main-plot treatments :-

2 varieties : V₁=BO. 11(early) and V₂=CO. 453(early).

Sub-plot treatments :-

4 irrigations : I₀=No irrigation, I₁=irrigation every week, I₂=irrigation every 14 days and I₃=irrigation every 21 days.

3. DESIGN :

- (i) Split plot. (ii) (a) 2 main-plots/block & 4 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) 60.5' x 24'. (b) 60.5' x 12'. (v) Two rows of non-experimental, one on either side of the plot (vi) Yes.

4. GENERAL :

- (i) N.A. (ii) N.A. (iii) Cane yield. (iv) (a) No. (b) & (c) Nil. (v) (a) Nil. (b) No. (vi) & (vii) Nil.

5. RESULTS :

- (i) 24.38 ton/ac.
- (ii) (a) 3.97 ton/ac.
- (b) 1.28 ton/ac.
- (iii) Irrigation effect is highly significant.

(iv) Av. yield of sugarcane in ton/ac.

	I ₀	I ₁	I ₂	I ₃	Mean
V ₁	24.30	25.80	24.99	25.72	25.20
V ₂	21.15	23.78	22.97	26.30	23.55
Mean	22.73	24.79	23.98	26.01	24.38

S.E. of difference of two

V marginal means	=1.39 ton/ac.
I marginal means	=0.64 ton/ac.
I means at the same level of V	=0.90 ton/ac.
V means at the same level of I	=1.61 ton/ac.

Crop :- Sugarcane.

Ref :- Bh.49 (4).

Site :- Sugarcane Sub-Stn. Patna.

Type :- 'IMV.

Object :- To find out the best combination of N and irrigation on the yield of two different varieties of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) *Sanai-Sugarcane-Sanai*. (b) *Sanai*. (c) Nil. (ii) (a) Clay. (b) N.A. (iii) 29th to 31st Jan. 1949
 (iv) (a) to (e) N.A. (v) Nil. (vi) As per treatments. (vii) Irrigated. (viii) Weeding, earthing and hoeing. (ix) 69.88". (x) 13.2.50. to 28.2.50.

2. TREATMENTS :

All combinations of (1) & (2)

(1) 2 varieties : V₁=CO. 453(late) and V₂=BO. 11(early).(2) 2 levels of N : N₁=40 lb/ac. and N₂=80 lb/ac. of N.(3) 3 intervals of irrigation : I₁=at interval of 15 days, I₂=at interval of 21 days and I₃=at interval of 30 days.

3. DESIGN :

(i) 3×2×2 Fact. [in R.B.D. (ii) (a) 12. (b) N.A. (iii) 6. (iv) (a) 21'×62.5'. (b) 15'×62.5'. (v) 3' on each side of width. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Borer, white fly, scale insect, removal of dead hearts and borer & spraying of insecticides. (iii) Yield of cane. (iv) (a) 1948—1950. (b) No. (c) Nil. (v) (a) Pusa. (b) Nil. (vi) & (vii) Nil.

5. RESULTS :

(i) 14.58 ton/ac.

(ii) 2.16 ton/ac.

(iii) Effect of V and interaction V×N×I are highly significant. Interaction N×I is significant, while no other effect is significant.

(iv) Av. yield of sugarcane in ton/ac.

	I ₁	I ₂	I ₃	Mean	N ₁	N ₂
V ₁	18.71	17.72	19.45	18.63	18.39	18.87
V ₂	10.38	11.12	10.12	10.54	10.33	10.75
Mean	14.55	14.42	14.78	14.58	14.36	14.81
N ₁	14.76	13.26	15.06	14.36		
N ₂	14.34	15.59	14.50	14.81		

S.E. of the marginal mean of V or N =0.36 ton/ac.

S.E. of the marginal mean of I =0.44 ton/ac.

S.E. of body of table I×(V or N) =0.62 ton/ac.

S.E. of body of table V×N =0.51 ton/ac.

Crop :- Sugarcane.
Site :- Sugarcane Sub-Stn., Patna.

Ref :- Bh. 50 (1).
Type :- 'IMV'.

Object :- To find out the best combination of N and irrigation on the yield of two different varieties.

1. BASAL CONDITIONS :

(i) (a) Paddy—sugarcane—paddy. (b) Paddy. (c) N.A. (ii) (a) Clay (b) N.A. (iii) 20—26.1.50. (iv) (a) to (e) N.A. (v) None. (vi) As per treatments. (vii) Irrigated. (viii) Weeding and earthing. (ix) 40.02". (x) 3.2.51 to 8.3.51.

2. TREATMENTS :

All combinations of (1), (2) and (3)

(1) 2 varieties : $V_1=CO. 453$ (late) and $V_2=BO. 11$ (early).

(2) 2 levels of N : $N_1=40$ lb./ac. and $N_2=80$ lb./ac. of N.

(3) 3 intervals of irrigation : $I_1=$ at interval of 15 days ; $I_2=$ at interval of 21 days ; and $I_3=$ at interval of 30 days.

3. DESIGN :

(i) $2 \times 2 \times 3$ Fact. in R.B.D. (ii) (a) 12. (b) N.A. (iii) 6. (iv) (a) $21' \times 72.5'$. (b) $15' \times 72.5'$ (v) Rows of 3' on each side of width. (vi) Yes.

4. GENERAL :

(i) Average. (ii) None. (iii) Cane yield. (iv) (a) Yes, 1948—1950. (b) No. (c) Nil. (v) (a) Pusa. (b) Nil. (vi) and (vii) Nil.

5. RESULTS :

(i) 7.09 ton/ac.

(ii) 1.20 ton/ac.

(iii) Varieties effect is highly significant. No other effect is significant.

(iv) Av. yield of sugarcane in ton/ac.

	I_1	I_2	I_3	Mean	N_1	N_2
V_1	10.16	11.31	10.19	10.52	10.58	10.46
V_2	4.00	3.18	3.81	3.66	3.56	3.76
Mean	7.08	7.24	6.95	7.09	7.07	7.11
N_1	7.28	7.27	6.66	7.07		
N_2	6.88	7.21	7.24	7.11		

S.E. of marginal mean of V or N = 0.20 ton/ac.

S.E. of marginal mean of I = 0.25 ton/ac.

S.E. of body of table $I \times (V \text{ or } N)$ = 0.35 ton/ac.

S.E. of body of table $V \times N$ = 0.28 ton/ac.

Crop :- Sugarcane.
Site :- Zonal Centre, Motihari.

Ref :- Bh. 49 (30).
Type :- 'CIM'.

Object :- To find out the optimum spacing in combination with N and irrigation.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) *Sanai*. (c) 50 lb./ac. of P_2O_5 as Single Super. (ii) (a) Alluvial calcareous. (b) N.A. (iii) 8/9.10.1949. (iv) (a) One ploughing for burying *Sanai*, followed by 4 ploughings and beaming. (b) Flat planting. (c) 34, three budded setts/row. (d) Rows 3' 50 part as per treatment. (e) —. (v) *Sanai* as G.M.+F.Y.M. at 10 C.L./ac. (vi) CO. 453. (vii) Irrigated. (viii) Hoeing, weeding and earthing. (ix) 56 35" (x) 10th to 12th March 1950.

2. TREATMENTS:**Main-plot treatments:**

3 irrigations : $I_1=2$ irrigations each after 21 days ; $I_2=4$ irrigations each after 14 days and $I_3=6$ irrigations each after 21 days.

Sub-plot treatments:

All combinations of (1) and (2)

(1) 3 spacings : $S_1=3'$, $S_2=4'$ and $S_3=5'$.

(2) 3 levels of N as Castor cake : $N_1=80$ lb./ac. ; $N_2=120$ lb./ac. and $N_3=160$ lb./ac.

3. DESIGN:

(i) Split plot (ii) (a) 3 main-plots/black 9 ; sub-plots/main-plot. (b) N.A. (iii) 2. (iv) (a) $44' \times 40'$. (b) $44' \times 40'$. (v) Nil. (vi) Yes.

4. GENERAL:

(v) (i) N.A. (ii) Nil. (iii) No. of mature stalks, sucrose%, and sugarcane yield. (iv) (a) No. (b) Nil. (c) N.A. (a) None. (b) No. (vi) and (vii) Nil.

5. RESULTS:

- (i) 39.51 ton/ac.
 (ii) (a) 2.84 ton/ac.
 (b) 2.20 ton/ac.
 (iii) None of the effects is significant.
 (iv) Av. yield of sugarcane in ton/ac.

	N_1	N_2	N_3	Mean	I_1	I_2	I_3
S_1	42.15	39.28	45.20	42.21	43.74	41.18	71.72
S_2	36.23	38.80	45.32	40.12	43.19	39.47	37.70
S_3	38.43	36.30	33.85	36.19	40.20	33.18	35.20
Mean	38.94	33.13	41.46	39.51			
I_1	43.74	38.86	44.53	42.38			
I_2	34.34	40.81	38.67	37.94			
I_3	38.74	34.71	41.18	38.21			

S.E. of the marginal mean of S or N = 0.52 ton/ac.
 S.E. of body of table $S \times N$ = 0.90 ton/ac.
 S.E. of the difference of two I means = 0.95 ton/ac.
 S.E. of the difference of two S or N means at the same level of I = 1.27 ton/ac.
 S.E. of the difference of two I means at the same level of S or N = 1.404 ton/ac.

Crop :- Sugarcane.

Site :- Zonal Centre, Harinagar.

Ref. :- Bh. 50(36)

Type :- 'CIM'.

Object :- To find out the optimum dose of N in combination with irrigation and spacing on the yield of Sugarcane.

1. BASAL CONDITIONS:

(i) (a) G.M.-Sugarcane-G.M. (b) G.M. (c) Nil. (ii) Sandy loam. (b) N.A. (iii) 3.2.50. (iv) (a) 4 ploughings. (b) Flat planting. (c) 28, three budded setts/row. (d) Row spacing as per treatment. (e) —. (v) Castor cake at 78 md./ac. and Single Super at 22 md./ac. $\frac{1}{2}$ at planting and $\frac{1}{2}$ at earthing. (vi) CO. 453. (vii) Unirrigated. (viii) Nil. (ix) 48.85°. (x) 15/16.2.51.

2. TREATMENTS:**Main-plot treatments:—**

3 spacings : $S_1=3'$, $S_2=4'$, and $S_3=5'$.

Sub-plot treatments:—

3 levels of N as A/S : $N_1=80$ lb., $N_2=120$ lb. and $N_3=160$ lb./ac.

3. DESIGN :

(i) Split plot. (iii) 3 main-plots/block ; 3 sub-plots/main-plot. (b) N.A. (iii) 6. (iv) 24'×72' for S₁ ; 24'×76' for S₂ and 24'×80' for S₃. (b) 24'×60' (v) Two outer rows on either side of breadth. (vi) Yes.

4. GENERAL :

(i) Average. (ii) Nil. (iii) No. of mature stalks, sucrose % and cane yield. (iv) 1950-51, repeated in 1952. (b) No. (c) Nil. (v) (a) None. (b) No. (vi) Nil. (vii) Experiment planned with irrigation as one factor of main-plot treatments but irrigation could not be given at all. Experiment conducted during 1952 not traceable.

5. RESULTS :

- (i) 15.32 ton/ac.
 (ii) (a) 1.32 ton/ac.
 (b) 1.37 ton/ac.
 (iii) None of the effects is significant.
 (iv) Av. yield of sugarcane in ton/ac.

	N ₁	N ₂	N ₃	Mean.
S ₁	16.93	18.97	17.79	17.90
S ₂	13.90	14.02	17.88	15.27
S ₃	14.13	14.47	9.76	12.79
Mean.	14.99	15.82	15.14	15.32

S.E. of difference of two

S means	=0.44 ton/ac.
N means	=0.46 ton/ac.
N means at the same level of S	=0.79 ton/ac.
S means at the same level of N	=0.78 ton/ac.

Crop :- Sugarcane.

Site :- Sugarcane Sub-Stn., Patna.

Ref :- Bh. 51(1).

Type :- 'CIM'.

Object :- To study the effect of manures, irrigation and spacing.

1. BASAL CONDITIONS :

(i) Nil. (a) N.A. (c) N.A. (ii) (a) Clay. (b) N.A. (iii) 18 to 20.2.51. (iv) (a) to (e). (v) Nil. (vi) BO. 11 (late). (vii) Irrigated. (viii) Earthing. (ix) 30.47". (x) N.A.

2. TREATMENTS :

Main-plot treatments :-

3 irrigations : I₁=irrigation after every 10 days, I₂=irrigation after every 20 days and I₃=irrigation after every 30 days.

Sub-plot treatments :-

All combinations of (1) and (2).

(1) 3 spacings : S₁=3', S₂=4' and S₃=5'.

(2) 3 levels of N as A/S : N₀=0 lb., N₁=60 lb. and N₂=120 lb./ac.

3. DESIGN :

(i) Split plot. (ii) (a) 3 main-plots/block ; 2 sub-plots/main-plot. (b) N.A. (ii) 2. (iv) (a) 66'×24' (b) 60'×24' (v) Two rows one each on either side of length. (vi) Yes.

4. GENERAL :

(i) Satisfactory. (ii) None. (iii) Cane yield. (iv) 1951-1953. (b) No. (c) Nil. (v) (a) None. (b) No. (vi) and (vii) Nil.

5. RESULTS :

- (i) 11.44 ton/ac.
 (ii) (a) 3.791 ton/ac.
 (b) 2.256 ton/ac.
 (iii) Main effects of I, N and S are significant.

(iv) Av. yield of sugarcane in ton/ac.

	N ₀	N ₁	N ₂	Mean	I ₁	I ₂	I ₃
S ₀	9.88	14.78	13.49	12.72	11.06	14.97	12.13
S ₁	9.81	13.01	10.82	11.21	9.48	13.31	10.85
S ₂	9.00	11.09	11.10	10.39	8.26	13.18	9.74
Mean	9.56	12.96	11.81	11.44			
I ₁	7.67	11.04	10.09	9.60			
I ₂	10.83	15.87	14.77	13.82			
I ₃	10.19	11.97	10.56	10.91			

S.E. of the marginal mean of S or N	=0.53 ton/ac.
S.E. of body of table S×N	=0.92 ton/ac.
S.E. of difference of two	
I marginal means	=1.264 ton/ac.
S or N means at the same level of I	=1.30 ton/ac.
I means at the same level of S or N	=1.94 ton/ac.

Crop :- Sugarcane.

Ref :- Bh. 52(5).

Site :- Sugarcane Sub-Stn. Patna.

Type :- 'CIM'.

Object :— To study the effect of manures, irrigation and spacing.

1. BASAL CONDITIONS :

(i) (a) *Sanai-Sugarcane-Paddy-Sanai*. (b) *Sanai*. (c) Nil. (ii) (a) Heavy clay. (b) N.A. (iii) 21.1.52 to 23.1.52. (iv) (a) Mould board ploughing, followed by disc harrowing and then levelling. (b) N.A. (c) 28 three budded setts/row. (d) N.A. (e) — (v) Nil. (vi) BO. 11 (early). (vii) Irrigated. (viii) After every irrigation one interculture. (ix) 3.5.42". (x) 22.2.53 to 25.2.53.

2. TREATMENTS :

Main-plot treatments :—

3 Irrigations : I₁=irrigation after every 10 days, I₂=irrigation after every 20 days and I₃=irrigation after every 30 days.

Sub-plot treatments :—

All combinations of (1) and (2).

(1) 3 spacings : S₁=3', S₂=4' and S₃=5'.(2) 3 levels of N as A/S : N₀=0 lb. N₁=60 lb and N₂=120 lb./ac.

3. DESIGN :

(i) Split-plot. (ii) (a) 3 main-plots/block ; 9 sub-plots/main-plot. (b) N.A. (iii) 2. (iv) (a) For different spacings 66'×24', 68'×24', 70'×24'. (b) 60'×24'. (v) N.A. (vi) Yes.

4. GENERAL :

(i) Good, no lodging. (ii) Nil. (iii) Germination %, borer%, no. of mature stalks and cane yield at harvest 953. (b) No. (c) Nil. (v) (a) Nil. (b) Nil. (vi) & (vii) Nil. (iv) (a) Yes. 1951—

5. RESULTS :

(i) 11.92 ton/ac.

(ii) (a) 3.531 ton/ac.

(b) 2.354 ton/ac.

(iii) Spacing effect is highly significant. I and N effects and interactions N×I and N×S are significant.

(iv) Av. yield of sugarcane in ton/ac.

	N ₀	N ₁	N ₂	Mean	I ₁	I ₂	I ₃
S ₁	14.22	13.74	11.70	13.22	15.94	12.52	11.21
S ₂	10.35	12.16	12.54	11.68	11.30	12.23	11.52
S ₃	10.75	11.19	10.66	10.87	11.25	11.78	9.58
Mean	11.77	12.36	11.63	11.92			
P ₁	11.73	14.39	12.37	12.83			
P ₂	12.95	12.08	11.50	12.18			
P ₃	10.64	10.62	11.04	10.77			

S.E. of marginal mean of S or N = 0.55 ton/ac.
 S.E. of body of table S × N = 0.96 ton/ac.
 S.E. of difference of two
 I marginal means = 1.18 ton/ac.
 I means at the same level of S or N = 1.36 ton/ac.
 S or N means at the same level of I = 1.62 ton/ac.

Crop :- Sugarcane.

Site :- Sugarcane Res. Sub-Stn., Patna.

Ref :- Bh. 53(53).

Type :- 'CIM'.

Object :- To study the effect of manures, irrigation and spacing.

1. BASAL CONDITIONS :

(i) (a) Sugar-Sanai-Paddy. (b) Paddy. (c) 40 lb/ac. of N + 60 lb/ac. of P₂O₅. (ii) (a) Clay. (b) Nil. (iii) 10.1.53 to 14.1.53. (iv) (a) Mould board ploughing, followed by disc harrowing and then levelling (c) 28, three-budded setts/row. As per treatments. (e) — (v) Nil. (vi) BO. 11 (Early). (vii) irrigated. (viii) After every irrigation one interculture and then horse hoeing. (ix) 61.02". (x) 17.1.54.

2. TREATMENTS :

Main-plot treatments :-

3 Irrigations : I₁=irrigation after every 10 days, I₂=irrigation after every 20 days and I₃=irrigation after every 30 days.

Sub-plot treatments :-

All combinations of (1) & (2)

(1) 3 spacings : S₁=3', S₂=4' and S₃=5'.(2) 3 levels of N as A/S : N₀=0 N₁=60 and N₂=120 lb./ac.

3. DESIGN :

(i) Split plot (ii) (a) 3 main-plots/block ; 9 sub-plots/main-plot. (b) N.A. (iii) 2. (iv) (a) 66' × 24', 70' × 24' for 3', 4', 5' spacing respectively (b) 60' × 24'. (v) One row on each side of length (vi) Yes.

4. GENERAL :

(i) Good-no lodging. (ii) Nil. (iii) Germination%, sucrose%, no. of mature stalks, yield at harvest, no. of tillers per row and borer % (iv) (a) 1951-1953. (b) No. (c) Nil. (v) (a) & (b) N.A. (v) & (vii) Nil.

5. RESULTS :

(i) 4.92 ton/ac.

(ii) (a) 0.187 ton/ac.

(b) 1.553 ton/ac.

(ii) None of the effects is significant.

(iv) Av. yield of sugarcane in ton/ac.

	N ₀	N ₁	N ₂	Mean	I ₁	I ₂	I ₃
S ₁	5.36	5.32	5.36	5.35	5.58	4.65	5.81
S ₂	5.20	5.01	5.46	5.22	5.03	5.38	5.26
S ₃	3.86	4.56	4.15	4.19	4.24	4.53	3.80
Mean	4.81	4.96	4.99	4.92			
I ₁	4.62	5.10	5.13	4.95			
I ₂	4.37	4.86	5.32	4.85			
I ₃	5.44	4.92	4.51	4.96			

S.E. of marginal mean of S or N	=0.366 ton/ac.
S.E. of body of table S×N	=0.634 ton/ac.
S.E. of difference of two	
I marginal means	=0.062 ton/ac.
S or N means at the same level of I	=0.897 ton/ac.
I means at the same level of S or N	=0.735 ton/ac.

Crop :- Sugarcane.

Ref :- Bh. 53(54).

Site :- Sugarcane Sub-Stn., Patna.

Type :- 'CIM'.

Object :- To study the differential response to time of planting and irrigation in combination with manure.

1. BASAL CONDITIONS :

(i) (a) *Sanai*—Sugarcane—*Sanai*. (b) *Sanai*. (c) Nil. (ii) (a) Clay. (b) N.A. (iii) February, 1953.
 (iv) (a) Mould board ploughing followed by disc harrowing and then levelling. (b) N.A. (c) 64, three
 budded setts/row. (d) N.A. (e) —. (v) Nil. (vi) CO. 453 (Medium). (vii) Irrigated. (viii) Inter-
 culture after each irrigation and then horse-hoeing. (ix) 60.83". (x) 13.1.54 to 16.1.54 and 20.1.54 to
 23.1.54.

2. TREATMENTS :

Treatments in one direction :-

3 Irrigations : I₁=10 days, I₂=20 days and I₃=30 days.

Treatments in orthogonal direction :-

3 times of planting : T₁=30, 31.12.52, T₂=25, 26.1.53 and T₃=23, 24.2.53.3 levels of N : N₀=0, N₁=60 and N₂=120 lb./ac.

