NATIONAL INDEX

OF

AGRICULTURAL

FIELD

EXPERIMENTS

VOL. 2 PART 3

NORTH EASTERN REGION

(ASSAM, MANIPUR, NAGALAND AND TRIPURA)

1960—65

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FOREWORD

The I. C. A. R. has adopted the 'Co-ordinated approach' to crop improvement as its strategy in agricultural research. This approach is based on the principle of giving high priority to problem solving research and for the purpose an intimate knowledge of research in progress and trends of results is very essential. To give impetus to this approach, I. C. A. R. started a scheme for collecting data of all field experiments conducted in the country. It was aimed at compilation of agronomic experiments in the country, with a view to indicate the gaps in the knowledge and to avoid duplication. The scheme entitled : "National Index of Field Experiments" is running under the Institute of Agricultural Research Statistics which has rendered a very valuable service by preparing compendia of agricultural field experiments conducted in the country. Two series of the compendia containing results of about 7,200 and 12,000 experiments conducted during the periods 1948-53 and 1954-59 respectively have already been published by the Institute. The present is the third series of compendia and is expected to contain the results of about 18,000 experiments conducted during the period 1960-65.

The number and the types of experiments have been increasing at a fast rate. Further, many of the experiments were being repeated over a number of years. The conclusions drawn from such experiments should take into account the seasonal variations. For this purpose, it was necessary to carry out consolidated analysis of results over years. Thus the task of compilation, analysis and interpretation of results of experiments being covered in the third series became more formidable compared to those covered in the earlier two series.

The preparation of this compendium has been possible by the whole-hearted co-operation of State Departments of Agriculture, Agricultural Universities and Central Research Institutes who ungrudgingly made the results of their experimental research available. My thanks are due to various officers of these institutions for participating in this work.

I hope that the present series will be followed by periodical publications of similar compendia for later years in order that the availability of results of scientific experiments in agriculture in India may be maintained up-to-date in a consolidated form.

B. K. SONI
Deputy Director General (AS)
Indian Council of Agricultural Research

NEW DELHI,
January 1, 1973.

PREFACE

The present set of volumes forms Part III in the series of compendia of Agricultural Field Experiments being published under the project of National Index of Field Experiments. Volumes comprising in Parts I and II of the series pertaining to the periods 1948-53 and 1954-59 were published in 1962 and 1965 and contained the results of about 7,200 and 12,000 experiments respectively. The present volumes include results of experiments conducted during the period 1960-65. During the last one decade there has been an enormous increase in agricultural research and experimentation so much so that, for the period 1960--65 to which the present volumes refer, results of about 18,000 experiments are available.

Like the earlier two series, the compendium for Part III is divided into 15 volumes, one each for (1) Andhra Pradesh, (2) North Eastern Region (Assam, Manipur, Nagaland, Meghalaya, Tripura, Arunachal Pradesh and Mizoram), (3) Bihar, (4) Gujarat, (5) Kerala, (6) Madhya Pradesh, (7) Maharashtra, (8) Mysore, (9) Orissa, (10) North Western Region (Punjab, Haryana, Jammu & Kashmir and Himachal Pradesh), (11) Rajasthan, (12) Tamil Nadu, (13) Uttar Pradesh, (14) West Bengal and (15) All Central Institutes. A departure has, however, been made in the presentation of the material contained in each volume. Whereas the results of individual experiments were presented in the volumes of previous series, the present series contains results of pooled statistical analysis of experiments that were conducted for two or more years and concluded during the period 1960-65. In respect of those experiments conducted only for one year, and also those conducted for more than one year but were continuing beyond 1965, the results of individual experiments have been presented.

The work under the scheme was carried out at the Institute of Agricultural Research Statistics. Collection of data from different research stations, their scrutiny and preliminary analysis were carried out in successive periods under the charges of Shri T.P. Abraham, Assistant Statistical Adviser, now Joint Director, Central Statistical Organisation ; Dr. B.N. Tyagi, Senior Statistician, now Joint Director of Agriculture (Statistics), Uttar Pradesh and Shri M.G. Sardana, Senior Statistician, now Officer-on-Special Duty, Central Statististical Organisation. Shri O.P. Kathuria, Junior Statistician, now Statistician in Indian Agricultural Research Institute was also associated.

Preparation of material for inclusion in the third series of compendia volumes and their printing was carried out under the guidance of Shri K.S. Krishnan, Senior Statistician. Shri R.K. Khosla and Shri P.N. Soni, Junior Statisticians, were responsible for the actual working of the scheme till October 1973 and thereafter respectively.

The collection of data of experiments from various research stations was done by the regional staff of the Institute placed in different States. They deserve to be congratulated for the hard work they have put in. The tabulation of the large volume of data involved was facilitated by the assistance rendered by the staff of the computer centre located at the Institute. S/Shri P.P. Rao, M.P. Saksena, S.L. Garg, R.K. Jain, G.V.S.R. Krishna, Kuldip Singh and S.S. Kutaula, statistical staff of the Institute deserve mention for the careful and painstaking work in the analysis of data, combination of results of similar experiments and proof reading of the compendia volumes.

Thanks are due to the State Departments of Agriculture, the Central Institutes and the Agricultural Universities who made the data of the experiments conducted under their jurisdiction readily available to the staff of the Institute. The I. A. R. S. acknowledges with thanks their willing co-operation without which the consolidation of the results would not have been possible. The Institute is also thankful to various officers in the State Departments of Agriculture and Agricultural Universities who worked as Regional Supervisors for the project from

time to time and provided guidance to the regional staff working in the scheme. The list of the names of the regional supervisors and regional staff of the project is given on the following pages.

D. SINGH
Director
Institute of Agricultural Research Statistics
(*I. C. A. R.*)

NEW DELHI,
January 1, 1974

Regional Supervisors and Regional Staff of the National Index of Field Experiments

Sl. No.	Region & Headquarters	Statistical staff from the Institute of Agricultural Research Statistics	Regional Supervisor
1.	Andhra Pradesh (Hyderabad)	1. Shri C. H. Rao 2. Shri G. V. S. R. Krishna 3. Shri P. R. Yeri	1. Shri P. Govinda Rao, Head of the Agri. Res. Instt. 2. Shri S. Vittal Rao, H. Q. Dy. Director (Research)
2.	Assam (Shillong)	1. Shri A. Sinha 2. Shri K. D. Saha	1. Shri U. C. Borah, Research Officer (Stat.)
3.	Bihar (Sabour)	1. Shri R. K. Jain 2. Shri S. M. G. Saran	1. Shri G. P. Singh, Statistician
4.	Gujarat (Ahmedabad)	1. Shri S. P. Doshi	1. Dr. D. K. Desai, Dy. Director of Agriculture (Stat.) 2. Shri J. B. Trivedi, I/C. Dy. Director (Stat.) 3. Shri R. L. Shah, Dy. Director of Agriculture (Stat.)
5.	Kerala (Trivandrum)	—	1. Shri N. George John, Research Officer 2. Shri G. Rama Chandran Nair, Research Officer 3. Shri K. George, Research Officer
6.	Madhya Pradesh (Bhopal)	1. Shri Rama Rao Patil 2. Shri S. S. Kutaula	1. Shri A. G. Khare, Dy. Director of Agriculture (Stat.)
7.	Maharashtra (Poona)	1. Shri P. R. Yeri 2. Shri B. Ramakrishnan	1. Shri V. G. Sharma, Sr. Statistician 2. Shri G. C. Shaligram, Dy. Statistician 3. Shri D. T. Sawant, Asstt. Statistician
8	Mysore (Bangalore)	1. Shri K. A. Balakrishnan 2. Shri P. T. N. Nambiar	1. Dr. N. P. Patil, Director of Research
9.	Orissa (Bhubaneswar)	1. Shri Rama Rao Patil	1. Shri B. Mishra, Dy. Director of Agri. (Hq.) 2. Shri A. Mishra, Chief Statistician

10.	Punjab, Haryana, Himachal Pradesh, Jammu & Kashmir (Ludhiana)	1. Shri B. L. Kaistha 2. Shri U. N. Dixit 3. Shri D. L. Manocha 4. Shri M. S. Batra 5. Shri D. P. Singh	1. Shri P. S. Sahota, Director of Crop Insurance 2. Shri Darshan Singh, Asstt. Statistician 3. Shri M. S. Pannu, Statistician, Department of Agriculture 4. Dr. D. Raghavarao, Prof. & Head, Dept. of Maths. & Stat., P A.U., Ludhiana
11.	Rajasthan (Jaipur)	1. Shri N. K. Ohri 2. Shri C. H. Rao	1. Shri H. C. Kothari, Dy. Director (Statistics), Department of Agriculture
12	Tamil Nadu (Coimbatore)	1. Shri P. Narayanan 2. Shri M. V. George	1. Shri K. R. Nagaraja Rao, Secretary, Research Council 2. Dr. K. Ramakrishnan, Associate Dean 3. Dr. D. Daniel Sunderaraj, Principal
13.	Uttar Pradesn (Lucknow)	1. Shri S. N. Bajpai 2. Shri M. P. Saksena 3. Shri G. N. Bahuguna 4. Shri O. P. Sharma 5. Shri R. Sharma 6. Shri C. B. Tiwari 7. Shri R. S. Singh 8. Shri A. C. Srivastava	1. Dr. K. Kishen, Jt. Director of Agriculture (Statistics) 2. Shri K. P. Avasthy, Officer-on-Special Duty
14.	West Bengal (Calcutta)	1. Shri A. K. Mukherjee 2. Shri A. Sinha	1. Shri S. N. Mukherjee, Dy. Director of Agriculture (Statistics)

ABBREVIATIONS COMMON TO EXPERIMENTS ON ANNUAL AND PERENNIAL CROPS AND EXPERIMENTS ON CULTIVATOR'S FIELDS GIVEN IN EXPERIMENTAL DATA

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 is given in brackets.

Abbreviations adopted for States are as follows :

1.	A.P.	—	Andhra Pradesh	11.	Mn.	—	Manipur
2.	As.	—	Assam	12.	Ms.	—	Mysore
3.	Bh.	—	Bihar	13.	N.L.	—	Nagaland
4.	Gj.	—	Gujarat	14.	Or.	—	Orissa
5.	H.P.	—	Himachal Pradesh	15.	Pb.	—	Punjab
6.	Hr.	—	Haryana	16.	Rj.	—	Rajasthan
7.	J.K.	—	Jammu & Kashmir	17.	T.N.	—	Tamil Nadu
8.	K.	—	Kerala	18.	Tr.	—	Tripura
9.	M.P.	—	Madhya Pradesh	19.	U.P.	—	Uttar Pradesh
10.	Mh.	—	Maharashtra	20.	W.B.	—	West Bengal

For the experiments conducted under the schemes sponsored by the Indian Council of Agricultural Research, like the All India Co-ordinated Agronomic Experiments (Model Agronomic Experiments and Simple Fertilizer Trials) scheme, no serial numbers have been given at the source as the data of these experiments were collected at the headquarters (New Delhi). In such cases, the abbreviation MAE or SFT is given in the bracket against the year in which the experiment is conducted.

Site & Centre :—Name of the Research Station is mentioned along with the place where it is located, *e.g.* Agri. Res. Stn., Vyara for Agricultural Research Station, Vyara.

For Central Institutes, the corresponding standard abbreviations have been adopted as given below :

C. A. Z. R. I.	—	Central Arid Zone Research Institute.
C. P. C. R. I.	—	Central Plantation Crops Research Institute.
C. P. R. I.	—	Central Potato Research Institute.
C. R. R. I.	—	Central Rice Research Institute.
C. S. S. R. I.	—	Central Soil Salinity Research Institute.
C. T. C. R. I.	—	Central Tuber Crops Research Institute.
C. T. R. I.	—	Central Tobacco Research Institute.
C. T. R. L.	—	Cotton Technological Research Laboratory.
I. A. R. I.	—	Indian Agricultural Research Institute.
I. G. F. R. I.	—	Indian Grassland & Fodder Research Institute.
I. H. R.	—	Institute of Horticultural Research.
I. I. S. R.	—	Indian Institute of Sugarcane Research.
I. L. R. I.	—	Indian Lac Research Institute.
J. A. R. I.	—	Jute Agricultural Research Institute.
J. T. R. L.	—	Jute Technological Research Laboratory.
S. B. I.	—	Sugarcane Breeding Institute.

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

Type :—Abbreviations used against this item are one, or more than one, of the following : C-- Cultural ; D—Control of Diseases and Pests ; I—Irrigational ; M—Manurial ; R—Rotational ; V—Varietal and X—Mixed cropping. In factorial experiments, the treatments will be abbreviated as, for example, Cultural-*cum*-Manurial as CM.

Object :—A statement of the objective of the experiment is given indicating the main crop and the type of the experiment.

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

(i) General mean. (ii) S. E. per plot. (iii) Results of test of significance. (iv) Summary table(s), with critical differences for individual effect means which are significant.

Other abbreviations used in the Experimental Data

Kg	=	Kilogram(s)	Dical. Phos.	=	Dicalcium Phosphate
Kg/ha.	=	Kilogram(s) per hectare	Zn. Sul.	=	Zinc Sulphate
N	=	Nitrogen	Cu. Sul.	=	Copper Sulphate
P	=	Phosphate	Mg. Sul.	=	Magnesium Sulphate
K	=	Potash	Mn. Sul.	=	Manganese Sulphate
Nitro. Phos.	=	Nitrogen Phosphate	Ammo. Molybdate	=	Ammonium Molybdate
Ammo. Phos.	=	Ammonium Phosphate	B.	=	Boron
A/S	=	Ammonium Sulphate	Fe. Sul.	=	Ferrous Sulphate
A/S/N	=	Ammonium Sulphate Nitrate	F. M.	=	Fish Manure
C/A/N	=	Calcium Ammonium Nitrate	G. N. C.	=	Groundnut Cake
A/N	=	Ammonium Nitrate	M. C.	=	Municipal Compost
A/C	=	Ammonium Chloride	T. C.	=	Town Compost
C/N	=	Chilean Nitrate	G. M.	=	Green Manure
Mur. Pot.	=	Muriate of Potash	G. L. M.	=	Green Leaf Manure
Pot. Sul.	=	Potassium Sulphate	F. Y. M.	=	Farm Yard Manure
Super.	=	Super Phosphate	C. M.	=	Cattle Manure

The information regarding the particulars of research stations may be obtained under the respective items as given below :

PARTICULARS OF RESEARCH STATIONS

A. General Information :

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

B. Normal Rainfall :

Average fortnightly rainfall, specifying the period on which the figures are based.

C. Irrigation and Drainage facilities :

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

D. Soil type and Soil analysis :

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

E. No. of Experiments :

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

Information under the following heads is to be read against the respective items under experimental data as given on next page.

BASAL CONDITIONS

A. For experiments on annual crops :

(i) (a) Crop rotation followed, if any. (b) Previous crop. (c) Manuring of previous crop (State amount and kind). (ii) Soil type. (iii) Date of sowing/planting. (iv) Cultural practices : (a) Preparatory cultivation. (b) Method of sowing. (c) Seed rate. (d) Spacing. (e) No. of seedlings per hole. (v) Basal manuring given to the whole experiment with time and method of application. (vi) Variety (indicate also early, medium or late). (vii) Irrigated or un-irrigated. (viii) Important post-sowing/planting cultural operations such as weeding, etc. (ix) Rainfall during crop season. (x) Date of harvest.

B. For experiments on perennial crops :

(i) Previous history of the experimental area (Give manuring and other operations). (ii) Soil type. (iii) Method of propagation of plants. (iv) Variety. (v) Date and method of sowing/planting (including spacing). (vi) Age of seedlings at the time of planting. (vii) Basal manuring given to the whole experimental area. (viii) Important cultural operations during the experimental year. (ix) Inter-cropping, if any. (x) Irrigated or un-irrigated (If irrigated, give the source, number, interval and intensity of irrigation). (xi) Rainfall during the experimental year. (xii) Date(s) of harvest.

C. For experiments on cultivator's fields :

(i) (a) Crop rotation followed, if any. (b) Previous crop. (c) Manuring of previous crop (State amount and kind). (ii) Soil type and soil analysis, if available. (iii) Basal manuring (Give 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) Date of sowing/planting. (vii) Irrigated or un-irrigated. (viii) Important post-sowing/planting cultural operations such as weeding, etc. (ix) Rainfall during crop season. (x) Date of harvest.

DESIGN

A. For experiments on annual crops :

(i) Abbreviations for designs : C. R. D.—Completely Randomised Design ; R. B. D.—Randomised Block Design ; L. Sq.—Latin Square ; Fact.—Factorial ; Confd.—Confounded ; other designs and modifications of the above to be indicated in full. (indicate confounded effects, if any). (ii) (a) No. of plots per block (in a split-plot experiment, the number of main-plots per replication as well as the number of sub-plots per main-plot should be given). (b) Block dimensions. (iii) No. of replications. (iv) (a) Gross plot-size. (b) Net plot-size. (v) Border or guard rows kept. (vi) Whether treatments are randomised (independently in each block).

B. For experiments on perennial crops :

(i) Abbreviations for designs: C. R. D.—Completely Randomised Design ; R. B. D.—Randomised Block Design ; L. Sq.—Latin Square ; Fact.—Factorial ; Confd.—Confounded ; other designs and modifications of the above to be indicated in full. (indicate confounded effects, if any) (ii) (a) No. of plots per block (in split-plot experiments, the number of main-plots per replication as well as the number of sub-plots per main-plot should be given). (b) Block dimensions. (iii) No. of replications. (iv) (a) Net plot-size. (b) No. of trees per plot (In case of experiments on grasses give plot-size). (v) Border or guard rows kept. (vi) Whether treatments are randomised (independently in each block).

C. For experiments on cultivator's fields :

(i) Design with No. of plots/block and No. of replications (In split-plot experiments, the number of main-plots per replication as well as the number of sub-plots per main-plot should be given). (ii) Method of selection of sites with number and distribution of experiments. (iii) (a) Gross plot-size. (b) Net plot-size. (iv) Whether treatments are randomised (independently in each block).

GENERAL INFORMATION

A. For experiments on annual crops :

(i) General crop condition during growth (if lodged, state date of lodging). (ii) Incidence of pests and diseases and control measures taken, if any. (iii) Types of quantitative observations taken. (iv) (a) If the experiment has continued for more than one year indicate year of commencement and year of termination. (b) Whether treatments assigned to the same plots every year. (c) Reference to combined analysis, if any. (v) Other centres, if any, where the same experiment has been conducted with reference numbers. (vi) Abnormal occurances such as heavy rains, frost, storm, drought, etc. (vii) Any other important information.

B. For experiments on perennial crops :

(i) General crop condition during growth. (ii) Incidence of pests and diseases and control measures taken, if any. (iii) Types of quantitative observations taken. (iv) If the experiment has continued for more than one year, indicate year of commencement and year of termination (Give reference of previous years. if any). (v) Other centres, if any, where the same experiment has been conducted with reference numbers. (vi) Reference to combined analysis, if any. (vii) Abnormal occurances such as heavy rains, frost, storm, drought, etc. (viii) Any other important information.

C. For experiments on cultivator's fields :

(i) General crop condition during growth. (ii) Incidence of pests and diseases and control measures taken, if any. (iii) Types of quantitative observations taken. (iv) In case of repetition in successive years. (a) Year of commencement and termination. (b) Whether treatments assigned to the same plots every year. (c) Reference to combined analysis, if any. (v) In case of repetition at other places, give names with references, if any. (vi) Abnormal occurances such as heavy rains, drought, etc. (viii) Any other important information.

GLOSSARY OF VERNACULAR NAMES OF CROPS

No.	Name of Crop	Botanical Name	Assamese	Bengali	Oriya	Telugu	Tamil	Malayalam	Kannada	Marathi	Gujarati	Hindi	Punjabi
1	Paddy	*Oryza sativa* L.	Dhan	Dhan	Dhano	Vadlu, Biyyamu	Nel	Nellu	Bhatta	Bhat	Dangar	Dhan, Chawal	Chaul, Dhan
2	Maize	*Zea mays* L.	Gom dhan	Bhutta	Macca	Makka-Jonna	Makka-cholam	Cholam Makka-cholam	Musukina Jola	Makka	Makkai	Makka	Makki, Makayee
3	Arhar	*Cajanus cajan* Milsp. ; *Cajanus indicus* Sprengl.	Arahar	Arahar	Harad	Kaddulu	Thavarai	Thuvaran payaru	Thogari	Tur	Tuver	Arhar	Harhar, Arhar
4	Matikalai	*Phaseolus mungo* var. *radiatus* Linn.	Matimah	Mashkalai	Biri	Minumulu	Uzhundu	Uzhundu	Uddu	Udid	Adad ; Udad	Urd	Mash, Urd
5	Mung	*Phaseolus aureus* Roxb.	Magum	Sonamug	Mung	Pachape-salu	Pachaipayru Pasipayaru	Cerupayaru. Payaru	Hesaru	Mug	Mag	Moong	Moong, Mug
6	Potato	*Solanum tuberosum* L.	Alooguti	Alu	Bilati Alu	Bangala-dumpa, Urlagadda	Uruzhai kilangu	Urala kizangu	Alu gedde	Batata	Aloo, Batata	Aaloo	Alu
7	Sugarcane	*Saccharum officinarum* L.	Kuhiar	Akh	—	Cheruku	Karumbu	Karimbu	Kabbu	Oos	Sherdi	Ganna ; Kamad ; Naishakar	Kamad ; Ganna ; Eakh
8	Jute	*Corchorus* spp.	Marapat	Shada pat; Tosha pat	Jhota	Janumu	Chanapai	Chanambu	Senabu	Joot	Moti	Jute	Patsan
9	Mustard	*Brassica juncea* Coss.	Sariah	Rai Sarisha	Rai	Avalu	Kadugu	Kaduku	Kempu sasive	Mohri	Rai	Rai	Rai
10	Groundnut	*Arachis hypogaea* L.	China Badam	Cheena badam	China-badam	Nelashanga	Nilakadalai	Nilakka-dala	Kadale kayi	Bhuimug	Bhoising ; Magafali	Mungphali	Mungfali
11	Sesamum	*Sesamum orientale* L. *Sesamum indicum* L.	Til	Til	Rasi	Nuvvulu	Ellu	Ellu	Yellu	Til, Tili	Tal	Til	Til
12	Arecanut	*Areca catechu* L.	Tamol	Supari	Gua	Poka	Kamuhu ; Pakku	Kavungu	Adike	Supari	Sopari	Supari	Supari
13	Coconut	*Cocos nucifera* L.	Narikol	Narikel	Nadia	Kobbera	Thennai	Thengu	Thengina kayi	Naral	Nalieri	Narial	Naryai, Narel
14	Pineapple	*Ananas sativa* Sechtt. ; *Ananas comosus* Merr.	Matikathal	Anarash	Sapuri, Saphrd. Panasa	Anasa	Anaasi palam	Kaitha chakka	Ananas	Ananas	Anenas	Ananas	Ananas

CONTENTS

NORTH EASTERN REGION

(Salient features of experimentation)

The general information regarding the agro-climatic regions, extent of irrigation, normal cropping pattern, etc., of North Eastern region (consisting of Assam, Arunachal Pradesh, Manipur, Meghalaya, Mizoram, Nagaland and Tripura) is available in the Assam volumes of the first and second series of the National Index of Agricultural Field Experiments already published for the periods 1948-53 and 1954-59 respectively.

This volume includes the results of 234 experiments conducted during the period 1960-65, as against 231 experiments for the period 1954-59 and 95 for the period 1948-53. Besides, results of experiments conducted under the All India Co-ordinated Agronomic Experiments Scheme of I.C.A.R. are also included in the present compendium. The consolidated results of experiments conducted for more than one year and concluded during the period 1960-65, numbering 147 and forming 59 groups have been presented with crop-wise and type-wise distribution in Table 1 below :

Table : 1

Number of groups of experiments concluded during the period 1960-65
(crop-wise and type-wise)

Crop \ Type	M	MV	C	CV	CM	CMV	Total
ASSAM							
Paddy	10(24)	3(9)	4(10)	2(4)	2(4)	2(6)	23(57)
Matikalai	1(3)	—	—	—	—	—	1(3)
Mung	1(2)	—	—	—	—	—	1(2)
Sugarcane	2(5)	—	1(3)	—	—	—	3(8)
Jute	—	3(6)	—	1(2)	—	—	4(8)
Mustard	2(4)	—	1(2)	—	—	—	3(6)
Arecanut	—	—	7(14)	—	—	—	7(14)
Coconut	—	—	2(8)	—	—	—	2(8)
Pineapple	4(14)	—	1(2)	—	—	1(2)	6(18)
TRIPURA							
Paddy	4(10)	—	2(6)	—	1(2)	—	7(18)
Jute	1(3)	—	1(2)	—	—	—	2(5)
TOTAL	25(65)	6(15)	19(47)	3(6)	3(6)	3(8)	59(147)

N.B. : Figures in brackets indicate total number of experiments in the group.