Details of application of N not available.

3. DESIGN :

(i) Strip-plot. (ii) (a) 3 strips in one direction, 3 strips in an orthogonal direction. (b) N.A. (iii) 4. (iv)
 (a) 60.5'×24'. (b) 60.5'×18' (v) 3' wide on each side of length. (vi) Yes.

4. GENERAL :

(i) Good. No lodging. (ii) Nil. (iii) Germination %, sucrose %, no. of mature stalks, yield at har-
 vest, borer % and no. of tillers per row. (iv) (a) 1953-1954. (b) No. (c) Nil. (v) (a) N.A. (b) N.A.
 (vi) Nil. (vii) Results taken as available in the records.

5. RESULTS :

(i) 16.34 ton/ac.
 (ii) (I) 6.886 ton/ac.
 (T) 6.524 ton/ac.
 (I×T) 3.509 ton/ac.
 (iii) Manures alone are significantly different.

(iv) Av. yield of sugarcane in ton/ac.

	N ₀	N ₁	N ₂	Mean	T ₁	T ₂	T ₃
I ₁	14.98	14.95	18.48	16.14	18.55	14.71	15.15
I ₂	14.03	16.39	17.85	16.09	17.45	14.95	15.85
I ₃	14.32	17.91	18.16	16.80	17.96	16.96	15.46
Mean	14.44	16.42	18.16	16.34			
T ₁	15.63	18.69	19.65	17.99			
T ₂	13.12	15.39	18.12	15.54			
T ₃	14.58	15.16	16.73	15.49			

S.E. of the difference of two I means = 1.62 ton/ac.
 S.E. of the difference of two T means = 1.54 ton/ac.
 S.E. of the difference of two N means = 0.827 ton/ac.

Crop :- Sugarcane.

Ref :- Bh. 50(11).

Site :- C.S.R.S. Pusa.

Type :- 'CIM'.

Object :- To find out the optimum doses of N in combination with irrigation and spacing on sugarcane yield.

1. BASAL CONDITIONS :

(i) (a) None. (b) Sunnhemp. (c) Nil. (ii) (a) Light sandy loam soil. (b) N.A. (iii) 1st and 2nd Feb. 1950. (iv) (a) 4 ploughings. (b) Row planting. (c) 64, three budded setts/row. (d) As per treatments. (e) —. (v) G.M. other details N.A. (vi) CO. 453. (vii) Irrigated. (viii) Earthing and hoeing. (ix) 38.63". (x) 6.3.1951.

2. TREATMENTS :

All combinations of (1), (2) and (3)

(1) 3 row spacings : S₁=3', S₂=4' and S₃=5'.

(2) 3 levels of N as A/S : N₁=80, N₂=120 and N₃=160 lb./ac.

(3) 3 irrigations : I₁=2 irrigations each after 21 days, I₂=4 irrigations each after 14 days and I₃=6 irrigations each after 7 days.

3. DESIGN :

(i) 3³ Fact. Confd. (ii) (a) 3 blocks/replication, 9 plots block. (b) N.A. (iii) 2. (iv) (a) For S₁ : 1/27.5 ac., for S₂ : 1/26.7 ac. and for S₃ : 1/25.9 ac. (b) 1/30th ac. (v) Yes, 1½' wide. (vi) Yes.

4. GENERAL :

(i) N.A. (ii) N.A. (iii) Cane yield, sucrose %, and count of mature stalks. (iv) (a) 1948-1954. (b) Yes. (c) No. (v) (a) Harinagar, Parsa, Majhulia, Pachrukhi and Narkatiaganj. (b) Nil. (vi) Nil. (vii) Row data etc. for experiments conducted during 1948 and 1949 N.A.

5. RESULTS :

(i) 22.72 ton/ac.

(ii) 0.51 ton/ac.

(iii) N effect and interactions N×S, S×I, N×I and N×S×I are highly significant while effects due to spacing and irrigation are not significant.

(iv) Av. yield of sugarcane in ton/ac.

	N ₁	N ₂	N ₃	Mean	I ₁	I ₂	I ₃
S ₁	19.90	25.18	31.64	25.58	26.68	22.69	27.36
S ₂	22.60	26.98	25.33	24.97	22.82	27.69	24.13
S ₃	16.60	18.10	18.07	17.61	18.61	18.74	15.50
Mean	19.72	23.42	25.01	22.72			
I ₁	21.28	23.80	23.02	22.70			
I ₂	19.33	21.42	28.63	23.13			
I ₃	18.56	25.04	23.39	22.33			

S.E. of any marginal mean =0.12 ton/ac.

S.E. of body of table =0.21 ton/ac.

Crop :-Sugarcane.

Site :-C.S.R.S. Pusa.

Ref :-Bh. 51(24).

Type :-'CIM'.

Object :—To find out the optimum dose of N in combination with irrigation and spacing on sugarcane yield.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Sugarcane. (c) N.A. (ii) (a) Medium loam. (b) N.A. (iii) 3rd to 6th Feb. 1951. (iv) (a) 4 ploughings. (b) Row planting. (c) 28, three-budded setts/row. (d) As per treatments. (e) —. (v) Nil. (vi) CO. 453. (vii) Irrigated. (viii) Weeding and earthing. (ix) 27.60". (x) 3rd week of Jan. 1952.

2. TREATMENTS :

All combinations of (1), (2) and (3)

(1) 3 row spacings : S₁=3', S₂=4' and S₃=5'.(2) 3 levels of N as A/S : N₁=30, N₂=120 and N₃=160 lb./ac.(3) 3 Irrigations : I₁=2 irrigations each after 21 days, I₂=4 irrigations each after 14 days, and I₃=6 irrigations each after 7 days.**3. DESIGN :**

(i) 3³ Fact. Confd. (ii) (a) 3 blocks/replication ; 9 plots/block. (b) N.A. (iii) 2. (iv) (a) 66'×24' for S₁, 68'×24' for S₂, and 70'×24' for S₃. (b) 60'×24' (v) One row on either side of length (vi) Yes.

4. GENERAL :

(i) N.A. (ii) N.A. (iii) Sugarcane yield, sucrose % and counting of mature stalks. (iv) (a) 1948—1954. (b) No. (c) Nil. (v) (a) None. (b) No. (vi) and (vii) Nil.

5. RESULTS :

(i) 38.14 ton/ac.

(ii) 3.60 ton/ac.

(iii) Main effects of N and S are highly significant. Interaction N×I is highly significant. Interaction N×S is significant while 2nd order interactions are not significant.

(iv) Av. yield of sugarcane in ton/ac.

	N ₁	N ₂	N ₃	Mean	I ₁	I ₂	I ₃
S ₁	40.31	36.15	44.76	40.41	39.10	39.69	42.43
S ₂	34.92	37.02	39.56	37.17	34.67	38.05	38.78
S ₃	36.10	35.36	39.04	36.83	35.21	36.60	38.69
Mean	37.11	36.18	41.12	38.14	36.33	38.11	39.97
I ₁	37.43	31.18	40.38	36.33			
I ₂	35.88	37.17	41.29	38.11			
I ₃	38.02	40.18	41.70	39.97			

S.E. of any marginal mean = 0.85 ton/ac.

S.E. of body of table = 1.47 ton/ac.

Crop :- Sugarcane.

Site :- C.S.R.S. Pusa.

Ref :- Bh. 52(40).

Type :- 'CIM'.

Object :- To find out the optimum dose of N in combination with irrigation and spacing on Sugarcane yield

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Sugarcane. (c) N.A. (ii) (a) Light loam. (b) N.A. (iii) 22.1.1952. (iv) (a) 4 bullock ploughings. (b) Row planting. (c) 28, three-budded setts/row. (d) Row to row 3' (e) —. (v) N.A. (vi) CO. 453 (late). (vii) Irrigated. (viii) Hoeing, earthing and weeding. (ix) 47.71". (x) 1.1.53 to 6.1.53.

2. TREATMENTS :

Main-plot treatments :-

3 Irrigations : I₁=2 irrigations at 21 days interval, I₂=4 irrigations at 14 days interval and I₃=6 irrigations at 7 days interval.

Sub-plot treatments :-

All combinations of (1) and (2)

(1) 3 levels of N : N₁=80, N₂=120 and N₃=160 lb./ac.(2) 3 spacings : S₁=3', S₂=4' and S₃=5'.

3. DESIGN :

(i) Split plot. (ii) (a) 3 main-plots/block ; 9 sub-plots/main-plot. (b) N.A. (iii) 2. (iv) (a) 66'×24' for S₁, 68'×24' for S₂ and 70'×24' for S₃. (b) 60'×24' (v) One row on either side of length. (vi) Yes.

4. GENERAL :

(i) Good. (ii) No. (iii) Sugarcane yield, sucrose% and no. of mature stalks. (iv) (a) 1948—1954. (b) No. (c) Nil. (v) (a) and (b) Nil. (vi) and (vii) Nil.

5. RESULTS :

(i) 17.82 ton/ac.

(ii) (a) 3.237 ton/ac.

(b) 4.716 ton/ac.

(iii) None of the effects is significant.

(iv) Av. yield of Sugarcane in ton/ac.

	N ₁	N ₂	N ₃	Mean	I ₁	I ₂	I ₃
S ₁	17.79	19.96	19.12	18.95	18.83	19.12	18.90
S ₂	15.85	15.31	14.17	15.11	15.23	13.26	16.83
S ₃	19.81	18.58	19.84	19.41	18.45	19.08	20.70
Mean	17.82	17.95	19.84	17.82			
I ₁	16.13	18.56	17.82	17.50			
I ₂	17.11	18.10	16.25	17.15			
I ₃	20.21	17.18	19.05	18.81			

S.E. of the marginal mean of S or N	= 1.11 ton/ac.
S.E. of body of table S × N	= 1.93 ton/ac.
S.E. of difference of two	
(1) I means	= 1.079 ton/ac.
(2) S or N means at the same level of I	= 2.723 ton/ac.
(3) I means at the same level of S or N	= 2.471 ton/ac.

Crop :- Sugarcane.

Ref :- Bh. 53(110).

Site :- C.S.R.S. Pusa.

Type :- 'CIM'.

Object :- To find out the optimum dose of N in combination with irrigation and spacing on yield of sugarcane.

1. BASAL CONDITIONS :

(i) (a) Sugarcane-*Sanai*-(G.M.)-Wheat-*Mung*(G.M.). (b) *Mung* (G.M.). (c) Nil. (ii) (a) Sandy loam to silty loam. (b) N.A. (iii) 5.2.1953. (iv) (a) Harrow once and mould board ploughing each followed by Hinga. Again discing followed by subsoiling. (b) End to end planting. (c) 28, three-budded setts/row. (d) 3' apart. (e)-(v) Nil. (vi) CO. 453(Mid-season). (vii) Irrigated. (viii) Fortnightly intercultural operations after germination till the end of May, earthing up in mid-June. (ix) 46.33". (x) 2nd week of February, 1954.

2. TREATMENTS :

Main-plot treatments :-

3 Irrigations : I₁=2 irrigations each after 21 days, I₂=4 irrigations each after 14 days and I₃=6 irrigations each after 21 days.

Sub-plot treatments :-

All combinations of (1) & (2)

(1) 3 spacings : S₁=3', S₂=4' and S₃=5'.(2) 3 levels of N as A/S : N₁=80, N₂=120 and N₃=160 lb./ac.

3. DESIGN :

(i) Split plot. (ii) (a) 3 main-plots/block ; 9 sub-plots/main-plot. (iii) (a) 2. (iv) (a) For S₁ : 66' × 24', for S₂ : 68' × 24', for S₃ : 70' × 24'. (b) 60' × 24' (v) Yes.—Two rows of non-experimental one on either side of the sub-plot. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Borer incidence noted. Dead hearts removed. During the early period of growth, on controlling termite infection Aldrine was applied at planting & the other 3 months after. (iii) Germination %, no of tillers, height, no. of mature stalks, sucrose % and sugarcane yield. (iv) (a) 1948—1954 (b) No. (c) Nil. (v) (a) & (b) Nil. (vi) & (vii) Nil.

5. RESULTS :

(i) 20.89 ton/ac.

(ii) (a) 3.89 ton/ac.

(b) 2.66 ton/ac.

(iii) None of the effects is significant.

(iv) Av. yield of sugarcane in ton/ac.

	N ₁	N ₂	N ₃	Mean	P ₁	P ₂	P ₃
S ₁	22.13	23.02	24.08	23.08	23.83	22.48	22.93
S ₂	19.50	21.24	20.43	20.39	20.71	19.75	20.71
S ₃	19.15	19.29	19.14	19.19	19.73	17.73	20.12
Mean	20.26	21.18	21.22	20.89			
P ₁	20.90	21.97	21.40	21.42			
P ₂	18.80	20.32	20.85	19.99			
P ₃	21.09	21.25	21.41	21.25			

S.E. of the marginal mean of S or N	=0.63 ton/ac.
S.E. of the body of table S×N	=1.09 ton/ac.
S.E. of the difference of two	
(1) I marginal means	=1.30 ton/ac.
(2) S or N means at the same level of I	=1.54 ton/ac.
(3) I means at the same level of S or N	=1.80 ton/ac.

Crop :- Sugarcane.

Ref :- Bh. 50(46).

Site :- Zonal Centre, Parsa.

Type :- 'D'.

Object :- To find out the efficiency of soaking setts in different solutions before planting.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) N.A. (c) Nil. (ii) (a) Alluvial calcareous. (b) N.A. (iii) N.A. (iv) (a) 4 ploughings, harrowing. (b) Flat method. (c) 65 md./ac. (d) Rows 3' apart. (v) N.A. (vi) CO. 453. (vii) N.A. (viii) Hoeing and weeding. (ix) N.A. (x) N.A.

2. TREATMENTS :

Planting setts :

1. Soaked for 24 hrs. in 15% molasses.
2. Soaked for 24 hrs. in 5% A/S solution.
3. Soaked for 24 hrs. in 5% A/N solution
4. Soaked for 24 hrs. in standard solution of lime.
5. Soaked for 24 hrs. in water.
6. Top setts not more than 3 from a suitable cane.
7. Control (no soaking).

3. DESIGN :

(i) R.B.D. (ii) (a) 7. (b) N.A. (iii) 6. (iv) (a) 60.5'×24'. (b) 60.5'×18'. (v) 1 row on either side along length. (vi) Yes.

4. GENERAL :

(i) N.A. (ii) N.A. (iii) Cane yield, no. of mature stalks and juice content. (iv) (a) 1950—1952. (b) N.A. (c) N.A. (v) (a) N.A. (b) N.A. (vi) & (vii) Nil.

5. RESULTS :

- 18.73 ton/ac.
- 2.80 ton/ac.
- Treatment differences are not significant.
- Av. yield of sugarcane in ton/ac.

Treatment	Av. yield
1.	19.84
2.	17.30
3.	20.31
4.	17.89
5.	19.50
6.	18.14
7.	19.21
S.E./mean	= 1.143 ton/ac.

Crop :- Sugarcane.

Ref :- Bh. 51(28).

Site :- Zonal Centre, Pachrukhi (Chianki farm).

Type :- 'D'.

Object :- To find out the efficiency of soaking setts in molasses.

1. BASAL CONDITIONS :

(i) (a) G.M.-Sugarcane-G.M. (b) G.M. (c) Nil. (ii) (a) Sandy loam. (b) N.A. (iii) March 1951. (iv) (a) 1 ploughing by disc ploughing, 2 times worked by cultivator, one harrowing and 4 beamings. (b) Flat planting. (c) 65 md./ac. (d) Rows 3' apart. (e) — (v) 60 lb./ac, of N as G.N.C. + 75 lb./ac. of P_2O_5 as Triple Super, before planting. (vi) BO. 11 and CO. 453. (vii) Irrigated. (viii) 3 intercultures. (ix) N.A. (x) N.A.

2. TREATMENTS :

1. Setts soaked in 25% molasses solution such that they floated over the surface of solution.
2. Setts soaked in 15% molasses solution such that they sink down.
3. Top setts to be planted. Only two setts to be selected from each cane.
4. Setts as in Treatment. 3' soaked in 25% molasses solution.
5. Control (no soaking).

3. DESIGN :

(i) R.B.D. (ii) (a) 5. (b) 5/30 ac. (iii) 4 for each variety. (iv) (a) 60.5' × 24'. (b) 60.5' × 18'. (v) one row each both sides of width. (vi) Yes.

4. GENERAL :

(i) Not good. (ii) N.A. (iii) Tillers counted. No. of mature stalks and cane yield. (iv) (a) 1951—1952. (b) No. (c) Nil. (v) (a) No. (b) Nil. (vi) Nil. (vii) Experiment conducted during 1952 not traceable.

5. RESULTS :

Variety BO. 11		Variety CO. 453	
(i) 5.52 ton/ac.		(i) 8.00 ton/ac.	
(ii) 1.28 ton/ac.		(ii) 1.28 ton/ac.	
(iii) Treatment differences are not significant.		(iii) Treatment differences are not significant.	
(iv) Av. yield of sugarcane in ton/ac.		(iv) Av. yield of sugarcane in ton/ac.	
Treatment	Av. yield	Treatments	Av. yield
1.	4.10	1.	6.61
2.	6.15	2.	6.15
3.	6.72	3.	10.54
4.	4.13	4.	7.30
5.	6.51	5.	9.42
S.E./mean	=0.54 ton/ac.	S.E./mean	=0.64 ton/ac.

Crop :- Sugarcane.

Ref :- Bh. 51(32).

Site :- Zonal Centre, Parsa.

Type :- 'D'.

Object :- To find out the efficiency of soaking setts in different solutions before planting.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) N.A. (c) N.A. (ii) (a) Alluvium calcareous. (b) N.A. (iii) N.A. (iv) (a) 4 times ploughed. (b) Flat planting. (c) 64, three-budded setts/row. (d) Rows 3' apart. (e) —. (v) N.A. (vi) BO .11. (vii) N.A. (viii) Weeding, hoeing and earthing. (ix) N.A. (x) N.A.

2. TREATMENTS :

Planting setts :

1. Soaked for 24 hrs. in 20% molasses.
2. Soaked for 24 hrs. in 20% A/S.
3. Soaked for 24 hrs. in 20% A/N.
4. Soaked for 24 hrs. in water.
5. Top setts, not more than 2 from a cane.
6. Control.

3. DESIGN:

(i) R.B.D. (ii) (a) 6. (b) N.A. (iii) 6. (iv) (a) 60.5'×24' (b) 60.5'×18' (v) One row on each side along length. (vi) Yes.

4. GENERAL :

(i) N.A. (ii) N.A. (iii) No. of mature stalks, sucrose % and sugarcane yield. (iv) (a) 1950—1952. (b) No. (c) Nil. (v) (a) Pachrukhi, Majhulia and Motiharj. (b) Nil. (vi) Nil. (vii) Experiment conducted in 1952 could not be traced.

5. RESULTS :

- (i) 6.36 ton/ac.
 (ii) 2.813 ton/ac.
 (iii) Treatment differences are not significant.
 (iv) Av. yield of sugarcane in ton/ac.

Treatment	Av. yield
1.	6.36
2.	6.78
3.	6.09
4.	6.54
5.	5.41
6.	6.36
S.E./mean	=1.149 ton/ac.

Crop :- Sugarcane.

Site :- Central Sugarcane Sub-Stn., Patna.

Ref :- Bh. 51 (9).

Type :- 'D'.

Object :- To find out the efficacy of soaking setts in different solutions before planting.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) N.A. (c) (ii) (a) Clay. (b) N.A. (iii) 10 to 11.251. (iv) (a) to (e) N.A. (v) Common dose of 80 lb./ac. of N as A/S and 60 lb./ac. of P₂O₅ as Ammo. Phos. Time and method of application N.A. (vi) BO. 11 (early). (vii) Irrigated. (viii) Weeding and earthing. (ix) 30.47". (x) N.A.

2. TREATMENTS :

Planting setts :

1. Soaked for 24 hrs. in 25% molasses.
2. Soaked for 24 hrs. in 15% molasses.
3. Top setts soaked for 24 hrs. in 25% molasses.
4. Planting only top setts.
5. Control (normal planting).

3. DESIGN :

(i) R.B.D. (ii) (a) 5. (b) N.A. (iii) 4. (iv) (a) 67.5'×24'. (b) 60.5'×18'. (v) Rows of 3' on each side of width. (vi) Yes.

4. GENERAL :

(i) N.A. (ii) None. (iii) Cane yield and no. of mature stalks. (iv) (a) 1950—1952. (b) No. (c) Nil. (v) (a) None. (b) Nil. (vi) N.A. (vii) The largest no. of matured stalks and highest yield were recorded in treatment 4 in which only top setts were sown.

5. RESULTS :

- (i) 17.05 ton/ac.
 (ii) 1.48 ton/ac.
 (iii) Treatments are not significantly different.

(iv) Av. yield of sugarcane in ton/ac.

Treatment	Av. yield
1.	15.64
2.	17.80
3.	16.29
4.	18.16
5.	17.35
S.E./mean	0.74 ton/ac.

Crop :- Sugarcane.

Ref :- Bh. 53 (113).

Site :- C.S.R.S., Pusa.

Type :- 'D'.

Object :—To find out the efficacy of different chemicals for the control of sugarcane borer.