The results of experiments conducted for only one year during the period under the report numbering 75, and also those of the experiments which are continued beyond 1965 numbering 12 and forming 6 groups, have been presented. The distribution of all the experiments, according to crop and type of treatments, is furnished in Table 2 below :

TABLE : 2

Number of experiments
(crop-wise and type-wise)

Crop \ Type	M	MV	C	CV	CM	CMV	D	Total
ASSAM								
Paddy	36	17	15	5	7	11	1	92
Maize	2	1	—	—	—	1	—	4
Arhar	—	—	2	—	—	—	—	2
Matikalai	4	—	—	—	—	—	—	4
Mung	3	—	1	—	—	—	—	4
Potato	—	—	—	—	—	1		1
Sugarcane	14	—	4	—	—	—	—	18
Jute	2	9	1	2	—	—	1	15
Mustard	4	—	3	—	—	—	—	7
Sesamum	—	—	1	—	—	—	—	1
Arecanut	1	—	14	—	—	—	—	15
Coconut	—	—	8	—	—	—	—	8
Pineapple	15	—	3	—	—	2	—	20
MANIPUR								
Paddy	3	—	—	—	—	—	—	3
NAGALAND								
Paddy	—	—	1	—	—	—	—	1
Maize	—	—	1	—	—	—	—	1
Potato	1	—	1	—	—	—	—	2
TRIPURA								
Paddy	13	2	6	—	2	—	—	23
Potato	2	—	—	—	—	—	—	2
Jute	3	2	2	—	—	—	—	7
Groundnut	2	—	2	—	—	—	—	4
TOTAL	105	31	65	7	9	15	2	234

Assam

The principal crop of the State is Paddy, Jute. Rapeseed and Mustard and pulses are the other important crops, but these occupy relatively small areas. The salient features of experimentation on different crops are given below :-

Paddy :—Paddy covered 1904* thousand hectares i.e. 68·5% of the total cropped area. 92 experiments were reported on Paddy crop and all of them were conducted under rainfed conditions, Of these, 57 experiments forming 23 groups were concluded during the period

*Figures for 1964-65, taken from the Statistical Abstract of Assam, 1967-68.

under report. Khonorullo (12 experiments), S-406 (b)/93-1 (7 experiments), U S.—1 (6 experiments), Sc. 412-56-Swarna sail (5 experiments), M-142 Koimurali (4 experiments) and S-126 Laodumra (4 experiments) were the varieties mainly used in the experiments not having varieties as a factor. The net-plot size varied from 4 square metres to 92 square metres. 44, 37, 8, 2 and 1 experiments were conducted in Randomised Block Design, Split-plot Design, Confounded Designs, Latin Square Design and Strip-plot Design respectively. For most of the experiments in Randomised Block and Split-plot Designs, the replications ranged between 2 to 6. Only 1 experiment in Randomised Block and 3 in Split-plot Design had 10 to 12 replications. Six of the Confounded Design experiments had 2 replications while one each had 1 and 4 replications. The only Strip-plot experiment had 3 replications. In the purely manurial experiments or experiments having manures as one of the factors, the levels of N, P and K varied between 0 to 100·8, 0 to 67·2 and 0 to 67·2 Kg/ha. respectively. Levels of lime, sources of N and P, time and method of applications of N, green manures, micro-nutrients and foliar spray of Urea were some of the other factors tried. Dates of sowing, seed-rates, spacings, methods of cultivation, sowing and transplanting, number of seedlings per hole and methods and duration of storing seedlings were some of the cultural treatments tried.

Sugarcane :—Sugarcane covered 70* thousand hectares i.e. 1·1% of the total cropped area. 18 experiments, all conducted under rainfed conditions and with variety Co-419, were reported on this crop. Of these, 8 experiments forming 3 groups were concluded during the period under report. In all the experiments, 100 square metres was taken as the net-plot area. 13 experiments were conducted in Split-plot Design and the remaining were in Randomised Block Design. Three to four replications were adopted in experiments under both the designs. In the manurial experiments, the levels of N, P and K varied between 0 to 269, 0 to 134 and 0 to 134 Kg/ha. respectively. Levels of lime, sources of N and green manures were the other factors tried. In the cultural experiments, methods of harvesting and dates of harvesting were the factors tried.

Jute :—Jute covered 131* thousand hectares i.e. 4·7% of the total cropped area. 15 experiments, all conducted under rainfed conditions were reported on this crop. Of these, 8 experiments forming 4 groups were concluded during the period under report. In 4 experiments, not having varieties as a factor, varieties JRC-212 and JRO-632 were used. The net-plot area varied from 18 square metres to 41 square metres. 11, 3 and 1 experiments were conducted in Split-plot Design, Randomised Block Design and Confounded Design respectively. 2 and 4 replications were used in the case of 3 and 8 experiments laid out in Split-plot Design, while 3 and 6 replications were used for 1 and 2 experiments in Randomised Block Design. The Confounded experiment had 2 replications. In the manurial experiments, levels of N, P and K varied between 0 to 224, 0 to 112 and 0 to 112 Kg/ha. respectively. Sources of N, time of application of N and foliar application of urea were the other factors tried. Row-spacings, plant-spacings and sowing-dates were the cultural treatments tried.

Pulses :—Pulses covered 84* thousand hectares i.e. 3·0% of the total cropped area. 4 experiments each on Mung and Matikalai and 2 on Arhar, all conducted under rainfed conditions, were reported. Levels of N tried on experiments on Mung and Matikalai ranged between 0 and 22 Kg/ha., while those of P and K varied from 0 to 67 Kg/ha. Dates of sowing and spacings were the factors tried on Arhar crop.

Mustard :—Rapeseed and Mustard covered 122* thousand hectares i.e. 4·4% of the total cropped area. 7 experiments, 2 of which conducted under irrigated conditions, were reported on this crop. In all the experiments variety M-27 was used. The net-plot area varied from 13 square metres to 42 square metres. All the experiments were laid out in Randomised Block Design and had 3 or 4 replications. In the manurial experiments, the levels of N and P ranged between 0 and 67 Kg/ha., while that of K between 0 and 34 Kg/ha. Dates of sowing, seed rates and weedings with spacings were the factors tried in cultural experiments.

Miscellaneous crops :—Besides the above crops, experiments on Maize, Potato, Sesamum, Arecanut, Coconut and Pineapple crops were also conducted.

Manipur

Paddy :—Paddy covered 91** thousand hectares i.e. 94% of the total cropped area. Only 3 experiments conducted under rainfed conditions were reported. Phouren and Moirangphon, medium varieties of Paddy, were used for experimentation. All the three experiments were of manurial type and conducted in Randomised Block Design with 4 replications. The net-plot area varied from 13·5 to 31·5 square metres.

Nagaland

1 experiment each on Paddy and Maize and 2 on Potato crops were reported from Nagaland. All the experiments were conducted under rainfed conditions. Randomised Block Design with 3 or 4 replications were adopted for these experiments. Different sowing dates formed the treatments tried on experiments on these three crops.

Tripura

Paddy :—Paddy covered 242·8 *** thousand hectares i.e. 75·2% of the total cropped area. 23 experiments were reported on this crop. 18 experiments forming 7 groups were concluded during the period under reference. 5 experiments were conducted under irrigated conditions and the remaining under rainfed conditions. Lati Sail, Kali Boro and Dharial varieties were used in 13, 5 and 3 experiments respectively in which varieties were not a factor. The net-plot area varied from 6·3 sq. metres to 30·3 sq. metres. Except 3 experiments, which were conducted in Split-plot Design, all the others were conducted in Randomised Block Design. 3 to 5 replications were used in both the designs. In the manurial experiments, the levels of N and P ranged between 0 and 89.7 and 0 and 44.8 Kg/ha. Methods of application of N, forms of P and levels of lime were the other factors tried. In the cultural experiments, the factors tried were methods of sowing, dates of planting and age of seedlings.

Jute :—Jute covered 9.7*** thousand hectares i.e. 3.0% of the total cropped area. 7 experiments, all conducted under rainfed conditions, were reported. 5 experiments forming 2 groups were concluded during the period under report. D-154 and JRC-212 were the varieties used in the experiments which did not involve varieties as a factor. The net-plot area varied from 3.2 square metres to 18.9 square metres. All the experiments were conducted with 4 replications in Randomised Block Design. Besides the levels of lime, levels of N, P and K varying between 0 to 89, 0 to 45 and 0 to 45 Kg/ha. in different combinations were used in the manurial experiments. Dates of sowing were tried in the cultural experiments.

Groundnut :—4 experiments conducted under rainfed conditions with local variety were reported. 2 experiments each with Split-plot Design and Confounded Design were conducted. 3 and 4 replications were used in experiments conducted with Split-plot Design and Confounded Design respectively. In the manurial experiments, the levels of N, P and K varied between 0 to 22.4, 0 to 44.8 and 0 to 44.8 Kg/ha. respectively. In the cultural experiments, dates of sowing and spacing were the factors tried.

**Figures for 1963-64, taken from the Directorate of Economics & Statistics, New Delhi.

***Figures for 1964-65, taken from Statistical Abstract, Tripura, 1968.

PARTICULARS OF RESEARCH STATIONS AND SOIL ANALYSIS

1. Agricultural Chemistry Research Station, Borbheta.

A. General Information :

(i) In Sibsagar district, 4 km. from Jorhat R.S. with Lat.-26·8° N/Long.-94·3° E. The topography of the experimental area is high but flat land. (ii) It represents plain tract. (iii) Established in 1948. (iv) Paddy, Matikalai and vegetable crops. (v) Mostly agronomical, varietal and manurial experiments are conducted.

B. Normal Rainfall :

Details : N.A.

C. Irrigation and Drainage facilities :

(i) No irrigational facilities are available. (ii) Yes, proper drainage system exits.

D. Soil type and Soil analysis :

(i) Broad soil type : Sandy loam of old alluvial type. (ii) Chemical analysis : For soil of 0—23 cm. depth : N—0·066%; available P_2O_5 0·037%; available K_2O –0.012% ; pH. (water extract) – 5·5 ; pH(KNO_3) —5·2 ; acidity p.p.m.—39·2. (iii) Mechanical analysis : N.A.

E. No. of Experiments :

Paddy—1 ; Total=1.

2. Barpeta Seed Farm, Barpeta.

A. General Information :

(i) In Kamrup district, Borpeta Road is nearest R.S. The topography of the experimental area is flat. (ii) It represents plain tract. (iii) Year of establishment to (v) Programme of research : Information N.A.

B. Normal Rainfall and *C. Irrigation and Drainage facilities* :

Information : N.A.

D. Soil type and Soil analysis :

(i) Soil type : Sandy loam. (ii) Chemical analysis and (iii) Mechanical analysis : Information N.A.

E. No. of Experiments :

Matikalai—3 ; Total=3.

3. Sugarcane Research Station, Buralikson.

A. General Information :

(i) In Sibsagar district, Barua Bamungaon is the nearest R.S. with Lat.-26·7° N/ Long.- 94°E. The topography of the experimental area is high but flat land. (ii) It represents plain tract. (iii) Established in 1957. (iv) Sugarcane—Sugarcane (ratoon)—Fallow is the main cropping pattern. (v) Mostly agronomical, varietal and manurial experiments are conducted.

B. Normal Rainfall :

Details : N.A.

C. Irrigation and Drainage facilities :

(i) Yes, by tanks. (ii) Yes, proper drainage system exists.

D. Soil type and Soil analysis :

(i) Broad soil type : Sandy loam of old alluvial type. (ii) Chemical analysis : for soil of 0—23 cm. depth :—N—0·173% ; available P_2O_5—0·003% ; available K_2O-0·004% ; pH. (water extract)—5·0 : pH. (KNO_3)—4·2 ; Acidity p.p.m.-940·8 (iii) Mechanical analysis : (for soil of 0—23 cm. depth) : Coarse sand-5·1% ; Fine sand-39·6% ; Silt-36·0% ; Clay-12·0% ; Moisture—6·0% ; Loss on ignition-5·0%.

E. No. of Experiments :

Sugarcane-18 ; Total=18.

4. Agricultural College Farm, Jorhat.

A. General Information :

(i) to (iii) Same as for Agricultural Chemistry Research Station, Borbheta. (iv) Paddy, Jute, Potato, etc. (v) Mostly Agronomical, varietal and manurial experiments are conducted.

B. Normal Rainfall :

Details—N.A.

C. Irrigation and Drainage facilities :

(i) Yes, by tanks. (ii) Yes, proper drainage system exists.

D. Soil type and Soil analysis :

(i) Broad soil type : Sandy loam of old alluvial type.

(ii) Chemical analysis (%) :

Depth	N	Available P_2O_5	Available K_2O	pH. (Water extract)	Acidity p.p.m.
0—23 cm.	0·096	0·002	0·0078	4·6	1304·8
23-45 cm.	0·040	0·001	0·0069	4·6	1864·8

(iii)Mechanical analysis (%) :

Depth	Coarse sand	Fine sand	Silt	Clay	Moisture	Loss on ignition
0-23 cm.	3·7	29·0	23·7	15·4	2·6	4·0
23-45 cm.	3·0	19·0	28·2	20·0	2·8	3·0

E No. of Experiments :

Paddy —5 and Potato— 1 ; Total=6.

5. Regional Coconut Research Station, Kahikuchi.

A. General Information :

(i) In Gauhati sub-division of Kamrup district, 20 km. from Gauhati R.S. with Lat.-26°06' N./Long.91°35' E/Alt.-49·4 m. above mean sea level. The topography of the experimental area is plain. (ii) New alluvial cultivated acid soil tract. (iii) Established in 1957. (iv) Perennial crops. (v) Research work is done mainly on Coconut.

B. Normal Rainfall :

Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct	Nov.	Dec.	Total
3.1	15.8	62.2	153.2	271.2	305.4	285.8	294.1	188.5	36.0	9.0	4.9	1629.2

(Av. rainfall in cm. ; based of the data for the period 1960—65).

C. Irrigation and Drainage facilities :

(i) Yes, water is pumped from a hilly stream running along the side of the research station. (ii) Drainage system is not up to the standard. During the rainy season, the drains remain stagnant with water and the entire surrounding area sub-merge.

D. Soil type and Soil analysis :

(i) Broad soil type—Silty clay ; Depth—A soil profile was dug upto 1·83 m. depth. At this depth, the soil was found very hard ; Colour —Mainly brown but in deeper region, dark red soil in patches interspersed the brown soil. ; Structure—No definite division of the profile into stratum observed. The upper soil has loose structure than the lower soil. At 1 83 m. depth, the soil is very compact and less impervious to water.

(ii) Chemical analysis .

Constituent analysed	Surface layer	30 cm. below surface layer	61 cm. below surface layer	91 cm. below surface layer
Nitrogen %	0·133	0·095	0·081	0·063
Available P_2O_5%	0·005	0·001	0·001	0·009
Available K_2O%	0·024	0·023	0·014	0 008
pH. (Water extract)	5·0	5·0	5·0	5·0
pH. (KN O_3 extract)	4·8	4·4	4·4	4·6
Acidity p.p.m.	89·6	151·2	397·6	319·2
(iii) Mechanical analysis :				
Coarse sand %	11·2	10·0	9·2	8·5
Fine sand %	20·5	15·6	15.8	15·9
Silt %	24·0	44·0	34·0	29·0
Clay %	38·0	26·0	44·0	41·0
Moisture %	1·8	2·0	2·6	3·6
Loss on Ignition	4·8	4·6	5·0	5·8

E. No. of Experiments :

Coconut—8 ; Total=8.

6. Regional Arecanut Research Station, Kahikuchi.

A. General Information :

(i) In Azara (Borjar) taluka of Kamrup district, 12 km. from Jalukbari R.S. with Lat.-26°06′ N/Long-91·78° E/Alt.-48 m. High land with natural vegetation surrounded by low lying areas for paddy cultivation. (iii) South bank of the Brahmaputra. (iii) Established in 1959. (iv) Perennial crops. (v) Agronomical, botanical and pathological programme of research on plantation crops such as Arecanut, Coconut, Cashew and Cocoa.

B. Normal Rainfall :

Same as for Regional Coconut Research Station, Kahikuchi.

C. Irrigation and Drainage facilities :

(i) (a) and (b) : Available from 1960, depends on the availability of water in the near by channel. (ii) Yes, proper drainage system exists.

D. Soil type and Soil analysis :

(i) Broad soil types : Depth—23 cm. ; Colour—Yellowish brown ; Structure—New alluvial with lower strata latarite. pH.=4.4 to 4.8.

(ii) Chemical analysis and (iii) Mechanical analysis : Same as for Regional Coconut Research Station, Kahikuchi.

E. No. of Experiments :

Arecanut—15 ; Total=15.

7. Regional Fruit Research Station, Kahikuchi.

A. General Information :

(i) In Kamrup district, Gauhati is the nearest R.S. with Lat.-26°11′ N/Long.-91°47′ E/ Alt.-47·7 m. above m. s.l. The general topography of the experimental area is flat. (ii) It represents Alluvial tract. (iii) Established in 1956. (iv) Pineapple and Banana. (v) Research on various aspects of the cultivation of Pineapple and Banana.

B. Normal Rainfall :

Same as for Regional Coconut Research Station, Kahikuchi.

C. Irrigation and Drainage facilities :

(i) (a) Yes, since 1956. (b) Channel irrigation. (ii) Yes, proper drainage system exists.

D. Soil type and Soil analysis :

(i) Broad soil type—Loamy. (ii) Chemical analysis and (iii) Mechanical analysis : Same as for Regional Coconut Research Station, Kahikuchi.

E. No. of Experiments :

Pineapple—20; Total—20.

8. Rice Experimental Station, Karimganj.

A. General Information :

(i) In North Karimganj taluka of Cachar district, 8 km. from Karimganj Junction with Lat.-24·50° N/Long.-92·20° E/Alt.-16 m. The topography of the experimental area is flat. (ii) Alluvial tract of Cachar. (iii) Established in 1913. (iv) *Aus* Paddy—*Sali* Paddy is the main cropping pattern. (v) Research on Paddy crop.

B. Normal Rainfall :

Jan.		Feb.		March		April		May		June		
1	2	1	2	1	2	1	2	1	2	1	2	
0.0	0.5	3.2	1.3	5.0	7.2	13.0	12.5	21.5	19.8	49.3	37.6	
July		**Aug.**		**Sept.**		**Oct.**		**Nov.**		**Dec.**		**Total**
1	2	1	2	1	2	1	2	1	2	1	2	
26.8	36.5	23.3	26.8	22.5	16.0	10.4	0.4	2.7	0.1	0.1	0.1	344.6

(Av· fortnightly rainfall in cm. ; based on the data for the period 1960-65)

C. Irrigation and Drainage facilities :

(i) Irrigation facilities are not available. (ii) Yes, proper drainage system exists.

D. Soil type and Soil analysis :

(i) Broad soil type : Depth—Medium; Colour—Light ; Structure—Crumby. (ii) Chemical analysis : pH-5·3 (Acidic) ; N—0·1 Kg/ha. ; P_2O_5—3·3 Kg/ha. ; K_2O—1·9 Kg/ha. (iii) Mechanical analysis : N.A.

E. No. of Experiments :

Paddy—29 ; Total=29.

9. Pulse and Oilseeds Research Station, Raha.

A. General Information :

(i) In Raha taluka of Nowgong district, 2 km. from Raha R.S. with Lat.-26.21° N/ Long.-29.45°E. In general, the farm land is plain with a few pockets of low lying areas where water accummulates in rainy season. (ii) Assam valley tract. (iii) Established in 1956. (iv) The main crop of pulse is rotated with Jute crop in the off-season but in the case of Arhar only this crop is raised (v) Botanical, agronomical and pathological programme of research on pulses and oilseeds.

B. Normal Rainfall :

Jan.	Feb.	March	April	May	June	
0·2	1·8	2·6	10·4	13·4	24·5	
July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
27·2	11·1	5·9	2·6	0·3	0·1	100·1

(Av. rainfall in cm. ; based on the data for the period 1962—65).

C. Irrigation and Drainage facilities :

(i) (a) & (b) : Irrigation facilities are available but not availed of. (ii) Natural drainage.

D. Soil type and Soil analysis :

(i) Broad soil type-Deep old alluvial soil ; Colour-Dark brown. (ii) Chemical analysis & (iii) Mechanical analysis : N.A.

E. No. of Experiments :

Arhar—2, Matikalai—1, *Mung* –4, Mustard—7 and Sesamum—1 ; Total=15.

10 Jute Research Station, Shillongoni.

A. General Information :

(i) In Nowgong district, 5·8 km. away from the Haibargong, Nowgong R.S. with Lat.-26°21′, N/Long.-92°42′ E/Alt.-60·7 m. above m.s.l. The topography of the experimental area is low and mid land ; slopes towards the North ; impeded drainage and high ground water level. (ii) Old alluvial plain tract. (iii) Established in 1957 under the Indian Central Jute Committee. Taken over by Government of Assam in 1962. (iv) Jute (main crop) followed by Paddy, Mustared, Wheat and pulses. (v) Agronomic experiments on Jute.

B. Normal Rainfall :

Jan.	Feb.	March	April	May	June	
1·3	1·6	6.1	10.7	24.0	33.0	
July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
34.1	25.4	23.7	5.0	2.2	11.4	178.5

(Av. rainfall in cm. ; based on the data for the period 1965-70)

C. Irrigation and Drainage facilities :

(i) No irrigation facilities are available. (ii) Yes, proper drainage system exists.

D. Soil type and Soil analysis :

(i) Broad soil type-Alluvial ; Depth-Top soil up to 23 cm. ; Structure-Sandy loam.

(ii) Chemical analysis : Organic carbon—0·91 to 1·53%, pH.—5·8 to 6 3, Cx. Ca—8 to 13 m.e.%, C×K_2O—0.2 to 0·6 m.e.%, C.E C.—15 to 16 m.c., Av. P_2O_5—30 to 60 **Kg/ha.**

(iii) Mechanical analysis : N.A.

E. No. of Experiments :

Jute—4 ; Total=4.

11. Jute Research Station, Sorbhog.

A. General Information :

(i) In Kamrup district, Sorbhog is the nearest R.S. The general topography of the experimental area is flat. (ii) It represents plain tract. (iii) Year of establishment—N.A. This station functioned at Sorbhog upto 1964 and has been shifted to Shillongani. (iv) Jute, Mesta, etc. (v) Mostly agronomical and varietal experiments are conducted.

B. Normal Rainfall : and *C. Irrigation and Drainage facilities* :

Details : N.A.

D. Soil type and Soil analysis :

(i) Broad soil type : Sandy loam. (ii) Chemical analysis and (iii) Mechanical analysis : N.A.

E. No. of Experiments :

Jute—11 ; Total=11.

12. Rice Research Station, (M.A.E. Centre), Titabar.

A. General Information :

(i) In Titabar taluka of Sibsagar district, 5 km. from Titabar R.S. with Lat.-26° 35'N/ Long.-94° 10' E/Alt.99·4 m. The general topography of the experimental area is fairly levelled with slight gradient to facilitate drainage of superfluous water. (ii) It represents typical rice growing tract of plains of upper Assam. (iii) Established in 1923. (iv) *Ahu* Paddy followed by *Sali* Paddy. (v) All India Co-ordinated trials, research on Rice breeding and varietal improvement, agronomical and entomological experiments on Paddy.

B. Normal Rainfall :

Jan.		Feb.		March		April		May		June		
1	2	1	2	1	2	1	2	1	2	1	2	
0.5	0.4	2.0	0.7	2.0	3.4	8.1	6.1	12.0	14.2	13.1	17.4	
July		**Aug.**		**Sept.**		**Oct.**		**Nov.**		**Dec.**		**Total**
1	2	1	2	1	2	1	2	1	2	1	2	
16.7	17.4	15.2	21.3	11.3	8.2	5.4	4.2	1.9	0.5	0.5	0.7	**183.2**

(Av. fortnightly rainfall in cm. ; based on the data for the period 1960-65)

C. Irrigation and Drainage Facilities :

(i) (a) and (b) Irrigation facilities were available prior to 1960. (ii) Yes, proper drainage system exists.

NAGALAND

1. Agricultural Research Farm, Yisemyong, Mokokchung.

A. General Information :

(i) In Mokokchung district, nearest Rly. Station—Amguri. It is situated at high altitude and in cold area. (ii) It represents hilly tract. (iii) Established in 1964. (iv) Paddy, Maize, etc. (v) Agronomical and varietal experiments on Paddy, Maize and Potato.

B. Normal Rainfall and *C. Irrigation and Drainage facilities* :

Details : N.A.

D. Soil type and Soil analysis :

(i) Broad soil type : Sandy loam with high percentage of stoney particles. (ii) Chemical analysis and (iii) Mechanical analysis : N.A.

E. No. of Experiments :

Paddy—1, Maize—1 and Potato—2 ; Total=4.

TRIPURA

1. Research-*Cum*-Demonstration Farm, Arundhutinagar.

A. General Information :

(i) In Agartala district, nearest Rly. Station—Dharmanagar. The topography of the experimental area is flat. (ii) It represents plain tract. (iii) N.A. (iv) Paddy, Jute, Wheat, Groundnut ; etc. (v) Agronomical, entomological and pathological experiments.

B. Normal Rainfall :

Details : N.A.

C. Irrigation and Drainge facilities :

(i) (a) N.A. (b) By tanks. (ii) Yes, there is a proper drainage system.

D. Soil type and Soil analysis :

(i) Broad soil types : Sandy and clay loam. (ii) Chemical analysis and (iii) Mechanical analysis : N.A.

E. No. of Experiments :

Paddy - 21, Potato—2, Jute—5 and Groundnut—4 ; Total=32.

2. Seed Multiplication Farm, Gukulnagar, Udaipur.

A. General Information to *D. Soil type and Soil analysis* :

Details N.A.

E. No. of Experiments :

Paddy—2 and Jute 2 ; Total=4.

D. Soil type and Soil analysis :

Details : N.A.

E. No. of Experiments :

Paddy—36 ; Total=36.

13. Experimental and Research Station, Upper Shillong.

A. General Information :

(i) In Shillong taluka of United Khasi and Jaintia Hills Distt., 114 km. from Gauhati R.S. with Lat.-25·6° N/Long.-91·8° E/Alt.-1966 m. The experimental farm is situated on a terrace of a big hillock surrounded by small hills. The approximate height is about 1900 m. and Shillong peak to the east is 1966 m. (ii) Terrace on the top of a hillock round. (iii) Established in 1952. (iv) Maize, Paddy, Potato, Soyabean, Wheat, Matikalai, French beans. (v) Manurial, varietal, mixed cropping and genetical experiments on Maize (hybrid, composite and local) and Paddy.

B. Normal Rainfall :

Details : N.A.

C. Irrigation and Drainage facilities :

(i) Nil. (ii) No proper drainage system exists.

D. Soil type and Soil analysis :

(i) Broad soil types : Loam and lateritic, Colour-Red ; Structure—loamy. (ii) Chemical analysis : N—0·338 to 0·553% ; P_2O_5—Available ; K_2O—Poor. (iii) Mechanical analysis : N.A.

E. No. of Experiments :

Paddy—21, Maize—4 ; Total=25.

MANIPUR

1 Rice Research Station, Wangbal.

A. General Information :

(i) In Manipur Central district, nearest Rly. Station, Dimapur with Lat.-24·6°N/Long.-94°E/Alt.-783 m. The general topography of the experimental area is flat land. (ii) It represents alluvial tract. (iii) Established in 1961. (iv) Paddy followed by Paddy. (v) Mostly agronomical and varietal experiments on Paddy.

B. Normal Rainfall :

Details : N.A.

C. Irrigatian and Drainage facilities :

(i) (a) N.A. (b) Facilities are available. (iii) Yes, there is a proper drainage system.

D. Soil type and Soil analysis :

(i) Broad soil type : Alluvial and clay loam ; Depth—Very deep ; Colour—Dark brown ; Structure—Prismetic medium. (ii) Chemical analysis : pH.-5·5. (iii) Mechanical analysis : N.A.

E. No. of Experiments :

Paddy—3 ; Total=3.

EXPERIMENTAL DATA

Crop :- Paddy (*Kharif*). **Ref :- As. 65(9).**

Site :- Agri. Chemistry Res. Stn., Borbheta. **Tpye :- 'M'.**

Object :—To study the effect of N, P and K singly and in combinations in acid soil region on *Ahu* paddy.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) and (c) N.A. (ii) Old alluvial ; sandy loam and acidic. (iii) 8, 9.4.65. (a) 3 to 4 ploughings followed by laddering. (b) Broadcasting. (c) 69 Kg/ha. (d) and (e) —. (v) Nil. (vi) Rangadoria. (vii) Unirrigated. (viii) Weeding. (ix) N.A. (x) 2, 6.7.65.

2. TREATMENTS :

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

(1) 3 levels of N as A/S : N_0=0, N_1=33·6 and N_2=67·2 Kg/ha. of N.

(2) 3 levels of P_2O_5 as Super : P_0=0, P_1=33·6 and P_2=67·2 Kg/ha. P_2O_5.

(3) 3 levels of K_2O as Mur. Pot. : K_0=0, K_1=33·6 and K_2=67·2 Kg/ha. of K_2O.

Method of application : Applied before sowing.

3. DESIGN :

(i) Fact. in R.B.D. (ii) (a) 27. (b) N.A. (iii) 2. (iv) (a) N.A. (b) 1/197·7 ha. (v) N.A. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of grain. (iv) (a) 1965—67. (b) Yes. (c) Nil. (v) No. (vi) N.A. (vii) Nil.

5 RESULTS :

(i) 323·6 Kg/ha. (ii) 68·4 Kg/ha. (iii) Main effect of N is highly significant and main effect of K is significant. (iv) Av. yield of grain in Kg/ha.

	P_0	P_1	P_2	K_0	K_1	K_2	Mean
N_0	201·0	263·6	303·1	197·7	247·1	322·9	255·9
N_1	289·9	336·1	306·4	250·4	339·3	342·6	310·8
N_2	408·5	408·5	395·4	425·0	395·4	392·1	404·2
Mean	299·8	336·1	335·0	291·0	327·3	352·5	323·6
K_0	250·4	342·6	280·0				
K_1	322·9	293·2	365·7				
K_2	326·2	372·3	359·1				

C.D. for N marginal means=46·8 Kg/ha.
C.D. for K marginal means=46·8 Kg/ha.

Crop :- Paddy (*Kharif*). **Ref :- As. 63(38).**

Site :- Agri. College, Jorhat. **Type :- 'M'.**

Object :—To study the effect of different sources, levels and times of application of N on the growth and yield of *Sali* Paddy.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) *Sali* paddy. (c) N.A. (ii) Sandy loam. (iii) 22.7.63. (iv) (a) Ploughing followed by harrowing and laddering. (b) Transplanting. (c) N.A. (d) 23 cm.×23 cm. (e) 3. (v) 92·2 Q/ha. of cowdung + 22·4 Kg/ha. of P_2O_5 as Super. (vi) *Prosadbhog*. (vii) Unirrigated. (viii) One weeding. (ix) 144·6 cm. (x) 9.12.63

2. TREATMENTS :

Main-plot treatments :

All combinations of (1) and (2)

(1) 2 levels of N : N_0=0 and N_1=44·8 Kg/ha.

(2) 2 sources of N : S_1=A/S and S_2=Urea.

Sub-plot treatments :

5 times of application of N : T_1=Full dose of N at planting, T_2=Full dose of N at tillering, T_3=½ dose of N at planting and ½ dose of N at tillering, T_4=¼ dose of N at planting and ¼ dose of N each at tillering and pre-flowering and T_5= ¼ dose of N at planting, ½ dose of N at tillering and ¼ dose of N at pre-flowering.

3. DESIGN :

(i) Split-plot with main-plot treatments in L. Sq. (ii) (a) 4 main-plots/row and 4 rows for the expt. and 5 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 6·3 m.×3·6 m. (v) N.A. (vi) Yes.

4. GENERAL :

(i) Normal. (ii) Grass hopper and stem borer ; spraying of 40% Guesarol. (iii) Yield of grain. (iv) (a) No (b) and (c) —. (v) No. (vi) and (vii) Nil.

5. RESULTS :

(i) 3069 Kg/ha. (ii) (a) 680·0 Kg/ha. (b) 532·0 Kg/ha. (iii) Main effects of N, S and T are significant. (iv) Av. yield of grain in Kg/ha.

	T_1	T_2	T_3	T_4	T_5	S_1	S_2	Mean
N_0	2302	2515	2641	2950	3295	2498	2983	2741
N_1	2756	3186	3718	3540	3785	3030	3764	3397
Mean	2529	2850	3180	3245	3540	2764	3373	3069
S_1	2236	2630	3108	2755	3091			
S_2	2822	3071	3251	3735	3988			

C.D. for N or S marginal means=372·1 Kg/ha.

C.D. for T marginal means =378·6 Kg/ha.

Crop :- Paddy (*Kharif*). **Ref :- As. 60(5) and 61(12).**

Site :- Rice Exptl. Stn., Karimganj. **Type :- 'M'.**

Object :—To study the effect of different manures on the yield of *Aus* Paddy.

1. BASAL CONDITIONS :

(i) (a) Nil, (b) Paddy (*Aus*). (c) As per treatments. (ii) Clayey loam (acidic). (iii) 2.6.60; 16.4.61. (iv) (a) Ploughing, harrowing, laddering, puddling, etc. (b) Broadcasting. (c) 69·2 Kg/ha. (d) and (e) N.A. (v) Nil. (vi) M—142 Koimurali (early). (vii) Unirrigated. (viii) One weeding. (ix) 190·5 cm. ; 187·3 cm. (x) 24.8.60; 14.7.61.

2. TREATMENTS :

3 manurial treatments : T_0=Control, T_1=92·2 Q/ha, of cowdung+11·2 Kg/ha, of P_2O_5 as Super, and T_2=33·6 Kg/ha. of N as A/S+11·2 Kg/ha of P_2O_5 as Super.

3. DESIGN :

(i) R.B.D. (ii) (a) 3. (b) 15·2 m.×9·8 m. (iii) 4. (iv) (a) and (b) 9·8 m.×4·80 m. (v) Nil. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Nil. (iii) Yield of grain. (iv) (a) 1958—61 [Experiment modified in 1960]. (b) Yes. (c) Results of combined analysis are given under 5. Results. (v) No. (vi) Nil. (vii) Expt. modified in 1960. Error variances are homogeneous and Treatments × years interaction is present.

5. RESULTS :

Pooled results

(i) 3021 Kg/ha. (ii) 466·4 Kg/ha. (based on 2 d. f. made up of Treatments × years interaction) (ii) Treatment differences are not significant. (iv) Av. yield of grain in Kg/ha.

Treatment	T_0	T_1	T_2
Av. yield	2955	3049	3059

Individual results

Av. yield of grain in Kg/ha.

Years	T_0	T_1	T_2	Sig.	G.M.	S.E./plot
1960	2901	3167	2848	*	2972	121·7
1961	3009	2930	3270	*	3070	156·8
Pooled	2955	3049	3059	N.S.	3021	466·4

Crop :-Paddy (*Kharif*). **Ref :- As. 60(6) and 61(13).**

Site :- Rice Exptl. Stn., Karimganj. **Type :- 'M'**

Object :—To compare the different doses of fertilizers applied to long duration *Sail* Paddy.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Paddy. (c) As per treatments. (ii) Clayey loam (acidic). (iii) 30.6.60/3.8.60; 15.7.61/25.8.61. (iv) (a) Ploughing, laddering and puddling. (b) Transplanting. (c) N.A. (d) 23 cm. × 23 cm. (e) 3. (v) 22.4 Kg/ha. of N as cowdung applied before final preparation of plots. (vi) 5·22 (late). (vii) Unirrigated. (viii) One weeding. (ix) 240·3 cm.; 158.6 cm. (x) 30.11.60; 5 and 6.12.61.

2. TREATMENTS :

4 manurial treatments : T_0=Control, T_1=22.4 Kg/ha. of N as A/S+33·6 Kg/ha. of P_2O_5 as Super.+16·8 Kg/ha. of K_2O as Mur. Pot., T_2=22.4 Kg/ha. of N as A/S+22·4 Kg/ha. of P_2O_5 as Super.+11·2 Kg/ha. of K_2O as Mur. Pot., T_3=22·4 Kg/ha. of N as A/S +11·2 Kg/ha. of P_2O_5 as Super.+5·6 Kg/ha. of K_2O as Mur. Pot.

Treatments applied just before transplanting.

3. DESIGN :

(i) L. Sq. (ii) (a) 4. (b) 20·1 m.×9·9 m. (iii) 4. (iv) (a) 9·9 m.×4.3 m. (b) 9·5 m. × 4·1 m. (v) One row on either side and 75 cm. at each. (vi) Yes.

4. GENERAL :

(i) Good; Lodging occured one week before harvest. (ii) Slight attack of pest in 1960. Attack of Rice-Bug in 1961. Gammaxene dusted. (iii) Grain yield. (iv) (a) 1959—61. (b) Yes. (c) Results of combined analysis are given under 5. Results. (v) No. (vi) Nil. (vii) Expt. for 1959 was not available. Error variances are heterogeneous and Treatments × years interaction is present.

5 RESULTS :

Pooled results

(i) 3879 Kg/ha. (ii) 346.4 Kg/ha. (based on 3 d. f. made up of Treatments × years interaction). (iii) Treatment differences are not significant. (iv) Av. yield of grain in Kg/ha.

Treatment	T_0	T_1	T_2	T_3
Av. yield	3843	3787	3782	4106

Individual results

Av. yield of grain in Kg/ha.

Years	T_0	T_1	T_2	T_3	Significance	G.M.	S.E./plot
1960	4045	4169	3930	4491	*	4159	93·3
1961	3641	3405	3634	3720	*	3600	123·6
Pooled	3843	3787	3782	4106	N.S.	3879	346·4

Crop :- Paddy (*Kharif*). **Ref :- 63(17) and 64(14).**

Site :- Rice Exptl. Stn., Karimganj. **Type :- 'M'.**

Object :— To study the effect of green manuring with and without Super. on the yield of *Sail* Paddy.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Paddy. (c) N.A. for 1963 and 'as per treatments' for 1964. (ii) Clayey loam (acidic). (iii) 20, 21.8.63 ; 12, 14.8.64. (iv) (a) Ploughing, laddering, and puddling, etc. (b) Transplanting. (c) N.A. (d) 23 cm. × 23 cm. (e) 4. (v) Nil. (vi) Sc. 412-125 (late). (vii) Unirrigated. (viii) 2 weedings. (ix) 161·8 cm. for 1963 and 148·3 cm. for 1964. (x) 31.12.63 and 1.1.64 ; 18, 19.12.64.

2. TREATMENTS :

3 manurial treatments : T_0 = Control, T_1 = 89·6 Kg/ha. of N as Dhaincha (*S. aculeata*) and $T_2 = T_1 + 250·9$ Kg/ha. of Super.

Super applied at the time of sowing Dhaincha in the last week of April/first week of May.

3. DESIGN :

(i) R.B.D. (ii) (a) 3. (b) N.A. (iii) 4. (iv) (a) and (b) 9·8 m. × 6·1 m. (v) Nil. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Attack of army worms which were controlled by spraying Guesarol 550 in 1963 nil in 1964 (iii) Yield of grain. (iv) (a) 1963-64. (b) Yes. (c) Results of combined analysis are given under 5 Results. (v) No. (vi) Nil. (vii) Error variances are homogeneous and Treatments × years interaction is absent.

5. RESULTS :

Pooled results

(i) 4326 Kg/ha. (ii) 201·9 Kg/ha. (based on 14 d.f. made up of Treatments × years interaction and pooled error). (iii) Treatment differences are not significant. (iv) Av. yield of grain in Kg/ha.

Treatment	T_0	T_1	T_2
Av. yield	4353	4249	4376

Individual results

Av. yield of grain in Kg/ha

Years	T_0	T_1	T_2	Sig.	G.M.	S.E./plot
1963	4016	4046	3984	N.S.	4015	213·9
1964	4689	4452	4767	N.S	4636	156·5
Pooled	4353	4249	4376	N.S.	4326	201·9

Crop :- Paddy (*Kharif*). **Ref :- A s. 60(12) and 61(3).**

Site :- Rice Res. Stn., Titabar. **Type :- 'M'.**

Object : – To study the effect of different green manures on the yield of *Sali* paddy.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) As per treatments. (c) N.A. (ii) Heavy clayey loam. (iii) 1.8.60 ; 7.8.61. (iv) 3-4 ploughings. (b) Transplanting. (c) N.A. (d) 23 cm.×23 cm. (e) 3-4. (v) N.A. (vi) Sc. 406 (b)/93-1 (Early). (vii) Unirrigated. (viii) 2-4 weedings by Japanese weeder. (ix) N.A. (x) 4.12.60 ; 11.12.61.

2. TREATMENTS :

4 green manures : G_0=Nil (control), G_1=Dhaincha, G_2=Sesbania Speciosa and G_3=Crotrolaria Browni. In 1960 green manures were sown on 6.4.60 and ploughed down on 1.7.60. In 1960 green manures were sown on 29.3.61 and ploughed down on 3.7.61.

3. DESIGN :

(i) R.B.D. (ii) (a) 4. (b) N.A. (iii) 3. (iv) (a) and (b) 20·1 m.×4·6 m. (v) Nil. (vi) Yes.

4. GENERAL :

(i) Normal. (ii) N.A. (iii) Yield of grain. (iv) (a) 1959-61. (b) Yes. (c) Results of combined analysis are given under 5. Results. (v) No. (vi) Nil. (vii) Expt. for 1959 was not available. Error variances are homogeneous and Treatments×years interaction is absent.

5. RESULTS :

Pooled Results

(i) 2778 Kg/ha. (ii) 121·7 Kg/ha. (based on 15 d.f. made up of pooled error and Treatments×years interaction). (iii) Treatment differences are highly significant. (iv) Av. yield of grain in Kg/ha.

Treatment	G_0	G_1	G_2	G_3
Av. yield	2558	2723	2863	2970

C.D.=149·7 Kg/ha.

Individual Results

Av. yield of grain in Kg/ha.

Years	G_0	G_1	G_2	G_3	Sig.	G.M.	S.E./plot
1960	2811	2910	3058	3255	*	3008	110·2
1961	2306	2537	2669	2685	*	2549	134·9
Pooled	2558	2723	2863	2970	**	2778	121·7

Crop :- Paddy (*Kharif*). **Ref :- As. 62(3).**

Site :- Rice Res. Stn., Titabar. **Type :- 'M'.**

Object :—To find out the response of N, P and K singly and in combination on the yield of *Sali* Paddy.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) *Ahu* paddy. (c) N.A. (ii) Heavy clayey loam. (iii) 5.7.62/7, 10.9.62. (iv) (a) 3-4 ploughings. (b) Transplanting. (c) N.A. (d) 23 cm.×23 cm. (e) 4. (v) Nil. (vi) S·126 Laodumra. (vii) Unirrigated. (viii) 3-4 weedings by Japanese weeder. (ix) 94·3 cm. (x) 2, 4.1.63.

2. TREATMENTS :

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

(1) 3 levels of N as A/S : N_0=0, N_1=33·6 and N_2=50·4 Kg/ha.
(2) 3 levels of P_2O_5 as Super : P_0=0, P_1=33·6 and P_2=50·4 Kg/ha.
(3) 3 levels of K_2O as Mur. Pot. : K_0=0, K_1=33·6 and K_2=50·4 Kg/ha.

3. DESIGN :

(i) Fact. in R.B.D. (ii) (a) 27. (b) N.A. (iii) 4. (iv) (a) 2·7 m.×9·6 m. (b) 2·3 m.×9·1 m. (v) 23 cm. left around the net plot. (vi) Yes.

4. GENERAL :

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

5. RESULTS :

(i) 3894 Kg/ha. (ii) 334·9 Kg/ha. (iii) None of the effects is significant. (iv) Av. yield of grain in Kg/ha.

	P_0	P_1	P_2	K_0	K_1	K_2	Mean
N_0	3831	3962	3962	4017	3738	3999	3918
N_1	3966	3850	3962	3929	3980	3869	3926
N_2	3739	3795	3981	3795	3999	3721	3838
Mean	3845	3869	3968	3914	3906	3863	3894
K_0	3761	3944	4037				
K_1	3906	3941	3869				
K_2	3869	3720	3999				

Crop :- Paddy (*Kharif*). **Ref :- As. 60(14), 61(7) and 62(6).**

Site :- Rice Res. Stn., Titabar. **Type :- 'M'.**

Object :— To study the effect of organic and inorganic manures with and without trace elements on the yield of *Sali* Paddy.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) *Ahu* paddy. (c) N.A. (ii) Heavy clayey loam. (iii) 16.8.60 ; 16.8.61 ; 9.8.62. (iv) (a) 3-4 ploughings. (b) Transplanting. (c) N.A. (d) 23 cm.×23 cm. (e) 4. (v) Nil. (vi) S. 126 Laodumra. (vii) Unirrigated. (viii) 2-4 weedings by Japanese weeder. (ix) N.A. ; N.A. ; 94·3 cm. (x) 8.12.60 ; 29.12.61 ; 27.12.62.

2. TREATMENTS :

Main-plot treatments :

2 levels of manuring : C_0=Nil. and C_1=138·3 Q/ha. of cowdung+112 Kg/ha of N as A/S+112 Kg/ha. of P_2O_5 as Super.

Sub-plot treatments ;

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

(1) 2 levels of Zinc : Z_0=0 and Z_1=11·2 Kg/ha. of Zn.

(2) 2 levels of Manganese : M_0=0 and M_1=11·2 Kg/ha. of Mn.

(3) 2 levels of Iron : F_0=0 and F_1=11·2 Kg/ha. of Fe

Forms of Zn, Mn and Fe and method of application—N.A.

3. DESIGN :

(i) Split-plot. (ii) (a) 2 main-plots/replication and 8 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) 4·6 m. ×4·6 m. (b) 4·3 m.×4·3 m. for 60 and 61 ; 4·1 m.×4·1 m. for 62. (v) 11·5 cm. discarded alround the net plot in 60 and 61 ; 23 cm. discarded alround the net plot in 62. (vi) Yes.

4. GENERAL :

(i) Normal ; N.A. for others. (ii) N.A. (iii) Yield of grain. (iv) (a) 1960-62. (b) Yes. (c) Nil. (v) and (vi) Nil. (vii) Main-plot error variances are homogeneous. Sub-plot error heterogeneous. The results of individual years are presented under 5-Results.

5. RESULTS :

60(14)

(i) 2917 Kg/ha. (ii) (a) 145·6 Kg/ha. (b) 111·0 Kg/ha. (iii) Main effect of C is highly significant and main effect of M is significant. (iv) Av. yield of grain in Kg/ha.

	Z_0	Z_1	M_0	M_1	F_0	F_1	Mean
C_0	2743	2698	2660	2781	2713	2728	2721
C_1	3089	3138	3104	3123	3089	3138	3113
Mean	2916	2918	2882	2952	2901	2933	2917
F_0	2893	2909	2874	2928			
F_1	2939	2927	2890	2976			
M_0	2867	2897					
M_1	2965	2939					

C.D. for C marginal means=115·8 Kg/ha.

C.D. for M marginal means=56·1 Kg/ha.

61(7)

(i) 1653 Kg/ha. (ii) (a) 206·0 Kg/ha. (b) 218·1 Kg/ha. (iii) Only the main effect of C is highly significant. (iv) Av. yield of grain in Kg/ha.

	Z_0	Z_1	M_0	M_1	F_0	F_1	Mean
C_0	1428	1503	1443	1488	1413	1518	1465
C_1	1820	1863	1767	1916	1796	1887	1841
Mean	1624	1683	1605	1702	1604	1703	1653
F_0	1601	1608	1518	1691			
F_1	1647	1758	1692	1713			
M_0	1557	1653					
M_1	1691	1713					

C.D. for C marginal means=163·8 Kg/ha.

62(6)

(i) 3924 Kg/ha. (ii) (a) 94·2 Kg/ha. (b) 225·3 Kg/ha. (iii) Main effect of C is highly significant. Main effect of M and interaction Z×F are significant.

	Z_0	Z_1	M_0	M_1	F_0	F_1	Mean
C_0	3633	3494	3649	3478	3580	3547	3563
C_1	4284	4287	4320	4251	4250	4321	4285
Mean	3959	3890	3859	3865	3915	3934	3924
F_0	3889	3941	3940	3890			
F_1	4028	3840	4029	3839			
M_0	3959	4010					
M_1	3958	3771					

C.D. for C marginal means=74·9 Kg/ha.
C.D. for M marginal means=113·7 Kg/ha.
C.D. for means in the Z×F table=160·8 Kg/ha.

Crop :- Paddy (*Kharif*). **Ref :- As. 63(5) & 64(7).**

Site :- Rice Res. Stn., Titabar. **Type :- 'M'.**

Object :—To study the effect of application of Nitrogen and Phosphate directly and through green manure crop preceding the paddy crop on the yield of *Sali* paddy.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) *Ahu* paddy. (c) Nil. (ii) Heavy clayey loam. (iii) August, 63 ; August, 64. (iv) (a) 3-4 ploughings. (b) Transplanting. (c) N.A. (d) 23 cm.×23 cm. (e) 3-4. (v) and (vi) N.A. (vii) Unirrigated. (viii) 3-4 hand weedings. (ix) N.A. ; 95·8 cm. (x) December, 63 ; December, 64.

2. TREATMENTS :

8 manurial treatments : T_0=Control (No manure), T_1=44·8 Kg/ha. of N applied at paddy planting, T_2=*Dhaincha* G.M.+44·8 Kg/ha. of N applied at paddy planting, T_3=44·8 Kg/ha. of N applied to *Dhaincha* G.M., T_4=*Dhaincha* G.M.+44·8 Kg/ha. of P_2O_5 at paddy planting, T_5=44·8 Kg/ha. of P_2O_5 applied to *Dhaincha* G.M., T_6=44·8 Kg/ha. of P_2O_5 applied at paddy planting and T_7=44·8 Kg/ha. each of N and P_2O_5 applied at paddy planting.

N and P_2O_5 applied as A/S and Super respectively. *Dhaincha* ploughed down after 8 weeks of growth and 45 days before paddy planting.

3. DESIGN :

(i) R.B.D. (ii) (a) 8. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 1/98·8 ha. for 63 and 1/249·7 ha. for 64. (v) N.A. (vi) Yes.

4. GENERAL :

(i) Good for 63 and normal for 64. (ii) N.A. (iii) Yield of grain. (iv) (a) 1963-64. (b) No. (c) Results of combined as well as individual analysis are given under 5. Results. (v) No. (vi) N.A. (vii) Error variances are heterogeneous and Treatments×years interaction is present.

5. RESULTS :

Pooled results

(i) 5451 Kg/ha. (ii) 1336·1 Kg/ha. (based on 7 d.f. made up of Treatments×years interaction). (iii) Treatment differences are not significant. (iv) Av. yield of grain in Kg/ha.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5	T_6	T_7
Av. yield	5976	5458	4920	5296	5458	5068	5897	5532

Individual results

Av. yield of grain in Kg/ha.

Years	T_0	T_1	T_2	T_3	T_4	T_5	T_6	T_7	Sig.	G.M.	S.E./plot
1963	8285	7643	6187	6765	7675	6333	8782	7782	N.S.	7432	899·9
1964	4245	3820	3970	4195	3795	4120	3733	3845	N.S.	3965	465·1
Pooled	5976	5458	4920	5296	5458	5068	5897	5532	N.S.	5451	1336·1

Crop :- Paddy (*Kharif*). **Ref :- As. 64(9).**

Site :- Rice Res. Stn., Titabar. **Type :- 'M'.**

Object :—To study the efficiency of foliar application of Urea as against the customary soil application on the yield of *Sali* Paddy.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) *Ahu* paddy. (c) N.A. (ii) Heavy clayey loam. (iii) August, 1964. (iv) (a) 3-4 ploughings. (b) Transplanting. (c) N.A. (d) 23 cm.×23 cm. (e) 3 to 4. (v) N.A. (vi) Gajep *Sali*. (vii) Unirrigated. (viii) 2 weedings. (ix) 95·8 cm. (x) Deccmber, 1964.

2. TREATMENTS :

8 manurial treatments : T_0=Control, T_1=11·2 Kg/ha. of N as A/S applied before transplanting, T_2=22·4 Kg/ha. of N as A/S applied before transplanting, T_3=22·4 Kg/ha. of N as Urea applied before transplanting, T_4=11·2 Kg/ha. of N as Urea applied as foliar spray, T_5=22·4 Kg/ha. of N as Urea—$\frac{1}{2}$ dose applied before transplanting, and $\frac{1}{2}$ dose applied as foliar spray at pre-flowering stage, T_6=22·4 Kg/ha. of N as Urea-$\frac{1}{2}$ dose applied at tillering and $\frac{1}{2}$ dose applied at pre-flowering stage and T_7=22·4 Kg/ha. of N as A/S applied in two equal doses as in T_6.

Concentration of spray : 2%.

3. DESIGN :

(i) R.B.D. (ii) (a) 8. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 9·0 m.×4·4 m. (v) N.A. (vi) Yes.