1. BASAL CONDITIONS :

(i) (a) *Sanai*—Sugarcane—*Sanai*. (b) *Sanai*. (c) Nil. (ii) (a) Texture sandy loam to silty loam with normal to deep saline phase. (b) Org. C and Org. N are low and C/N ratio narrow to normal. Total P_2O_5 is medium to high. Available phosphate very low. Soil reaction is strongly alkaline (iii) 25.3.53 and 2.4.53. (iv) (a) Harrow once and mould board ploughing each followed by Hinga. Again discing followed by subsoiling. (b) Furrow planting, end to end planting. (c) 75, three-budded setts/row. (d) Rows 3' apart. (e)—. (v) Nil. (vi) BO. 11 (early). (vii) Irrigated. (viii) Fortnightly intercultural operations after germination till the end of May ; earthing up in mid-June. (ix) 45.86". (x) 3rd week of January, 1954.

2. TREATMENTS :

1. Fosferno 0.1% of the compound (sprayed).
2. BHC 0.5% BHC Albolinum 2 at 8 oz. per 100 gallons (sprayed).
3. Cryslite 15 lb./ac. (dusted).
4. DDT 0.5% DDT Albolinum 2 at 8 oz. per 100 gallons (sprayed).
5. Endrin Hort. 1.0% (sprayed).
6. Ryania 6 lb/ac. (100%) (dusted).
7. Toxaphene 1.0% cl-camphene Albolinum 2 at 8 oz. per 100 gallons (sprayed).
8. Dieldrin 1.0% of compound (sprayed).
9. Control.

3. DESIGN :

(i) R.B.D. (ii) (a) 9. (b) N.A. (iii) 4. (iv) (a) 72'×30'. (b) 66'×24'. (v) Two rows of non-experimental one on either side of the sub-plot, also 3' cut from each end of the row. (vi) Yes.

4. GENERAL :

(i) Poor. (ii) N.A. (iii) Germination %, Borer incidence, borer egg mass studied, yield, no. of milliable sugarcane and juice analysis. (iv) (a) 1950—N.A. (b) No. (c) Nil. (v) (a) No where. (b) N.A.. (vi) & (vii) Nil.

5. RESULTS :

- (i) 16.86 ton/ac.
- (ii) 3.90 ton/ac.
- (iii) Treatment differences are not significant.
- (iv) Av. yield of sugarcane in ton/ac.

Treatment	Av. yield
1.	16.22
2.	13.79
3.	15.77
4.	19.50
5.	22.36
6.	15.98
7.	17.03
8.	15.38
9.	15.70
S.E. mean	=1.95 ton/ac.

Crop :- Sugarcane.
Site :- C.S.R.S., Pusa.

Ref :- BH. 53(115).
Type :- 'D'.

Object :- To study the effect of different formulations of insecticides in controlling the activities of termites in sugarcane field.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Sugarcane. (c) Well rotten compost at 200 md./ac.+Super at 5 md./ac.+A/S at 3 md./ac. (ii) (a) Sandy clay loam to loam in texture. (b) Org. C. low ; Org. P. medium to low ; C/N ratio narrow. Total phosphate—medium to high. Available phosphate vary low ; soil reaction strongly alkaline. (iii) 14.2.1953. (iv) (a) Harrow once and mould board ploughing each followed by Hinga. Again discing followed by subsoiling. (b) Furrow planting end to end planting. (c) 6, 3-budded setts/row. (d) 3' apart. (e) —. (v) 5 md./ac. of G N.C.+2 md./ac. of Super. Time and method of application N.A. (vi) CO. 453 (late). (vii) Irrigated. (viii) Fortnightly Intercultural operations after germination till the end of May. Earthing up in mid-June. (ix) 45.26°. (x) 4th week of Dec. 1953.

2. TREATMENTS :

1. Setts soaked for 24 hours before planting in a mixture : 2 ozs. lead arsenate+2 ozs. lime+20 lb. water.
2. Irrigation of setts after planting with 0.5% Aldrin at 10.75 gallon/ac.
3. Irrigation of setts after planting with 1.0% Aldrin at 107.5 gallon/ac.
4. Application of 5% B.H.C. (gammaxene BO. 25) in furrows before planting at 50 lb./ac.
5. Application of 5% B.H.C. (gammaxene BO. 25) in furrows before planting at 150 lb./ac.
6. Irrigation of setts after planting with 5.0% experimental compound at 107.5 gallon/ac.
7. Irrigation of setts after planting with 2.5% experimental compound at 107.5 gallon/ac
8. Irrigation of setts after planting with 1.0% Dieldrin at 107.5 gallon/ac.
9. Irrigation of setts after planting with 0.5% Dieldrin at 107.5 gallon/ac.
10. Control.

3. DESIGN :

(i) R.B.D. (ii) (a) 10. (b) N.A. (iii) 4. (iv) (a) 6'×6'. (b) 6'×6'. (v) Nil. (vi) Yes.

4. GENERAL :

(i) N.A. (ii) See treatments. (iii) Germination, no. of mature stalks and sugarcane yield at the time of harvest. (iv) (a) 1952—1953. (b) No. (c) Nil. (v) (a) No where. (b) No. (vi) and (vii) Nil.

5. RESULTS :

- (i) 14.50 ton/ac.
- (ii) 9.30 ton/ac.
- (iii) Treatment differences are significant.
- (iv) Av. yield of sugarcane in ton/ac.

Treatment	Av. yield
1.	13.67
2.	18.44
3.	13.14
4.	4.93
5.	12.41
6.	16.78
7.	18.33
8.	19.16
9.	4.52
10.	3.6f
S.E./mean	= 4.65 ton/ac.

Crop :- Sugarcane.
Site :- C.S.R.S., Pusa.

Ref :- Bh. 53(119).
Type :- 'D'.

Object :- To find out the efficacy of different formulations of insecticides in controlling the activities of termites in standing crop of Sugarcane in fields.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) N.A. (c) N.A. (ii) (a) Sandy loam ; soil texture is mainly loam, southern portion is heavier, sand pocket occurs to the south eastern part of the plot. (b) Org. C. and Org. N. are medium to low, ratio C/N narrow. Total phosphates are high but availability poor. Soil reaction is highly alkaline. (iii) N.A. (iv) (a) Harrow once and mould board plough each followed by Hinga. Again discing followed by sub-soiling. (b) Furrow, end to end planting. (c) N.A. (d) 3' apart. (e) —. (v) Nil. (vi) BO. 28 (late). (vii) Irrigated. (viii) Fortnightly intercultural operations after germination till the end of May. Earthing up in mid-June. (ix) 89.62°. (x) Dec. 54.

2. TREATMENTS :

1. Application of 5% B.H.C. (Gammoxene DO 25) at 108 lb./ac.
2. Irrigation of plots with 5% B.H.C. (Gammoxene P 520) at 3 gallons/100 yds. i.e. 200 gallons/ac.
3. Irrigation of plots with Dieldrin 6 lb./ac. in 200 gallons water applied.
4. Irrigation of plots with Aldrin 14.4 lb./ac. in 200 gallons water applied.
5. Irrigation of plots with 25% Toxaphene (W.P.) at 21.6 lb./ac.
6. Control.

3. DESIGN :

(i) R.B.D. (ii) (a) 6. (b) N.A. (iii) 6. (iv) (a) N.A. (b) 24' x 15'. (v) N.A. (vi) Yes.

4. GENERAL :

(i) Moderate. (ii) N.A. (iii) Sucrose %, no. of mature stalks and sugarcane yield. (iv) (a) No. (b) No. (c) Nil. (v) (a) No where. (b) No. (vi) and (vii) Nil.

5. RESULTS :

- (i) 3.81 ton/ac.
- (ii) 2.48 ton/ac.
- (iii) Treatment effects are highly significant.
- (iv) Av. yield of sugarcane in ton/ac.

Treatment	Av. yield
1.	3.44
2.	3.66
3.	6.88
4.	6.25
5.	1.76
6.	0.88
S.E./mean	= 1.01 ton/ac.

Crop :- Sugarcane.
Site :- Zonal Centre, Pachrukhi.

Ref :- Bh. 50(21)
Type :- 'DV'.

Object :- To find out the efficacy of soaking setts in different solutions before planting.

1. BASAL CONDITIONS :

(i) (a) G.M.—Sugarcane—G.M. (b) *Sanai* as G.M. (c) Nil. (ii) (a) Sandy loam. (b) N.A. (iii) N.A. (iv) (a) One ploughing by disc plough, twice worked by cultivator, one harrowing and 4 beamings done. (b) Flat planting. (c) 64, three budded setts/row. (d) Rows 3' apart. (e) —. (v) Castor cake 6 md./ac. + Super at 3 md./ac. A/S at 1 md./ac. at planting time and again 1.5 mds at time of earthing up. (vi) As per treatments. (vii) N.A. (viii) Two intercultural. (ix) N.A. (x) N.A.

2. TREATMENTS :

All combinations of (1) and (2)

- (1) 2 varieties : V_1 =CO. 453 and V_2 =BO. 11.
 (2) 7 chemical treatments for setts before planting :—
 T_1 =Soaking setts for 24 hrs. in 15% molasses.
 T_2 =Soaking setts for 24 hrs. in 5% A/S.
 T_3 =Soaking setts for 24 hrs. in 5% Ammonium carbonate.
 T_4 =Soaking setts for 24 hrs. in saturated solution of lime.
 T_5 =Top setts selected not more than 3 from a suitable cane.
 T_6 =Soaking setts for 24 hrs. in water.
 T_7 =Control (no soaking).

3. DESIGN :

- (i) 2×7 Fact. in R.B.D. (ii) (a) 14. (b) N.A. (iii) 6. (iv) (a) $60.5' \times 24'$. (b) $60.5' \times 18'$. (v) Rows of 3' on either side of width. (vi) Yes.

4. GENERAL :

- (i) Good. (ii) N.A. (iii) No. of tillers counted, no. of mature stalks counted and cane yield. (iv) (a) 1950-1951. (b) No. (c) Nil. (v) (a) Parsa and Motihari. (b) No. (vi) & (vii) Nil.

5. RESULTS :

- (i) 14.01 ton/ac.
 (ii) 2.82 ton/ac.
 (iii) None of the effects is significant.
 (iv) Av. yield of sugarcane in ton/ac.

	T_1	T_2	T_3	T_4	T_5	T_6	T_7	Mean
V_1	18.48	15.28	16.88	16.07	17.27	15.93	16.31	16.60
V_2	11.97	14.23	9.78	10.05	11.53	12.94	9.39	11.41
Mean	15.23	14.76	13.33	13.06	14.40	14.44	12.85	14.01

S.E. of marginal mean of T = 0.81 ton/ac.

S.E. of marginal mean of V = 0.44 ton/ac.

S.E. of body of table = 1.15 ton/ac.

Crop :- Sugarcane.

Site :- Zonal Centre, Pachrukhi.

Ref :- Bh. 51(39).

Type :- 'DV'.

Object :- To find the efficacy of soaking setts in different solutions before planting.

1. BASAL CONDITIONS :

- (i) (a) N.A. (b) N.A. (c) N.A. (ii) (a) Alluvium calcareous. (b) N.A. (iii) N.A. (iv) (a) 4 ploughings by *deshi* plough. (b) Flat planting. (c) 60, three budded setts/row. (d) Rows 3' apart. (e) —. (v) N.A. (vi) As per treatments. (vii) N.A. (viii) Hoeing, weeding and earthing. (ix) N.A. (x) N.A.

2. TREATMENTS :

All combinations of (1) and (2)

- (1) 2 varieties : V_1 =BO. 11 and V_2 =CO. 453.
 (2) 6 chemical treatments for setts before planting :—
 T_1 =Soaking setts for 24 hrs. in 20% molasses.
 T_2 =Soaking setts for 24 hrs. in 20% A/S.
 T_3 =Soaking setts for 24 hrs. in 20% A/N.
 T_4 =Top setts selected, not more than 2 from a suitable cane.
 T_5 =Soaking setts for 24 hrs. in water.
 T_6 =Control (no soaking).

3. DESIGN :

(i) 6×2 Fact. in R.B.D. (ii) (a) 12. (b) N.A. (iii) 6. (iv) (a) 60.5'×24'. (b) 60.5'×18'. (v) One row on each side of width. (vi) Yes.

4. GENERAL :

(i) N.A. (ii) N.A. (iii) No. of mature stalks, sucrose % and sugarcane yield. (iv) (a) 1950-1951. (b) No. (c) Nil. (v) (a) Parsa and Majhulia. (b) Nil. (vi) & (vii) Nil.

5. RESULTS :

- (i) 6.49 ton/ac.
 (ii) 1.981 ton/ac.
 (iii) None of the effects is significant.
 (iv) Av. yield of sugarcane in ton/ac.

	T ₁	T ₂	T ₃	T ₄	T ₅	T ₆	Mean
V ₁	4.10	6.15	6.72	4.13	6.51	4.70	5.38
V ₂	6.61	6.15	10.55	7.11	9.21	5.98	7.60
Mean	5.35	6.15	8.63	5.62	7.86	5.34	6.49

S.E. of marginal mean of T = 0.572 ton/ac.
 S.E. of marginal mean of V = 0.330 ton/ac.
 S.E. of body of table = 0.809 ton/ac.

Crop :- Sugarcane.

Site :- Zonal Centre, Harinagar.

Ref :- Bh. 49(26).

Type :- 'DV'.

Object :- To find out the effect of pre-soaking of setts with lime.

1. BASAL CONDITIONS :

(i) (a) *Sanai-sugarcane-Sanai*. (b) *Sanai* as G.M. (c) Nil. (ii) (a) Sandy loam. (b) N.A. (iii) 1.2.49. (iv) (a) 4 ploughings by *deshi* plough. (b) Flat planting. (c) 60, three budded setts/row. (d) 3' apart. (e) — (v) *Sanai*. G.M. as castor cake at 78 md/ac. Single Super at 22 mds/ac. (vi) As per treatments. (vii) Irrigated. (ix) 56.34". (x) 2.2.50.

2. TREATMENTS :

All combinations of (1) & (2)

- (1) 3 varieties :— V₁—BO.11, V₂—CO. 513 & V₃—CO. 453.
 (2) 3 chemical treatments :—
 T₁—Soaked for 48 hrs in saturated solution of lime.
 T₂—Soaked for 48 hrs in water.
 T₃—Control.

3. DESIGN :

(i) 3×3 Fact. in R.B.D. (ii) (a) 9. (b) N.A. (iii) 6. (iv) (a) 60.5'×24'(b) 60.5'×18'. (v) 3' on either side along length. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Nil. (iii) Sucrose %, no. of matured stalks and sugarcane yield. (iv) (a) No. (b) N.A. (c) N.A. (v) (a) None. (b) N.A. (vi) & (vii) Nil.

5. RESULTS :

- (i) 19.04 ton/ac.
 (ii) 6.01 ton/ac.
 (iii) Effect of V and interactions V×T are highly significant. Effect of T is not significant.

	T ₁	T ₂	T ₃	Mean
V ₁	16.94	21.65	19.59	19.39
V ₂	19.99	9.51	6.17	11.89
V ₃	25.95	22.87	28.66	25.83
Mean	20.96	18.01	18.14	19.04

S.E. of any marginal mean = 1.42 ton/ca.
S.E. of body of table = 2.45 ton/ac.

Crop :- Groundnut.
Site :- Botanical Sub-Strn Dumka.

Ref :- Bh. 53(44).
Type :- 'M'

Object :- To find out the best dose of N, P₂O₅ and K₂O while applied alone and in combinations.

1. BASAL CONDITIONS :

(i) Nil. (b) N.A. (c) N.A. (ii) (a) Sandy-loam. (b) N.A. (iii) 30.7.53. (iv) (a) Ploughing by *deshi* plough. (b) Dibbling with the help of *khurfi* on rows. (c) N.A. (d) Row to row 1½. (e) 2 seeds/hole. subsequently thinned to one strong seedling/hole. (v) Nil. (vi) Local-(early). (vii) Unirrigated. (viii) N.A. (ix) 32.05". (x) 31.12.53 to 20.1.54.

2. TREATMENTS :

All combinations of (1), (2) & (3)

(1) 3 levels of N : N₀=0, N₁=15 & N₂= 30 lb./ac.

(2) 3 levels of P₂O₅ : P₀=0, P₁=30 & P₂=60 lb./ac.

(3) 3 levels of K₂O : K₀=0, K₁=30 & K₂=60 lb./ac.

N as A/S, P₂O₅ as Super and K₂O as Pot. Sul. spread over plot and mixed with soil before sowing.

3. DESIGN :

(i) 3³ Partially Confd. (ii) (a) 3 blocks/replication ; 9 plots/block. (b) N.A. (iii) 4. (iv) 12'×26' (8 rows) (b) 9'×24' (6 rows) (v) Yes. One row on either side of the plot and 1' on the length side. (vi) Yes.

4. GENERAL :

(i) N.A. (ii) N.A. (iii) Germination % ; date of flowering, seed yield and shelling%. (iv) (a) 1952 continued (b) No. (c) Nil. (v) (a) Kanke and Purnea. (b) Nil. (vi) & (vii) Nil.

5. RESULTS :

(i) 1169 lb./ac.
(ii) 339.3 lb./ac.
(iii) None of the effects is significant.
(iv) Av. yield of groundnut in lb./ac.

	P ₀	P ₁	P ₂	Mean	K ₀	K ₁	K ₂
N ₀	929	1158	1139	1075	1115	1119	992
N ₁	1314	1221	1238	1257	1324	1169	1279
N ₂	1089	1236	1197	1174	1191	1188	1143
Mean	1111	1205	1191	1169	1210	1159	1138
K ₀	1067	1270	1292				
K ₁	1098	1160	1219				
K ₂	1167	1184	1063				

S.E. of any marginal mean = 56.6 lb./ac.
S.E. of body of table = 97.9 lb./ac.

Crop :- Groundnut.

Ref :- Bh. 53(36).

Site :- Botanical Sub-Station, Purnea.

Type :- 'M'.

Object :- To find out the most advantageous schedule of N, P₂O₅ and K₂O for getting the highest yield.

1. BASAL CONDITIONS :

(i) (a) Not followed. (b) N.A. (c) N.A. (ii) (a) Sandy loam. (b) No. (iii) 14th to 17th August, 1953.
 (iv) (a) One Bihar Jr. ploughing followed by two or three *deshi* ploughings. (b) Dibbling. (c) N.A.
 (d) Plant to plant distance 1' and row to row distance 1½'. (v) Nil. (vi) Local. (vii) Unirrigated. (viii)
 Weeding only. (ix) 17.35°. (x) 3.3.54 to 22.3.54.

2. TREATMENTS :

All combinations of (1), (2) and (3)

(1) 3 levels of N : N₀=0, N₁=15 and N₂=30 lb./ac.(2) 3 levels of P₂O₅ : P₀=0, P₁=30 and P₂=60 lb./ac.(3) 3 levels of K₂O : K₀=0, K₁=30 and K₂=60 lb./ac.N as A/S, P₂O₅ as Single Super and K₂O as mixture of Potash broadcast after sowing.

3. DESIGN :

(i) 3³ Fact. Partially Confd. (ii) (a) 3 blocks/replication ; 9 plots/block. (iii) 4. (iv) (a) 12'×26'. (b) 9'×24'.
 (v) Yes. One row on each side of the plot and one plant at each end of a row as non-experimental. (vi) Yes.

4. GENERAL :

(i) N.A. (ii) Nil. (iii) Germination study, date of 1st flowering and yield of the dry groundnut with the
 shell. (iv) (a) Yes. 1953 continued. (b) No. (c) Nil. (v) (a) Dumka and Ranchi. (b) Nil. (vi) and
 (vii) Nil.

5. RESULTS :

(i) 1024 lb./ac.
 (ii) 237.7 lb./ac.
 (iii) Only N effect is highly significant.
 (iv) Av. yield of groundnut in lb./ac.

	P ₀	P ₁	P ₂	Mean	K ₀	K ₁	K ₂
N ₀	1161	1286	1170	1206	1164	1225	1228
N ₁	952	1044	988	995	1026	954	1004
N ₂	905	813	899	872	845	879	892
Mean	1006	1048	1019	1024	1012	1019	1041
K ₀	958	1074	1003	1012			
K ₁	1052	998	1008	1019			
K ₂	1007	1071	1046	1041			

S.E. of any marginal mean

=39.9 lb./ac.

S.E. of body of table.

=68.6 lb./ac.

Crop :- Groundnut.

Ref :- Bh. 53(27).

Site :- Oil Seed Section, Sabour.

Type :- 'M'.

Object :- To find out the most advantageous manurial schedule for getting the highest yield.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) N.A. (c) N.A. (ii) (a) Sandy-loam or Red-laterite. (b) No. (iii) 30.7.53. (iv) (a)
 Earthing. (b) and (c) N.A. (d) Distance between holes 1'. (e) 1 seed per hole. (v) Nil. (vi) Local.
 (vii) Unirrigated. (viii) 3 weedings at a fortnightly interval ; ridging once after a month of sowing. (ix)
 32.38°. (x) 15.12.53.

2. TREATMENTS :

All combinations of (1), (2) and (3)

(1) 3 levels of N: $N_0=0$, $N_1=15$ and $N_2=30$ lb./ac.

(2) 3 levels of P_2O_5 : $P_0=0$, $P_1=30$ and $P_2=60$ lb./ac.