4. GENERAL :

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

5. RESULTS :

(i) 4169 Kg/ha. (ii) 411·7 Kg/ha. (iii) Treatment differences are not significant. (iv) Av. yield of grain in Kg/ha.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5	T_6	T_7
Av. yield	4020	4227	3895	4582	3621	4420	4207	4382

Crop :- Paddy (*Kharif*). **Ref :- As. 65(24).**

Site :- Rice Res. Stn., Titabar. **Type :- 'M'.**

Object :—To study the effect of foilar application of Urea on the yield of *Sali* Paddy.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) *Alu* paddy. (c) N.A. (ii) Heavy clayey loam. (iii) 26.7.65. (iv) (a) 3-4 ploughings. (b) Transplanting. (c) N.A. (d) 25 cm.×25 cm. (e) 3-4. (v) 33·6 Kg/ha. of P_2O_5 as Super. (vi) Gazep *sali*. (vii) Unirrigated. (viii) 2-3 weedings. (ix) N.A. (x) 24.12.65.

2. TREATMENTS :

Main-plot treatments :

2 levels of N : N_1=16·8 and N_2=33·6 Kg/ha.

Sub-plot treatments :

6 methods of N application : M_0=Control (no manure), M_1=Urea as soil application, M_2=A/S as soil application, M_3=Urea as foliar application, M_4=Urea as soil application and foliar application, and M_5=A/S as soil application and Urea as foliar application.

Dates of Urea spray : 16.8.65 and 18.9.65.

3. DESIGN :

(i) Split-plot. (ii) (a) 2 main plots/replication and 6 sub-plots/main plot. (b) N.A. (iii) 3. (iv) (a) N.A. (b) 1,487·7 ha. (v) N.A. (vi) Yes.

4. GENERAL :

(i) Normal. (ii) N.A. (iii) Yield of grain. (iv) (a) 1965-67. (b) No. (c) Nil. (v) No. (vi) N.A. (vii) Raw data—not available, results supplied by the Stn. have been presented.

5. RESULTS :

(i) 2194 Kg/ha. (ii) (a) 109·0 Kg/ha. (b) 207·8 Kg/ha. (iii) Main effect of M is highly significant and main effect of N is significant. (iv) Av. yield of grain in Kg/ha.

	M_0	M_1	M_2	M_3	M_4	M_5	Mean
N_1	1642	2162	2211	2357	2048	2194	2102
N_2	1723	2194	2666	2373	2568	2194	2286
Mean	1682	2178	2438	2365	2308	2194	2194

C.D. for N marginal means=156·3 Kg/ha.

C.D. for M marginal means=250·3 Kg/ha.

Crop :- Paddy (*Kharif*). **Ref :- As. 65(19).**

Site :- Rice. Res. Stn., Titabar. **Tppe :- 'M'.**

Object :—To study the effect of N, P and K on the yield of *Sali* Paddy.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) *Ahu* paddy. (c) N.A. (ii) Heavy clayey loam. (iii) 2.7.65/12.8.65. (iv) (a) 3-4 ploughings. (b) Transplanting. (c) N.A. (d) 25 cm.×25 cm. (e) 3-4. (v) N.A. (vi) *Prosadbhog* (vii) Unirrigated. (viii) 2-3 weedings. (ix) N A. (x) 7.12.65.

2. TREATMENTS :

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

(1) 3 levels of N as A/S : N_0=0, N_1=33·6 and N_2=67·2 Kg/ha.

(2) 3 levels of P_2O_5 as Super : P_0=0, P_1=33·6 and P_2=67·2 Kg/ha.

(3) 3 levels of K_2O as Mur. Pot. : K_0=0, K_1=16·8 and K_2=33·6 Kg/ha.

Method and time of application : A/S applied in two equal doses, one at transplanting and the other at tillering. Super and Mur. Pot. applied before transplanting.

3. DESIGN :

(i) 3^3 fact. confd. (ii) (a) 9 plots/block and 3 blocks/replication. (b) N.A. (iii) 1. (iv) (a) N.A. (b) 1/282·8 ha. (v) N.A. (vi) Yes.

4. GENERAL :

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

5. RESULTS :

(i) 2273 Kg/ha. (ii) 226·2 Kg/ha. (iii) None of the effects is significant. (iv) Av. yield of grain in Kg/ha.

	P_0	P_1	P_2	K_0	K_1	K_2	Mean
N_0	2611	2800	2621	2470	2828	2734	2677
N_1	2753	2668	2904	2828	2932	2564	2775
N_2	2640	2583	3375	2781	2772	3045	2866
Mean	2668	2684	2967	2693	2844	2781	2773
K_0	2385	2743	2951				
K_1	2847	2772	2913				
K_2	2772	2536	3035				

Crop :- Paddy (*Kharif*). **Ref :- As. 60(8).**

Site :- Exptl. Res. Stn., Upper Shillong. **Type :- 'M'.**

Object :—To study the effect of N and P combination on the yield of Paddy.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Paddy. (c) N.A. (ii) Sandy loam. (iii) 1 to 5.7.60. (iv) (a) Ploughing followed by laddering. (b) Transplanting. (c) N.A. (d) 23 cm.×23 cm. (e) 3. (v) N.A. (vi) *Khonorullo*. (vii) Unirrigated. (viii) 2 weedings. (ix) N.A. (x) 17.11.60.

2. TREATMENTS :

7 manurial treatments : T_0=Control, T_1=112 Kg/ha. of A/S, T_2=T_1+70 Kg/ha. of Super, T_3=224 Kg/ha. of A/S, T_4=T_3+140 Kg/ha. of Super, T_5=336 Kg/ha. of A/S and T_6=T_5+210 Kg/ha. of Super.

3. DESIGN :

(i) R.B.D. (ii) (a) 7. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 5·0 m.×2·5 m. (v) N.A. (vi) Yes.

4. GENERAL :

(i) Good. (ii) N.A. (iii) Grain yield. (iv) (a) 1960—62. (b) No. (c)— (v) No. (vi) N.A. (vii) Results of 61 and 62 were not available at the Res. Stn.

5. RESULTS :

(i) 2944 Kg/ha. (ii) 702·5 Kg/ha. (iii) Treatment differences are not significant. (iv) Av. yield of grain in Kg/ha.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5	T_6'
Av. yield	2778	2957	2778	2509	2867	3226	3494

Crop :- Paddy (*Kharif*). **Ref :- As. 60(9).**

Site :- Exptl. Res. Stn., Upper Shillong. **Type :- 'M'.**

Object :—To study the effect of N and P combinations on the yield of Paddy.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Paddy. (c) N.A. (ii) Sandy loam. (iii) 5 to 8.7.60. (iv) (a) Ploughing followed by laddering. (b) Transplanting. (c) N.A. (d) 23 cm.×23 cm. (e) 3. (v) N.A. (vi) *Dullo*. (vii) Unirrigated. (viii) 2 weedings. (ix) N.A. (x) 28.11.60.

2. TREATMENTS :

7 manurial treatments : T_0=Control, T_1=112 Kg/ha. of A/S, T_2=T_1+70 Kg/ha. of Super, T_3=224 Kg/ha. of A/S, T_4=T_3+140 Kg/ha. of Super, T_5=336 Kg/ha. of A/S and T_6=T_5+210 Kg/ha. of Super.

3. DESIGN :

(i) R.B.D. (ii) (a) 7. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 5·0 m.×2·5 m. (v) N.A. (vi) Yes.

4. GENERAL :

(i) Normal. (ii) N.A. (iii) Grain yield. (iv) (a) 1960—62. (b) No. (c) — (v) No. (vi) N.A. (vii) Results of 61 and 62 were not available at the Res. Stn.

5. RESULTS :

(i) 1581 Kg/ha. (ii) 512·1 Kg/ha. (iii) Treatment differences are not significant. (iv) Av. yield of grain in Kg/ha.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5	T_6
Av. yield	1467	1792	1590	1669	1456	1613	1478

Crop :- Paddy (*Kharif*). **Ref :- As. 61(16) and 62(14).**

Site :- Exptl. Res. Stn., Upper Shillong. **Type :- 'M'.**

Object :—To study the effect of different sources of P at different levels on the yield of Paddy.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Paddy. (c) As per treatments in 62 and N.A. in 61. (ii) Sandy loam. (iii) During July. (iv) (a) Ploughing followed by laddering. (b) Transplanting. (c) N.A. (d) 23 cm.×23 cm. (e) 3. (v) N.A. (vi) *Khonorullo*. (vii) Unirrigated. (viii) 1 weeding. (ix) N.A. (x) During November.

2. TREATMENTS :

5 manurial treatments: T_0=Control (2 plots), T_1=210·0 Kg/ha. of Super, T_2=168·0 Kg/ha. of Bone Meal, T_3=420·0 Kg/ha. of Super and T_4=336·0 Kg/ha. of Bone Meal.

3. DESIGN :

(i) R.B.D. (ii) (a) 6. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 5·0 m.×2·5 m. (v) N.A. (vi) Yes.

4. GENERAL :

(i) Normal. (ii) N.A. (iii) Yield of grain. (iv) (a) 1961—63. (b) Yes. (c) Nil. (v) No. (vi) N.A. (vii) Results of 1963 were not available. Error variances are heterogeneous and Treatments × years interaction is absent. Results of individual years are presented under 5. Results.

5. RESULTS :

61(16)

(i) 2386 Kg/ha. (ii) 881·2 Kg/ha. (iii) Treatment differences are significant. (iv) Av. yield of grain in Kg/ha.

Treatment	T_0	T_1	T_2	T_3	T_4
Av. yield	1728	2199	2468	2603	3590

C.D. for treatment means except control mean=1321·0 Kg/ha.
C.D. for control *vs.* any other mean =1144·1 Kg/ha.

62(14)

(i) 2775 Kg/ha. (ii) 396·7 Kg/ha. (iii) Treatment differences are highly significant. (iv) Av. yield of grain in Kg/ha.

Treatment	T_0	T_1	T_2	T_3	T_4
Av. yield	1728	2782	3051	3410	3949

C.D. for treatment means except control mean=594·7 Kg/ha.
C.D. for control *vs.* any other mean =515·0 Kg/ha.

Crop :- Paddy (*Kharif*). **Ref :- As. 62(15), 63(20) and 64(18).**

Site :- Exptl. Res. Stn., Upper Shillong. **Type :- 'M'.**

Object :—To study the relative efficiency of different forms of Phosphate with or without Nitrogen.

1. BASAL CONDITIONS:

(i) (a) Nil. (b) Paddy. (c) N.A. (ii) Sandy loam. (iii) 4.6.62; 8.6.63 and 5.6.64. (iv) (a) Ploughing followed by laddering. (ii) Transplanting. (c) N.A. (d) 23 cm.×23 cm. (e) 4. (v) 184·5 Q/ha. of Cowdung. (vi) *Khonorullo*. (vii) Unirrigated. (viii) 2 weedings. (ix) N.A. (x) 24.10.62; 30.10 63 and 25.10.54.

2. TREATMENTS :

6 manurial treatments : T_0=Control, T_1=44·8 Kg/ha. of N as A/S, T_2=33·6 Kg/ha. of P_2O_5 as Bone Meal, T_3=33·6 Kg/ha. of P_2O_5 as Super and $T_4=T_1+T_2$ and $T_5=T_1+T_3$.

3. DESIGN :

(i) R.B.D. (ii) (a) 6. (b) N.A. (iii) 3. (iv) (a) 3·7 m.×3·1 m. (b) 3·1 m,×2·4 m. (v) 30·5 cm. discarded alround. (vi) Yes.

4. GENERAL :

(i) Normal. (ii) N.A. (iii) Yield of grain. (iv) (a) 1962—64. (b) No. (c) Nil. (v) No. (vi) N.A. (vii) Error variances are heterogeneous and Treatments×years interaction is absent.. Results of individual years are presented under 5. Results.

5. RESULTS :

62(15)

(i) 3720 Kg/ha. (ii) 305·9 Kg/ha. (iii) Treatment differences are highly significant. (iv) Av. yield of grain in Kg/ha.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5
Av. yield	2664	3310	4036	3924	4350	4036

C.D.=556·5 Kg/ha.

63(20)

(i) 4480 Kg/ha. (ii) 709·4 Kg/ha. (iii) Treatment differences are not significant. (iv) Av. yield of grain in Kg/ha.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5
Av. yield	3368	4678	4431	4557	5351	4498

64(18

(i) 2817 Kg/ha. (ii) 565 4 Kg/ha (iii) Treatment differences are not significant. (iv) Av yield of grain in Kg/ha.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5
Av. yield	2408	2727	2933	2727	3144	2960

Crop :- Paddy (*Kharif*). **Ref :- As. 63(27), 64(19) and 65(26).**

Site :-Exptl. Res. Stn., Upper Shillong. **Type :- 'M'.**

Object :—To study the relative efficiency of different forms of Phosphate with or without Nitrogen.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Paddy. (c) N.A. (ii) Sandy loam. (iii) 20.4.63 ; 16.4.64 ; 15.4.65. (iv) (a) Hoeing and pulverizing. (b) Dibbling 9 to 10 grains per hill. (c) N. A. (d) 15 cm. × 15 cm. (e) N.A. (v) 184.5 Q/ha. as Cowdung. (vi) *Khonorullo* in 63 and 64. U.S.–1 in 65. (vii) Unirrigated. (viii) 2 weedings. (ix) N.A. (x) 8.11.63 ; 7.11.64; 5.11 65.

2. TREATMENTS :

5 manurial treatments : T_0=Control, T_1=44·8 Kg/ha. of N as A/S, T_2=33·6 Kg/ha of P_2O_5 as B.M., T_3=33·6 Kg/ha. of P_2O_5 as Super., T_4=T_1+T_2 and T_5=T_1+T_3.

3. DESIGN :

(i) R.B.D. (ii) (a) 6. (b) N.A. (iii) 3. (iv) (a) 3·1 m. × 3·7 m. (b) 2·4 m. × 3·1 m. (v) 30 cm. discarded allround. (vi) Yes.

4. GENERAL :

(i) Poor in 63 and 64. Good in 65. (ii) N.A. (iii) Grain yield. (iv) (a) 1963—65. (b) No. c) Results of combined as well as individual expts. are given under 5. Results. (v) No. (vi) N.A. (vii) Error variances are homogeneous and Treatments × years interaction is present.

5. RESULTS :

Pooled results :

(i) 1298 Kg/ha. (ii) 774·4 Kg/ha. (based on 10 d. f. made up of Treatments × years interaction). (iii) Treatment differences are not significant. (iv) Av. yield of grain in Kg/ha.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5
Av. yield	1009	1379	1397	929	1538	1535

Individual results

Av. yield of grain in Kg/ha.

Years	T_0	T_1	T_2	T_3	T_4	T_5	Sig.	G.M.	S.E./plot
1963	413	534	511	354	440	282	N.S.	422	249·7
1964	1202	1722	937	632	1256	2036	*	1298	376·5
1965	1412	1882	2743	1802	2917	2286	*	2174	546 6
Pooled	1009	1379	1397	929	1538	1535	N.S.	1298	774·4

Crop :- Paddy (*Kharif*) **Ref :- As. 63(22), 64(20) and 65(27).**

Site :-Exptl. Res. Stn., Upper Shillong. **Type :- 'M'**

Object :—To study the effect of combinations of N, P and K on the yield of Paddy.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Paddy. (c) N. A. (ii) Sandy loam. (iii) 10.6.63; 5.6.64; 7.6.65. (iv) (a) Ploughing followed by laddering. (b) Transplanting. (c) N.A. (d) 23 cm. × 23 cm. (e) 4 (v) 184·5 Q/ha. of Cowdung (vi) *Khonorullo* in 1963 and 64; U.S.—1 in 65. (vii) Unirrigated. (viii) 2 weedings. (ix) N.A. (x) 30.10.63; 29.10.64; and 26.10.65.

2. TREATMENTS :

4 manurial treatments : T_0=Control, T_1=44·8 Kg/ha of N as A/S+33·6 Kg/ha. of P_2O_5 as Bone Meal+33·6 Kg/ha. of K_2O Mur. Pot., T_2=33·6 Kg/ha. of N as A/S+22·4 Kg/ha. of P_2O_5 as Bone Meal+22·4 Kg/ha. of K_2O as Mur. Pot. and T_3=22·4 Kg/ha. of N as A/S+11·2 Kg/ha. of P_2O_5 as Bone Meal+11·2 Kg/ha of K_2O as Mur. Pot.

3. DESIGN :

(i) R. B. D. (ii) (a) 4. (b) N. A. (iii) 5. (iv) (a) 3·1 m. × 3·7 m. (b) 2·4 m. × 3.1 m. (v) 30 cm. discarded alround.

4. GENERAL :

(i) Normal. (ii) N.A. (iii) Grain yield. (iv) (a) 1963—65. (b) No. (c) Results of combined analysis are given under 5—Results. (v) No. (vi) N.A. (vii) Error variances are homogeneous and Treatments × years interaction is absent.

5. RESULTS :

Pooled results :

(i) 2798 Kg/ha. (ii) 581.1 Kg/ha. (based on 42 d.f. made up of pooled error and Treatments × years interaction) (iii) Treatment differences are higly significant (iv) Av. yield of grain in Kg/ha.

Treatment	T_0	T_1	T_2	T_3
Av. yield	2260	3160	3196	2567

C.D.=428·8 Kg/ha.

Individual results :

Av. yield of grain in Kg/ha.

Years	T_0	T_1	T_2	T_3	Sig.	G.M.	S.E. plot
1963	2659	3810	3340	3019	*	3207	451·3
1964	2481	3383	4206	2855	*	3231	644·0
1965	1640	2286	2044	1855	N.S.	1956	508·1
Pooled	2260	3160	3196	2577	**	2798	581·6

Crop :- Paddy (*Kharif*). **Ref :- As. 64(22).**

Site :- Exptl. Res. Stn., Upper Shillong. **Type :- 'M'.**

Object :— To study the effect of different combinations of N, P and K on the yield of Paddy.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Paddy. (c) N.A. (ii) Sandy loam. (iii) 10.6.64. (iv) (a) Ploughings followed by laddering. (b) Transplanting. (c) N.A. (d) 23 cm. × 23 cm. (e) 4. (v) 92·2 Q/ha. of Cowidung. (vi) *Khonorullo* (vii) Unirrigated. (viii) 2 weedings. (ix) N.A. (x) 2.11.64.

2. TREATMENTS :

4 manurial treatments : T_0=Control, T_1=44·8 Kg/ha. of N as A/S+33·6 Kg/ha. of P_2O_5 as Super+22·4 Kg/ha. of K_2O as Mur. Pot,, T_2=67·2 Kg/ha. of N as A/S+50·4 Kg/ha. of P_2O_5 as Super+33·6 Kg/ha. of K_2O as Mur. Pot., T_3=89·6 Kg/ha. of N as A/S+67·2 Kg/ha. of P_2O_5 as Super+44·8 Kg/ha. of K_2O as Mur. Pot.

3. DESIGN :

(i) R.B.D. (ii) (a) 4. (b) N.A. (iii) 5. (iv) (a) 3·7 m. × 3·1 m. (b) 3·1 m. × 2·4 m. (v) 30 cm. discarded alround. (vi) Yes.

4 GENERAL :

(i) Normal. (ii) N.A. (iii) Grain yield. (iv) (a) 1964-66. (b) No. (c) —. (v) No. (vi) N.A. (vii) The expt. was not conducted in 1965.

5 RESULTS :

(i) 3845 Kg/ha. (ii) 512·8 Kg/ha. (iii) Treatment differences are significant. (iv) Av. yield of grain in Kg/ha.

Treatment	T_0	T_1	T_2	T_3
Av. yield	3111	4112	4139	4018

C.D.=706·5 Kg/ha.

Crop :- Paddy (*Kharif*). **Ref :- As. 65(30).**

Site :- Exptl. Res. Stn., Upper Shillong. **Type :- 'M'.**

Object :— To study the effect of split-doses of Nitrogen on the yield of Paddy.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Paddy. (c) N.A. (ii) Sandy loam. (iii) Middle of June. (iv) (a) Ploughing, laddering, puddling, etc. (b) Transplanting. (c) N.A. (d) 23 cm. × 23 cm. (e) 4. (v) 44·8 Kg/ha. of P_2O_5 as Super +33·6 Kg/ha. of K_2O as Mur. Pot. (vi) U.S.-1. (vii) Unirrigated. (viii) 2 weedings. (ix) N.A. (x) 1st. week of November.

2. TREATMENTS :

3 manurial doses : T_1=Full dose of N at planting, T_2=60% dose of N applie d 4—5 weeks after planting and 40% dose of N applied at about 1½ months before flowering and T_3=60% dose of N applied at puddling+30% dose of N applied 4-5 weeks after planting+10% dose of N applied at about 1½ months before flowering.

Dose of N : N.A.

3. DESIGN :

(i) R B.D. (ii) (a) 3. (b) N.A. (iii) 10. (iv) (a) 3·1 m. × 3·7 m. (b) 2·4 m. × 3·1 m. (v) 30 cm. discarded alround. (vi) Yes.

4. GENERAL :

(i) Good. (ii) N.A. (iii) Yield of grain. (iv) (a) 1965-66. (b) No. (c) —. (v) No. (vi) N.A. (vii) Nil

5. RESULTS :

(i) 2577 Kg/ha. (ii) 556·9 Kg/ha. (iii) Treatment differences are not significant. (iv) Av. yield of grain in Kg/ha.

Treatment	T_1	T_2	T_3
Av. yield	2891	2595	2245

Crop :- Paddy (*Kharif*). **Ref :- As. 65(31).**

Site :- Exptl. and Res. Stn., Upper Shillong. **Type :- 'M'.**

Object :— To study the effect of different levels of lime and time of application of lime on the yield of Paddy.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Paddy. (c) N.A. (ii) Sandy loam. (iii) May/June. (iv) (a) Ploughing followed by laddering. (b) Transplanting. (c) N.A. (d) 23 cm.×23 cm. (e) 4. (v) 44·8 Kg/ha. of N as A/S+33·6 Kg/ha. of P_2O_5 as Super+33·6 Kg/ha. of K_2O as Mur. Pot. (vi) U.S. 1 (medium). (vii) Unirrigated. (viii) 2 weedings. (ix) N.A. (x) 1st week of November.

2. TREATMENTS :

Main-plot treatments :

3 times of application of lime : T_1=2 months before transplanting, T_2=1 month before transplanting and T_3=At the time of transplanting.

Sub-plot treatments :

5 levels of lime : L_0=0, L_1=2240, L_2=2800, L_3=3360 and L_4=3920 Kg/ha.

3. DESIGN :

(i) Split-plot. (ii) (a) 3 main-plots/replication and 5 sub-plots/main-plot. (b) N.A. (iii) 3. (iv) (a) 3.1 m. ×3·7 m. (b) 2·4 m.×3·1 m. (v) 30 cm. discarded alround. (vi) Yes.

4. GENERAL :

(i) Poor. (ii) N.A. (iii) Grain yield. (iv) (a) 1965-66. (b) No. (c) Nil. (v) No. (vi) N.A. (vii) Nil.

5. RESULTS :

(i) 471 Kg/ha. (ii) (a) 287·2 Kg/ha. (b) 379·3 Kg/ha. (iii) None of the effects is significant. (iv) Av. yield of grain in Kg/ha.

	L_0	L_1	L_2	L_3	L_4	Mean
T_1	554	237	276	352	655	415
T_2	529	276	201	353	351	342
T_3	857	478	353	781	805	655
Mean	647	330	277	495	604	471

Crop :- Paddy (*Kharif*). **Ref :- As. 65(32).**

Site :- Exptl. and Res. Stn., Upper Shillong. **Type :- 'M'.**

Object :— To study the effect of unmanured nursery and fertilizers on the yield of Paddy.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Paddy. (c) N.A. (ii) Sandy loam. (iii) Middle of June. (iv) (a) Ploughing followed by laddering. (b) Transplanting. (c) N.A. (d) 23 cm×23 cm. (e) 4. (v) 92·2 Q/ha. of cowdung. (vi) U.S. 1. (vii) Unirrigated. (viii) 2 weedings. (ix) N.A. (x) 1st week of November.

2. TREATMENTS :

T_0= Control, T_1= Nursery beds not manured but seedlings were dipped in 2% NPK solution, T_2=22·4 Kg ha. of N as Urea+11·2 Kg ha. of P_2O_5 as Super., T_3=33·6 Kg/ha. of N as Urea+22·4 Kg/ha. of P_2O_5 as Super.+11·2 Kg ha. of K_2O as Mur. Pot. and T_4=44·8 Kg/ha. of N as Urea+33·6 Kg/ha. of P_2O_5 as Super. +22·4 Kg ha. of K_2O as Mur. Pot.

3. DESIGN

(i) R.B.D. (ii) (a) 5 (b) N.A. (iii) 4. (iv) (a) 4·3 m.×4·9 m. (b) 3·7 m.×4·3 m. (v) 30 cm. discarded alround. (vi) Yes.

4 GENERAL :

(i) Normal. (ii) (a) and (b)N.A. (iii) Grain yield. (iv) (a) 1965-66. (b) Yes. (c) Nil. (v) No. (vi) N.A. (vii) Nil.

5 RESULTS :

(i) 1270 Kg ha. (ii) 220·2 Kg ha (iii) Treatment differences are not significant. (iv) Av. yield of grain in Kg ha

Treatment	T_0	T_1	T_2	T_3	T_4
Av yield	1101	1229	1274	1364	1383

Crop :- Paddy (*Kharif*). **Ref :- As. 60 (MAE).**

Site :- M.A.E. Centre, Tinsukia. **Type :- 'M'.**

Object — Type IV :— To study the effect of P applied to legume crops and of N to the succeeding *Ahu* Paddy crop.

1. BASAL CONDITIONS :

(i) (a) Fallow. (b) Nil. (c) N.A. (ii) Brahmaputra alluvium. (iii) 9 to 12.3.60. (iv) (a) 5 ploughings. (b) Broadcasting. (c) 69 Kg/ha. (d) and (e) N.A. (v) Nil. (vi) Baga (140 to 150 days duration). (vii) N.A. (viii) 3 weedings. (ix) N.A. (x) 5 to 11.8.60.

2. TREATMENTS :

Main-plot treatments :

All combinations of (1) and (2)+a control (Fallow)

(1) 2 leguminous crops : L_1=*Matikalai* and L_2=Pea.

(2) 3 levels of P_2O_5 as Super : P_0=0, P_1=44·8 and P_2=89·7 Kg/ha.

Sub-plot treatments :

3 levels of N as A/S applied to paddy crop : N_0=0, N_1=16·8 and N_2=33·8 Kg/ha.

3. DESIGN :

(i) Split-plot. (ii) (a) 7 main-plots/replication and 3 sub-plots/main-plot. (b) N.A. (iii) 3. (iv) (a) 10·1 m.×5·0 m. (b) 9·5 m.×4·4 m. (v) 31 cm. discarded alround. (vi) Yes,

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of grain and straw. (iv) (a) 1957-60. (b) No. (c) Nil. (v) and (vi) N.A. (vii) Nil.

5. RESULTS :

(i) 575 Kg/ha. (ii) (a) 253·6 Kg/ha. (b) 205·3 Kg/ha. (iii) Main effect of N and interaction L×P are highly significant. (iv) Av. yield of grain in Kg/ha.

Control=602 Kg/ha.

	P_0	P_1	P_2	N_0	N_1	N_2	Mean
L_1	516	381	846	231	544	968	581
L_2	446	701	532	430	520	728	559
Mean	481	541	689	331	532	848	570
N_0	245	373	375				
N_1	461	355	780				
N_2	737	895	912				

C.D. for N marginal means=213·8 Kg/ha.
C.D. for body of L×P table=262·7 Kg/ha.

Crop :- Paddy (*Kharif*). **Ref :- As. 61, 62, 63 and 64(MAE)**

Site :- M.A.E. Farm, Titabar. **Type :- 'M'.**

Object :— Type II : To study the effect of N, P, K and bulky manure on the yield of *Sali* Paddy.

1. BASAL CONDITIONS :

(i) N.A. (ii) Heavy clay loam. (iii) 3.8.1961 ; 28.8.1962 ; 30.7.1963 ; 6.9.1964. (iv) (a) 3 to 4 ploughings. (b) Transplanting. (c) N.A. (d) 25 cm.×25 cm. (e) 3 to 4. (v) Nil. (vi) Prosadbhog. (vii) Unirrigated. (viii) Weeding 3 to 4 times by Japanese weeder. (ix) N.A. (x) 30.11.1961 ; 28.12.62 ; 10.12.1963 ; 19.12.1964.

2. TREATMENTS :

All combinations of (1), (2), (3) and (4).

(1) 3 levels of N as A/S : N_0=0, N_1=33·6 and N_2=67·2 Kg/ha.
(2) 3 levels of P_2O_5 as Super : P_0=0, P_1=33·6 and P_2=67·2 Kg/ha.
(3) 3 levels of K_2O as Mur. Pot. : K_0=0, K_1=33·6 and K_2=67·2 Kg/ha.
(4) 2 levels of F.Y.M. : F_0=0, and F_1=5600 Kg/ha.

3. DESIGN :

(i) 3^2×2 confd. (ii) (a) 9 plots/block, 3 blocks for each of F_0 and F_1. (b) N.A. (iii) 1. (iv) (a) 10·1 m.× 5·1 m. (b) 9·5 m.×4·4 m. (v) 31 cm. alround. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of grain. (iv) (a) 1961-64. (b) Yes. (c) Nil. (v) and (vi) N.A. (vii) Nil.

5. RESULTS :

1961

(i) 2582 Kg/ha. (ii) 359·7 Kg/ha. (iii) None of the effects is significant. (iv) Av. yield of grain in Kg/ha.

Treatment	N_0	N_1	N_2	Sig	P_0	P_1	P_2	Sig
Av. yield	2445	2696	2606	N.S.	2540	2564	2643	N.S.

	K_0	K_1	K_2	Sig	F_0	F_1	Sig
	2666	2564	2516	N.S.	2494	2670	N.S.

1962

(i) 2462 Kg/ha. (ii) 898·3 Kg/ha. (iii) None of the effects is significant. (iii) Av. yield of grain in Kg/ha.

Treatment	N_0	N_1	N_2	Sig	P_0	P_1	P_2	Sig
Av. yield	2593	2543	2248	N S.	2107	2699	2579	N.S.
	K_0	K_1	K_2	Sig	F_0	F_1	Sig	
	2528	2459	2398	N.S.	2445	2478	N.S.	

1963

(i) 2411 Kg/ha. (ii) 303·8 Kg/ha. (iii) Main effect of N is significant. (iv) Av. yield of grain in Kg/ha.

Treatment	N_0	N_1	N_2	Sig	P_0	P_1	P_2	Sig
Av. yield	2489	2491	2252	*	2436	2368	2428	N.S.
	K_0	K_1	K_2	Sig	F_0	F_1	Sig	
	2314	2484	2434	N S.	2376	2445	N.S.	

C.D. for N marginal means=208·6

1964

(i) 2656 Kg/ha (ii) 257·4 Kg/Ka. (iii) None of the effects is significant. (iv) Av. yield of grain in Kg/ha.

Treatment	N_0	N_1	N_2	Sig	P_0	P_1	P_2	Sig
Av. yield	2602	2721	2645	N.S.	2617	2691	2660	N.S.
	K_0	K_1	K_2	Sig	F_0	F_1	Sig	
	2651	2635	2682	N.S.	2691	2621	N.S.	

Crop :- Paddy (*Kharif*). **Ref :- As. 62, 63, 64 and 65(MAE).**

Site :- MAE Centre, Titabar. **Type :- 'M'.**

Object :—Type V (a) : To determine the method of placement of fertilizer on the yield of *Sali* Paddy.

1. BASAL CONDITIONS :

(i) N.A (ii) Heavy clay loam. (iii) 31.8.1962; 21.7.1963; 6.9.1964. (iv) (a) Ploughing, laddering and puddling etc. (b) Transplanting. (c) N.A. (d) 25 cm.×25 cm. (e) 3 to 4. (v) 33·6 Kg/ha. of P_2O_5 as Super. (vi) *Prasadbhag*. (vii) Unirrigated. (viii) Weeding. (ix) N.A. (x) 20 to 23.12.62.

2. TREATMENTS :

All combinations of (1) and (2) with a control

(1) 3 levels of N as A/S : N_1=33·6, N_2=50·8 and N_3=67·2 Kg/ha.

(2) 4 methods of placement of fertilizer : M_1=Broadcast just before last puddling and incorporated into soil, M_2=Broadcast at planting, M_3=Broadcast half at planting and half about a month after planting and M_4=Application in the form of pellets about 3 weeks after planting.

3. DESIGN :

(i) Fact. in R.B.D. (ii) (a) 13. (b) N.A. (iii) 4. (iv) (a) 10·1 m.×5·0 m. (b) 9·5 m.×4·4 m. (v) 31 cm discarded allround. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of grain. (iv) (a) 1962—contd. (b) N.A. (c) Nil. (v) and (vi) N.A. (vii) Nil.

5. RESULTS :

1962

(i) 1030 Kg/ha. (ii) 250·0 Kg/ha. (iii) None of the effects is significant. (iv) Av. yield of grain in Kg/ha.

Control=1244 Kg/ha.

	M_1	M_2	M_3	M_4	Mean
N_1	862	910	1098	1275	1036
N_2	932	1260	797	922	978
N_3	855	1149	1101	985	1022
Mean	883	1106	999	1061	1012

1963

(i) 2433 Kg/ha. (ii) 326·3 Kg/ha. (iii) None of the effects is significant. (iv) Av. yield of grain in Kg/ha.

Control=2545 Kg/ha.

	M_1	M_2	M_3	M_4	Mean
N_1	2421	2631	2613	2360	2506
N_2	2378	2423	2477	2434	2428
N_3	2187	2353	2563	2248	2338
Mean	2329	2469	2551	2347	2424

1964

(i) 4119 Kg/ha. (ii) 399·2 Kg/ha. (iii) None of the effects is significant. (iv) Av. yield of grain Kg/ha.

Control=3844 Kg/ha.

	M_1	M_2	M_3	M_4	Mean
N_1	4438	4226	4188	3994	4211
N_2	4326	3682	4094	4313	4104
N_3	4269	3775	4269	4125	4110
Mean	4344	3894	4184	4144	4142

1965

(i) 2650 Kg/ha. (ii) N.A. (iii) Main effect of N alone is significant. (iv) Av. yield of grain in Kg/ha.

Control=1810 Kg/ha.

Treatment	M_1	M_2	M_3	M_4	N_1	N_2	N_3
Av. yield	2751	2631	2567	2650	2497	2886	2567

C.D. for N marginal means=306 Kg/ha.

Crop :- Paddy (*Kharif*). **Ref :- As. 61 and 62(MAE).**

Site :- MAE Centre, Titabar. **Type :- 'M'.**

Object :—Type IX :—To compare Nitrophosphates by ODDA and PEC processes at different levels and different methods of application on the yield of Paddy.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) and (c) N.A. (ii) Heavy clayey loam. (iii) 25 to 30.8.1961 ; 16 to 19.7.1962. (iv) (a) 3 to 4 ploughings. (b) Transplanting. (c) N.A. (d) 25 cm. × 25 cm. (e) 3 to 4. (v) N.A. (vi) *Prasadbhog*. (vii) Unirrigated. (viii) and (ix) N.A. (x) 15, 16, 18 and 20.12.1961; 4 to 12.12.1962.

2. TREATMENTS :

All combinations of (1), (2), (3) and 4 extra treatments

(1) 3 types of fertilizers : P_1=Super, P_2=ODDA (20—20—0) and P_3=PEC (16—14—0).

(2) 3 levels of Phosphates : L_1=13·4 Kg/ha. of N+14·0 Kg/ha. of P, L_2=26·9 Kg/ha. of N+23·5 Kg/ha. of P and L_3=53·8 Kg/ha. of N+47·0 Kg/ha. of P.

(3) 3 methods of application : M_1=Broadcasting, M_2=6·3 cm. below seed and M_3=Band placement.

Extra treatments are : N_0=0, N_1=13·4, N_2=26·9 and N_3=53·8 Kg/ha. of N.

3. DESIGN :

(i) 3^3 - 4 Fact. confd. (ii) (a) 13 plots/blocks, 3 blocks/replication. (b) N.A. (iii) 2. (iv) (a) 10·1 m.×5·0 m. (b) 9·4 m.×4·4 m. (v) 30 cm. discarded alround. (vi) Yes.

4. GENERAL :

(i) Satisfactory. (ii) N.A. (iii) Yield of grain. (iv) (a) 1961—62. (b) and (c) N.A. (v) Nil. (vi) and (vii) N.A.

5 RESULTS :

1961

(i) 1982 Kg/ha. (ii) 155·2 Kg/ha. (iii) None of the effects is significant (iv) Av. yield of grain in Kg/ha.

Treatment	P_1	P_2	P_3	Sig.	L_1	L_2	L_3	Sig.	
Av. yield	1986	1955	2206	N.S.	2047	1992	1968	N.S.	
	M_1	M_2	M_3	Sig.	N_0	N_1	N_2	N_3	Sig.
	1992	2011	2004	N.S.	1845	1918	1992	1992	N.S.

1962

(i) 2330 Kg/ha. (ii) 531·1 Kg/ha. (iii) None of the effects is significant. (iv) Av. yield of grain in Kg/ha.

Treatment	P_1	P_2	P_3	Sig.	L_1	L_2	L_3	Sig.	
Av. yield	2334	2311	2474	N.S.	2209	2570	2340	N.S.	
	M_1	M_2	M_3	Sig.	N_0	N_1	N_2	N_3	Sig.
	2373	2418	2328	N.S.	2317	2470	1977	2171	N.S.

Crop :- Paddy (*Kharif*). **Ref :- As. 62 (MAE).**

Site :- M.A.E. Centre, Titabar. **Type :- 'M'.**

Object :- Type X : To study the effect of various levels of N, P and green manures on the yield of Paddy.

1. BASAL CONDITIONS :

(i) and (ii) N.A. (iii) 16 to 19.8.62. (iv) and (v) N.A. (vi) *Prosadbhog* (100 to 120 days). (vii) to (ix) N.A. (x) 13 to 19.12.62.

2. TREATMENTS :

All combinations of (1), (2) and (3)+one additional (NPK) treatment in each block.

(1) 3 levels of N as A/S : N_0=0, N_1=16·8 and N_2=33·6 Kg/ha

(2) 3 levels of P_2O_5 as Super : P_0=0, P_1=33·6 and P_2=67·2 Kg/ha.

(3) 3 levels of green manuring (Sann) : G_0=0. G_1=Sann with 33·6 Kg/ha. of P_2O_5 and G_2=Sann with 67·2 Kg/ha. of P_2O_5.

3. DESIGN :

(i) 3^3 confd.+one extra treatment in each block. (ii) (a) 10 plots/block, 3 blocks/replication. (b) N.A. (iii) 2. (iv) (a) 14·0 m.×7·2 m. (b) 12·8 m.×6·3 m. (v) 61 cm.×46 cm (vi) Yes.

4. GENERAL :

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

5. RESULTS :

(i) 2922 Kg/ha. (ii) 434·7 Kg/ha. (iii) Main effect of N alone is highly significant. (iv) Av. yield of grain in Kg/ha.

Extra treatment=2924 Kg/ha.

	G_0	G_1	G_2	N_0	N_1	N_2	Mean
P_0	2796	3059	3037	3208	2781	2903	2964
P_1	2817	3374	2921	3367	2712	3033	3037
P_2	2790	2741	2763	3042	2587	2665	2765
Mean	2801	3058	2907	3206	2693	2867	2922
N_0	3004	3184	3429				
N_1	2692	2842	2546				
N_2	2707	3148	2746				

C.D. for N marginal means=297·3 Kg/ha.

Crop :- Paddy (*Kharif*). **Ref :- As. 63, 64 and 65(MAE).**

Site :- M.A.E. Centre, Titabar. **Type :- 'M'.**

Object :—Type XI :—To study the effect of different micronutrients with different methods of application.

1. BASAL CONDITIONS :

(i) N.A. (ii) Old alluvium. (iii) 5.9.63 ; 13.9.64 ; N.A. (iv) and (v) N.A. (vi) *Prosadbhog* (155 days). (vii) Unirrigated. (viii) and (ix) N.A. (x) 13.12.63 ; 20.12.64 ; N.A.

2. TREATMENTS :

All combinations of (1) and (2)+3 extra treatments

(1) 2 methods of application : M_1=Soil application and M_2=Foliar application.

(2) 6 micro-nutrients : S_1=Mn as Mn. Sul. at 56 Kg/ha., S_2=Zn as Zn. Sul. at 28 Kg/ha., S_3=Cu as Cu. Sul. at 28 Kg/ha., S_4=Boron as Borax at 16·8 Kg/ha., S_5=Molybdinum as Sodium Molybdate at 1·1 Kg/ha. and S_6=Mixture of all above micro-nutrients.

Extra treatments : T_0=Control, T_1=NPK alone to soil and T_2=Spartin at 370 Kg/ha. to soil.

Note :—NPK=33·6 Kg/ha. of N as A/S+33·6 Kg/ha. of P_2O_5 as Super+33·6 Kg/ha. of K_2O as Mur. Pot. applied to all treatments except control.

3. DESIGN :

(i) R.B.D. (ii) (a) 15. (b) N.A. (iii) 4. (iv) (a) 10·1 m.×5·0 m. (b) 9·5 m.×4·4 m. (v) 30 cm. discarded alround. (vi) Yes.

4. GENERAL :

(i) Satisfactory. (ii) N.A. (iii) Yield of grain. (iv) (a) 1963—contd. (b) and (c) N.A. (v) N.A. (vi) Nil. (vii) Nil.

5. RESULTS :

1963

(i) 3412 Kg/ha. (ii) 576·2 Kg/ha. (iii) None of the effects is significant. (iv) Av. yield of grain Kg/ha.

T_0= 3119 Kg/ha., T_1=3768 Kg/ha. and T_2= 3644 Kg/ha.

	S_1	S_2	S_3	S_4	S_5	S_6	Mean
M_1	3521	3953	2996	2594	3521	3397	3330
M_2	3089	3768	3274	3768	3335	3428	3444
Mean	3305	3861	3135	3181	3428	3413	3387

1964

(i) 1386 Kg/ha. (ii) 197·4 Kg/ha. (iii) Main effect of M is highly significant and 'T_0 *vs.* others' is also highly significant. (iv) Av. yield of grain in Kg/ha.

T_0=1018, T_1=1625 and T_2=1512 Kg/ha.

	S_1	S_2	S_3	S_4	S_5	S_6	Mean
M_1	1587	1373	1531	1612	1618	1487	1535
M_2	1281	1225	1212	1112	1275	1325	1238
Mean	1434	1299	1371	1362	1446	1406	1386

C.D. for M marginal means=115·0 Kg/ha.
C.D. for 'T_0 *vs.* others' =207·1 Kg/ha.

1965

(i) 290·7 Kg/ha. (ii) and (iii) N.A. (iv) Av. yield of grain in Kg/ha.

T_0=2131. T_1=2810, T_2=3391

	S_1	S_2	S_3	S_4	S_5	S_6	Mean
M_1	2440	3013	2945	3044	3446	2859	2958
M_2	2908	3149	2699	2933	2390	3443	2920
Mean	2674	3081	2822	2988	2918	3151	2939

Crop :- Paddy (*Kharif*) **Ref :- As. 64 and 65 (M.A.E.)**

Site :- M.A.E. Centre, Titabar. **Type :- 'M'**

Object :— Type XII :— To determine the response of the methods of fertilizers application on the yield of Paddy.

1. BASAL CONDITIONS :

(i) (a) Nil (b) and (c) N.A. (ii) Alluvium. (iii) 19.8.64 ; N.A. (iv) (a) 3 to 4 ploughings. (b) Trans planting. (c) N.A. (d) 25 cm.×25 cm. (e) 3 to 4. (v) 184·5 Q/ha. of Cowdung. (vi) *Pvosadbhog*. (vii) Unirrigated. (viii) Weedings 3 to 4 times, (ix) 95·8 cm; N.A. for 65. (x) 3—14.12.64; N.A. for 65.

2. TREATMENTS :

Main-plot Treatments :

4 manurial treatments : M_1=44·8 Kg/ha. of N as A/S, M_2=22·4 Kg/ha. of P_2O_5 as Super, M_3=M_1+M_2 and M_3=44·8 Kg/ha. of N as A/S+22·4 Kg/ha. of P_2O_5 as Super+22·4 Kg/ha. of K_2O as Mur. Pot.

Sub-plot treatments :

8 times and methods of application of manures : T_0=Control, T_1=Water spray, T_2=Full dose to soil application at planting, T_3=$\frac{1}{2}$ dose to soil at planting, T_4=$\frac{1}{2}$ dose by foliar application, T_5=$\frac{1}{4}$ dose by foliar application, T_6=$\frac{1}{2}$ dose by foliar+$\frac{1}{2}$ dose to soil and T_7=$\frac{1}{4}$ dose to soil+$\frac{1}{4}$ dose by foliar application.

3. DESIGN :

(i) Split-plot. (ii) (a) 4 main-plots/replication, 8 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) and (b) N.A. (v) N.A. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of grain. (iv) (a) 1964—65. (b) N.A. (c) Nil. (v) Fallangani. (vi) N.A. (vii) Nil.

5. RESULTS:

1964

(i) 3384 Kg/ha. (ii) (a) 474·1 Kg/ha. (b) 407.7 Kg/ha. (iii) None of the effects is significant. (iv) Av. yield of grain in Kg/ha.

T_0=3319 and T_1=3167 Kg/ha.

	T_2	T_3	T_4	T_5	T_6	T_7	Mean
M_1	3507	4013	3369	2906	3319	3194	3385
M_2	3388	3113	3263	3313	3482	3382	3323
M_3	3483	3700	3619	3250	3663	3625	3553
M_4	3344	3813	3500	3382	3438	3288	3461
Mean	3425	3660	3438	3213	3475	3372	3431

1965

(i) 3302 Kg/ha. (ii) (a) N.A. (b) N.A. (iii) N.A. (iv) Av. yield of grain in Kg/ha.

T_0=3487 and T_1=2545 Kg/ha.

	T_2	T_3	T_4	T_5	T_6	T_7	Mean
M_1	3583	4144	3552	2983	3243	3280	3465
M_2	3039	3453	3323	3644	2990	3298	3291
M_3	3403	3589	3459	2847	3132	3805	3373
M_4	3150	3935	3434	3215	3719	3323	3463
Mean	3294	3780	3442	3173	3270	3427	3398

Crop :- Paddy (*Sali*). **Ref :- As. 61(S.F.T).**

Site :- (District) Cachar, Goalpara, Kamrup, Lakhimpur and Sibsagar (c.f.). **Type :- 'M'.**

Object :— Type A : To study the response of paddy to levels of N, P and K applied individually and in combination.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Hilly for Cachar and Sibsagar and alluvial for others. (iii) to (x) N.A.

2. TREATMENTS :

8 manurial treatment :

O =Control (no manure).
N =22·4 Kg/ha. of N as A/S.
P =22·4 Kg/ha. of P_2O_5 as Super.
K =22·4 Kg/ha. of K_2O as Mur. Pot.
NP =22·4 Kg/ha. of N as A/S+22·4 Kg/ha. of P_2O_5 as Super.
NK =22·4 Kg/ha. of N as A/S+22·4 Kg/ha. of K_2O as Mur. Pot.
PK =22·4 Kg/ha. of P_2O_5 as Super+22·4 Kg/ha. of K_2O as Mur. Pot.
NPK =22·4 Kg/ha. of N as A/S+22·4 Kg/ha. of P_2O_5 as Super+22·4 Kg/ha. of K_2O as Mur. Pot.

3. DESIGN :

(i) and (ii) The district has been divided into four agriculturally homogeneous zones and one field assistant posted in each zone. The field assistant conducts the trials in one revenue circle or thana in the zone and the circle thana is changed once in two years within the same zone. Each field assistant is required to conduct 31 trials in a year, 8 on *kharif* cereal, 8 on a *rabi* cereal, 8 on cash crop, 4 on an oilseed crop and 3 on a legumenous crop. Half the number of trials conducted are of type A and the other half of type B on crops other than the legumes. The three trials on legumes are of type C. Residual effects of phosphate application are studied on Type C trials in two out of the four zones in each district every year. The experiments are laid out in randomly located fields in randomly selected villages in each of the 4 zones at the rate of one experiment per village. (iii) (a) 1,93 8 ha. (b) 1 197·7 ha. (iv) Yes.

4. GENERAL:

(i) to (iii) N.A. (iv) (a) 1961 for all. (b) and (c) Nil. (v) to (vii) N.A.

5. RESULTS :

District	No. of trials	Control yield in Kg/ha.	Av. response to in Kg/ha. N	P	K	S.E.	NP	NK	PK	NPK	S.E.
Cachar	15	2760	370	290	240	45·0	—30	0	10	50	24·0
Goalpara	3	6090	290	110	50	42·0	—80	—70	—30	100	58·0
Kamrup	8	1830	320	300	220	32·0	90	30	50	130	39·0
Lakhimpur	8	2640	260	390	120	104·0	90	—150	120	30	119·0
Sibsagar	15	2600	260	240	170	42 0	—70	—60	—30	80	33·0

Crop :- Paddy (*Alu*). **Ref :- As. 61(S.F.T).**

Site :- (District) Cachar, Darrang, Goalpara, Kamrup, Lakhimpur and Sibsagar (c.f). **Type :- 'M'.**

Object :—Type ; B :—To study the response of Paddy to levels of N, P and K applied individualy and in combination.

1. BASAL CONDITIONS :

(i) N.A. (ii) Hilly for Cachar and Sibsagar Alluvial for others. (iii) to (x) N.A.

2. TREATMENTS : and 3. DESIGN :

Same as in expt. Type A on Paddy (*Sali*) as above.

4. GENERAL :

(i) to (iii) N.A. (iv) (a) 1961—only. (b) and (c) Nil. (v) to (vii) N.A.

5. RESULTS :

Av. response in Kg/ha.

District	No. of trials	Control yield in Kg/ha.	N	P	K	S.E.	NP	NK	PK	NPK	S.E.
Cachar	14	2880	220	250	190	37·0	40	20	110	—10	36·0
Darrang	4	880	240	520	150	25·0	—190	—120	110	350	48·0
Goalpara	7	3020	130	10	30	14·0	—20	30	—30	—20	13·0
Kamrup	9	2210	310	260	180	66·0	—10	0	10	10	28·0
Lakhimpur	7	1570	180	150	110	53·0	40	10	20	10	31·0
Sibsagar	9	1000	150	170	50	91·0	—70	—20	30	20	48·0

Crop :- Paddy (*Ahu*). **Ref :- As. 63, 64(S.F.T.) for Goalpara and Kamrup 63, 65(S.F.T.) for Darrang and Lakhimpur 63, 64, 65 (S.F.T.) for Nowgong and Sibsagar. (c.f.)**

Site :- Darrang, Goalpara, Kamrup, Lakhimpur, Nowgong and Sibsagar (c.f). **Type :- 'M'.**

Object :— Type A_1 : To study the response curves of important cereals, cash and oilseed crops to Nitrogen applied singly and in combination with other nutrients.

1. BASAL CONDITIONS:

(i) N.A. (ii) Alluvial. (iii) to (vi) Nil. (vii) Unirrigated. (viii) to (x) N.A.

2. TREATMENTS :

8 manurial treatments :

O =Control (no manure).
N_1 =35 Kg/ha. of N.
N_2 =70 Kg/ha. of N.
P_1 =35 Kg/ha. of P_2O_5.
N_1P_1 =35 Kg/ha. of N+35 Kg/ha. of P_2O_5.
N_2P_1 =70 Kg/ha. of N+35 Kg/ha. of P_2O_5.
N_2P_2 =70 Kg/ha. of N+70 Kg/ha. of P_2O_5.
$N_2P_2K_1$=70 Kg/ha. of N+70 Kg/ha. of P_2O_5+35 Kg/ha. of K_2O.
N applied as A/S ; P_2O_5 as Super and K_2O as Mur. of Pot.