(3) 3 levels of K_2O : $K_0=0$, $K_1=30$ and $K_2=60$ lb./ac.

N as A/S, P_2O_5 as Single Super and K_2O as Pot. Sul.

3. DESIGN :

(i) 3rd Fact. Partially Confd. (ii) (a) 3 blocks/replication; 9 plots/block. (b) N.A. (iii) 4. (iv) (a) 5'×20'. (b) 3'×18' (v) 1' ring round net plot. (vi) Yes.

4. GENERAL :

(i) Good. No lodging. (ii) Tikka disease—no control measures except to remove some badly affected plants. (iii) Yield of groundnut. (iv) (a) Yes. 1952 (continued) (b) No. (c) Nil. (v) (a) Purnea and Dumka. (b) Nil. (vi) and (vii) Nil.

5. RESULTS :

- (i) 2553 lb./ac.
 (ii) 717.7 lb./ac.
 (iii) None of the effects is significant.
 (iv) Av. yield of groundnut in lb./ac.

	P_0	P_1	P_2	Mean	K_0	K_1	K_2
N_0	2723	2576	2818	2706	2792	2697	2628
N_1	2429	2472	2662	2521	2446	2740	2377
N_2	2455	2343	2598	2432	2472	2550	2274
Mean	2536	2464	2660	2553	2570	2662	2426
K_0	2654	2222	2835				
K_1	2714	2593	2680				
K_2	2239	2576	2464				

S.E. of any marginal mean = 119.6 lb./ac.
 S.E. of body of table = 207.2 lb./ac.

Crop :-Groundnut.

Site :-Botanical Sub-Stn., Purnea.

Ref :-Bh. 53(37).

Type :-'C'.

Object :-To find out the best spacing between rows and plants on the yield of Groundnut.

1. BASAL CONDITIONS :

(i) (a) Not followed. (b) N.A. (c) N.A. (ii) (a) Sandy loam. (b) N.A. (iii) 5th and 7th Sept. 1953. (iv) (a) One Bihar Junior ploughing followed by 2 to 3 *deshi* ploughings. (b) Dibbling. (c) —. (d) As per treatments. (e) 2 seeds to be subsequently thinned to 1 strong seedling. (v) Nil. (vi) Local—N.A. (vii) Un-irrigated. (viii) Weeding. (ix) 9.52". (x) 22.3.54 to 8.4.54.

2. TREATMENTS :

Main-plot treatments :—

All combinations of (1) and (2)

(1) 2 methods of sowing : A_1 =Ridges and A_2 =Flat.

(2) 3 spacings between rows $S_1=1'$, $S_2=2'$ and $S_3=3'$.

Sub-plot treatments :—

3 spacings between plants : $S'_1=6"$, $S'_2=9"$ and $S'_3=12"$.

3. DESIGN :

(i) Split plot. (ii) (a) 6 main-plots/block; 3 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) sub-plot 12'×20'. (b) Main-plot 18'×36'; sub-plot 12'×18'. (v) Yes. One non-experimental row on each side of the main-plot and 1' at each end of it. (vi) Yes.

4. GENERAL :

(i) N.A. (ii) Nil. (iii) Germination, date of flowering and yield of groundnut with the shell and shelling %.
 (iv) (a) 1953—1954. (b) No. (c) Nil. (v) (a) N.A. (b) N.A. (vi) Nil. (vii) Some plots affected by rats.
 Ridging should not have been in the way as it was done. Experiment to be repeated in 1954.

5. RESULTS :

- (i) 641.4 lb./ac.
 (ii) (a) 567.5 lb./ac.
 (b) 196.6 lb./ac.
 (iii) Only the effect of Methods of sowing is significant.
 (iv) Av. yield of groundnut in lb./ac.

	S ₁	S ₂	S ₃	Mean	S' ₁	S' ₂	S' ₃
A ₁	386.5	466.4	555.6	469.5	514.7	454.8	439.0
A ₂	1012.5	929.6	497.9	813.3	850.8	843.4	745.7
Mean	699.5	698.0	526.7	611.4	687.7	649.1	592.4
S' ₁	588.2	663.8	568.6	682.7			
S' ₂	610.6	715.6	404.7	649.1			
S' ₃	666.6	481.8	431.3	592.4			

S.E. of marginal mean of A = 94.6 lb./ac.
 S.E. of marginal mean of S = 118.2 lb./ac.
 S.E. of body of table A×S = 167.1 lb./ac.

S.E. of the difference of two

1. S' means = 56.8 lb./ac.
2. S means at the same level of A = 80.3 lb./ac.
3. A means at the same level of S = 149.0 lb./ac.
4. S' means at the same level of A = 98.3 lb./ac.
5. A means at the same level of S' = 182.5 lb./ac.

Crop :- Sesamum.

Ref :- Bh. 53(46).

Site :- Botanical Sub-Stn., Dumka.

Type :- 'M'

Object :- To find out the most advantageous manurial schedule for getting the highest yield.

1. BASAL CONDITIONS :

(i) (a) Not followed. (b) N.A. (c) N.A. (ii) (a) Sandy loam. (b) N.A. (iii) 26.8.53 and 30.8.53. (iv) (a) 3 ploughings by *deshi* plough. (b) Sown in line behind the plough. (c) 3 lb./ac. (d) Each plot consists of 5 rows 2' apart. (e) —(v) Nil. (vi) Local (early). (vii) Unirrigated. (viii) 24.59". (x) 26.1.54.

2. TREATMENTS :

All possible combinations of (1), (2) and (3)

- (1) 2 levels of A/S : N₀=0 and N₁=2 lb. - 13½ ozs./plot.
 - (2) 2 levels of Single Super : P₀=0 and P₁=3lb. - 2 ozs./plot.
 - (3) 2 levels of Muriate of Potash : K₀=0 and K₁=1 lb. - 2 ozs./plot.
- Treatments spread over plot and mixed with soil before sowing.

3. DESIGN :

(i) 2³ Fact. in R.B.D. (ii) (a) 8. (b) N.A. (iii) 4. (iv) (a) 10'×62'. (b) 6'×60'. (v) One non-experimental row along width and 1' on the other two ends of the plot. (vi) Yes.

4. GENERAL :

(i) N.A. (ii) Nil. (iii) Germination, date of flowering, height of plant, no. and size of capsules for 10 random plants per block and sesamum yield/plot. (iv) (a) 1953—1954. (b) No. (c) Nil. (v) Sabour and Purnea. (vi) Nil. (vii) Reasons for low yield N.A.

5. RESULTS :

- (i) 9.52 lb./ac.
(ii) 2.805 lb./ac.
(iii) None of the effects is significant.
(iv) Av. yield of sesamum in lb./ac. See (vii) under general.

	P ₀	P ₁	Mean	K ₀	K ₁
N ₀	8.52	10.15	9.34	11.27	7.40
N ₁	7.47	11.92	9.70	8.90	10.49
Mean	8.00	11.04	9.52	10.09	8.95
K ₀	8.97	11.20	10.09		
K ₁	7.02	10.87	8.95		

S.E. of any marginal mean = 0.701 lb./ac.

S.E. of body of table = 0.99 lb./ac.

Crop :- Sesamum.

Ref :- Bh. 53(38).

Site :- Botanical Sub-Stn., Purnea.

Type :- 'M'.

Object :- To find out the most advantageous manurial schedule for getting the highest yield.

1. BASAL CONDITIONS :

- (i) (a) Not followed. (b) N.A. (c) N.A. (ii) (a) Sandy loam. (b) N.A. (iii) 8.8.53 and 9.8.53. (iv) (a) One Bihar Junior ploughing followed by two to three *deshi* ploughings. (b) Sowing on rains, behind the plough. (c) 3 lb./ac. (d) Row to row distance 2'. (e) —. (v) Nil. (vi) Local. (vii) Unirrigated. (viii) Weeding. (ix) 16.81". (x) 10th to 12th Dec. 1953.

2. TREATMENTS :

All combinations of (1), (2) and (3)

- (1) 2 levels of A/S : N₀=0 and N₁=2.845 lb./plot.
(2) 2 levels of Double Super : P₀=0, and P₁=1.422 lb./plot.
(3) 2 levels of Muriate of Potash : K₀=0 and K₁=1.138 lb./plot.

Fertilizers broadcast at the time of sowing.

3. DESIGN :

- (i) R.B.D. Fact. (ii) (a) 8. (b) 62'×80'. (iii) 4. (iv) (a) 10'×62'. (b) 8'×60' (v) Yes Each plot of 5 rows 2' apart. One non-experimental row along the breadth of the plot and 1' on either end of each row. (vi) Yes.

4. GENERAL :

- (i) N.A. (ii) Slight attack of hairy caterpillars in all plots. Sanitary methods were adopted and the attack was checked. (iii) Germination, date of flowering, height, no. of branches and no. of capsules of 10 plants of a plot at random and yield of grain per plot. (iv) (a) Yes, 1953-1954. (b) No. (c) Nil. (v) (a) Dumka & Sabour. (b) Nil. (vi) Nil. (vii) By outward appearance, it was noted that there was some specific concentration of manures in the field.

5. RESULTS :

- (i) 556.9 lb./ac.
(ii) 108.2 lb./ac.
(iii) Interaction N×K is significant and the three factor interaction NPK is highly significant while no other effect is significant.

(iv) Av. yield of sesamum in lb./ac.

	P ₀	P ₁	Mean	K ₀	K ₁
N ₀	493.5	555.1	524.3	551.6	497.0
N ₁	587.1	592.0	589.6	485.7	693.4
Mean	540.3	589.6	556.9	518.7	595.2
K ₀	463.0	574.3			
K ₁	617.5	572.6			

S.E. of any marginal mean = 27.0 lb./ac.
 S.E. of body of table = 38.2 lb./ac.

Crop :- Sesamum.

Ref :- Bh. 53(28).

Site :- Oil Seed Section, Sabour.

Type :- 'M'.

Object :- To find out the most advantageous manurial schedule for getting the highest yield.

1. BASAL CONDITIONS .

(i) (a) Nil. (b) Maize (summer). (c) Nil. (ii) (a) Sandy loam. (b) N.A. (iii) 7.8.53 ; resowing on 11.8.53. (iv) (a) N.A. (b) On rains behind the plough. (c) 3 lb./ac. (d) N.A. (e) —. (v) Nil. (vi) Local. (vii) Unirrigated. (viii) 3 weedings each after two weeks. (ix) 22.27". (x) 23.11.53.

2. TREATMENTS :

All combinations of (1), (2) and (3)

(1) 2 levels of N : N₀=0 and N₁=40 lb./ac.(2) 2 levels of P₂O₅ : P₀=0 and P₁=40 lb./ac.(3) 2 levels of K₂O : K₀=0 and K₁=40 lb./ac.N as A/S, P₂O₅ as Single Super while K₂O as Muriate of Potash.

3. DESIGN :

(i) 2³ Fact. in R.B.D. (ii) (a) 8. (b) N.A. (iii) 4. (iv) (a) 10'×62'. (b) 10'×62'. (v) Nil. (vi) Yes.

4. GENERAL :

(i) Good. No lodging. (ii) Phyllody—No control measures were taken. (iii) Height, no. of branches and capsules, yield of stalk, yield of Sesamum. (iv) (a) 1953-continued. (b) No. (c) Nil. (v) (a) Dumka and Purnea. (b) Nil. (vi) & (vii) Nil.

5. RESULTS :

(i) 141.5 lb./ac.

(ii) 30.73 lb./ac.

(iii) No effect is significant.

(iv) Av. yield of sesamum in lb./ac.

	P ₀	P ₁	Mean	K ₀	K ₁
N ₀	136.5	138.5	137.5	136.5	138.5
N ₁	142.0	149.0	145.5	144.0	147.0
Mean	139.2	143.7	141.5	140.2	142.7
K ₀	132.0	148.5			
K ₁	146.5	139.0			

S.E. of any marginal mean = 7.68 lb./ac.
 S.E. of body of table = 10.86 lb./ac.

Crop :- Castor.

Ref :- Bh. 53 (45).

Site :- Botanical Sub-Stn., Dumka.

Type :- 'M'.

Object :- To find out the most advantageous schedule for getting the highest yield.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) N.A. (c) N.A. (ii) (a) Sandy loam. (b) N.A. (iii) 6.8.53. (iv) (a) 3 ploughings by *deshi* plough and one tractor ploughing. (b) Dibbling. (c) —. (d) Plant distance $1\frac{1}{2}'$. Three rows in each net plot at a distance of 2'. (e) 2. (v) Nil. (vi) Local (early). (vii) Unirrigated. (viii) N.A. (ix) 16.05". (x) 28.2.54.

2. TREATMENTS :

All combinations of (1), (2) and (3)

(1) 3 levels of N : $N_0=0$, $N_1=80$ and $N_2=100$ lb./ac.(2) 3 levels of P_2O_5 : $P_0=0$, $P_1=40$ and $P_2=60$ lb./ac.(3) 3 levels of K_2O : $K_0=0$, $K_1=40$ and $K_2=50$ lb./ac.N as A/S, P_2O_5 as Single Super and K_2O as Muriate of Potash, broadcast at the time of sowing.

3. DESIGN :

(i) 3³ Partially Confd. (ii) (a) 3 blocks/replication, 9 plots/block. (b) N.A. (iii) 4. (iv) $6' \times 18'$. (b) $6' \times 15'$
(v) One non-experimental row around the net-plot. (vi) Yes.

4. GENERAL :

(i) N.A. (ii) N.A. (iii) Germination, stand at thinning, yield of the seed, date of flowering. (iv) (a) 1953—continued. (b) No. (c) Nil. (v) (a) Sabour and Purnea. (b) Nil. (vi) and (vii) Nil.

5. RESULTS :

(i) 135.7 lb./ac.

(ii) 76.86 lb./ac.

(iii) N effect is significant. P_2O_5 effect is highly significant.

(iv) Av. yield of castor seed in lb./ac.

	P_0	P_1	P_2	Mean	K_0	K_1	K_2
N_0	33.7	142.6	155.6	110.6	114.1	127.0	90.7
N_1	62.7	165.9	254.1	160.7	160.7	145.2	176.3
N_2	51.9	147.8	207.4	135.7	121.9	153.0	132.2
Mean	49.3	152.1	205.7	135.7	132.2	141.7	133.1
K_0	41.5	186.7	168.5				
K_1	41.5	140.0	243.7				
K_2	64.8	129.6	204.8				

S.E. of any marginal mean

=12.81 lb./ac.

S.E. of the body of table

=22.18 lb./ac.

Crop :- Castor.

Ref :- Bh. 53 (39).

Site :- Botanical Sub-Stn., Purnea.

Type :- 'M'.

Object :- To find out the most advantageous schedule for getting the highest yield.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) N.A. (c) N.A. (ii) (a) Sandy loam. (b) N.A. (iii) 10th and 11th August, 1953.
(iv) (a) One Bihar jr. ploughing followed by two to three *deshi* ploughings. (b) Dibbling (c) —. (d) Row to row distance 2'; plant to plant distance $1\frac{1}{2}'$. (e) 2 seeds per hole to be subsequently thinned to one strong seedling per hole. (v) Nil. (vi) Local. (vii) Unirrigated. (viii) Weeding. (ix) 17.35". (x) 4 to 26th of April, 1954.

2. TREATMENTS :

All combinations of (1), (2) and (3)

(1) 3 levels of N : $N_0=0$, $N_1=80$ and $N_2=100$ lb./ac.

(2) 3 levels of P_2O_5 : $P_0=0$, $P_1=40$ and $P_2=60$ lb./ac.

(3) 3 levels of K_2O : $K_0=0$, $K_1=40$ and $K_2=50$ lb./ac.

N as A/S, P_2O_5 as Single Super and K_2O as Muriate of Potash, broadcast at the time of sowing.

3. DESIGN :

(i) ³ Partially Confd. Confounding W and Y componets in either of 2 replications. (ii) (a) 3 blocks/replication, 9 plots/block (b) $54' \times 18'$. (iii) 3. (iv) (a) $6' \times 18'$. (b) $6' \times 18'$. (v) One non-experimental row on each side of a block and also one plant at each end of a series in a block. No border kept for the net plot. (vi) Yes.

4. GENERAL :

(i) N.A. (ii) Nil. (iii) Germination, stand at thinning and seed yield. (iv) (a) 1953—continued. (b) No. (c) Nil. (v) (a) Sabour and Dumka. (b) Nil. (vi) Nil. (vii) Replication IV is discarded, because in most of the cases yield figure is nil.

5. RESULTS :

(i) 369.0 lb./ac.

(ii) 174.63 lb./ac.

(iii) Main effect of N is highly significant, main effect of K is significant and that of P_2O_5 is not significant. No other effect is significant.

(iv) Av. yield of castor seed in lb./ac.

	P_0	P_1	P_2	Mean	K_0	K_1	K_2
N_0	164.7	205.0	231.9	200.5	178.1	184.9	238.6
N_1	463.8	383.2	564.7	470.6	349.6	625.2	436.9
N_2	406.7	389.9	510.9	435.8	396.6	517.6	393.2
Mean	345.1	326.0	435.8	369.0	308.1	442.5	356.3
K_0	279.0	191.6	453.7	308.1			
K_1	467.2	416.8	443.7	442.5			
K_2	289.1	369.7	410.1	356.3			

S.E. of any marginal mean

=29.1 lb./ac.

S.E. of body of table

=50.4 lb./ac.

Crop :- Castor (Kharif).

Ref :- Bh. 53(124).

Site :- Oil Seed Section, Sabour.

Type :- 'M'.

Object :- To find the most advantageous manurial schedule of N, P_2O_5 and K_2O for getting highest yield of Castor.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Gram. (c) Nil. (ii) (a) Sandy loam. (b) N.A. (iii) 15.7.53. (iv) (a) 3 ploughings. (b) Dibbling by *khurfi*. (c) 16 to 20 lb./ac. (d) Rows-2½', plants-1½'. (e) N.A. (v) Nil. (vi) Local. (vii) Unirrigated. (viii) Two hoeings and weeding. (ix) 28.40°. (x) 4.3.54.

2. TREATMENTS :

All combinations of (1), (2) and (3)

(1) 3 levels of N : $N_0=0$, $N_1=80$ & $N_2=100$ lb./ac.

(2) 3 levels of P_2O_5 : $P_0=0$, $P_1=40$ & $P_2=60$ lb./ac.

(3) 3 levels of K_2O : $K_0=0$, $K_1=40$ & $K_2=50$ lb./ac.

N as A/S, P_2O_5 as Single Super and K_2O as Muriate of Potash.

3. DESIGN :

- (i) 3rd Fact. partially Confd. (ii) (a) 3 blocks/replication ; 9 plots/block . (b) N.A. (iii) 4. (iv) (a) 18'×6'.
(b) 15'×6'. (v) One line of plants all round. (vi) Yes.

4. GENERAL :

- (i) Fair. (ii) Nil. (iii) Dates of germination and flowering. Disease incidence and yield per plot. (iv) (a) 1953—continued. (b) No. (c) Nil. (v) (a) Purnea and Dumka. (b) None. (vi) & (vii) Nil.

5. RESULTS :

- (i) 871.8 lb./ac.
(ii) 79.15 lb./ac.
(iii) N effect is highly significant while no other effect is significant.
(iv) Av. yield of castor in lb./ac.

	P ₀	P ₁	P ₂	Mean	K ₀	K ₁	K ₂
N ₀	663.2	619.6	709.2	664.0	655.8	665.6	670.6
N ₁	841.7	1030.1	984.9	952.2	946.2	959.4	951.2
N ₂	1020.3	1038.4	938.8	999.2	1056.7	951.2	989.8
Mean	841.7	896.0	877.6	871.8	886.2	858.7	870.5
K ₀	872.2	862.3	924.0	886.2			
K ₁	818.7	897.7	859.8	858.7			
K ₂	834.3	928.1	849.1	870.5			

S.E. of any marginal mean=13.2 lb./ac.

S.E. of body of table =22.8 lb./ac.

Crop :- Kalai.

Site :- Agri. Chemistry Section, Sabour.

Ref :- Bh. 53(22).

Type :- 'M'.

Object :-To test the effect of Manganese at different levels on Kalai yield.

1. BASAL CONDITIONS :

- (i) (a) Potato-Maize-Kalai-Potato. (b) Maize. (c) Nil. (ii) (a) Loam. (b) N.A. (iii) 15.7.53. (iv) (a) Spade ploughing. (b) N.A. (c) 2 oz./plot. (d) & (e) N.A. (v) Nil. (vi) Local. (vii) Unirrigated. (viii) One weeding and one interculture. (ix) 32.38". (x) 1.10.53.

2. TREATMENTS :

- No manure.
- Super at 40 lb./ac. of P₂O₅+Mur. of Pot. at 40 lb./ac. of K₂O.
- Treatment 2+Manganese at 50 lb./ac.
- Treatment 2+Manganese at 100 lb./ac.
- Treatment 2+Manganese at 150 lb./ac.

3. DESIGN :

- (i) R.B.D. (ii) (a) 5. (b) N.A. (iii) 3. (iv) (a) N.A. (b) 1/400th ac.(square in shape) (v) Yes—2' border between adjacent plots. (vi) Yes.

4. GENERAL :

- (i) Good. No lodging. (ii) Attack of caterpillar. (iii) Weight of plants. (iv) (a) 1953—1955. (b) Yes. (c) Nil. (v) (a) Nowhere. (b) No. (vi) Nil. (vii) The crop was used as fodder, the weight of plants was noted while the weight of grain was not taken.