3. DESIGN :

(i) and (ii) A selected district is divided into four agriculturally homogeneous zones based on climate, soil, cropping partern etc. In each zone one block is selected at random. A block normally consists of a group of 50-100 villages. In each block, 36 experiments are conducted in a year of which 11 are of type A_1, 11 of type A_2, 11 of type A_3 and 3 are of type C. The eleven experiments under type A_1, A_2 and A_3 are distributed as 3 on a *Kharif* cereal, 3 on a *rabi* cereal, 3 on a cash crop and 2 on oil seed. All the three type-C experiments are conducted on a legume crop. For the purpose of conducting the A_1, A_2 and A_3 experiments 11 villages are randomly selected in each block and in each village 3 experiments one each of type A_1, A_2 and A_3 are laid out. For conducting the three type-C trials three villages are randomly selected in each block.
(iii) (a) 1/100 ha. (b) 1/200 ha. (iv) Yes.

4. GENERAL :

(i) to (iii) N.A. (iv) (a) 1963 to 1965 (1964 N.A.) for Darrang and Lakhimpur; 63 to 64 for Goalpara and 63 to 66 (65 N.A.) for Kamrup, 63 to 65 for others. (b) and (c) Nil. (v) to (vii) N.A.

5 RESULTS :

Darrang

63 S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of grain in Kg/ha.	88	55	61	163	122	159	226	39·6

Control yield=1418 Kg/ha. ; No. of trials=6.

65 S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of grain in Kg/ha.	126	172	130	182	251	280	375	40·7

Control yield=891 Kg/ha. ; No. of trials=7.

Goalpara

63(S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of grain in Kg/ha.	58	—44	—9	36	69	147	188	61·9

Control yield=2017 Kg/ha. ; No. of trials=6.

64(S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of grain in K/ha.	23	93	103	118	35	38	99	44·7

Control yield=782 Kg/ha. ; No. of trials=3.

Kamrup

63(S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of grain in Kg/ha.	334	477	243	788	641	686	933	101·4

Control yield=2094 Kg/ha. ; No. of trials=6.

64(S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of grain in Kg/ha.	267	409	163	516	553	550	755	96·3

Control yield=1456 Kg/ha. ; No. of trials=9.

Lakhimpur

63(S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of grain in Kg/ha.	105	283	149	266	367	464	557	71·0

Control yield=1848 Kg/ha.; No. of trials=6.

65(S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of grain in Kg/ha.	152	213	117	210	435	498	725	150·2

Control yield=1108 Kg/ha. ; No. of trials=7.

Nowgong

63(S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of grain in Kg/ha.	132	214	107	323	372	495	702	23.0

Control yield=1927 Kg/ha. ; No. of trials=9.

64(S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of grain in Kg/ha.	111	242	51	326	486	590	721	85·8

Control yield=1289 Kg/ha. ; No. of trials=4.

65(S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of grain in Kg/ha.	73	77	52	169	236	281	477	61·3

Control yield=1103 Kg/ha. ; No. of trials=9.

Sibsagar

63(S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of grain in Kg/ha.	167	186	232	245	345	382	664	83·1

Control yield=1532 Kg/ha. ; No. of trials=7.

64(S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of grain in Kg/ha.	222	78	133	432	437	622	682	178·3

Control yield=1055 Kg/ha. ; No. of trials=7.

65(S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of grain in Kg/ha.	264	355	354	320	434	592	752	78·2

Control yield=1356 Kg/ha. ; No. of trials=9.

Crop :- Paddy (*Sali*).

Ref :- As. 63, 64(S.F.T.) for Goalpara, Kamrup and Lakhimpur ; 63, 64, 65(S.F.T.) for Nowgong, Sibsagar and Darrang.

Site :- (District) : Goalpara, Lakhimpur, Nowgong, Kamrup, Sibsagar and Darrang (c.f).

Type :- 'M'.

Object :—Type A_1 : To study the response curves of important cereal, oilseeds and cash crops to nitrogen applied singly and in combination with other nutrients.

1. BASAL CONDITIONS :

(i) N.A. (ii) Alluvial. (iii) to (vi) N.A. (vii) Unirrigated. (viii) to (x) N.A.

2 TREATMENTS and 3. DESIGN :

Same as in expt. type A_1 on Paddy (*Ahu*) on page 27.

4. GENERAL :

(i) to (iii) N.A. (iv) (a) 1963—64 for Goalpara and Lakhimpur, 1963 to 66 (65 N.A.) for Kamrup, 1963 to 1965 for others. (b) N.A. (c) Nil. (v) to (vii) N.A.

5. RESULTS :

Goalpara

63(S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of grain in Kg/ha.	138	208	131	233	243	339	362	27·4

Control yield=2445 Kg/ha. ; No. of trials=9.

64(S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of grain in Kg/ha.	—60	43	—9	—11	—46	73	26	67·2

Control yield=2220 Kg/ha. ; No. of trials=8.

Lakhimpur

63(S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of grain in Kg/ha.	92	102	46	108	253	319	411	62·6

Control yield=1591 Kg/ha. ; No. of trials=6.

64(S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of grain in Kg/ha.	135	296	566	466	637	611	794	153·7

Control yield=2180 Kg/ha. ; No. of trials=7.

Nowgong

63(S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of grain in Kg/ha.	189	165	141	367	517	560	745	71·3

Control yield=2055 Kg/ha. ; No. of trials=11.

64(S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of grain in Kg/ha.	97	157	68	205	255	308	407	36·3

Control yield=1998 Kg/ha. ; No. of trials=15.

65(S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of grain in Kg/ha.	126	218	112	281	403	491	555	28·1

Control yield=1782 Kg/ha. ; No. of trials=11.

Kamrup

63(S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of grain in Kg/ha.	535	497	252	502	605	596	757	104·9

Control yield=1858 Kg/ha. ; No. of trials=9.

64(S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of grain in Kg/ha.	264	382	146	626	565	581	697	106·2

Control yield=1266 Kg/ha. ; No. of trials=9.

Sibsagar

63(.S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of grain in Kg/ha.	280	404	284	433	771	699	884	133·0

Control yield=2192 Kg/ha. ; No.of trials=13.

64(S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of grain in Kg/ha.	407	567	432	578	710	749	944	84·4

Control yield=1852 Kg/ha. ; No. trials=18.

65(S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of grain in Kg/ha.	540	326	356	547	607	829	1034	105·0

Control yield=2211 Kg/ha. ; No. of trials=13.

Darrang

63(S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of grain in Kg/ha.	161	255	236	181	177	267	412	52·6

Control yield=1203 Kg/ha. ; No. of trials=12.

64(S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of grain in Kg/ha.	125	225	159	289	324	331	639	78·5

Control yield=1535 Kg/ha. ; No. of trials=11.

65(S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of grain in Kg/ha.	249	209	448	507	727	855	976	292·7

Control yield=1855 Kg/ha. ; No. of trials=7.

Crop :- Paddy (*Ahu*). **Ref :- As. 63, 64(S.F.T.) for Kamrup and Goalpara; 63,64, 65 (S.F.T.) for Lakhimpur, Nowgong and Sibsagar; 63, 65(S.F.T.) for Darrang.**

Site :- (District) : Kamrup, Lakhimpur, Nowgong, Sibsagar, Darrang and Goalpara (c.f). **Type :- 'M'.**

Object :—Type A_2 : To study the response curve of important cereal, cash and oilseed crops to Phosphorus applied singly and in combination with other nutrients.

1. BASAL CONDITIONS:
(i) N.A. (ii) Alluvial. (iii) to (vi) N.A. (vii) Unirrigated. (viii) to (x) N.A.

2. TREATMENTS :
8 manurial treatments :
O =Control (no manure)
N_1 =35 Kg/ha. of N.
P_1 =35 Kg/ha. of P_2O_5.
P_2 =70 Kg/ha. of P_2O_5.
N_1P_1 =35 Kg/ha. of N+35 Kg/ha. of P_2O_5.
N_1P_2 =35 Kg/ha. of N+70 Kg/ha. of P_2O_5.
N_2P_2 =70 Kg/ha. of N+70 Kg/ha. of P_2O_5.
$N_2P_2K_2$ =70 Kg/ha. of N—70 Kg/ha. of P_2O_5+70 Kg/ha. of K_2O.
N applied as A S, P_2O_5 as Super and K_2O as Mur. Pot.

3. DESIGN :
(i) and (ii) A selected district is divided into four agriculturally homogeneous zones based on climate, soil, cropping pattern etc. In each zone one block is selected at random. A block normally consists of a group of 50-100 villages. In each block 36 experiments are conducted in a year of which 11 are of type A_1, 11 of type A_2, 11 of type A_3 and 3 are of type C. The eleven experiments under type A_1, A_2 and A_3 are distributed as 3 on a *Kharif* cereal, 3 on a *rabi* cereal, 3 on a cash crop and 2 on oilseed. All the three type C experiments are conducted on legume crop. For the purpose os conducting the A_1, A_2 and A_3 experiments 11 villages are randomly selected in each block and in each village 3 experiments one each of type A_1, A_2 and A_3 are laid out. For conducting the three type C trials three villages are randomly selected in each block.
(iii) (a) 1/100 ha. (b) 1/200 ha. (iv) Yes.

4. GENERAL :
(i) to (iii) N.A. (iv) (a) 1963—64 for Goalpara, 1963—65 (64 N.A.) for Darrang, (1963—66 (65 N.A.) for Kamrup, 1963—65 for others. (b) and (c) N.A. (v) to (vii) N.A.

5. RESULTS :

Darrang

63(S.F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of grain in Kg/ha.	104	147	115	153	157	376	346	49·4

Control yield=1548 Kg/ha. ; No. of trials=7.

65(S.F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of grain in Kg/ha.	138	120	25	127	191	315	448	40·9

Control yield=1455 Kg/ha. ; No. of trials=5.

Goalpara

63(S.F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of grain in Kg/ha.	135	—3	26	129	57	132	9	57·2

Control yield=1928 Kg/ha. ; No. of trials=6.

64(S.F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of grain in Kg/ha.	—49	—69	—61	—19	—62	—13	—27	70·2

Control yield=845 Kg/ha. ; No. of trials=3.

Kamrup

63(S.F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of grain in Kg/ha.	579	348	420	579	571	859	690	111·0

Control yield=2004 Kg/ha. ; No. of trials=6.

64(S.F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of grain in Kg/ha.	274	349	317	497	479	570	633	92.0

Control yield=1652 Kg/ha. ; No. of trials=8.

Lakhimpur

63(S.F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of grain in Kg/ha.	111	150	317	440	397	516	639	82·2

Control yield=1926 Kg/ha. ; No. of trials=5.

64(S.F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of grain in Kg/ha.	4	108	108	197	222	301	370	73·7

Control yield=1136 Kg/ha. ; No. of trials=3.

65(S.F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of grain in Kg/ha.	48	224	276	510	275	576	828	175·0

Control yield=1225 Kg/ha. ; No. of trials=7.

Nowgong

63(S.F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of grain in Kg/ha.	134	90	167	356	357	515	667	40·8

Control yield=1773 Kg/ha. ; No. of trials=9.

64(S.F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of grain in Kg/ha.	252	200	254	390	449	548	610	67·0

Control yield=1279 Kg/ha. ; No. of trials=4.

65(S.F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of grain in Kg/ha.	97	66	171	270	289	361	514	34·1

Control yield=1018 Kg/ha. ; No. of trials=10.

Sibsagar

63(S.F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of grain in Kg/ha.	255	195	345	317	398	556	833	74·8

Control yield=1365 Kg/ha. ; No. of trials=6.

64(S.F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of grain in Kg/ha.	72	273	426	313	146	578	458	231·0

Control yield=1306 Kg/ha. ; No. of trials=6.

65(S.F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of grain in Kg/ha.	115	152	240	295	274	418	737	64·9

Control yield=1300 Kg/ha. ; No. of trials=9.

Crop :- Paddy (*Sali*).

Ref :- As. 63, 64(S.F.T.) for Lakhimpur, Goalpara and Kamrup ; 63, 64, 65 (S.F.T.) for Nowgong, Sibsagar and Darrang.

Site :- (District) : Goalpara, Lakhimpur, Nowgong, Kamrup, Sibsagar and Darrang (c.f.).

Type :- 'M'.

Object :– Type A_2 : To study the response curves of important cereals, cash and oilseed crops to Phosphorus applied singly and in combination with other nutrients.

1. BASAL CONDITIONS :

(i) N.A. (ii) Alluvial. (iii) to (vi) N.A. (vii) Unirrigated. (viii) to (x) N.A.

2. TREATMENTS and 3. DESIGN :

Same as the expt. type A_2 on Paddy (*Ahu*) on page 32.

4. GENERAL:

(i) to (iii) N.A. (iv) (a) 1963 to 66 (65 N.A.) for Kamrup; 1963 to 64 for Lakhimpur and Goalpara and 1961 to 65 for others. (b) N.A. (c) Nil. (v) to (vii) N.A.

5. RESULTS :

Goalpara

63(S.F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of grain in Kg/ha.	114	68	52	147	185	239	295	31·7

Control yield=2677 Kg/ha. ; No. of trials=6.

64(S.F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of grain in Kg/ha.	33	10	25	108	68	94	200	59·7

Control yield=2019 Kg/ha. ; No. of trials=10.

Lakhimpur

63(S.F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of grain in Kg/ha.	—3	36	187	210	184	224	408	94·5

Control yield=1545 Kg/ha. ; No. of trials=6.

64(S.F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of grain in Kg/ha.	182	223	172	238	501	365	663	159·8

Control yield=2218 Kg/ha. ; No. of trials=7.

Nowgong

63(S.F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of grain in Kg/ha.	159	76	110	347	391	469	636	36·3

Control yield=2184 Kg/ha. ; No. of trials=11.

64(S.F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of grain in Kg/ha.	139	82	158	300	338	500	628	48·9

Control yield=2151 Kg/ha. ; No. of trials=14.

65(S.F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of grain in Kg/ha.	187	179	265	323	470	605	721	37·4

Control yield=1742 Kg/ha. ; No. of trials=11.

Kamrup

63(S.F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of grain in Kg/ha.	568	328	303	547	612	735	821	78·3

Control yield=1933 Kg/ha. ; No. of trials=9.

64(S.F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of grain in Kg/ha.	264	382	146	626	565	581	697	106·2

Control yield=1266 Kg/ha. ; No. of trials=9.

Sibsagar

63(S.F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of grain in Kg/ha.	237	203	196	301	433	444	557	64·3

Control yield=2200 Kg/ha. ; No. of trials=14.

64(S.F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of grain in Kg/ha.	383	330	564	627	692	746	866	109·1

Control yield=2025 Kg/ha. ; No. of trials=18.

65(S.F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of grain in Kg/ha	229	279	269	270	319	507	597	142·1

Control yield=2097 Kg/ha.; No. of trials=17.

Darrang

63(S.F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of grain in Kg/ha.	441	142	273	452	559	322	412	196·7

Control yield=1369 Kg/ha.; No. of trials=6.

64(S.F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of grain in Kg/ha.	114	74	242	284	354	386	754	113·6

Control yield=2097 Kg/ha. ; No. of trials=7.

65(S.F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of grain in Kg/ha.	48	—3	—156	91	123	220	318	170·7

Control yield=1628 Kg/ha.; No. of trials=6.

Crop :- Paddy (*Ahu*).

Ref :- As. 63, 64(S.F.T.) for Kamrup and Goalpara ; 63, 64, 65(S.F.T.) for Nowgong and Sibsagar and 63, 65(S.F.T.) for Darrang and Lakhimpur.

Site :- (District) : Darrang, Goalpara, Kamrup, Lakhimpur, Nowgong, Sibsagar (c.f).

Type :- 'M'.

Object :—Type A_2 : To study the response curves of important cereal, oilseeds and cash crops to Potash applied singly and in combination with other nutrients.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Alluvial. (iii) to (vi) N.A. (vii) Unirrigated. (viii) to (x) N.A.

2. TREATMENTS :

8 manurial treatments :

O=Control (no manure)
N_1=35 Kg/ha. of N.
K_1=35 Kg/ha. of K_2O.
K_2=70 Kg/ha. of K_2O.
N_1K_1=35 Kg/ha. of N+35 Kg/ha. of K_2O.
N_1K_2=35 Kg/ha. of N+70 Kg/ha. of K_2O.
N_2K_2=70 Kg/ha. of N+70 Kg/ha. of K_2O.
$N_1P_1K_1$=35 Kg/ha. of N+35 Kg/ha. of P_2O_5+35 Kg/ha. of K_2O.

N applied as A/S, P_2O_5 as Super and K_2O as Mur. Pot.

3. DESIGN :

(i) and (ii) A selected district is divided into four agriculturally homogeneous zones based on climate, soil cropping pattern etc. In each zone one block is selected at random. A block normally consists of a group of 50—100 villages. In each block 36 experiments are conducted in a year of which 11 are of type A_1, 11 of type A_2, 11 of type A_3 and 3 are of type C. The eleven experiments under type A_1, A_2 and A_3 are distributed as 3 on a *kharif* cereal, 3 on a *rabi* cereal, 3 on a cash crop and 2 on oilseed. All the three type C experiments are conducted on a legume crop. For the purpose of conducting the A_1, A_2 and A_3 experiments 11 villages are randomly selected in each block and in each village 3 experiments one each of type A_1, A_2 and A_3 are laid out. For conducting the three type C trials three villages are randomly selected in each block. (iii) (a) 1/100 ha. (b) 1/200 ha. (iv) Yes.

4. GENERAL :

(i) to (iii) N.A. (iv) (a) 1963 to 64 for Goalpara and Kamrup, 1963 and 65 for Lakhimpur and Darrang, and 1963 to 65 for others. (b) N.A. (c) —. (v) to (vii) N.A.

5. RESULTS :

Darrang

63(S.F.T.)

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of grain in Kg/ha.	—66	—88	—21	—5	16	72	50	39·7

Control yield=1438 Kg/ha. ; No. of trials=5.

65(S.F.T.)

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of grain in Kg/ha.	20	37	60	27	140	237	25	177·3

Control yield=1150 Kg/ha. ; No. of trials=3.

Goalpara

63(S.F.T.)

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of grain in Kg/ha.	134	138	21	194	172	257	230	43·1

Control yield=2083 Kg/ha. ; No. of trials=6.

64(S.F.T.)

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of grain in Kg/ha.	—42	40	—91	—24	—39	9	7	38·8

Control yield=818 Kg/ha. ; No. of trials=3.

Kamrup

63(S.F.T.)

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of grain in Kg/ha.	787	590	397	968	664	696	1443	202·2

Control yield=1970 Kg/ha. ; No. of trials=6.

64(S.F.T.)

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of grain in Kg/ha.	531	263	291	647	573	644	713	107·3

Control yield=1501 Kg/ha. ; No. of trials=10.

Lakhimpur

63(S.F.T.)

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of grain in Kg/ha.	63	32	112	497	113	566	500	126·4

Control yield=1957 Kg/ha. ; No. of trials=4.

65(S.F.T.)

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of grain in Kg/ha.	20	43	83	203	133	286	291	49·2

Control yield=429 Kg/ha. ; No. of trials=6.

Nowgong

63(S.F.T.)

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of grain in Kg/ha.	68	91	136	290	313	515	572	33·4

Control yield=1895 Kg/ha. ; No. of trials=9.

64(S.F.T.)

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of grain in Kg/ha.	91	35	285	422	573	647	672	25.5

Control yield=1297 Kg/ha. ; No. of trials=3.

65(S.F.T.)

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of grain in Kg/ha.	94	97	111	172	241	410	429	39·3

Control yield=1010 Kg/ha. ; No. of trials=12.

Sibsagar

63(S.F.T.)

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of grain in Kg/ha.	96	—22	82	87	413	447	660	83·5

Control yield=1344 Kg/ha. ; No. of trials=7.

64(S.F.T.)

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of grain in Kg/ha.	163	25	71	235	202	342	375	146·1

Control yield=1209 Kg/ha. ; No. of trials=6.

65(S.F.T.)

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of grain in Kg/ha.	264	172	247	354	394	505	683	46·3

Control yield=1234 Kg/ha.; No. of trials=7.

Crop :- Paddy (*Sali*).

Ref :- As. 63, 64 (S.F.T.) for Lakhimpur, Goalpara and Kamrup and 63, 64, 65 (S.F.T.) for Nowgong, Sibsagar and Darrang.

Site :- (District) : Nowgong, Sibsagar, Kamrup, Lakhimpur, Darrang and Goalpara (*c.f.*).

Type :- 'M'.

Object :— Type A_3 : To study the response curves of important cereal, cash and oilseed crops to Potash applied singly and in combination with other nutrients.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Alluvial. (iii) to (vi) N.A. (vii) Unirrigated. (viii) to (x) N.A.

2. TREATMENTS and 3. DESIGN :

Same as the experiment type A_3 on paddy (*Ahu*) on page 36.

4. GENERAL :

(i) to (iii) N.A. (iv) (a) 1963 to 1966 [65-N.A.] for Kamrup ; 1963 to 1964 for Lakhimpur and Goalpara and 1963-65 for others. (b) N.A. (c) Nil. (v) to (vii) N.A.

5. RESULTS :

Nowgong

63(S.F.T.)

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of grain in Kg/ha.	76	86	101	269	322	386	504	57·0

Control yield=2128 Kg/ha. ; No. of trials=11.

64(S.F.T.)

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of grain in Kg/ha.	128	18	81	170	212	252	321	31·3

Control yield=2400 Kg/ha. ; No. of trials=13.

65(S.F.T.)

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of grain in Kg/ha.	75	53	173	262	320	387	489	28·8

Control yield=1802 Kg/ha. ; No. of trials=10.

Sibsagar

63(S.F.T.)

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of grain in Kg/ha.	363	294	328	422	436	538	821	92·2

Control yield=1945 Kg/ha. ; No. of trials=13.

64(S.F.T.)

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of grain in Kg/ha.	341	161	190	336	416	544	650	72·1

Control yield=1839 Kg/ha. ; No. of trials=16.

65(S.F.T.)

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of grain in Kg/ha.	422	232	371	609	773	699	869	149·7

Control yield=1818 Kg/ha.; No. of trials=12.

Kamrup

63(S.F.T.)

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of grain in Kg/ha.	606	317	336	600	516	638	704	43·8

Control yield=1905 Kg/ha.; No. of trials=9.

64(S.F.T.)

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of grain in Kg/ha.	352	235	249	613	504	603	788	57·1

Control yield=1261 Kg/ha. ; No. of trials=9.

Lakhimpur

63 (S.F.T.)

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of grain in Kg/ha.	196	270	210	275	415	354	597	107·6

Control yield=1449 Kg/ha. ; No. of trials=5.

64 (S.F.T.)

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of grain in Kg/ha.	153	92	208	155	237	380	429	121·9

Control yield=1570 Kg/ha ; No. of trials=6.

Darrang

63(S.F.T.)

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of grain in Kg/ha.	158	144	105	171	123	193	315	36·5

Control yield=1100 Kg/ha. ; No. of trials=6.

64(S.F.T.)

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of grain in Kg/ha.	192	264	204	297	163	67	218	105·4

Control yield=1441 Kg/ha. ; No. of trials=7.

65(S.F.T.)

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of grain in Kg/ha.	95	65	109	97	85	152	192	58·4

Control yield=1050 Kg/ha. ; No. of trials=3.

Goal para

63(S.F.T.)

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of grain in Kg/ha.	157	90	99	177	183	230	223	23·7

Control yield=2571 Kg/ha. ; No. of trials=9.

64(S.F.T.

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of grain in Kg/ha.	—13	—2	28	44	90	57	98	38·6

Control yield=2003 Kg/ha. No. of trials=6.

Crop :- Paddy (*Sali*). **Ref :- As. 61(S.F.T).**

Site :- (District) : Cachar, Kamrup, Lakhimpur and Sibsagar (c.f). **Type :- 'M'.**

Object :—Type B : To investigate the relative efficiency of different nitrogeneous fertilizers at different doses.

1. BASAL CONDITIONS :

(i) N.A. (ii) Hilly for Cachar and Sibsagar and Alluvial for others. (iii) to (x) N.A.

2. TREATMENTS :

7 manurial treatments :

O=Control (no manure)
N_1=22·4 Kg/ha. of N as A/S.
N_2=44·8 Kg/ha. of N as A/S.
N_1'=22·4 Kg/ha. of N as Urea.
N_2'=44·8 Kg/ha. of N as Urea.
N_1''=22·4 Kg/ha. of N as A/S/N.
N_2''=44·8 Kg/ha. of N as A/S/N.

3. DESIGN :

(i) and (ii) The district has been divided into four agriculturally homogeneous zones and one field assistant posted in each zone. The field assistant conducts the trials in one revenue circle or thana in the zone and the circle thana is changed once in two years within the same zone. Each field assistant is required to conduct 31 trials in a year, 8 on *Kharif* cereal, 8 on *rabi* cereal, 8 on cash crop, 4 on an oilseed crop and 3 on a legumenous crop. Half the number of trials conducted are of type A and the other half of type B on crops other than the legumes. The three trials on legumes are of type C. Residual effects of phosphate application are studied on type C trials in two out of the four zones in each district every year. The experiments are laid out in randomly located fields in randomly selected villages in each of the four zones at the rate of one experiment per village. (iii) (a) 1,98·8 ha. (b) 1/197·7 ha. (iv) Yes.

4. GENERAL :

(i) to (iii) N.A. (iv) (a) 1961 only for all the places. (b) and (c)—(v) to (vii) N.A.

5. RESUTTS :

Av. yield of grain in Kg/ha.

District	No. of trials	O	N_1	N_2	N_1'	N_2'	N_1''	N_2''	G.M.	S.E/mean
Cachar	11	3070	3530	3670	3740	3960	3630	3930	3647	45·3
Kamrup	9	2190	2570	2950	2890	3140	2610	3040	2770	64·3
Lakhimpur	6	1840	2120	2450	2680	2 5	2700	2520	2403	9·9
Sibsagar	10	2220	2580	2800	2600	2780	2710	2610	2614	55·2

Crop :- Paddy (*Ahu*). **Ref :- As. 61(S.F.T).**

Site :- (District) : Cachar, Darrang, Goalpara, Kamrup and Lakhimpur (c.f). **Type :- 'M'.**

Object :—Type B : To investigate the relative efficiency of different nitrogeneous fertilizers at different doses.

1. BASAL CONDITIONS :

(i) N.A. (ii) Hilly for Cachar and Alluvial for others. (iii) to (x) N.A.

2. TREATMENTS : and 3. DESIGN :

Same as the expt. Type B on Paddy (*Sali*) on page 41.

4. GENERAL :

(i) to (iii) N.A. (iv) (a) 1961—only for all the places. (b) and (c) N.A. (v) to (vii) N.A.

5. RESULTS :

Av. yield of grain in Kg/ha.

District	No. of trials	O	N_1	N_2	N_1'	N_2'	N_1''	N_2''	G.M.	S.E./mean
Cachar	8	2520	2730	2950	2980	3120	2860	2990	2879	46·7
Darrang	4	800	1390	1490	1310	1400	1310	1420	1303	34·6
Goalpara	2	1470	1510	1570	1440	1700	1660	1760	1587	70·0
Kamrup	10	2190	2470	2710	2590	2820	2730	2520	2576	31·8
Lakhimpur	6	1530	1830	1980	1800	1940	1860	1850	1827	55·9

Crop :- Paddy (*Kharif*) **Ref :- As. 62(13), 63(15) and 64(12)**

Site :- Rice Exptl. Stn., Karimganj. **Type :- 'MV'.**

Object :—To study the direct and residual effect of lime on the yield of different varieties of *Sail* Paddy.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Paddy. (c) N.A.; As per treatments for others. (ii) Clayey loam (acidic) (iii) 25—28.8.62; 9—13.8.63; 19.8.64. (iv) (a) Ploughings, laddering, puddling, etc. (b) Transplanting. (c) N.A. (d) 23 cm.×23 cm. (e) 4. (v) Nil. (vi) As per treatments. (vii) Unirrigated. (viii) 2 weadings. (ix) 141·8 cm.; 256·1 cm.; 148·3 cm. (x) 11.12.62 and 24—28.12.62; 18/19.12.63; 29.12.63 and 7/8.1.64; 3/4.12.64.

2 TREATMENTS :

Main-plot treatments :

2 levels of slaked lime : L_0=0 and L_1=560 Kg/ha.

Sub-plot treatments :

3 long duration varieties : V_1=S.22 (*Lati Sail*), V_2=Sc. 412—56 (*Swarna Sail*). and V_3=Sc. 1177—6 (*Handique Sail*).

Lime applied on 20.7.62. In subsequent years lime was not applied.

3. DESIGN :

(i) Split-plot. (ii) (a) 2 main plots/replication and 3 sub-plots/main plot. (b) N.A. (iii) 12. (iv) (a) and (b) 10·1 m.×1·6 m. (v) Nil. (vi) Yes.

4. GENERAL :

(i) Good. Crop lodged just before harvest in 64. (ii) Attack of Hispa which was not fully controlled in 62; Attack of army worms—Controlled by Guesarol 550 in 63; Attack of grass happer duringearly stage of growth controlled by Guesaral 550 in 64. (iii) Yield of grain. (iv) (a) 1962—64. (b) Yes. (c) Nil. (v) No. (vi) Rainfall not well distributed in 62; Nil for others. (vii) Nil.

5. RESULTS :

Results of direct application of lime—Expt. No. 62(13).

(i) 3384 Kg/ha. (ii) (a) 382·1 Kg/ha. (b) 323·1 Kg/ha. (iii) Main effect of V is highly significant and L is significant. (iv) Av. yield of grain in Kg/ha.

	V_1	V_2	V_3	Mean
L_0	3152	3042	3516	3237
L_1	3496	3239	3860	3532
Mean	3324	3140	3688	3384

C.D. for L marginal means=198·2 Kg/ha.
C.D. for V marginal means=188·4 Kg/ha.

Results of Residual effect of lime (1st year)—Expt. No. 63(15)

(i) 3706 Kg/ha. (ii) (a) 399·5 Kg/ha. (b) 660·0 Kg/ha. (iii) Only thc main effect of V is highly significant. (iv) Av. yield of grain in Kg/ha.

	V_1	V_2	V_3	Mean
L_0	4035	3255	3571	3620
L_1	3980	3630	3768	3793
Mean	4007	3442	3669	3706

C.D. for V marginal means=384·3 Kg/ha.

Results of Residual effect of lime (2nd year)—Expt. No. 64(12)

(i) 3542 Kg/ha. (ii) (a) 258·1 Ka/ha. (b) 380·6 Kg/ha. (iii) None of the effects is significant. (iv) Av. yield of grain in Kg/ha.

	V_1	V_2	V_3	Mean
L_0	3452	3435	3617	3501
L_1	3694	3506	3552	3584
Mean	3573	3470	3584	3542

Crop :- Paddy (*Kharif*) **Ref :- As. 61(15), 62(12) and 63(14)**

Site :- Rice Exptl. Stn., Karimganj. **Type :- 'MV'.**

Object :—To study the effect of different doses of N, P and K on four varieties of *sail* Paddy (late type).

1. BASAL CONDITIONS :

(i) (a) Nil. (b) *Sail* paddy. (c) N.A.; As per treatments for others. (ii) Clayey loam (acidic) (iii) 30.8 61 to 2.9.61; 6—10.8.62; 29.7.63 to 4.8.63 (iv) (a) Ploughings, laddering, harrowing, puddling, etc. (b) Transplanting. (c) N.A. (d) 23 cm. × 23 cm. (e) 4. (v) 92·2 Q/ha. of Cowdung. (vi) As per treatments. (vii) Unirrigated. (viii) 2 weedings. (ix) 158·6 cm.; 232·1 cm.; 256.1 cm. (x) 16/17.12.61 and 29/30.12.61; 9/10.12.62, 21/22.12.62 and 28—30.12.62 and 15/16.12.63 and 9/11.1.64.

2. TREATMENTS :

Main-plot treatments :

4 levels of fertilizers : F_0=O, F_1=33·6 Kg/ha. of N as A/S+22·4 Kg/ha. of P_2O_5 as Super.+22·4 Kg/ha. of K_2O as Mur. Pot., F_2=44.8 Kg/ha. of N as A/S+33.6 Kg/ha. of P_2O_5 as Super.+33.6 Kg/ha. of K_2O as Mur. Pot and F_3=56·0 Kg/ha. of N as A/S+44·8 Kg/ha. of P_2O_5 as Super.+44·8 Kg/ha. of K_2O as Mur. Pot.

Sub-plot treatments :

4 varieties : V_1=S.22 (*Late Sail*), V_2=Sc. 1177—6 (*Handique Sail*), V_3=Sc. 412—56 (*Swarana Sail*) and V_4=Sc. 412—125.

3. DESIGN :

(i) Split-plot (ii) (a) 4 main plots/replication and 4 sub-plots/main plot. (b) N.A. (iii) 6. (iv) (a) and (b) 9·9 m × 1·6 m. (v) Nil. (vi) Yes.

4. GENERAL :

(i) Good in 61; not satisfactory in 62 and good in 63 though lodging occured. (ii) N.A. for 61 ; Severe attack of Hispa, which was not fully controlled in 62. Attack of army worms—Guesarol 550 sprayed in 63. (iii) Yield of grain. (iv) (a) 1961—63. (b) Yes. (c) Nil. (v) No. (vi) Rainfall not well distributed in 62; Nil for others. (vii) Sub-plot error veriances are heterogeneous. The results of individual experiments are presented under 5—Results.

5. RESULTS :

61(15)

(i) 4635 Kg/ha. (ii) (a)392·1 Kg/ha (b)349·1 Kg/ha. (iii) Main effect of V is highly significant. (iv) Av. yield of grain in Kg/ha.

	F_0	F_1	F_2	F_3	Mean
V_1	4150	4133	4323	4377	4246
V_2	4475	4078	4202	4598	4338
V_3	4951	4922	5051	5008	4983
V_4	4921	5099	4919	4948	4972
Mean	4624	4558	4624	4733	4635

C.D. for V marginal means =201·6 Kg/ha.

62(12)

(i) 3844 Kg/ha. (ii) (a) 403·5 Kg/ha. (b) 463·6 Kg/ha. (iii) Main effect of V is highly significant. (iv) Av. yield of grain in Kg/ha.

	F_0	F_1	F_2	F_3	Mean
V_1	3923	3866	3949	3849	3897
V_2	3963	3943	3840	3720	3866
V_3	3420	3462	3574	3663	3530
V_4	3777	4247	4146	4155	4081
Mean	3771	3880	3877	3847	3844

C.D. for V marginal means=267·7 Kg/ha.

63(14)

(i) 2903 Kg/ha. (ii) (a) 397·5 Kg/ha. (b) 359·7 Kg/ha. (iii) Main effect of V is highly significant. (iv) Av. yield of grain in Kg/ha.

	F_0	F_1	F_2	F_3	Mean
V_1	3359	3137	3144	3015	3164
V_2	3356	2948	2845	2930	3020
V_3	2482	2330	2318	2747	2469
V_4	3005	2887	2838	3103	2961
Mean	3050	2828	2786	2949	2903

C.D. for V marginal means=207·7 Kg/ha.

Crop :- Paddy (*Kharif*). **Ref :- As. 60(7), 61(14) and 62(11).**

Site :- Rice Exptl. Stn., Karimganj. **Type 'MV'.**

Object :—To study the effect of different green manures on the late varieties of Pad

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Paddy. (c) N.A. (ii) Clayey loam (acidic). (iii) 28.6.60/26 to 28.7.60 ; 3.7.61/8 to 11.8.61 ; 4.7.62/2 to 5.8.62. (iv) (a) Ploughing, laddering, etc. (b) Transplanting. (c) N.A. (d) 23 cm.×23 cm. (e) 4. (v) Nil. (vi) As per treatments. (vii) Unirrigated. (viii) 1 weeding ; 2 weedings for others. (ix) 240 cm. ; 159 cm. ; 142 cm. (x) 2.12.60 ; 2 and 4.12.61 ; 5 to 7 and 15 to 17.12.62.

2. TREATMENTS :

Main-plot treatments :

4 green manure crops : G_1=*Sesbania Speciosa*, G_2=*Sesbania Aculeata*, G_3=*Crotolaria Striaeta* and G_4=*Crotolaria Brownia*.

Sub-plot treatments :

3 varieties : V_1=S. 22 (late *Sail*), V_2=Sc. 412—56 (*Swrana Sail*) and V_3=Sc. 1177—32.
Green crops were sown during March.

3. DESIGN

(i) Split-plot. (ii) (a) 4 main-plots/replication and 3 sub-plots/main-plot. (b) 20·1 m × 9·9 m. (iii) 6. (iv) (a) and (b) 9·9 m. × 1·4 m. (v) Nil. (vi) Yes.

4 GENERAL :

(i) Good. Crop lodged 7 – 10 days before maturity in 1961. (ii) Very slight incidence in 60 and 61. Severe attack of Hipsa in 62. (iii) Yield of grain. (iv) (a) 1960 –62. (b) Yes. (c) Nil. (v) No. (vi) Rainfall was not well distributed and drought occured in certain stages of crop growth in 62. (vii) Growth of green manures was not satisfactory in 60 and 61. G_3 and G_4 were very poor in 60. Main-plot and sub-plot variances are heterogeneous. The results of individual experiments are presented under 5. Results.

5. RESULTS :

60(7)

(i) 4210 Kg/ha. (ii) (a) 229·0 Kg/ha. (b) 212·6 Kg/ha. (iii) Main effect of G is significant. (iv) Av. yield of grain in Kg/ha.

	G_1	G_2	G_3	G_4	Mean
V_1	4283	3926	4407	4320	4234
V_2	4073	4193	4243	4039	4137
V_3	4180	4206	4390	4263	4260
Mean	4179	4108	4347	4207	4210

C.D. for G marginal means=162·7 Kg/ha.

61(14)

(i) 4311 Kg/ha. (ii) (a) 611·0 Kg/ha. (b) 741·1 Kg/ha. (iii) Main effect of V is highly significant. (iv) Av. yield of grain in Kg/ha.

	G_1	G_2	G_3	G_4	Mean
V_1	4299	3978	3749	4064	4022
V_2	4074	3726	4469	4275	4136
V_3	5042	4610	4925	4523	4775
Mean	4472	4105	4381	4287	4311

C.D. for V marginal means=434·0 Kg/ha.

62(11)

(i) 4044 Kg/ha. (ii) (a) 440·7 Kg/ha. (b) 564·2 Kg/ha. (iii) Main effect of V is highly significant and main effect of G is significant. (iv) Av. yield of grain in Kg/ha.

	G_1	G_2	G_3	G_4	Mean
V_1	4190	4804	4433	4156	4396
V_2	4423	4450	4420	4487	4445
V_3	3208	3756	3051	3151	3291
Mean	3940	4337	3968	3931	4044

C.D. for G marginal means=313·0 Kg/ha.
C.D. for V marginal means=329·2 Kg/ha.

Crop :- Paddy (*Kharif*). **Ref :- As. 65(23).**

Site :- Rice Res. Stn., Titabar. **Type :- 'MV'.**

Object :—To study the effect of time of application of Nitrogen on the yield of long duration *Sali* Paddy.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) *Ahu* Paddy. (c) N.A. (ii) Heavey clayey loam. (iii) 17.7.65. (iv) (a) 3 to 4 ploughings. (b) Transplanting. (c) N.A. (d) 23 cm.×23 cm. (e) 3 to 4. (v) 44·8 Kg/ha. of P_2O_5 as Super+22·4 Kg/ha. of K_2O as Mur. Pot. (vi) As per treatments. (vii) Unirrigated. (viii) 2 to 3 weedings. (ix) N.A. (x) V_1 on 7.12.65, V_2 on 1.12.65 and V_3 on 20.12.65.

2. TREATMENTS :

Main-plot treatments :

4 times of application of 33·6 Kg/ha. of N as A/S : T_1=At the time of transplanting, T_2=20 days after transplanting, T_3=40 days after transplanting and T_4=60 days after transplanting.

Sub-plot treatments :

3 varieties : V_1=Sc. 412/125, V_2=*Prosadbhog* and V_3=*Hati Sali*.

3 DESIGN :

(i) Split-plot with main-plot treatments in L. Sq. (ii) (a) 4 main-plots/row and 4 rows for the expt. and 3 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 2·5 m.×4·1 m. (v) N.A. (vi) Yes.

4. GENERAL :

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

5. RESULTS :

(i) 2893 Kg/ha. (ii) (a) 527·3 Kg/ha. (b) 781·2 Kg/ha. (iii) Main effect of V is highly significant. (iv) Av. yield of grain in Kg/ha.

	T_1	T_2	T_3	T_4	Mean
V_1	2929	2880	3027	2636	2868
V_2	3515	3393	3711	3808	3607
V_3	2636	2124	1953	2099	2203
Mean	3027	2799	2897	2848	2893

C.D. for V marginal means=570·0 Kg/ha.

Crop :- Paddy (*Kharif*). **Ref :- As. 65(21).**

Site :- Rice Res. Stn., Titabar. **Type :- 'MV'.**

Object :—To study the effect of different levels of A/S and Super on the yield of three promising *Sali* varieties of Paddy.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) *Ahu* Paddy. (c) N.A. (ii) Heavey clayey loam. (iii) 12.8.65. (iv) (a) 3 to 4 ploughings. (b) Transplanting. (c) N.A. (d) 23 cm.×23 cm. (e) 3 to 4. (v) 184·4 Q/ha. of Cowdung. (vi) As per treatments. (vii) Unirrigated. (viii) 2 to 3 weedings. (ix) N.A. (x) 20.12.65.

2. TREATMENTS

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

(1) 3 varieties : V_1=Sc. 412/125 (*Monohar Sail*), V_2=T—141 and V_3=Zuiho×*Hati Sali*.

(2) 3 levels of N as A/S : N_0=0, N_1=22·4 and N_2=44·8 Kg/ha.

(3) 3 levels of P_2O_5 as Super : P_0=0, P_1=22·4 and P_2=44·8 Kg/ha.

3. DESIGN :

(i) 3^3 partially confd. (ii) (a) 3 blocks/replication and 9 plots/block. (b) N.A. (iii) 2. (iv) (a) N.A. (b) 5·6 m.×5·8 m. (v) N.A. (vi) Yes.

4. GENERAL :

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

5. RESULTS :

(i) 3334 Kg/ha. (ii) 160·3 Kg/ha. (iii) Main effects of V, N and P and interactions V×N, V×P, N×P and V×N×P are all highly significant. (iv) Av. yield of grain in Kg/ha.

	N_0	N_1	N_2	P_0	P_1	P_2	Mean
V_1	3120	3963	3968	3362	3680	4009	3684
V_2	3089	3089	3157	3043	2956	3336	3112
V_3	3099	3218	3304	3182	3351	3089	3207
Mean	3103	3423	3476	3196	3329	3478	3334
P_0	3044	3279	3264				
P_1	3120	3567	3300				
P_2	3146	3423	3865				

C.D. for V, N or P marginal means =110·8 Kg/ha.

C.D. for means in the body of any table=191·9 Kg/ha.

Crop :- Paddy (*Kharif*). **Ref :- As. 65(18).**

Site :- Rice Res. Stn., Titabar. **Type :- 'MV'.**

Object :—To study the effect of single and split doses of Nitrogen on the yield of short duration *Sali* Paddy.

1. BASAL CONDITIONS :

(i) (a) Nil (b) *Ahu* Paddy. (c) N.A. (ii) Heavy clayey loam. (iii) 27.8.65. (iv) (a) 3 to 4 ploughings. (b) Transplanting. (c) N.A. (d) 23 cm.×23 cm. (e) 3 to 4. (v) 22·4 Kg/ha. of P_2O_5 as Super+22·4 Kg/ha. of K_2O as Mur. Pot. (vi) As per treatments. (vii) Unirrigated. (viii) 2 weedings. (ix) N.A. (x) 28 to 30.11.65.

2. TREATMENTS :

Main-plot treatments :

4 methods of application of 33·6 Kg/ha. of N as A/S : M_1=Whole quantity at the time of planting, M_2=Half at planting and other half one month after planting, M_3=Half at planting and other half one week before flowering and M_4=One third at planting+one-third one month after planting+one-third one week before flowering.

Sub-plot treatments :

3 varieties : V_1=C.H.—63, V_2=*Patnai* 23×R. 132 and V_3=*Norin* 6×*Geb.* 24.

3. DESIGN :

(i) Split-plot with main-plot treatments in L. sq. (ii) (a) 4 main-plots/row and 4 rows for the expt. and 3 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 4·4 m.×2·7 m. (v) N.A. (vi) Yes.

4. GENERAL :

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

5. RESULTS :

(i) 1833 Kg/ha. (ii) (a) 381·3 Kg/ha. (b) 322·6 Kg/ha. (iii) Main effect of V is highly significant. (iv) Av. yield of grain in Kg/ha.

	M_1	M_2	M_3	M_4	Mean
V_1	1478	1956	1748	1665	1712
V_2	1498	1623	1873	1603	1649
V_3	2049	2435	2123	1956	2138
Mean	1672	2005	1915	1741	1833

C.D. for V marginal means=235·4 Kg/ha.

Crop :- Paddy (*Kharif*). **Ref :- As. 65(17).**

Site :- Rice. Res. Stn., Titabar. **Type :- 'MV'.**

Object :—To study the effect of N, P and K at different levels on the yield of different varieties of *Sali* Paddy.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) *Ahu* Paddy. (c) N.A. (ii) Heavy clayey loam. (iii) 28.8.65. (iv) (a) 3-4 ploughings. (b) Transplanting. (c) N.A. (d) 15 cm.×15 cm. (e) 3. (v) N.A. (vi) As per treatments. (vii) Unirrigated. (viii) 2-3 weedings. (ix) N.A. (x) 29.11.65.

2. TREATMENTS :

Main-plot treatments :

4 levels of fertilizers : F_0=Nil, F_1=33·6 Kg/ha. of N as A/S+16·8 Kg/ha. of P_2O_5 as Super+16·8 Kg/ha. of K_2O as Mur. Pot., $F_2=2\times F_1$ and $F_3=3\times F_1$.

Sub-plot treatments :

3 varieties : V_1=Taichung (Native) 1, V_2=Taichung 65 and V_3=Prosadbhog.

3. DESIGN :

(i) Split-plot with main-plot treatments in L.Sq. (ii) (a) 4 main-plots/row and 4 rows for the expt. and 3 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 2·0 m.×4·4 m. (v) N.A. (vi) Yes.

4. GENERAL :

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

5. RESULTS :

(i) 2635 Kg/ha. (ii) (a) 193·2 Kg/ha. (b) 715·9 Kg/ha. (iii) Main effect of V is significant. (iv) Av. yield of grain in Kg/ha.

	F_0	F_1	F_2	F_3	Mean
V_1	2386	2500	3068	2812	2691
V_2	2216	2415	3608	3523	2940
V_3	2216	2330	2330	2216	2273
Mean	2273	2415	3002	2850	2635

C.D. for V marginal means=522·4 Kg/ha.

Crop :- Paddy (*Kharif*). **Ref :- As. 65(16)**

Site :- Rice Res. Stn., Titabar. **Type :- 'MV'.**

Object :—To study the maximum yield potentiality of *Ahu* paddy varieties under optimum cultural conditions.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) *Sali* Paddy. (c) N.A. (ii) Heavy clayey loam. (iii) 12.5.65. (iv) (a) 3-4 ploughings. (b) Transplanting. (c) N.A. (d) 15 cm.×15 cm. (e) 4. (v) N.A. (vi) As per treatments. (vii) Unirrigated. (viii) One weeding. (ix) N.A. (x) 12—14.8.65.

2. TREATMENTS :

Main-plot treatments :

4 levels of N as A/S : N_0=0, N_1=22·4, N_2=44·8 and N_3=67·2 Kg/ha.

Sub-plot treatments :

6 varieties : V_1=AS. 48-Dubainchenga, V_2=CH. 63, V_3=AC. 400/18-5, V_4=AC. 400/9-6, T_5= AC. 450 (b)/11-39 and V_6=AC. 455/1– 188—20.

3. DESIGN :

(i) Split-plot. (ii) (a) 4 main-plots/rep. and 6 sub-plots/main-plot. (b) 25·6 m.×27·4 m. (iii) 3. (iv) (a) 6·4 m.×4·6 m. (b) 6·1 m.×4·3 m. (v) 15 cm. discarded alround. (vi) Yes.

4. GENERAL :

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

5. RESULTS :

(i) 1842 Kg/ha. (ii) (a) 231·1 Kg/ha. (b) 350·6 Kg/ha. (iii) Main effect of V is significant. (iv) Av. yield of grain in Kg/ha.

	V_1	V_2	V_3	V_4	V_5	V_6	Mean
N_0	1818	2049	1844	1639	1127	1767	1707
N_1	1882	2305	1997	2049	1383	1767	1897
N_2	1997	2177	1895	2125	1306	2023	1920
N_3	1818	2254	1844	1946	1280	1908	1842
Mean	1879	2196	1895	1940	1274	1866	1842

C.D. for V marginal means=289·3 Kg/ha.

Crop :- Paddy (*Kharlf*). **Ref :- As. 65(15).**

Site :- Rice. Res. Stn., Titabar. **Type :- 'MV'.**

Object :—To study the effect of single and split doses of Nitrogen on the yield of long duration *Sali* Paddy.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) *Ahu* Paddy. (c) N.A. (ii) Heavy clayey loam. (iii) 21.7.65. (iv) (a) 3-4 ploughings. (b) Transplanting. (c) N.A. (d) 23 cm.×23 cm. (e) 3-4. (v) 44·3 Kg/ha. of P_2O_5 as Super+16·8 Kg/ha. of K_2O as Mur. Pot. (vi) As per treatments. (vii) Unirrigated. (viii) 2-3 weedings. (ix) N.A. (x) V_1 on 10.12.65, V_2 on 4.12.65 and V_3 on 29.12.65.

2. TREATMENTS :

Main-plot treatments :

4 methods of application of 33·6 Kg/ha of N as A/S : M_1=Whole quantity at the time of planting M_2=Half at planting and other half one moth after planting, M_3=Half at planting and other half one month before flowering and M_4=One—third at planting +One-third one month after planting+One-third one month before flowering.

Sub-plot treatments :

3 varieties : V_1=Sc. 412/125, V_2=Prosadbhog and V_3=Andrew *Sali*.

3. DESIGN :

(i) Split-plot with main-plot treatments in L. Sq. (ii) (a) 4 main-plots/row and 4 rows for the expt. and 3 3 sub-plots/main-plot. (b) N A. (iii) 4. (iv) (a) N.A. (b) 4·4 m.×2·7 m. (v) N.A. (vi) Yes.

4. GENERAL :

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

5. RESULTS :

(i) 3084 Kg/ha. (ii) (a) 424·2 Kg/ha. (b) 514·6 Kg/ha. (iii) None of the effects is significant. (iv) Av. yield of grain in Kg/ha.

	M_1	M_2	M_3	M_4	Mean
V_1	3398	3201	2881	3374	3213
V_2	3324	2980	3226	3374	3226
V_3	2364	3398	2536	2955	2813
Mean	3029	3193	2881	3234	3084

Crop :- Paddy (*Kharif*). **Ref :- As. 62(5).**

Site :- Rice Res. Stn., Titabar. **Type :- 'MV'.**

Object :—To study the yield of Japonica varieties under different levels of nitrogen with a local *Ahu* paddy variety as standard.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Paddy. (c) N.A. (ii) (a) Heavy clayey loam. (iii) April, 1962. (iv) (a) 3-4 ploughings. (b) Transplanting. (c) N.A. (d) 23 cm.×23 cm. (e) 3-4. (v) 40·3 Kg/ha. of P_2O_5 as Super. (vi) As per treatments. (vii) Unirrigated. (viii) 1 weeding. (ix) 109·5 cm. (x) July, 1962.