5. RESULTS :

- (i) 45720 lb./ac.
(ii) 2288 lb./ac.
(iii) Treatment effects are highly significant.

(iv) Av. yield of *Kalai* fodder in lb./ac.

Treatment	Av. yield
1.	26400
2.	49200
3.	51600
4.	51800
5.	49600
S.E./mean	=1321 lb./ac.

Crop :- : Chowmoether.

Ref :- Bh. 52(19).

Site :- College Farm: Sabour.

Type :- 'I'.

Object :- To find out the variation in yield between the irrigated and unirrigated plots.

1. BASAL CONDITIONS :

(i) (a) None. (b) Paddy. (c) N.A. (ii) (a) Clayey loam. (b) N.A. (iii) 15.11.52. (iv) (a) to (d) Sowing on flat surface ; making shallow ridges with hand hole at 2½' apart from row to row and nearly 1½' apart from plant to plant. (e) N.A. (v) F.Y.M. applied. Details N.A. (vi) N.A. (vii) As per treatments (viii) Weeding by hand. (ix) 0.87". (x) 5.3.53 to 9.3.53.

2. TREATMENTS :

- (1) Irrigation when needed.
- (2) Unirrigated.

3. DESIGN :

(i) R.B.D. (ii) (a) 2. (b) N.A. (iii) 6. (iv) (a) N.A. (b) 7.5' × 25' (v) 5' path between block in which two rows of non-experimental chowmoether was sown. (vi) Yes.

4. GENERAL :

(i) N.A. (ii) None. (iii) Vegetable crop yield. (iv)(a) No. (b) & (c) Nil. (v) (a) None. (b) No. (vi) & (vii) Nil.

5. RESULTS :

- (i) 10857 lb./ac.
 - (ii) 1322.4 lb./ac.
 - (iii) Treatments are not significantly different.
 - (iv) Av. yield of vegetable in lb./ac
- | Treatment | Av. yield |
|-----------|-----------------|
| 1. | 11314 |
| 2. | 10399 |
| S.E./mean | = 540.0 lb./ac. |
- Note : The d.f. for error are only 5.

Crop :- Peas and Oats.

Ref :- Bh. 52(3).

Site :- College Farm, Sabour.

Type :- 'X'.

Object :- To find the best treatment combination of seeds for Peas and Oats.

1. BASAL CONDITIONS ;

(i) (a) Jowar-Gram or Maize-Wheat. (b) Jowar and *Kalai* (c) 1 md./ac. of A/S. (ii) (a) Sandy loam. (b) N.A. (iii) 3.11.53. (iv)(a) One tractor ploughing with mould board and one tractor ploughing with Disc and 2 *deshi* ploughings. (b) Sown behind the plough. (c) As per treatments. (d) Distance between the furrows 1' (e) - (v) N.A. (vi) N.A. (vii) Irrigated. (viii) Nil. (ix) 1.11". (x) 26.3.54 & 27.3.54.

2. TREATMENTS :

1. Oats only
2. Oats+Peas in ratio 2 : 1
3. Oats+Peas in ratio 1 : 1
4. Oats+Peas in ratio 1 : 2
5. Peas only

Seedrate of Oats is 50 srs/ac. and that of Peas is 35 srs/ac.

3. DESIGN :

(i) L. Sq. (ii) (a) 5. (b) N.A. (iii) 5. (iv) (a) N.A. (b) 46'×30'. (v) Path between adjacent plots 2', irrigation channel 3' width. (vi) Yes.

4. GENERAL :

(i) Good. No lodging. (ii) No attack. (iii) Yield of grain and straw of peas+oats. (iv) (a) 1953—contd. (b) No. (c) Nil. (v) (a) Nil. (b) Nil. (vi) & (vii) Nil.

5. RESULTS :

- (i) 761 lb./ac.
 (ii) 231.7 lb./ac.
 (iii) Treatments differ highly significantly.
 (iv) Av. yield of peas+oats. in lb./ac.

Treatment	Av. yield
1.	1059
2.	725
3.	862
4.	868
5.	292
S.E./mean	=103.7 lb./ac.

Crop :- Wheat and Gram.
 Site :- College Farm. Sabour.

Ref :- Bh. 53(1).
 Type :- 'X'.

Object :- To find the best combination of percentage of mixed cropping of Wheat and Gram.

1. BASAL CONDITIONS :

(i) (a) Maize & *Kalai* ; Wheat and Gram. (b) Maize and *Kalai*. (c) 1 md/ac. of A/S+1 md/ac. of Single Super.
 (ii) (a) Sandy loam. (b) N.A. (iii) 10.1.53. (iv) (a) Tractor ploughing with mould board plough once and with disc twice then followed by 5 *deshi* ploughings. (b) Sown behind the plough. (c) As per treatments.
 (d) Row to row 1'. (e) N.A. (v) N.A. (vi) N.A. (vii) Irrigated. (viii) Nil. (ix) 1.11". (x) 29.3.54.

2. TREATMENTS :

1. Wheat only
2. Wheat + Gram in ratio 2 : 1
3. Wheat + Gram in ratio 1 : 1
4. Wheat + Gram in ratio 1 : 2
5. Gram only

Seed rate of wheat is 50 srs/ac. and that of gram is 35 srs/ac.

3. DESIGN :

(i) L.Sq. (ii) (a) 5. (b) N.A. (iii) 5. (iv) (a) & (b) 38'×22'. (v) Path around each plot—2'. (vi) Yes.

4. GENERAL :

(i) Good. No lodging. (ii) N.A. (iii) Yield of grain and straw of wheat+gram. (iv) (a) 1953-contd. (b) No. (c) Nil. (v) (a) No. (b) Nil. (vi) & (vii) Nil.

5. RESULTS :

- (i) 1124 lb./ac.
 (ii) 184.2 lb./ac.
 (iii) Treatments differ highly significantly.
 (iv) Av. yield of grain in lb./ac.

Treatment	Av. yield
1.	584
2.	1172
3.	1216
4.	1255
5.	1393
S.E./mean	= 82.4 lb./ac.

Crop :- Gram and Wheat.
Site :- College farm, Sabour.

Ref :- Bh. 52(21).
Type :- 'MX'.

Object :- To study the effect of N and P_2O_5 on the mixed crop of Gram and Wheat.

1. BASAL CONDITIONS :

(i) (a) None. (b) Paddy. (c) 60 lb./ac. of A/S. (ii) (a) Sandy loam. (b) N.A. (iii) 13.12.52. (iv) (a) to (e) N.A. (v) A/S at 6 lb./plot and Super 5 lb/plot. (vi) N.A. (vii) Unirrigated. (viii) Weeding by *Khurfi*. (ix) 2.21". (x) 12.4.53.

2. TREATMENTS :

1. Control (no manure).
2. N at 40 lb./ac.
3. P_2O_5 at 40 lb./ac.
4. N at 50 lb./ac.

3. DESIGN :

(i) L. Sq. (ii) (a) 4. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 30'×33' (v) N.A. (vi) Yes.

4. GENERAL :

(i) N.A. (ii) N.A. (iii) Grain yield and yield of *bhusa*. (iv) (a) No. (b) and (c) Nil. (v) (a) and (b) Nil. (vi) and (vii) Nil.

5. RESULTS :

- (i) 484.5 lb./ac.
- (ii) 27.82 lb./ac.
- (iii) Treatment differences are highly significant.
- (iv) Av. yield of grain in lb./ac.

Treatment	Av. yield
1.	352.0
2.	600.8
3.	436.8
4.	548.5
S.E./mean	= 13.91 lb./ac.

Crop :- Maize and Rahar.
Site :- Botanical Sub-Station, Monghyr.

Ref :- Bh. 53(91).
Type :- 'X'.

Object :- To find out the spacing and the composition of rows of crop or crops alternated with that of Maize in a mixed crop of Maize and *Rahar* for the maximum yield.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Wheat. (c) Nil. (ii) (a) Clay. (b) N.A. (iii) 24.6.53. (iv) (a) 3 *deshi* ploughings. (b) Sown behind the plough. (c) N.A. (d) Plant to plant 1'. (e) —. (v) Nil. (vi) Maize-Jampur-(late). *Rahar*-BR-60-(late). (vii) Unirrigated. (viii) Weeding, ridging and interculturing. (ix) For Maize—35.74". For *Rahar*—36.75". (x) 16.9.53 (Maize), 23.1.54 (*Rahar*).

2. TREATMENTS :

Main-plot treatments :—

1. MR—M—MR—M—MR.
2. R—M—R—M—R.

Sub-plot treatments :—

3 spacing between rows : $S_1=1\frac{1}{2}'$, $S_2=2'$ and $S_3=2\frac{1}{2}'$.

M means Maize row ; R means *Rahar* row while MR means Maize and *Rahar* row.

3. DESIGN :

(i) Split plot. (ii) (a) 2 main-plots/block ; 3 sub-plots/main-plot. (b) 34'×32'. (iii) 6. (iv) (a) 15'×7 $\frac{1}{2}'$, 15'×10', 15'×12 $\frac{1}{2}'$ for 1 $\frac{1}{2}'$, 2' and 2 $\frac{1}{2}'$ spacing. (b) 15'×6', 15'×8' and 15'×10' for 1 $\frac{1}{2}'$, 2' and 2 $\frac{1}{2}'$ spacings. (v) Five rows planted in each plot. Each row 15' long, outer two rows are to be discarded. Yield would be calculated on the central two rows of maize and one row of *Rahar* or mixture of *Rahar* and Maize. Two outer rows in each sub-plot treated as non-experimental. (vi) Yes.

4 GENERAL :

(i) Average. No lodging. (ii) Nil. (iii) Germination %, stand at thinning, average height, date of silking ; weight of cob (green and dry), ear length, cob diameter, shelling %, and yield of grain. (iv) (a) No. (b) and (c) Nil. (v) (a) Dumka, Pusa, Purnea, Sabour and Sepaya. (b) Nil. (vi) and (vii) Nil.

5. RESULTS :

- (i) 608.0 lb./ac.
 (ii) (a) 198.87 lb./ac.
 (b) 276.48 lb./ac.
 (iii) None of the effects is significant.
 (iv) Av. yield of mixed crop in lb./ac.

	1	2	Mean
S ₁	650.5	590.0	620.3
S ₂	616.7	752.7	684.7
S ₃	496.2	541.7	518.9
Mean	587.8	628.1	608.0

S.E. of difference of two :

- main-plot treatment means = 66.29 lb./ac.
- sub-plot treatment means = 112.87 lb./ac.
- sub-plot treatment means at the same level of main-plot treatment = 159.63 lb./ac.
- main-plot treatment means at the same level of sub-plot treatment = 146.22 lb./ac.

Crop :- Maize and Rahar.

Ref :- Bh. 53 (96).

Site :- Botanical Sub-Stn, Sepaya.

Type :- 'CX'.

Object :—To find out spacing and composition of row of the crop or crops alternated with that of Maize in a mixed crop of Maize and Rahar for the maximum yield.

1. BASAL CONDITIONS :

(i) (a) No. (b) Rahar. (c) Nil. (ii) (a) Alkaline. (b) N.A. (iii) 25.6.53. (iv) (a) Three country ploughings followed by one tractor ploughing. (b) and (c) N.A. (d) plant to plant 1'. (e) 2 Kernels. (v) Nil. (vi) Local variety—N.A. (vii) Unirrigated. (viii) Weeding and hoeing. Earthing in Maize only. (ix) 65.20". (x) 9.10.53.

2. TREATMENTS :

Main-plot treatments :

3 levels of row spacing : S₁=18", S₂=24" and S₃=30".

Sub-plot treatments :

2 compositions of rows :—

R₁=MR—M—MR—M—MR ; R₂=R—M—R—M—R.

3. DESIGN :

(i) Split plot. (ii) (a) 3 main-plots/block; 2 sub-plots/main-plot. (b) N.A. (iii) 6. (iv) (a) 15'×6'; 15'×8'; 15'×10'; (b) 15'×4½'; 15'×6'; 15'×7½'; as per spacings in main-plot. (v) 5 rows each 15' long planted keeping 1' distance between plants. Outer 2 rows were discarded. Yield recorded on the basis of two central rows of Maize and one row of Rahar or mixture of Rahar and Maize. Two outer rows in each sub-plot treated as non-experimental. (vi) Yes.

4. GENERAL :

(i) Good. No lodging. (ii) Nil. (iii) Date of flowering, weight of green cob, plant height, weight of dry cob, weight of shelled kernal, no. of good ear per plot and length of husked ear. (iv) (a) No. (b) Nil. (c) No. (v) (a) (a) Dumka, Monghyr, Pusa, Purnea and Sabour. (b) Nil. (vi) and (vii) Nil.

5. RESULTS :

- (i) 963.7 lb./ac.
 (ii) (a) 414.3 lb./ac.
 (b) 193.2 lb./ac.
 (iii) Only the interaction 'row spacing × row composition' is significant.
 (iv) Av. yield of maize grain in lb./ac.

	S ₁	S ₂	S ₃	Mean
R ₁	1037.2	798.7	920.7	918.8
R ₂	1092.5	1120.2	813.2	1008.6
Mean	1064.8	959.4	866.9	963.7

1. row spacing means = 169.1 lb./ac.
 2. row composition means = 64.4 lb./ac.
 3. composition means at the same level of spacing = 111.5 lb./ac.
 4. spacing means at the same level of composition = 186.6 lb./ac.

Crop :- Gram and Pea.

Ref :- Bh. 53 (40).

Site :- Botanical Sub-Station, Bikramganj.

Type :- 'DX'.

Object :- To study the effect of inoculation of seeds on different legume crops.

1. BASAL CONDITIONS :

- (i) (a) Paddy—Legume—Paddy. (b) Paddy. (c) A/S at 40 lb./ac. of N+40 lb./ac. of P₂O₅ as Single Super. (ii) (a) Sandy loam. (b) N.A. (iii) 3.12.53. (iv) (a) 2 *deshi* ploughings (b) Sown behind the plough. (c) 60 lb./ac. for both. (d) N.A. (e) —. (v) No. (vi) Gram—S₄, Pea—Local. (vii) No. (viii) No. (ix) 1.31". (x) 13, 15.4.54.

2. TREATMENTS :

- Gram seed to be inoculated with culture obtained from gram root nodule and sown.
- Soil to be inoculated with culture obtained from Gram root nodule and Gram seed to be sown.
- Gram sown without inoculation.
- Pea seed to be inoculated with culture obtained from Pea root nodule and sown.
- Soil to be inoculated with culture obtained from Pea root nodule and Pea seeds to be sown.
- Pea seed sown without inoculation treatment.

3. DESIGN :

- (i) R.B.D. (ii) (a) 6. (b) N.A. (iii) 5. (iv) (a) and (b) 13' × 40' (v) Nil ; 2' path around the net plot. (vi) Yes.

4. GENERAL :

- (i) Poor. No lodging. (ii) Nil. (iii) Growth, date of flowering, no. of nodules and yield of grain. (iv) (a) 1953—1956. (b) Yes. (c) Nil. (v) (a) Pusa, Sepaya, Purnea, Dumka, Monghyr, Patna and Sabour. (b) Nil. (vi) and (vii) Nil.

5. RESULTS :

- (i) 488.9 lb./ac.
 (ii) 129.2 lb./ac.
 (iii) Treatment differences are highly significant.
 (iv) Av. yield of grain in lb./ac.

Treatment	Av. yield
1.	680.6
2.	715.1
3.	585.9
4.	372.6
5.	318.8
6.	260.6
S.E./mean	= 57.8 lb./ac.

Crop :- Gram and Pea

Ref :- Bh. 53 (67).

Site :- Botanical Sub-Stn., Madurai

Type :- 'DX'.

Object :- To study the effect of Nodular Bacterial inoculation on Gram and Pea crops.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) (a) Loam. (b) N.A. (iii) 21.11.53. (iv) (a) 3 *deshi* ploughings. (b) Sown behind the plough. (c) 40 seers/ac. for Gram and 30 seers/ac. for Pea. (d) 1' apart. (e) —. (v) Nil. (vi) Pea—BR—2; Gram—BR—77 (Early). (vii) ~~Unirrigated~~. (viii) Weeding after a month of sowing and another after 3 weeks. (ix) 1.13". (x) Treatments 4, 5, 6 on 27.2.54 and 1, 2, 3 on 17.3.54.

2. TREATMENTS :

1. Gram seed to be inoculated with culture obtained from gram root nodule and sown.
2. Soil to be inoculated with culture obtained from gram root nodule and gram seed to be sown.
3. Gram sown without inoculation treatment.
4. Pea seed to be inoculated with culture obtained from pea root nodule and sown.
5. Soil to be inoculated with culture obtained from pea root nodule and pea seeds to be sown.
6. Peas sown without inoculation treatment.

3. DESIGN :

(i) R.B.D. (ii) (a) 6. (b) N.A. (iii) 5. (iv) (a) and (b) 22' x 25'. (v) Yes—2' path around the sub-plots. (vi) Yes.

4. GENERAL :

(i) Average. No lodging. (ii) N.A. (iii) Growth and condition, total no. of nodules in 5 random plots, size of nodules and seed yield. (iv) (a) 1953—continued. (b) No. (c) Nil. (v) (a) All Botanical Sub-stations. (b) Nil. (vi) and (vii) Nil.

5. RESULTS :

- (i) 242.2 lb./ac.
 (ii) 82.05 lb./ac.
 (iii) Treatment differences are highly significant.
 (iv) Av. yield of grain in lb./ac.

Treatment	Av. yield
1.	388.1
2.	320.8
3.	372.2
4.	139.6
5.	121.8
6.	110.9
S.E./mean	=36.6 lb./ac.

RESULTS OF BIHAR MANURIAL TRIALS ON CULTIVATORS' FIELDS (1948-53).

General information common to all the following trials is given here under. The results of the experiments with crop, year, and treatments are given on the following pages.

- Object :—**1. To determine the responses of various crops to different fertilizers under cultivators' conditions.
2. To study the variation in responses over different soil types.

Basal Conditions :

General cultivation practices, soil types and analytical results, available district-wise, have been furnished below.

1. General Cultivation Practices.

TABLE

Crop	Time of sowing	Preparatory cultivation	Cultural Method of sowing	Practice Spacing	Seed rate	Intercultural operation
Paddy	June-July	2 ploughings	(1) Japanese method & (2) Broadcasting	10" × 10"	8 srs./ac. for Japanese method and 25 to 30 srs./ac. for broadcasting	2 interculturings with Japanese weeder.
Wheat	November	4 to 6 ploughings	Behind the plough	Bet. rows 10"	40 srs./ac.	Nil
Barley	Nov.-Dec.	2 to 3 ploughings	Behind the plough	Bet. rows 10"	40 srs./ac.	Nil
Maize	June	4 to 5 ploughings	Behind the plough	Bet. rows 2' or 2½'	8 srs./ac.	Horse-hoe, earthing up one month after sowing.
Gram	October	2 to 3 ploughings	Behind the plough and broadcasting (Paira)	Bet. rows 10"	30 srs./ac.	Once hand-hoe
Rahar	June	3 to 4 ploughings	Behind the plough	Bet. rows 3'. Bet. Plants 1' to 1½'.	5 to 6 srs./ac.	Once horse-hoe & earthing up.

Information provided by the Agronomy Section, Sabour, Bihar.

2. Soil types and analytical results (district-wise).

Champanan : Loamy soils. Extreme deficiency of P_2O_5 , more marked in sub-soil. Presence of large quantities of $CaCO_3$. Total potash fairly high. Nitrogen figures are varying. pH values are on the alkaline side.

Saran : Sandy loam soil, pH values are on the alkaline side ; available phosphoric acid is low. Available potash is fairly good.

Muzaffarpur : Sandy loam soils. Generally deficient in available P_2O_5 and K_2O , particularly in sub-soil.

Darbhanga : Calcareous soils : Low values of available P_2O_5 and potash. Large percentage of $CaCO_3$. Nitrogen figures vary as usual but not high.

Bhagalpur : Small percentage of $CaCO_3$. Contains phosphoric acid appreciably. High values of available potash. pH values are just neutral.

Purnea : Sufficient phosphoric acid but deficient in potash. Nitrogen is high. pH varies between 8.0 to 8.5.

Shahabad : Loamy soil. Available potash and phosphoric acid are fairly good. pH value below 7.0. Nitrogen is moderately high. Small amount of CaCO_3 .

Patna : Total potash is quite high. Small percentage of CaCO_3 . Nitrogen content is moderately high.

Monghyr : Loam to clay loam. Content of available potash is good. Available phosphoric acid is low. Nitrogen is not at par with good soils.

Gaya : Sandy on eastern part. pH varies from 5.0 to 8.8.

Palamau : pH is on the acidic side between 5.0 to 6.0. Both available potash and phosphoric acid low.

Hazaribagh : Soils have acidic reaction and pH varies between 5.0 to 6.8. Available potash is fairly high.

S. Parganas : Low contents of available phosphoric acid, potash and Nitrogen. pH values vary between 4.5 to 6.6, CaCO_3 content is also low.

Ranchi : Wide differences in chemical composition of soils and from different samples available potash is quite appreciable. Phosphoric acid is low. Nitrogen figures are fairly high. pH varies between 5.0 and 6.5.

Manbhum : Soils lack both available potash and phosphoric acid. Nitrogen content is also not high. pH varies between 5.0 and 6.4.

Singhbhum : Both available potash and phosphoric acid are low. On an average there is good content of N_2 and high content of CaO . pH values on the acid side varying between 4.7 and 6.0.

Saharsa : N.A.

DESIGN :

In each sub division of each district, two or three revenue thanas were selected. Under each thana three villages were selected at random and in each village two fields were selected at random. In each fields plots of size 1/10th acre or 1/20th acre were marked according to the extent of the field to hold six plots of this size (or 4 or 7 according to the number of treatments depending on the crop, year and type of the experiment under consideration).

RESULTS :

Two-way tables of average yield of treatments in pound per acre are provided district wise for each crop according to the type of the experiment. Standard errors are also provided against each district as per availability. The total number of experiments conducted in each district is given. Tables have been presented separately for acidic and non-acidic soils wherever such information is available.

Crop :- Paddy.

Year :- 1948.

TREATMENTS :

1. Control (No manure).
2. 30 lb./ac. of P_2O_5 as Super.
3. 40 lb./ac. of P_2O_5 as Super.
4. 40 lb./ac. of P_2O_5 as B.M.

RESULTS :

Av. yield of grain in lb./ac.

(A) Non-Acidic Soils

District	No. of Expts.	Treatments				S.E.
		(1)	(2)	(3)	(4)	
Patna	32	1499	1900	2227	2278	N.A.
Bhagalpur	8	915	1111	1419	1883	
Monghyr	7	1175	1093	1270	1328	
Gaya	17	1176	1394	1583	1800	
Shahabad	8	1779	1924	2345	2212	
Saran	5	872	1103	1234	1531	
Champanan	8	1111	1450	1532	1800	
Muzaffarpur	8	1152	1348	1554	1769	
Darbhanga	4	987	1399	1666	2016	

(B) Acidic Soils

District	No. of Expts.	Treatments				S.E.
		(1)	(2)	(3)	(4)	
S. Pargana	6	1358	1495	1865	1851	N.A.
Ranchi	14	1317	1563	1646	1593	

Crop :- Paddy.

Year :- 1949. (Kharif).

TREATMENTS :

1. Control (No manure).
2. 20 lb./ac. of N as A/S.
3. 30 lb./ac. of N as A/S.
4. 40 lb./ac. of N as A/S.
5. 30 lb./ac. of N and 37.5 lb./ac. of P_2O_5 as Ammo. Phos.
6. 15 lb./ac. of N and 19 lb./ac. of P_2O_5 as Ammo. Phos. + 15 lb./ac. of N and 6 lb./ac. of P_2O_5 as Castor cake.

RESULTS :

Av. yield in of grain in lb./ac.

(A) Non-Acidic Soils.

District	No. of Expts.	Treatments						S.E.
		(1)	(2)	(3)	(4)	(5)	(6)	
Patna	36	1385	1678	1664	1783	2025	2172	334.1
Gaya	46	1094	1542	1554	1617	1748	1675	301.2

(Contd.)

(Contd.)

Districts	No. of Expts.	Treatments						S.E.
		(1)	(2)	(3)	(4)	(5)	(6)	
Shahabad	66	1402	1737	1794	2071	2287	1992	1081.2
Muzaffarpur	27	1140	1628	1807	1859	1963	1874	316.8
Champaran	26	972	1037	1680	1814	1541	1450	419.7
Saran	41	973	1178	1346	1523	1471	1569	264.1
Darbhanga	51	1192	1926	1960	2136	2027	2156	464.1
Bhagalpur	36	1150	1255	1408	1712	1710	1925	244.4
Monghyr	26	950	1475	1766	2114	2294	2801	545.6
Purnea	46	959	1266	1437	1696	1656	1442	343.1

(B) Acidic Soils

Districts	No. of Expts.	Treatments						S.E.
		(1)	(2)	(3)	(4)	(5)	(6)	
S. Pargana	52	1469	1769	1925	2315	2619	2510	479.7
Ranchi	46	1451	1633	1884	1780	1742	1984	313.5
Hazariabagh	16	1280	1785	1774	1774	1939	1883	349.7
Singhbhum	25	1639	1949	2238	2817	2360	2834	508.5
Manbhum	36	940	1294	1632	1764	2060	2345	342.3

Crop :- Paddy.

Year :- 1950 (Kharif).

TREATMENTS :

1. Control (no manure)
2. 40 lb./ac. of N as A/S.
3. 40 lb./ac. of N as A/S+40 lb./ac. of P_2O_5 as B.M.
4. 40 lb./ac. of N as A/S +40 lb./ac. of P_2O_5 as Super.
5. 20 lb./ac. of N as A/S+20 lb./ac. of N and 8 lb./ac. of P_2O_5 as Castor Cake.
6. 20 lb./ac. of N as A/S+20 lb./ac. of N and 8 lb./ac. of P_2O_5 as Caster Cake+40 lb./ac. of P_2O_5 as Super.
7. 20 lb./ac. of N as A/S +20 lb./ac. of N as Compost.

* (This treatment is omitted in the results as full data is N.A.)

RESULTS :

Av. yield in of grain lb./ac.

Districts	No. of Expts.	Treatments						S.E.
		(1)	(2)	(3)	(4)	(5)	(6)	
Patna	123	1117	1548	1476	1765	1547	1659	222.6
Gaya	116	1303	1856	1888	2182	1844	2171	273.5
Shahabad	84	1598	2198	2171	2426	2348	2601	487.1
Muzaffarpur	34	743	990	1043	1249	1147	1293	180.2
Darbhanga	171	735	1205	1195	1475	1353	1628	511.0
Saran	95	886	1371	1248	1490	1354	1475	256.7
Champaran	87	906	1289	1399	1494	1349	1526	240.7
Bhagalpur	50	1101	1412	1409	1682	1458	1605	174.4
Saharsa	26	1222	1471	1411	1545	1731	1702	226.7
Monghyr	112	788	1265	1280	1486	1285	1535	363.7

(Contd.)

District	No. of Expts.	Treatments						S.E.
		(1)	(2)	(3)	(4)	(5)	(6)	
Purnea	93	824	1318	1360	1523	1403	1498	352.2
S. Parganas	142	1207	1730	1700	2116	1758	2159	271.5
Ranchi	75	1127	1739	1678	1888	1679	1701	327.9
Hazaribagh	33	1656	2147	2094	2381	2254	2432	244.8
Singhbhum	69	1317	1543	1723	1795	1799	1892	275.6
Manbhum	24	919	1549	1508	1951	1924	2335	268.7

Crop :- Paddy.

Year :- 1951 (Kharif).

TREATMENTS :

1. Control (No manure).
2. 40 lb./ac. of N as A/S.
3. 60 lb./ac. of N as A/S.
4. 40 lb./ac. of N as A/S+40 lb./ac. of P_2O_5 as Super.
5. 60 lb./ac. of N as A/S+60 lb./ac. of P_2O_5 as Super.
6. 40 lb./ac. of N as A/S+40 lb./ac. of P_2O_5 as Super+20 lb./ac. of N as Compost.

RESULTS :

Av. yield of grain. in lb./ac.

(A) Non-Acidic Soils

District	No. of Expts	Treatments						S.E.
		(1)	(2)	(3)	(4)	(5)	(6)	
Patna	150	1056	1477	1559	1707	1739	1739	235.3
Gaya	88	1300	1696	1776	2044	2045	1975	305.3
Shahabad	135	1489	1955	2061	2096	2223	2184	292.1
Bhagalpur	48	1119	1385	1483	1641	1793	1730	118.5
Saharsa	27	1048	1420	1393	1600	1646	1859	255.9
Monghyr	43	524	813	928	1087	1269	1334	304.5
S. Pargana	108	1428	1860	1963	2234	2329	2318	240.3
Purnea	12	940	1549	1824	2187	2331	2496	206.5
Muzaffarpur	85	708	1107	1175	1419	1519	1521	273.2
Darbhanga	75	811	1070	1176	1336	1349	1501	310.2
Saran	41	745	982	1148	1333	1371	1279	246.0
Champan	41	1172	1419	1608	1738	1958	1987	298.7

(B) Acidic Soils

District	No. of Expts.	Treatments						S.E.
		(1)	(2)	(3)	(4)	(5)	(6)	
Ranchi	100	1182	1588	1702	1610	1971	2057	288.0
Palamau	18	622	1175	1202	923	1043	1312	333.3
Hazaribagh	39	1137	1578	1739	1601	1929	1865	181.0
Singhbhum	78	1435	1819	1927	2088	2303	2199	284.7
Manbhum	64	1307	1874	2073	2070	2570	2549	324.2
Champan	45	1034	1364	1419	1282	1496	1763	274.0
Darbhanga	18	1047	1549	1719	1764	1879	1916	357.1
Purnea	30	689	1023	1154	891	1103	1314	212.3

(L) 10 lb/ac. Lime in acidic soils.

Crop :- Paddy.

Year :- 1952 (Kharif).

TREATMENTS :

1. Control.
2. 30 lb./ac. of N as A/S + 20 lb./ac. of P_2O_5 as Super.
3. 40 lb./ac. of N as A/S + 20 lb./ac. of P_2O_5 as Super.
4. 40 lb./ac. of N as A/S + 40 lb./ac. of P_2O_5 as Super.
5. 40 lb./ac. of N as A/S + 40 lb./ac. of P_2O_5 as Super + 40 lb./ac. of K_2O as Pot. Sul.
6. 47 lb./ac. of N as (A/S + Compost) + 50 lb./ac. of P_2O_5 as B.M.

RESULTS :

Av. yield of grain in lb./ac.

(A) Non-Acidic Soils

District	No. of Expts.	Treatments						S.E.
		(1)	(2)	(3)	(4)	(5)	(6)	
Patna	55	1465	1937	1942	2042	2211	1972	209.8
Gaya	82	1482	1911	1993	2079	2295	1981	227.1
Shahabad	53	1656	2166	2043	2225	2532	2211	176.1
Muzaffarpur	41	1020	1597	1604	1802	2019	1788	216.4
Darbhanga	51	1261	1740	1675	1718	1983	1864	334.9
Saran	50	1142	1488	1507	1600	1698	1491	302.8
Champaran	19	1247	1780	1707	1862	1944	2083	221.3
Bhagalpur	22	1253	1728	1661	1698	1791	1799	240.3
Saharsa	18	1170	1796	1655	1846	1980	1975	244.4
Monghyr	20	1201	1489	1502	1666	1888	1695	169.5
Purnea	20	992	1432	1502	1613	1884	1580	249.3

(B) Acidic Soils

Districts	No. of Expts.	Treatments						S.E.
		(1)	()	(3+L)	(4)	(5)	(6)	
S. Parganas	60	1648	2134	2393	2293	2670	2341	330.8
Ranchi	43	1317	1916	2121	1994	2216	2114	354.7
Palamau	17	648	1210	1317	1419	1583	1219	306.1
Hazaribagh	32	1409	1941	2358	2101	2242	2134	331.6
Singbhum	29	1436	1972	2071	2088	2271	2196	316.8
Manbhum	6	1015	1426	1440	1646	2098	1591	172.0
Champaan	6	905	1152	1275	1193	1261	1303	227.1

L : 16 lb./ac. Lime in acidic soils.

Crop :- Paddy.

Year :- 1953 (Kharif).

I Type

TREATMENTS :

1. Control (No manure).
2. 25 lb./ac. of N as A/S.
3. 50 lb./ac. of N as A/S.
4. 25 lb./ac. of N as A/S+20 lb./ac. of P_2O_5 as Super.
5. 25 lb./ac. of N as A/S+40 lb./ac. of P_2O_5 as Super.
6. 25 lb./ac. of N as A/S+20 lb./ac. of P_2O_5 as Super +20 lb./ac. of K_2O as Pot. Sul.

RESULTS :

Av. yield of grain in lb./ac.

District	No. of Expts.	Treatments						S.E.
		(1)	(2)	(3)	(4)	(5)	(6)	
Muzaffarpur	9	1035	1522	1904	1771	1744	1826	87.7
Saharsa	3	1385	2043	2160	2441	2400	2421	184.1
Bhagalpur	5	1288	1572	1703	1740	2004	2065	109.0
Patna	14	1635	2007	2264	2206	2273	2326	57.3
Hazaribagh	6	1502	1749	2002	2126	2304	2181	112.1
Manbhum	4	1718	2181	2530	2283	2674	2664	109.5
Singhbhum	5	2181	2683	2839	2987	2864	2864	111.9
Gaya	14	1346	1882	1841	1976	2069	2025	74.7
hahabad	10	1199	1580	1802	1891	1979	2236	107.3
Champaram	6	1080	1409	1279	1629	1790	1910	127.0
Monghyr	6	1502	1848	2061	1906	2054	2102	87.8
S. Pargana	12	1350	2433	2465	2645	2731	2935	112.5
Saran	8	1041	1188	1365	1383	1509	1455	92.0
Ranchi	8	1445	2134	2530	2433	2695	2643	159.1
Palamau	4	1461	1677	2541	2427	2458	2150	301.2
Purnea	6	799	1025	1173	1485	1677	1550	83.3
Darbhanga	8	1551	1797	1859	1975	2075	2067	121.8

Crop :- Paddy

Year :- 1953 (Kharif).

II Type

TREATMENTS :

1. Control (No manure).
2. 25 lb./ac. of N as A/S.
3. 50 lb./ac. of N as A/S.
4. 25 lb./ac. of N as A/S+20 lb./ac. of P_2O_5 as Super.
5. 25 lb./ac. of N as A/S+40 lb./ac. of P_2O_5 as Super.
6. 25 lb./ac. of N as A/S+20 lb./ac. of K_2O as Pot. Sul.

RESULTS :

Av. yield of grain in lb/ac.

District.	No. of Exp	Treatments						S.E.
		(1)	(2)	(3)	(4)	(5)	(6)	
Shahabad	11	1378	1822	1941	2205	2270	2065	85.2
Champaran	6	878	1077	1094	1375	1395	1341	104.3
Monghyr	6	1296	1587	1913	1872	1965	1786	83.1
S. Parganas	12	1620	2187	2223	2477	2556	2477	131.7
Saran	7	1131	1478	1663	1713	1875	1505	87.4
Ranchi	9	1390	1975	2318	2359	2405	2258	130.6
Palamau	4	1193	1841	2016	2355	2643	2078	266.8
Purnea	6	730	998	1073	1341	1478	1049	63.0
Darbhanga	6	1714	1762	1927	2085	2208	1927	148.3
Muzaffarpur	10	955	1329	1775	1510	1734	1864	95.0
Saharsa	3	1042	1659	1632	2023	1941	1851	255.9
Bhagalpur	6	1642	1351	1522	1635	1683	1385	255.9
Patna	14	1556	1995	1828	2151	2297	2123	77.4
Hazaribagh	6	1413	1735	1961	2037	2187	1961	109.7
Manbhoom	4	1749	2294	2325	2582	2829	2541	187.8
Singhbhoom	6	1454	2331	2530	2606	2407	2057	290.9
Gaya	14	1472	2125	2287	2284	2330	2104	85.6

Crop :- Paddy (Kharif).

Year :- 1953.

III Type.

TREATMENTS :

1. Control (no manure).
2. 25 lb/ac. of N as A/S.
3. 50 lb/ac. of N as A/S.
4. 50 lb/ac. of N as A/S + 20 lb/ac. of P_2O_5 as Super.
5. 50 lb/ac. of N as A/S + 40 lb/ac. of P_2O_5 as Super.
6. 50 lb/ac. of N as A/S + 50 lb/ac. of P_2O_5 as Super. + 40 lb/ac. of K_2O as Pot. Sul.

RESULTS :

Av. yield of grain in lb/ac.

District	No. of Expts.	Treatments						S.E.
		(1)	(2)	(3)	(4)	(5)	(6)	
Muzaffarpur	10	1117	1915	2049	2082	2281	2419	94.0
Saharsa	3	1131	1467	1611	1858	2119	2400	111.5
Bhagalpur	5	1247	1621	1744	1893	2119	2296	76.3
Patna	14	1603	2028	2125	2208	2517	2655	59.9
Hazaribagh	6	1385	1721	2146	2222	2304	2523	106.8
Manbhoom	4	2006	2520	3014	3106	3271	3281	193.4
Singhbhoom	5	1555	2230	2049	2181	2345	2419	125.3
Gaya	14	1427	2031	2269	2398	2466	2601	97.1
Shahabad	11	1722	2124	2332	2354	2536	2753	126.5

(Contd.)

(Contd.)

District	No. of Expts.	Treatment						S.E.
		(1)	(2)	(3)	(4)	(5)	(6)	
Champaran	6	1443	1810	1858	2266	2290	2349	105.5
Monghyr	6	1361	1680	1906	1807	2078	2109	110.9
S. Parganas	12	1731	2350	2486	2688	2967	3060	117.3
Saran	7	1017	1311	1458	1578	1763	1846	71.0
Ranchi	9	1623	2318	2295	2491	2802	2935	145.6
Palamau	3	1234	1989	2455	2647	3374	3154	229.8
Purnea	6	830	1090	1193	1341	1680	1721	76.3
Darbhangha	7	1643	1969	2175	2583	2783	2792	128.4

Crop :- Paddy.

Year :- 1953.

IV Type.

TREATMENTS :

1. Control (no manure).
2. 25 lb./ac. of N as A/S.
3. 50 lb./ac. of N as A/S.
4. 50 lb./ac. of N as A/S.+20 lb./ac. of P₂O₅ as Super.
5. 50 lb./ac. of N as A/S+40 lb./ac. of P₂O₅ as Super.
6. 50 lb./ac. of N as A/S+40 lb./ac. of K₂O as Pot. Sul.

RESULTS :

Av. yield of grain in lb./ac.

District	No. of Expts.	Treatment						S.E.
		(1)	(2)	(3)	(4)	(5)	(6)	
Muzaffarpur	8	1332	1877	2121	2579	2471	2335	111.3
Saharsa	3	1008	1413	1474	1790	2153	1735	153.3
Bhagalpur	6	1114	1718	1790	2102	2366	2314	163.9
Patna	14	1801	2272	2382	2639	2818	2476	67.3
Hazaribagh	6	1317	1790	1906	2098	2249	2107	111.7
Manbhoom	4	1697	2448	2530	2808	2736	2633	169.5
Singhbhoom	6	1680	1899	2133	2475	2475	2449	117.1
Gaya	14	1384	1947	1932	2226	2276	2189	95.4
Shahabad	10	1837	1969	2349	2341	2635	2411	131.0
Champaran	6	1162	1430	1714	1929	2167	1646	147.1
Monghyr	6	1210	1522	1639	1865	2016	1656	87.4
S. Parganas	12	1956	2270	2573	2765	2931	2700	117.0
Saran	7	964	1205	1358	1540	1699	1446	89.9
Ranchi	9	1577	2350	2597	2807	3205	2967	119.3
Palamau	3	1125	2825	2523	2386	2757	2290	329.3
Purnea	5	741	942	979	1361	1271	1127	88.2
Darbhangha	7	1610	1819	2175	2228	2545	2198	118.9

Crop :- Paddy (Kharif).

Year :- 1953.

V Type.

TREATMENTS :

1. Control (no manure).
2. 25 lb./ac. of N as A/S.
3. 25 lb./ac. of N as A/S + 20 lb./ac. of P_2O_5 as Super.
4. 25 lb./ac. of N as A/S + 40 lb./ac. of P_2O_5 as B.M.
5. 25 lb./ac. of N as A/S + 40 lb./ac. of P_2O_5 as B.M. + 20 lb./ac. of K_2O as Pot. Sul.
6. 25 lb./ac. of N as A/S + 40 lb./ac. of P_2O_5 as B.M. + 40 lb./ac. of K_2O as Pot. Sul.

RESULTS :

Av. yield of grain in lb./ac.

District.	No. of Expts.	Treatment						S.E.
		(1)	(2)	(3)	(4)	(5)	(6)	
Muzaffarpur	10	1183	1539	1858	1891	1995	1880	84.6
Saharsa	2	957	1584	1759	1687	2057	2047	300.5
Bhagalpur	5	1115	1469	1864	1621	1749	1786	199.3
Patna	14	1668	2089	2352	2159	2288	2330	53.1
Hazaribagh	5	1514	2000	2172	2172	2353	2427	125.7
Manbhoom	4	1759	2674	2952	2911	3024	3003	168.7
Singhbhoom	6	1481	2174	2640	2366	2338	2859	196.9
Gaya	14	1465	1835	2153	1869	2022	2053	67.5
Shahabad	11	1640	2278	2616	2356	2661	2794	84.6
Champaran	6	994	1481	1591	1694	1584	2002	156.1
Monghyr	6	1413	1567	1827	1711	1872	2040	85.6
S. Parganas	12	1226	1755	2208	2002	2201	2304	73.8
Saran	6	1011	1296	1409	1258	1440	1361	82.7
Ranchi	9	1673	2309	2656	2363	2729	2798	135.6
Palamau	4	1502	2510	2016	2036	1790	2098	292.9
Purnea	5	646	885	1378	1004	1078	1177	78.6
Darbhanga	6	1663	2088	2311	2205	2198	2225	123.8

Crop :- Paddy (Kharif).

Year :- 1953.

VI Type.

TREATMENTS :

1. Control (no manure).
2. 20 lb./ac. of N as A/S.
3. 25 lb./ac. of N as A/S + 20 lb./ac. of P_2O_5 as Super.
4. 25 lb./ac. of N as A/S + 40 lb./ac. of P_2O_5 as B.M.
5. 25 lb./ac. of N as A/S + 20 lb./ac. of K_2O as Pot. Sul.
6. 25 lb./ac. of N as A/S + 40 lb./ac. of K_2O as Pot. Sul.

RESULTS :

Av. yield of grain in lb./ac.

District	No. of Expts.	Treatment						S.E.
		(1)	(2)	(3)	(4)	(5)	(6)	
Muzaffarpur.	9	1065	1522	1794	1625	1497	1659	67.7
Saharsa.	2	987	1419	1666	1923	1697	1790	201.4
Bhagalpur.	5	1127	1568	1736	1506	1662	1798	102.6
Patna	14	1703	2116	2383	2231	2253	2179	57.0
Hazaribagh	5	1728	2312	2831	2362	2444	2608	143.4
Manbhoom	4	1821	2911	2633	2705	2376	2839	153.3
Singhbhoom	6	1701	1913	2160	2242	2064	2098	173.2
Gaya	13	1525	2082	2196	2201	2157	2128	76.3
Shahabad	10	1397	2092	2263	2072	1997	2331	100.8
Champaran	6	802	1382	1502	1553	1272	1306	111.5
Monghyr	6	1255	1574	1917	1779	1577	1286	102.6
S. Parganas	12	1308	1826	2193	2138	2016	2097	111.1
Saran	6	946	1310	1563	1341	1289	1423	65.6
Ranchi	9	1687	2043	2473	2519	2341	2409	151.4
Palamau	4	977	1851	2222	2160	1605	1913	253.6
Purnea	5	650	955	1473	1082	1029	1024	71.8
Darbhanga	6	1591	1762	2119	1862	1687	1848	112.1

Crop :- Wheat (*Rabi*).

Year :- 1948.

TREATMENTS :

1. Control (no manure).
2. 10 lb./ac. of N as A/S.
3. 20 lb./ac. of N as A/S.
4. 30 lb./ac. of N as A/S.

RESULTS :

Av. yield of grain in lb./ac.

A. Non-Acidic Soils

District	No. of Expts.	Treatments				S.E.
		(1)	(2)	(3)	(4)	
Patna	42	691	846	935	1128	N.A.
Gaya	27	917	987	1100	1173	
Shahabad	12	508	583	672	850	
Darbhanga	5	724	806	1037	1284	
Champaran	9	320	347	448	540	
Muzaffarpur	7	647	834	964	1152	
Saran	34	605	789	884	1038	
Bhagalpur	10	568	576	675	724	
Monghyr	10	913	1012	1094	1358	

B. Acidic Soils

Contd.

District	No. of Expts.	Treatments				S.E.
		(1)	(2)	(3)	(4)	
S. Parganas	2	411	411	576	617	N.A.
Ranchi	11	419	501	576	651	

Crop :- Wheat (Rabi).

Year :- 1949.

TREATMENTS :

1. Control (no manure).
2. 20 lb./ac. of N as A/S.
3. 30 lb./ac. of N as A/S.
4. 40 lb./ac. of N as A/S.
5. 30 lb./ac. of N and 37.5 lb./ac. of P as A/P.
6. 15 lb./ac. of N and 19 lb./ac. of P as A/P+15 lb./ac. of N and 6 lb./ac. of P as Castor cake.

RESULTS :

Av. yield of grain in lb/ac.

District	No. of Expts.	Treatments						S.E.
		(1)	(2)	(3)	(4)	(5)	(6)	
Patna	71	1004	1334	1388	1549	1578	1586	333.2
Gaya	51	897	1207	1349	1457	1538	1407	418.0
Shahabad	33	778	1077	1122	1182	1261	1132	363.7
Muzaffarpur	41	453	681	753	757	843	827	484.6
Darbhanga	58	525	653	723	866	829	1006	366.2
Saran	45	587	751	810	935	995	1095	221.3
Champanan	24	346	459	494	641	552	655	195.8
Baghalpur	19	472	567	649	680	676	736	261.6
Saharsa	11	300	322	351	404	486	359	71.6
Monghyr	46	492	739	891	955	1136	1166	382.6
Purnea	37	400	678	705	745	887	834	555.4
S. Paraganas	33	506	591	688	793	950	948	137.4
Ranchi	14	264	341	323	376	423	365	209.0
Hazaribagh	10	370	625	485	609	642	691	215.6
Palamau	8	288	443	473	391	586	555	213.1
Manbhoom	10	222	469	568	560	584	592	387.6

Crop :- Wheat (Rabi).

Year :- 1950.

TREATMENTS :

1. Control (no manure).
 2. 40 lb./ac. of N as A/S.
 3. 40 lb./ac. of N as A/S+40 lb./ac. of P_2O_5 as B.M.
 4. 40 lb./ac. of N as A/S+40 lb./ac. of P_2O_5 as Super.
 5. 20 lb./ac. of N as A/S+20 lb./ac. of N and 8 lb./ac. of P as castor cake.
 6. 20 lb./ac. of N as A/S+20 lb./ac. of N and 8 lb./ac. of P as castor cake+40 lb./ac. of P_2O_5 as Super.
 7. *20 lb./ac. of N as A/S+20 lb./ac. of N as compost.
- *Treatment (7) not given under results as full data is N.A.

RESULTS :

Av. yield of grain in lb./ac.

District	No. of Expts.	Treatment						S.E.
		(1)	(2)	(3)	(4)	(5)	(6)	
Patna	93	843	1236	1236	1406	1181	1303	176.1
Gaya	79	807	1214	1178	1410	1215	1360	239.4
Shahabad	66	601	1043	1045	1193	963	1092	154.7
Muzaffarpur	44	473	649	666	765	789	892	62.5
Darbhangha	129	481	733	729	890	810	946	253.4
Saran	45	726	989	949	1254	1061	1245	37.0
Champaran	66	521	779	742	1001	801	949	209.8
Bhagalpur	8	895	997	1070	1326	1080	1193	61.7
Monghyr	53	473	959	697	961	914	1149	265.8
Purnea	43	360	605	625	697	583	599	90.5
S.Paraganas	32	583	833	838	1021	825	1013	222.2
Ranchi	10	428	683	634	815	642	625	126.7
Hazaribagh	18	746	1120	1147	1322	1275	1431	195.0
Palamau	5	329	576	395	477	477	494	181.8
Manbhoom	10	321	642	831	971	847	880	306.9

Crop :- Wheat (Rabi).

Year :- 1951.

TREATMENTS :

1. Control (no manure).
2. 40 lb./ac. of N as A/S.
3. 60 lb./ac. of N as A/S.
4. 40 lb./ac. of N as A/S.+40 lb./ac. of P₂O₅ as Super.
5. 60 lb./ac. of N as A/S.+60 lb./ac. of P₂O₅ as Super.
6. 60 lb./ac. of N as A/S+40 lb./ac. of P₂O₅ as Super+20 lb./ac. of N as compost.

RESULTS :

Av. yield of grain in lb./ac.

(A) Non acidic soils

District	No. of Expts.	Treatment						S.E.
		(1)	(2)	(3)	(4)	(5)	(6)	
Patna	147	829	1162	1247	1331	1426	1389	218.9
Gaya	91	1088	1507	1601	1812	1826	1843	382.6
Shahabad	72	643	1008	1113	1241	1349	1424	297.9
Muzaffarpur	76	685	949	1004	1153	1264	1330	502.8
Darbhangha	93	600	768	880	1092	1179	1269	242.7
Saran	82	640	814	897	1080	1116	1069	136.6
Champaran	29	619	800	854	954	1033	1064	179.4
Bhagalpur	29	752	928	1061	1195	1322	1285	283.9
Saharsa	18	644	869	1015	1198	1381	1673	389.2
Manghyr	107	499	708	791	955	1040	1179	208.2
Purnea	44	529	742	842	969	1064	1159	168.7
S. Paraganas	51	529	750	799	1043	1011	971	277.3

(B) Acidic Soils

Districts	No. of Expts.	Treatment						S.E.
		(1)	(2)	(3)	(4)	(5)	(6)	
Darbhanga	6	796	1577	1344	1399	1591	1467	147.3
Champanan	11	337	531	621	479	718	718	171.2
Purnea	30	401	644	749	636	751	903	149.8
Ranchi	23	564	856	905	897	905	1061	202.4
Palamau	4	103	329	247	185	226	329	322.6
Hazaribagh	18	612	969	1179	1024	1275	1225	283.9
Singbhum	6	411	658	644	685	1043	973	125.9
Manbhum	13	665	1076	1082	1203	1627	1855	286.4

Crop :-Wheat.

Year :-1952 (Rabi).

TREATMENTS :

1. Control (no manure).
2. 30 lb./ac. of N as A/S + 20 lb./ac. of P_2O_5 as Super.
3. 40 lb./ac. of N as A/S + 20 lb./ac. of P_2O_5 as Super.
4. 40 lb./ac. of N as A/S + 40 lb./ac. of P_2O_5 as Super.
5. 40 lb./ac. of N as A/S + 40 lb./ac. of P_2O_5 as Super. + 40 lb./ac. of K_2O as Pot. Sul.
6. 47 lb./ac. of N as (A/S+Compost) + 50 lb./ac. of P_2O_5 as B.M.

RESULTS :

Av. yield of grain in lb./ac.

(A) Non-Acidic Soils

District	No. of Expts.	Treatment						S.E.
		(1)	(2)	(3)	(4)	(5)	(6)	
Patna	70	1023	1486	1465	1585	1752	1525	232.0
Gaya	82	1052	1535	1613	1674	1921	1674	211.5
Shahabad	67	1122	1680	1668	1819	2075	1705	N.A.
Muzaffarpur	37	1210	1697	1706	1842	2013	1874	291.3
Darbhanga	51	1102	1465	1547	1617	1781	1599	471.5
Saharsa	57	1363	1795	1774	1893	2190	1928	311.9
Champanan	17	596	949	1186	1307	1340	1065	278.9
Bhagalpur	30	820	1059	1174	1174	1303	1080	199.1
Monghyr	60	908	1298	1317	1470	1664	1590	339.8
Purnea	22	1044	950	1145	1215	1369	1122	193.4

(B) Acidic Soils

District	No. of Expts.	Treatment						S.E.
		(1)	(2)	(3)	(4)	(5)	(6)	
Champanan	20	679	1201	1461	1185	1243	1173	267.4
Purnea	17	581	862	1055	1070	1331	1191	195.8
S. Pargana	29	792	1087	1226	1201	1660	1470	260.0
Palamau	17	615	1123	1011	1162	1476	1279	103.7
Hazaribagh	24	768	1159	1446	1354	1481	1272	558.7
Singbhum	6	1138	1536	1701	1619	2345	1673	135.8
Manbhum	15	444	796	894	702	916	1086	144.8

Crop :- Wheat
I Type.

Year :- 1953 (Rabi).

TREATMENTS :

1. Control (no manure)
2. 25 lb./ac. of N as A/S.
3. 50 lb./ac. of N as A/S.
4. 25 lb./ac. of N as A/S+20 lb./ac. of P_2O_5 as Super.
5. 25 lb./ac. of N as A/S+40 lb./ac. of P_2O_5 as Super.
6. 25 lb./ac. of N as A/S+40 lb./ac. of P_2O_5 as B.M.+20 lb./ac. of K_2O as Pot. Sul.

RESULTS :

Av. yield of grain in lb./ac.

District	No. of Expts.	Treatment						S.E.
		(1)	(2)	(3)	(4)	(5)	(6)	
Patna	15	756	1018	1181	1118	1264	1181	26.3
Muzaffarpur	10	800	1164	1493	1382	1506	1549	67.9
Darbhanga	7	782	1111	1187	1293	1405	1325	89.1
Saran	9	743	1115	1321	1221	1438	1385	60.7
Champanan	6	631	799	909	957	1083	1049	44.0
Bhagalpur	6	689	981	1217	1152	1135	1385	61.5
Saharsa	2	720	1173	1306	1358	1800	1995	63.2
Monghyr	10	815	1018	1177	1339	1419	1557	126.9
Purnea	4	674	854	910	1101	1173	1049	45.1
S. Pargana	8	581	771	1111	1116	1327	1301	211.5
Gaya	14	1034	1409	1619	1587	1812	1775	59.7
Shahabad	11	799	1098	1289	1416	1476	1444	60.3
Ranchi	2	165	247	350	309	391	411	57.4
Hazaribagh	4	669	1471	1677	1707	1450	1594	115.8
Manbhum.	3	562	754	1001	837	1070	960	90.9
Singhbhum	3	590	1440	741	1385	1646	2002	266.0

Crop :- Wheat.
II Type.

Year :- 1953 (Rabi).

TREATMENTS :

1. Control (no manure)
2. 25 lb./ac. of N as A/S.
3. 50 lb./ac. of N as A/S.
4. 25 lb./ac. of N as A/S+20 lb./ac. of P_2O_5 as Super.
5. 25 lb./ac. of N as A/S+40 lb./ac. of P_2O_5 as Super.
6. 25 lb./ac. of N as A/S+20 lb./ac. of K_2O as Pot. Sul.

RESULTS :

Av. yield of grain in lb./ac.

District	No. of Expts.	Treatment						S.E.
		(1)	(2)	(3)	(4)	(5)	(6)	
Patna	15	772	1016	1236	1186	1310	1094	42.7
Muzaffarpur	9	724	1109	1355	1445	1589	1189	72.1
Darbhanga	7	846	1079	1378	1228	1367	1228	81.9

(Contd.)

Districts	No. of Expts.	Treatment						S.E.
		(1)	(2)	(3)	(4)	(5)	(6)	
Saran	9	695	1099	1406	1355	1483	1173	70.2
Champanan	6	782	891	998	1053	1183	905	79.0
Bhagalpur	6	682	898	1114	1053	1053	915	60.7
Saharsa	2	1018	1275	1625	1605	1738	1666	244.2
Monghyr	8	558	771	903	1124	1291	846	68.8
Purnea	4	694	987	1023	1219	1322	1034	75.1
S. Pargana	8	643	879	1203	1286	1378	967	61.4
Gaya	14	995	1311	1596	1640	1763	1314	60.5
Shahabad	11	735	1036	1103	1217	1202	1051	51.0
Ranchi	3	233	398	494	494	411	357	76.3
Hazaribagh	3	713	1330	1522	1495	1481	1426	154.2
Manbhumi	3	631	946	1125	1358	1577	974	155.1
Singhbhum	2	1111	1646	1851	2613	2510	2057	170.8

Crop :- Wheat.

Year :- 1953 (Rabi).

III Type.

TREATMENTS :

1. Control (no manure)
2. 25 lb./ac. of N as A/S.
3. 50 lb./ac. of N as A/S.
4. 50 lb./ac. of N as A/S+20 lb./ac. of P_2O_5 as Super.
5. 50 lb./ac. of N as A/S+40 lb./ac. of P_2O_5 as Super.
6. 50 lb./ac. of N as A/S+40 lb./ac. of P_2O_5 as Super+40 lb./ac. of K_2O as Pot. Sul.

RESULTS :

Av. yield of grain in lb./ac.

District	No. of Expts.	Treatment						S.E.
		(1)	(2)	(3)	(4)	(5)	(6)	
Patna.	14	923	1167	1289	1434	1524	1527	37.2
Muzaffarpur	10	1041	1399	1607	1816	1975	1985	74.7
Darbhanga.	7	826	1205	1367	1281	1543	1625	121.6
Saran.	9	944	1294	1429	1515	1909	2071	110.7
Champanan.	6	480	717	799	853	1008	1118	112.9
Bhagalpur.	5	1041	1008	1148	1300	1296	1428	85.2
Saharsa.	2	1008	1605	1769	1954	2109	2314	25.9
Monghyr.	11	675	858	956	1234	1384	1489	76.7
Purnea	4	622	864	915	1008	1137	1281	47.9
S. Pargana.	8	638	874	1142	1245	1522	1707	111.1
Gaya	14	1017	1327	1581	1709	1807	1865	60.5
Shahabad.	13	866	1082	1179	1282	1405	1617	56.4
Ranchi.	3	274	398	411	521	562	562	46.3
Hazaribagh.	5	872	1168	1358	1580	1679	1695	89.9
Singhbhum.	2	761	1131	1399	1893	2016	2818	91.3

Crop :- Wheat.

Year :- 1953. (Rabi).

IV Type.

TREATMENTS :

1. Control (no manure).
2. 25 lb./ac. of N as A/S.
3. 50 lb./ac. of N as A/S.
4. 50 lb./ac. of N as A/S+20 lb./ac. of P_2O_5 as Super.
5. 50 lb./ac. of N as A/S+40 lb./ac. of P_2O_5 as Super.
6. 50 lb./ac. of N as A/S+40 lb./ac. of K_2O as Pot. Sul.

RESULTS :

Av. yield of grain in lb./ac.

District	No. of Expts.	Treatment						S.E.
		(1)	(2)	(3)	(4)	(5)	(6)	
Patna	14	730	1039	1111	1212	1311	1156	36.2
Muzaffarpur	10	786	1136	1358	1323	1520	1315	63.2
Darbhanga	7	855	1237	1508	1443	1534	1408	97.1
Saran	9	917	1083	1330	1392	1630	1321	101.0
Champanan	6	545	833	981	1097	1104	1018	53.9
Bhagalpur	4	921	1219	1522	1373	1430	1574	83.1
Saharsa	2	1203	1718	1944	2067	2201	2047	89.1
Monghyr	10	562	679	837	983	1261	940	73.9
Purnea	4	607	859	864	1034	1214	895	43.0
S. Pargana	8	617	874	1080	1286	1558	1059	88.0
Gaya	14	998	1312	1537	1709	1824	1634	44.6
Shahabad	11	860	1085	1214	1289	1485	1363	73.9
Ranchi	3	178	274	302	494	494	343	45.9
Hazaribagh	4	710	1121	1224	1358	1461	1183	136.0
Manbhum	2	720	1131	1461	1419	1646	1440	186.8

Crop :- Wheat.

Year 1953 (Rabi)

V Type.

TREATMENTS :

1. Control (no manure)
2. 25 lb./ac. of N as A/S.
3. 25 lb./ac. of N as A/S+20 lb./ac. of P_2O_5 as Super.
4. 25 lb./ac. of N as A/S+40 lb./ac. of P_2O_5 as B.M.
5. 25 lb./ac. of N as A/S+40 lb./ac. of P_2O_5 as B.M.+20 lb./ac. of K_2O as Pot. Sul.
6. 25 lb./ac. of N as A/S+40 lb./ac. of P_2O_5 as B.M.+40 lb./ac. of K_2O as Pot. Sul.

RESULTS :

Av. yield of grain in lb./ac.

District	No. of Expts.	Treatment.						S.E.
		(1)	(2)	(3)	(4)	(5)	(6)	
Patna	15	848	1063	1260	1156	1267	1240	45.9
Muzaffarpur	9	731	999	1339	1113	1218	1227	62.3
Darbhanga	7	632	920	1211	1084	1187	1081	78.2

Contd.

(Contd.)

District	No. of Expts.	Treatment						S.E.
		(1)	(2)	(3)	(4)	(5)	(6)	
Saran	9	654	1035	1246	1319	1097	1173	94.3
Champaran	6	555	761	902	813	878	936	45.2
Bhagalpur	4	689	766	885	977	987	982	121.1
Saharsa	2	1049	1378	1656	1409	1049	1594	203.2
Monghyr	9	603	802	1058	896	1067	1232	81.8
Purra	4	569	697	1030	733	876	835	37.4
S. Pargana	8	509	751	1029	998	967	1054	53.2
Gaya	14	1018	1367	1682	1649	1660	1665	64.6
Shahabad	11	840	1249	1496	1212	1348	1451	68.5
Ranchi	2	247	411	617	576	597	597	79.9
Hazaribagh	4	566	843	1131	1018	1245	1173	86.7

Crop :- Wheat.
VI Type.

Year :- 1953. (Rabi).

TREATMENTS :

1. Control (no manure).
2. 25 lb./ac. of N as A/S
3. 25 lb./ac. of N as A/S+20 lb./ac. of P_2O_5 as Super.
4. 25 lb./ac. of N as A/S+40 lb./ac. of P_2O_5 as B.M.
5. 25 lb./ac. of N as A/S+20 lb./ac. of K_2O as Pot. Sul.
6. 25 lb./ac. of N as A/S+40 lb./ac. of K_2O as Pot Sul.

RESULTS :

Av. yield grain of in lb./ac.

District	No. of Expts.	Treatment						S.E.
		(1)	(2)	(3)	(4)	(4)	(6)	
Patna	14	799	1190	1255	1109	1181	1220	26.7
Muzaffarpur	10	741	989	1253	1152	1121	1216	53.0
Darbhanga	7	699	893	1061	970	993	940	44.6
Saran	9	679	949	1234	1038	1026	1136	49.9
Champaran	6	453	624	802	679	991	699	106.4
Bhagalpur	2	699	699	1029	1059	926	463	191.1
Saharsa	2	761	1512	2026	1769	1584	2109	214.5
Monghyr	8	651	879	1448	1180	1003	1131	61.1
Purnea	4	566	746	1039	859	874	879	34.8
S. Paragna	8	473	663	931	895	777	725	48.7
Gaya	13	978	1332	1650	1532	1370	1279	72.6
Shahabad	11	707	1081	1184	1120	1081	1210	69.9
Ranchi	3	233	315	453	370	274	357	50.4
Hazaribagh	5	773	1045	1333	1292	1251	1317	76.3
Manbhum	2	597	802	1563	1173	1008	987	101.8

Crop :- Barley.

Year :- 1948 (Rabi)

TREATMENTS :

1. Control (no manure)
2. 10 lb./ac. of N as A/S.
3. 20 lb./ac. of N as A/S.
4. 30 lb./ac. of N as A/S.

RESULTS :

Av. yield of grain in lb./ac.

District	No. of Expts.	Treatment				S.E.
		(1)	(2)	(3)	(4)	
Patna	22	830	909	1006	1145	N.A.
Gaya	13	557	677	792	823	
Shahabad	15	653	823	883	1043	
Bhagalpur	7	318	305	365	423	
Monghyr	8	978	1049	1131	1285	
S. Paragana	2	329	494	741	1070	
Saran	28	611	776	864	1064	
Darbhangha	4	802	905	1111	1317	
Champan	2	576	658	741	864	
Muzaffarpur	8	854	792	885	956	
Ranchi	8	494	525	555	597	

Crop :- Maize.

Year :- 1950. (Kharif).

TREATMENTS :

1. Control (no manure).
2. 40 lb./ac. of N as A/S.
3. 40 lb./ac. of N as A/S+40 lb./ac. of P_2O_5 as B.M.
4. 20 lb./ac. of N as AtS+20 lb./ac. of N as Oil-cake.
5. 20 lb./ac. of N as A/S+40 lb./ac. of P_2O_5 as Super+20 lb./ac. of N as Oil-cake.
6. 20 lb./ac. of N as A/S+40 lb./ac. of P_2O_5 as Super+20 lb./ac. of N as Compost.

RESULTS :

Av. yield of grain in lb./ac.

District	No. of Expts.	Treatment						S.E.
		(1)	(2)	(3)	(4)	(5)	(6)	
Patna	19	593	1225	1079	1317	1321	1399	251.8
Gaya	11	516	905	868	958	973	1017	216.4
Shahabad	6	411	1084	1056	1084	823	878	282.2
Muzaffarpur	23	569	852	891	1127	955	1012	176.1
Darbhangha	9	807	1545	1198	1490	1682	1701	306.9
Saran	15	620	817	878	1108	1191	1284	210.6
Champan	8	411	535	627	802	1029	1162	83.9

(Contd.)

District	No. of Expts.	Treatment						S.E.
		(1)	(2)	(3)	(4)	(5)	(6)	
Monghyr	28	717	1234	1246	1346	1285	1405	279.8
S. Paraganas	5	593	708	823	1103	757	856	118.5
Ranchi	2	329	658	658	658	741	576	111.9
Singhbhum	2	329	494	494	576	576	658	116.8
Hazaribagh	9	558	1125	1234	1600	1152	1399	326.7
Manbhum	11	202	704	815	838	755	868	297.9
Palamau	6	644	1426	1097	1742	1536	1656	343.1
Over all	154	521	941	926	1125	1055	1133	

Crop :- Maize.

Year :- 1951. (Kharif)

TREATMENTS :

1. Control (no manure).
2. 40 lb./ac. of N as A/S.
3. 60 lb./ac. of N as A/S.
4. 40 lb./ac. of N as A/S.+40 lb./ac. of P₂O₅ as Super.
5. 60 lb./ac. of N as A/S.+40 lb./ac. of P₂O₅ as Super.
6. 40 lb./ac. of N as A/S+40 lb./ac. of P₂O₅ as Super+20 lb./ac. of N as compost.

RESULTS :

Av. yield of grain in lb./ac.

(A) Non acidic Soils

District	No. of Expts.	Treatment						S.E.
		(1)	(2)	(3)	(4)	(5)	(6)	
Patna	36	896	1392	1507	1563	1651	1652	742.2
Gaya	8	750	895	946	1090	1019	997	131.7
Shahabad	16	756	1121	1332	1614	2108	1954	386.7
Muzaffarpur	28	1240	1502	1622	1930	2042	2057	308.6
Darbhanga	59	1034	1361	1473	1563	1716	1750	228.7
Saran	47	852	1113	1256	1428	1469	1359	288.0
Champanan	23	759	959	1073	1152	1252	1338	121.8
Bhagalpur	31	838	1046	1107	1261	1261	1219	246.9
Purnea	3	741	1070	932	1152	932	932	128.4
Monghyr	72	820	1128	1225	1382	1434	1336	148.9
S. Paraganas	13	703	1215	1387	1601	1677	1766	1120.7
Overall	336	854	1164	1260	1431	1506	1487	

(B) Acidic Soils

District	No. of Expts.	Treatment						S.E.
		(1)	(2)	(3)	(4)+L	(5)+L	(6)	
Palamau	6	562	809	878	850	919	973	152.2
Hazaribagh	14	688	993	1128	1122	1264	1264	245.2
Champanan	3	713	1152	1289	1207	1015	1289	271.5
Over all	23	654	985	1099	1060	1066	1084	

L : 10 lbs. lime/ac. for acidic soils.

Crop :- Maize.

Year :- 1953.

TREATMENTS :

1. Control (no manure).
2. 25 lb./ac. of N as A/S.
3. 50 lb./ac. of N as A/S.
4. 25 lb./ac. of N as A/S+25 lb./ac. of P_2O_5 as Super.
5. 25 lb./ac. of N as A/S+40 lb./ac. of P_2O_5 as Super.
6. 25 lb./ac. of N as A/S+20 lb./ac. of P_2O_5 as Super+20 lb./ac. of K_2O as Pot, Sul.

RESULTS :

Av. yield of grain in lb./ac.

District	No. of Expts.	Treatment						S.E.
		(1)	(2)	(3)	(4)	(5)	(6)	
Patna	22	782	1305	1543	1499	1503	1540	49.17
Gaya	2	679	843	1101	1183	1049	1121	55.57
Shahabad	15	438	757	817	953	983	935	76.53
Bhagalpur	10	584	862	1099	1099	1105	1187	49.78
Monghyr	47	526	676	786	807	894	866	20.63
Puea	6	360	511	645	682	754	909	14.20
S.Paraganas	10	514	749	874	684	1027	952	53.90
Muzaffarpur	39	936	1211	1439	1441	1545	1587	24.07
Saran	46	678	841	1026	938	1006	1130	24.89
Champaran	28	506	720	855	838	926	907	19.13
Darbhangha	6	1001	1245	1306	1210	1454	1265	71.57
Ranchi	6	521	693	734	720	693	720	30.32
Palamau	14	485	1046	1752	1032	1390	1243	87.84
Manbhoom	5	148	230	354	436	444	477	66.86
Hazaribagh	6	377	507	542	617	597	665	34.36

Crop :- Maize.

Year :-1949 (Kharif).

TREATMENTS :

1. Control. (no manure)
2. 20 lb./ac. of N as A/S.
3. 30 lb./ac. of N as A/S.
4. 40 lb./ac. of N as A/S.
5. 30 lb./ac. of N as A/S + 37.5 lb./ac. of P as A/P.
6. 15 lb./ac. of N and 19 lb./ac. of P as A/P + 15 lb./ac. of N and 6 lb./ac. of P as Castor cake.

RESULTS :

Av. yield of grain in lb./ac.

(A) Non-Acidic Soils

District	No. of Expts.	Treatment						S.E.
		(1)	(2)	(3)	(4)	(5)	(6)	
Patna	2	453	699	782	864	864	1111	58.4
Shahabad	7	681	787	1081	834	964	517	219.7
Gaya	7	529	588	694	881	705	729	177.7
Bhagalpur	4	103	350	473	288	350	288	199.1
Monghyr	15	389	537	592	751	658	708	178.6
Saran	28	750	802	922	1122	1105	1229	205.7
Champanan	11	583	643	793	1040	1070	980	215.6
Muzaffarpur	18	599	741	900	1020	978	1243	208.2
Darbhanga	20	992	1251	1284	1502	1448	1518	325.0
Over all	112	564	712	836	923	905	925	

(B) Acidic Soils

District	No. of Expts.	Treatment						S.E.
		(1)	(2)	(3+L)	(4+L)	(5)	(6)	
S. Parganas	7	787	1246	1552	1716	1693	1234	231.2
Ranchi	3	384	658	850	796	932	685	178.6
Over all	10	586	952	1201	1256	1312	960	

L : 10 lb. lime/ac. for acidic soils.

Crop :- Gram.

Year :- 1948. (Rabi)

TREATMENTS :

1. Control (no manure).
2. 30 lb./ac. of P_2O_5 as Super.
3. 40 lb./ac. of P_2O_5 as Super.
4. 40 lb./ac. of P_2O_5 as B.M.

RESULTS :

Av. yield of grain in lb./ac.

District	No. of Expts.	Treatment			
		(1)	(2)	(3)	(4)
Patna	23	680	705	765	866
Gaya	26	766	797	816	876
Shahabad	19	862	1009	1035	1135
Purnea	9	211	283	329	494
Bhagalpur	8	576	690	648	699
Santhal Parganas	4	165	247	288	432
Monghyr	5	411	411	444	510
Saran	25	428	494	550	566
Darbhanga	6	837	932	1125	1358
Muzaffarpur	7	717	658	705	799
Champanan	8	718	690	782	874
Ranchi	7	223	211	211	282
Palamau	4	720	761	720	741

Crop :- Gram.

Year :- (Rabi).

TREATMENTS :

1. Control (no manure).
2. 20 lb./ac. of P_2O_5 .
3. 20 lb./ac. of P_2O_5 .
4. 40 lb./ac. of P_2O_5 .

RESULTS :

Av. yield of grain in lb./ac.

District	No. of Expts.	Treatments				S.E
		(1)	(2)	(3)	(4)	
Patna	24	607	679	772	874	95.5
Gaya	43	515	680	756	905	125.9
Shahabad	33	668	838	920	1012	201.6
Muzaffarpur	19	585	702	754	823	118.5
Darbhanga	13	393	494	607	747	92.2
Saran	26	535	636	737	876	80.6
Champanan	6	192	261	329	411	45.3
Bhagalpur	20	490	547	606	704	103.7
Monghyr	27	329	518	612	725	138.2
Purnea	7	176	211	353	376	120.1
S. Panaganas	11	337	509	569	778	150.6
Ranch	9	128	192	211	201	36.2
Palamau	8	216	339	370	402	73.2
Hazaribagh	7	271	518	588	647	143.2
Singhbhum	7	423	694	870	1034	263.3
Manbhum	6	508	658	891	1029	61.7

Crop :- Gram.

Year :- 1950. (Rabi).

TREATMENTS :

1. Control (no manure).
2. 30 lb./ac. of P_2O_5 as Super.
3. 40 lb./ac. of P_2O_5 as Super.
4. 40 lb./ac. of P_2O_5 as B.M.

RESULTS :

Av. yield of grain in lb./ac.

District	No. of Expts.	Treatments				S.E.
		(1)	(2)	(3)	(4)	
Patna	22	572	692	819	688	65.
Gaya	63	478	672	781	663	125.1
Shahabad	69	467	698	830	661	248.5
Muzaffarpur	23	573	798	834	805	278.1
Darbhanga	27	326	433	503	427	70.8
Saran	28	561	717	861	667	130.0
Champan	9	274	448	467	375	159.6
Baghalpur	6	631	713	796	685	38.7
Monghyr	39	591	770	1057	815	195.0
Purnea	5	99	115	115	99	22.2
S. Paraganas	17	397	682	866	527	172.8
Palamau	5	99	148	263	181	255.1
Hazaribagh	19	641	1122	1096	901	283.1
Manbhum	3	27	55	55	82	14.8
Singhbhum	9	238	274	238	265	125.9

Crop :- Gram.

Year :- 1945. (Rabi).

TREATMENTS :

1. Control (no manure).
 2. 40 lb./ac. of P_2O_5 as Super.
 3. 20 lb./ac. of N as A/S. + 40 lb./ac. of P_2O_5 as Super
 4. 20 lb./ac. of N as A/S. + 40 lb./ac. of P_2O_5 as B.M.
- (* 10 lb./ac. of lime given in addition to P_2O_5 in acidic soils.)

RESULTS :

Av. yield of grain in lb./ac.

(A) Non-Acidic Soils

District	No. of Expts.	Treatments				S.E.
		(1)	(2)	(3)	(4)	
Patna	32	622	810	928	890	60.1
Gaya	17	794	968	1132	1050	137.4
Shahabad	29	630	936	973	976	203.2
Muzaffarpur	15	697	899	982	1080	240.3
Darbhanga	12	672	802	905	885	144.0
Saran	10	650	815	1029	839	153.0
Bhagalpur	5	543	790	938	823	102.0
Saharsa	3	220	384	494	741	46.9
Purnea	10	337	502	543	485	123.4
Monghyr	21	580	885	932	1011	207.4
S. Paraganas	18	375	499	558	289	78.2

B. Acidic Soils.

District	No. of Expts.	Treatment				S.E.
		(1)	(2)	(3)	(4)	
Ranchi	4	165	206	350	329	35.4
Hazaribagh	14	552	770	929	1011	283.9
Palamau	5	132	197	230	280	64.2
Singhbhoom	23	279	393	562	569	154.7
Manbhoom	3	617	935	1399	1399	158.0
Darbhanga	4	411	576	555	555	37.0

Crop :- Gram.
I Type.

Year :- 1953 (Kharif).

TREATMENTS :

1. Control (no manure).
2. 20 lb./ac. of P_2O_5 as Super.
3. 40 lb./ac. of P_2O_5 as Super.
4. 25 lb./ac. of N as A/S+20 lb./ac. of P_2O_5 as Super.
5. 25 lb./ac. of N as A/S+40 lb./ac. of P_2O_5 as Super.
6. 25 lb./ac. of N as A/S+20 lb./ac. of P_2O_5 as Super+40 lb./ac. of K_2O as Pot. Sul.

RESULTS :

Av. yield of grain. in lb./ac.

District	No. of Expts.	Treatment						S.E.
		(1)	(2)	(3)	(4)	(5)	(6)	
Patna	28	710	882	992	1016	1145	1118	60.48
Gaya	36	750	1059	1194	1202	1331	1260	34.97
Shahabad	30	866	1085	1265	1278	1385	1275	37.03
Muzaffarpur	20	629	763	900	890	1035	965	24.27
Saran	16	546	775	1026	994	1207	1086	47.31
Champanan	8	401	584	633	658	820	756	52.05
Bhagalpur	3	480	761	905	823	1022	1042	77.76
Monghyr	5	497	573	638	747	826	912	88.66
Hazaribagh	3	439	699	987	905	1303	1097	67.06
Singhbhoom	2	370	514	597	494	555	679	88.87

Crop :- Gram.

Year :- 1953.

II Type.

TREATMENTS :

1. Control (no manure).
2. 5 lb./ac. of N as A/S.+20 lb./ac. of P_2O_5 as Super.
3. 20 lb./ac. of P_2O_5 as B.M.
4. 10 lb./ac. of N as A/S+40 lb./ac. of P_2O_5 as Super.
5. 40 lb./ac. of P_2O_5 as B.M.
6. 20 lb./ac. of P_2O_5 as Super+40 lb./ac. of K_2O as Muriate of Potash.

RESULTS :

Av. yield of grain in lb./ac.

District	No. of Expts.	Treatment						S.E.
		(1)	(2)	(3)	(4)	(5)	(6)	
Patna	27	639	821	906	949	1080	911	23.04
Gaya	31	707	993	1198	1005	1157	1123	48.55
Shahabad	33	722	936	979	1047	1163	984	27.98
Muzaffarpur	22	579	689	808	747	840	807	29.01
Saran	16	518	684	786	899	1040	734	58.42
Champanan	8	327	450	612	576	712	594	53.28
Bhagalpur	2	463	504	761	658	741	710	94.22
Monghyr	4	406	545	710	653	838	658	31.06
Hazaribagh	3	329	576	768	823	1166	837	75.09
Singhbhoom	2	206	247	309	329	453	370	20.16

Crop :- Maruwa.

Year :- 1953.

TREATMENTS :

1. Control (no manure).
2. 25 lb./ac. of N as A/S.
3. 50 lb./ac. of N as A/S.
4. 25 lb./ac. of N as A/S+20 lb./ac. of P_2O_5 as Super.
5. 25 lb./ac. of N as A/S+40 lb./ac. of P_2O_5 as Super.
6. 25 lb./ac. of N as A/S+20 lb./ac. of P_2O_5 as Super+20 lb./ac. of K_2O as Pot. Sul.

RESULTS :

Av. yield in lb./ac.

District	No. of Expts.	Treatment						S.E.
		(1)	(2)	(3)	(4)	(5)	(6)	
Patna	24	691	890	1018	943	1090	1097	22.1
Gaya	32	676	1008	1241	1097	1227	1205	23.7
saharsa	18	574	705	805	847	991	974	43.2
Monghyr	3	734	871	939	919	1097	1166	44.9
S. Pargana	4	432	562	706	837	1248	1845	103.6
Purnea	6	343	494	535	590	576	631	14.9
Darbhanga	12	1059	1359	1543	1505	1615	1490	52.4
Ranchi	42	608	912	1001	1021	1103	1167	36.8

Crop :- Rahar.

Year :- 1950. (Rabi).

TREATMENTS :

1. Control (no manure).
2. 30 lb./ac. of P_2O_5 as Super.
3. 40 lb./ac. of P_2O_5 as Super.
4. 40 lb./ac. of P_2O_5 as B.M.

RESULTS :

Av. yield of grain in lb./ac.

District	No. of Expts.	Treatment				S.E.
		(1)	(2)	(3)	(4)	
Patna	22	643	868	924	876	194.2
Gaya	27	801	1122	1335	1085	141.5
Shahabad	13	569	811	842	959	263.3
Muzaffarpur	26	579	826	950	823	384.3
Darbhanga	2	329	494	535	453	112.7
Saran	12	590	946	891	960	300.3
Champaran	6	562	768	1001	768	135.8
Monghyr	15	620	1020	1146	977	385.1
Purnea	2	329	576	782	576	618.8
Ranchi	7	24	47	71	35	N.A.
Palamau	1	494	987	1152	823	N.A.
Hazaribagh	10	313	428	535	395	N.A.
Singhbhoom	2	370	453	576	453	N.A.
Manbhoom	8	155	750	566	329	N.A.
Over	153	556	832	923	792	N.A.

Crop :- Rahar.

Year :- 1951 (Rabi).

TREATMENTS :

1. Control (no manure).
2. 40 lb./ac. of P_2O_5 as Super.
3. 20 lb./ac. of P_2O_5 as Super.
4. 20 lb./ac. of P_2O_5 as Super + 40 lb./ac. of P_2O_5 as B.M.

RESULTS :

Av. yield in lb./ac.

District	No. of Expts.	Treatment				S.E.
		(1)	(2)	(3)	(4)	
Patna	17	885	1020	1336	1172	146.4
Gaya	32	992	1317	1440	1466	121.3
Shahabad	7	411	634	834	1023	91.3
Muzaffarpur	17	707	1219	1389	1414	357.9
Saran	4	967	1461	1831	1296	413.9
Bhagalpur	13	1051	1544	1956	1526	302.0
Purnea	6	343	508	644	494	81.4
Monghyr	28	643	952	1137	1020	200.8

Crop :- Rahar.

Year :- 1958 (Rabi).

I Type

TREATMENTS :

1. Control (no manure).
2. 20 lb./ac. of P_2O_5 as Super.
3. 40 lb./ac. of P_2O_5 as Super.
4. 25 lb./ac. of N as A/S+20 lb./ac. of P_2O_5 as Super.
5. 25 lb./ac. of N as A/S+40 lb./ac. of P_2O_5 as Super.
6. 25 lb./ac. of N as A/S+20 lb./ac. of P_2O_5 as Super+40 lb./ac. of K_2O as Pot.Sul.

RESULTS :

Av. yield of grain in lb./ac.

District	No. of Expts.	Treatment						S.E.
		(1)	(2)	(3)	(4)	(5)	(6)	
Shahabad	8	833	1134	1077	1353	1507	1257	87.63
Hazaribagh	8	494	684	838	792	1080	1054	92.37
Manbhoom	2	247	432	597	432	617	699	70.56
Singhbhoom	3	425	576	466	686	686	727	75.50

Crop :- Rahar.

Year :- 1953 (Rabi).

II Type.

TREATMENTS :

1. Control (no manure).
2. 10 lb./ac. of N as A/S+20 lb./ac. of P_2O_5 as Super.
3. 20 lb./ac. of P_2O_5 as B.M.
4. 10 lb./ac. of N as A/S+40 lb./ac. of P_2O_5 as Super.
5. 40 lb./ac. of P_2O_5 as B.M.
6. 20 lb./ac. of P_2O_5 as Super+40 lb./ac. of K_2O as Muriate of Potash.

RESULTS :

Av. yield of grain in lb./ac.

District	No. of Expts.	Treatment						S.E.
		(1)	(2)	(3)	(4)	(5)	(6)	
Gaya	2	741	1070	1008	1070	1296	1111	49.8
Shahabad	6	730	922	1042	1162	1056	915	101.4
Ranchi	2	576	617	967	741	802	782	185.6
Hazaribagh	8	391	525	586	823	823	741	39.7
Singhbhoom	3	617	699	946	967	1029	926	142.8