2. TREATMENTS :

Main-plot treatments :

2 levels of N as A/S : N_1=44·8 and N_2=67·2 Kg/ha.

Sub-plot treatments :

7 varieties : V_1=Norin – 1, V_2=Norin—6, V_3=Norin—17, V_4=Gimbozu, V_5=Rikku—132, V_6=Taichung-65 and V_7=Rangadoria (Local).

Method of application : A/S applied as top dressing.

3. DESIGN :

(i) Split-plot. (ii) (a) 2 main-plots/rep. and 7 sub-plots/main-plot. (b) 60·4 m.×12·8 m. (iii) 3. (iv) (a) 4·8 m × 1·4 m. (b) 4·3 m.×0·9 m. (v) 23. cm. discarded alround. (vi) Yes.

4. GENERAL :

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

5. RESULTS :

(i) 2466 Kg/ha. (ii) (a) 1017·4 Kg/ha. (b) 903·1 Kg/ha. (iii) None of the effects is significant. (iv) Av. yield of grain in Kg/ha.

	V_1	V_2	V_3	V_4	V_5	V_6	V_7	Mean
N_1	2520	2116	2473	1926	2377	2710	2544	2381
N_2	2615	2163	2615	2211	2734	2568	2948	2551
Mean	2568	2140	2544	2068	2556	2639	2746	2466

Crop :- Paddy (*Kharif*) **Ref :- As. 61(6).**

Site :- Rice Res. Stn., Titabar. **Type :- MV.**

Object :—To study the yield of japonica varieties under different levels of nitrogen with a local *Sali* paddy variety as standard.

1, BASAL CONDITIONS :

(i) (a) Nil (b) Paddy. (c) N.A. (ii) (a) Heavy clayey loam. (iii) 31.8.61. (iv) (a) 3—4 Ploughings. (b) Transplanting. (c) N.A. (d) 23 cm.×23 cm. 3 – 4 (v) N.A. (vi) As per treatments. (vii) Unirrigated. (viii) 1 Weeding. (ix) N.A. (x) December, 1961.

2. TREATMENTS :

Main-plot treatments:

V_1=Norin—1, V_2=Norin—17, V_3=Norin 18, V_4=B.M.—5 and V_5=Laodumra (Local).

Sub-plot treatments :

4 levels of N as A/S : N_1=22·4, N_2=44·8, N_3=67·2 and N_4=89·6 Kg/ha.

3. DESIGN :

(i) Split-plot. (ii) (a) 5 main-plots/rep. and 4 sub-plots/main-plot. (b) 19·2 m.×39·3 m. (iii) 4. (iv) (a) N.A. (b) 4·6 m.×1·6 m. (v) N.A. (vi) Yes.

4 GENERAL :

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

5. RESULTS :

(i) 1854 Kg/ha. (ii) (a) 943·2 Kg/ha. (b) 508·9 Kg/ha. (iii) Main effect of V is highly significant (iv) Av. yield of grain in Kg/ha.

	V_1	V_2	V_3	V_4	V_5	Mean
N_1	1115	1084	1183	2918	3271	1914
N_2	1245	1146	1146	2552	2837	1785
N_3	1171	1066	1320	2565	3234	1871
N_4	1289	1047	1295	2800	2788	1844
Mean	1205	1086	1236	2709	3032	1854

C.D. for V marginal means =726·6 Kg/ha.

Crop :- Paddy (*Kharif*) **Ref :- As. 63(16) and 64(13).**

Site :- Rice Exptl. Stn., Karimganj. **Type :- 'C'.**

Object :—To compare different spacings for long duration *Sail* paddy.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Paddy. (c) N.A.; 'As per treatments' (ii) Clayey loam (acidic) (iii) 28.7.63; 25.8.64. (iv) (a) Ploughing, laddering, puddling, etc. (b) Transplanting. (c) N.A. (d) 'As per treatments'. (e) 4. (v) 92·2 Q/ha. of Cowdung as basal ; 22·4 Kg/ha. of N as A/S+20·2 Kg/ha. of P_2O_5 as Super. at puddling; 22·4 Kg/ha. of N as A/S+20·2 Kg/ha. of P_2O_5 as Super. applied one week after planting; 11·2 Kg/ha. of N as A/S+10·1 Kg/ha. of P_2O_5 as Super. before flowering. (vi) Sc. 412—56—Swarna Sail (late) (vii) Unirrigated. (viii) 2 weedings. (ix) 256·1 cm.; 148·3 cm. (x) Ist week of Dec., 1963; 16/17.12.64.

2. TREATMENTS :

3 spacings : S_1=23 cm.×23 cm.; S_2=30 cm.×23 cm. and S_3=30 cm.×15 cm.

3. DESIGN :

(i) R.B.D. (ii) (a) 3. (b) 14·63 M×9·14M. (iii) 4. (v) (a) and (b) 9·14 M×4·57 M. (v) Nil (vi) Yes.

4. GENERAL :

(i) Good. (ii) Negligible. (iii) Grain yield. (iv) (a) 1963—64. (b) Yes. (c) Results of combined analysis are given under 5. Results. (v) No. (vi) Nil. (vii) Error variances are homogeneous and Treatments×years interaction is absent.

5. RESULTS :

Pooled results :

(i) 2771 Kg/ha. (ii) 313·2 Kg/ha. (based on 14 d. f. made up of pooled error and Treatments×years interaction) (iii) Treatment differences are not significant. (iv) Av. yield of grain in Kg/ha.

Treatment	S_1	S_2	S_3
Av. yield	2860	2775	2678

Individual Results :

Av. yield of grain in Kg/ha.

Years	S_1	S_2	S_3	Significance	G.M.	S.E./plot
1963	2721	2785	2689	N.S.	2732	209·5
1964	2998	2765	2667	N.S.	2810	406·7
Pooled	2860	2775	2678	N.S.	2771	313·2

Crop :- Paddy (*Kharif*) **Ref :- As. 60(4), 61(11) and 62(8)**

Site :- Rice Exptl. Stn., Karimganj **Type :- 'C'.**

Object :—To compare the effect of different methods of cultivation on the yield of *Sail* Paddy.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Paddy. (c) N.A. (ii) Clayey loam (acidic) (iii) Middle Sept., 1960; 8 to 12.9.62. (iv) (a) Ploughing, laddering, puddling etc. (b) Transplanting. (c) N.A. (d) 7·6 cm.×7·6 cm. for T_1, 15·2 cm.× 15·2 cm. for T_2 and 22·9 cm.×22·9 cm. for T_3. (e) 4—8 for T_1, 2—3 for T_2, and 4—5 for T_3. (v) N.A. (vi) Sc. 412-56—Swarna Sail (Late) (vii) Unirrigated. (viii) 1 weeding. (ix) 240·3 cm. ; 158·6 cm. ; 232·1 cm. (x) Middle of Dec., 1960; 14/15.12.61; 14/15.12.62.

2. TREATMENTS :

3 methods of cultivation : T_1=Chinese method, T_2=Japanese method and T_3=Country method.
Details of treatments—N.A.

3. DESIGN :

(i) R.B.D. (ii) (a) 3. (b) N.A. (iii) 6. (iv) (a) N.A. (b) 5·03 M×5·03 M. (v) N.A. (vi) Yes.

4. GENERAL :

(ii) Normal. (ii) N.A. (iii) Grain yield (iv) (a) 1960—62. (b) Yes. (c) Results of combined analysis are given under 5. Results. (v) Titabar. (vi) N.A. (vii) Error variances are heterogeneous and Treatments×years interaction is present.

5. RESULTS :

Pooled Results :

(i) 2698 Kg/ha. (ii) 973·1 Kg/ha. (based on 4 d. f. made up of Treatments×years interaction) (iii) Treatment differences are not significant. (iv) Av. yield of grain in Kg/ha.

Treatment	T_1	T_2	T_3
Av. yield	3035	2616	2442

Years	T_1	T_2	T_3	Sig.	G.M.	S.E./plot
1960	3697	3316	2371	**	3128	36·0
1961	3223	2686	2744	N.S.	2884	509.6
1962	2184	1845	2211	N S.	2080	527·1
Pooled	3035	2616	2442	N.S.	2698	973·1

Crop :- Paddy (*Kharif*). **Ref :- As. 64(8).**

Site :- Rice Res. Stn., Titabar. **Type :- 'C'.**

Object : — To study tha effect of different spacings on the yield of *Sali* Paddy and to know the optimum spacing for plants for getting the maximum grain yield.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) *Ahu* paddy. (c) N.A. (ii) Heavy clayey loam. (iii) August, 64. (iv) (a) 3 to 4 ploughings. (b) Transplating (c) N.A. (d) As per treatments. (e) 3 to 4. (v) 184·5 Q/ha. of Cowdung. (vi) N.A. (vii) Unirrigated. (viii) Hand weeding. (ix) 95·8 cm. (x) December, 64.

2. TREATMENTS :

4 spacings : S_1=23 cm.×23 cm., S_2=30 cm.×23 cm. S_3=30 cm.×15 cm. and S_4=30 cm.×30 cm.

4. GENERAL :

(i) R.B.D. (ii) (a) 4. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 9·0 m.×4·5 m. (v) N.A. (vi) Yes.

4. GENERAL :

(i) Good. (ii) N.A. (iii) Grain yield. (iv) (a) 1963-64 (modified in 1964). (b) No. (c) Nil. (v) No. (vi) N.A. (vii) Nil.

5. RESULTS :

(i) 4408 Kg/ha. (ii) N.A. (iii) Treatment differences are not significant. (iv) Av. yield of grain in Kg/ha.

Treatment	S_1	S_2	S_3	S_4
Av. yield	4357	4799	4282	4195

Crop :- Paddy (*Kharif*). **Ref :- As. 63(4).**

Site :- Rice Res. Stn., Titabar, **Type :- 'C'.**

Object :— To study the effect of different spacings on the yield of *Sali* Paddy and to know the optimum spacing for plants for getting maximum grain yield.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) *Ahu* paddy. (c) N.A. (ii) Heavy clayey loam. (iii) August, 1963. (iv) (a) 3-4 ploughings. (b) Transplanting. (c) N.A. (d) As per treatments. (e) 3 to 4. (v) 184·5 Q/ha. of Cowdung. (vi) N.A. (xii) Unirrigated. (viii) 2 hand weedings. (ix) N.A. (x) December, 1963.

2. TREATMENTS :

3 spacings : S_1=23 cm.×23 cm., S_2=30 cm.×23 cm. and S_3=30 cm.×15 cm.

3. DESIGN :

(i) R.B.D. (ii) (a) 3. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 1/247 ha. (v) N.A. (vi) Yes.

4. GENERAL :

(i) Normal. (ii) N.A. (iii) Grain yield. (iv) (a) 1963-64 (modified in 1964). (b) No. (c) Nil. (v) No. (vi) N.A. (vii) Nil

5. RESULTS :

(i) 3424 Kg/ha. (ii) 192·7 Kg/ha. (iii) Treatment differences are not significant. (iv) Av. yield of grain in Kg/ha.

Treatment	S_1	S_2	S_3
Av. yield	3376	3364	3532

Crop :- Paddy (*Kharif*). **Ref :- As. 63(3).**

Site :- Rice Res. Stn., Titabar. **Type :- 'C'.**

Object :— To see the advantage of transplanting over broadcasting on the yield of *Ahu* Paddy.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) *Sali* paddy. (c) N.A. (ii) Heavy clayey loam. (iii) 8/9.5,63 for M_1 and 31.5.63 for M_2. (iv) (a) 3-4 ploughings. (b) As per treatments. (c) 91 Kg/ha. for M_1. (d) 15 cm.×15 cm. for M_2. (e) 3 to 4. for M_2 (v) 184·5 Q/ha. of Cowdung. (vi) As. 86 *Rangadoria*. (vii) Unirrigated. (viii) 3-4 hand weedings. (ix) N.A. (x) 19.8.63.

2. TREATMENTS

2 methods of sowing : M_1=Broadcasting and M_2=Transplanting.

3. DESIGN :

(i) R.B.D. (ii) (a) 2. (b) N.A. (iii) 4. (iv) (a) N A. (b) 9·5 m.×9·5 m. (v) N.A. (vi) Yes.

4. GENERAL :

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

5. RESULTS :

(i) 2387 Kg/ha. (ii) 147·8 Kg/ha. (iii) Treatment differences are not significant. (iv) Av. yield of grain in Kg/ha.

Treatment	M_1	M_2
Av. yield	2274	2500

Crop :- Paddy (*Kharif*). **Ref :- As. 61(5), 62(4) and 63(7).**

Site :- Rice Res. Stn., Titabar. **Type :- 'C'.**

Object :— To compare the effect of Japanese and Thakersy methods of cultivation on the yield of *Sali* Paddy.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) *Ahu* paddy. (c) N.A. (ii) Heavy clayey loam. (iii) 24.8.61 ; 16.8.62 ; 24.8.63. (iv) (a) 3-4 ploughings. (b) Transplanting. (c) N.A. (d) and (e) As per treatments. (v) N.A. (vi) Sc.-406 (b) /93-1 (early). (vii) Unirrigated. (viii) As per treatments. (ix) N.A. ; 94·3 cm. ; N.A. (x) 20.12.61 ; 27.12.62 ; 2.12.63.

2. TREATMENTS :

2 methods of cultivation : M_1=Thakersy method—thin sowing of seedlings, planting 1 seedling/hole with 15 cm.×15 cm. spacing, cutting the plants and leaving 15 cm. from the ground one month after planting, 184·5 Q/ha. of Cowdung applied and planting and weeding done one month after planting and M_2=Japanese method—Japanese method of sowing seedlings, planting 4 seedlings/hole with 23 cm.× 23 cm. spacing, manure applied as in Japanese method, interculturing, manuring and weeding done one month after planting.

Details of manuring : N.A.

3. DESIGN :

(i) R.B.D. (ii) (a) 2. (b) N.A. (iii) 3. (iv) (a) 6·1 m.×9·1 m. (b) 5·9 m.×9·0 m, (v) 7-8 cm. left all-round the net plot. (vi) Yes.

4. GENERAL :

(i) Satisfactory. (ii) N.A. (iii) Yield of grain. (iv) (a) 1961-63. (b) Yes. (c) Results of combined analysis are given under 5-Results. (v) No. (vi) Nil. (vii) Error variances are homogeneous and Treatments× years interaction is absent.

5. RESULTS :

Pooled results

(i) 2783 Kg/ha. (ii) 152·0 Kg/ha. (based on 8 d.f. made up of pooled error and Treatments×years interaction). (iii) Treatment differences are not significant. (iv) Av. yield of grain in Kg/ha.

Treatment	M_1	M_2
Av. yield	2855	2711

Individual results

Av. yield of grain in Kg/ha.

Years	M_1	M_2	Significance	G.M.	S.E./plot
1961	2746	2464	*	2605	34·8
1962	3667	3579	N.S.	3623	215·2
1963	2152	2089	N.S.	2121	152·8
Pooled	2855	2711	N.S.	2783	152·0

Crop :- Paddy (*Kharif*). **Ref :- As. 60(13) and 61(4).**

Site :- Rice Res. Stn., Titabar. **Type :- 'C'.**

Object :—To compare the effect of different methods of cultivation on the yield of *Sali* paddy.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) *Ahu* paddy. (c) N.A. (*ii*) Heavy clayey loam. (iii) 25.7.60 ; 5 to 7.7.61. (iv) (a) 3 to 4 ploughings. (b) Transplanting. (c) N.A. (d) and (e) As per treatments. (v) N.A. ; 184·5 Q/ha. of Cow-dung. (vi) Sc. 406 (b)/93—1 (early). (vii) Unirrigated. (viii) 2 to 4 weedings by Japanese weeder. (ix) N.A. (x) 29.11.60 ; 30.11.61 to 2.12.61.

2. TREATMENTS :

3 methods of cultivation : M_1=Chinese method--15 cm.×15 cm. spacing and 2 seedlings/hole, M_2=Japanese method—25 cm.×25 cm. spacing and 4 seedlings/hole and M_3=Country method—23 cm.×23 cm. spacing and 3 to 4 seedlings/hole.

3. DESIGN :

(i) R.B.D. (ii) (a) 3. (b) N.A. (iii) 6. (iv) (a) 9·1 m.×9·1 m. (b) 8·9 m.×8·9 m. (v) 11 cm. discarded alround the net plot. (vi) Yes.

4. GENERAL :

(i) Normal. (ii) N.A. (iii) Yield of grain. (iv) (a) 1959—61. (b) Yes. (c) Results of combined analysis are given under 5. Results. (v) Karimganj. (vi) Nil. (vii) Experiment for 1959 has also been considered for pooling the results. Error variances are homogeneous and Treatments×years interaction is present.

5. RESULTS :

Pooled results

(i) 2882 Kg/ha. (ii) 683·3 Kg/ha. (based on 4 d.f. made up of Treatments×years interaction. (iii) Treatment differences are not significant. (iv) Av. yield of grain in Kg/ha.

Treatment	M_1	M_2	M_3
Av. yield	2758	3013	2876

Individual results

Av. yield of grain in Kg/ha.

Years	M_1	M_2	M_3	Significance	G.M.	S.E./plot
1960	2561	2656	2430	N.S.	2549	317·8
1961	2558	2387	2625	N.S.	2523	470·8
Pooled	2758	3013	2876	N.S.	2882	683·3

Crop :- Paddy (*Kharif*). **Ref :- As. 64(23) and 65(29).**

Site :- Exptl. Res. Stn., Upper Shillong. **Type :- 'C'.**

Object : —To study the effect of different numbers of seedling with different spacings on the yield of Padd .

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Paddy. (c) N.A. (ii) Sandy loam. (iii) 12.6.64 ; 15.6.65. (iv) (a) Ploughing followed by laddering. b) Transplanting. (c) N.A. (d) and (e) As per treatments. (v) 92·2 Q/ha. of Cowdung+44·8 Kg/ha. of N as A.S.+33·6 Kg/ha. of P_2O_5 as Super+33·6 Kg/ha. of K_2O as Mur. Pot. (vi) *Khonorul.* ; U.S.—1. (vii) Unirrigated. (viii) 2 weedings. (ix) N.A. (x) 13 and 14.11.64 ; 20.11.65.

2. TREATMENTS :

All combinations of (1) and (2)

(1) 3 numbers of seedlings/hole : R_1=2, R_2=3 and R_3=4 seedlings/hole.

(2) 5 spacings : S_1=10 cm. × 10 cm., S_2=15 cm. × 15 cm., S_3=20 cm. × 20 cm., S_4=25 cm. × 25 cm. and S_5=30 cm. × 30 cm.

3. DESIGN :

(i) 5 × 3 Fact. in R.B.D. (ii) (a) 15. (b) N.A. (iii) 3. (iv) (a) 3·1 m. × 3·4 m. (b) 2·7 m. × 3·1 m. (v) 15 cm. discarded alround. (vi) Yes.

4. GENERAL :

(i) Normal. (ii) N.A. (iii) Grain yield. (iv) (a) 1964—67. (b) No. (c) Results of combined as well as individual results are given under 5. Results. (v) No. (vi) N.A. (vii) Error variances are homogeneous and Treatments × years interaction is absent.

5. RESULTS :

Pooled results

(i) 2473 Kg/ha. (ii) 741·4 Kg/ha. (based on 70 d.f. made up of pooled error and Treatments × years interaction). (iii) None of the effects is significant. (iv) Av. yield of grain in Kg/ha.

	S_1	S_2	S_3	S_4	S_5	Mean
R_1	2603	2351	2441	2391	2103	2379
R_2	2576	2425	2782	2265	2471	2504
R_3	2597	2626	2757	2560	2140	2536
Mean	2594	2467	2660	2406	2238	2473

Individual results

Av. yield of grain in Kg/ha.

Years	S_1	S_2	S_3	S_4	S_5	Sig.	R_1	R_2	R_3	Sig.	G.M.	S.E./plot
1964	2893	2691	2652	2372	2609	N.S.	2549	2647	2734	N.S.	2643	850·4
1965	2294	2244	2667	2439	1867	N.S.	2208	2361	2338	N.S.	2302	667·6
Pooled	2594	2467	2660	2406	2238	N.S.	2379	2504	2536	N.S.	2473	741·1

Crop :- Paddy (*Kharif*). **Ref :- As. 64(35).**

Site :- Agri. College, Jorhat. **Type :- 'CV'.**

Object :—To study the effect of storing uprooted seedlings for different durations on the growth and yield of two varieties of *Sali* Paddy.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) G.M. crop. (c) Nil. (ii) Sandy loam. (iii) 5, 8, 11 and 14.8.64. (iv) (a) 4 ploughings followed by laddering. (b) Transplanting. (c) N.A. (d) 25 cm.×25 cm. (e) 4. (v) Nil. (vi) As per treatments. (vii) Unirrigated. (viii) 1 weeding. (ix) 158·2 cm. (x) 1st week of December, 64.

2. TREATMENTS :

Main-plot treatments :

2 varieties : V_1=*Satya Sali* and V_2=*Prosadbhog*.

Sub-plot treatments :

2 methods of storing seedlings : S_1=In water and S_3=In mud.

Sub-sub-plot treatments :

4 durations of storage of seedlings : D_0=0, D_1=3, D_2=6 and D_3=9 days.

3. DESIGN :

(i) Split-plot. (ii) (a) 2 main-plots/replication, 2 sub-plots/main-plot and 4 sub-sub-plots/sub-plot. (b) N.A. (iii) 4. (iv) (a) 0·1983 ha. (b) 3·2 m.×7·1 m. (v) N.A. (vi) Yes.

4. GENERAL :

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

5. RESULTS :

(i) 2837 Kg/ha. (ii) (a) 276·6 Kg/ha. (b) 823·5 Kg/ha, (c) 674·4 Kg/ha. (iii) None of the effects is significant. (iv) Av. yield of grain in Kg/ha.

	D_0	D_1	D_2	D_3	S_1	S_2	Mean
V_1	2779	2762	2728	2932	2929	2672	2800
V_2	2830	2576	3237	2852	2926	2821	2874
Mean	2804	2669	2982	2892	2927	2746	2837
S_1	2869	2587	3350	2903			
S_2	2739	2751	2615	2881			

Crop :- Paddy (*Kharif*). **Ref :- As. 63(6) and 64(5).**

Site :- Rice Res. Stn., Titabar. **Type :- 'CV'.**

Object :—To study the effect of double transplanting on the yield of three varieties of *Sali* Paddy transplanted by different methods.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) *Ahu* paddy. (c) N.A. (ii) Heavy clayey loam. (iii) August. 63 ; August, 64. (iv) (a) 3—4 ploughings. (b) As per treatments. (c) N.A. (d) 23 cm.×23 cm. (e) 3—4. (v) 184·5 Q/ha. of Cowdung. (vi) As per treatments. (vii) Unirrigated. (viii) As per treatments. (ix) N.A. ; 95·8 cm. (x) December, 63 ; December, 64.

2. TREATMENTS :

Main-plot treatments :

3 varieties : V_1=*Ahom Sali*, V_2=*Gajep* and V_3=*Prosadbhog*.

Sub-plot treatments :

3 types of transplanting : D_1=Normal transplanting, D_2=Double transplanting in *situ* and D_3= Double transplanting at different sites.

Sub-sub-plot treatments :

3 methods of planting M_1=Local method of planting (triangular), M_2=Line planting without using Japanese paddy weeder and M_3=Line planting with the use of Japanese paddy weeder.

3. DESIGN :

(i) Split-plot. (ii) (a) 3 main-plots/rep., 3 sub-plots/main-plot and 3 sub-sub-plots/sub-plot. (b) N.A. (iii) 2. (iv) (a) N.A. (b) 247·00 for 63 ; (a) and (b)9.0 m.×4·5 m. for 64 ; (v) N.A. (vi) Yes.

4. GENERAL :

(i) Poor ; Good. (ii) N.A. (iii) Yield of grain. (iv) (a) 1963—64. (b) Yes. (c) Nil. (v) No. (vi) N.A. (vii) Main-plot and sub-plot error variances are homogeneous. Sub-sub-plot error variances are heterogeneous. The results of individual years are given under 5. Results.

5. RESULTS :

63(6)

(i) 878 Kg/ha. (ii) (a) 96·3 Kg/ha. (b) 172·9 Kg/ha. (c) 111·2 Kg/ha. (iii) Main effect of D is highly significant. (iv) Av. yield of grain in Kg/ha.

	D_1	D_2	D_3	M_1	M_2	M_3	Mean
V_1	881	733	1083	898	980	819	899
V_2	1161	453	1004	823	939	856	873
V_3	922	642	1025	844	856	889	863
Mean	988	609	1038	855	925	855	878
M_1	943	609	1013				
M_2	1054	634	1087				
M_3	967	585	1012				

C.D. for D marginal means=141·0 Kg/ha.

64(5)

(i) 4551 Kg/ha. (ii) (a) 513·9 Kg/ha. (b) 348·3 Kg/ha. (c) 634·5 Kg/ha. (iii) None of the effects is significant. (iv) Av. yield of grain in Kg/ha.

	D_1	D_2	D_3	M_1	M_2	M_3	Mean
V_1	4461	4106	4828	4414	4403	4578	4465
V_2	4661	4622	4798	4644	4677	4760	4694
V_3	4678	4198	4602	4465	4511	4502	4493
Mean	4600	4309	4743	4508	4530	4614	4551
M_1	4361	4097	5065				
M_2	4653	4469	4469				
M_3	4786	4360	4694				

Crop :- Paddy (*Kharif*). **Ref :- As. 64(21) and 65(28).**

Site :- Expt. Res. Stn., Upper Shillong. **Type :- 'CV'.**

Object :—To study the effeet of different methods of sowing on the yield of three varieties of Paddy.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Paddy. (c) N.A. (ii) Sandy loam. (iii) 16.4.64 ; 12.4.65. (iv) (a) Hoeing and pulverizing. (b) As per treatments. (c) N.A. (d) 15 cm.×15 cm. (e) N.A. (v) 368·9 Q/ha. of Cowdung+44·8 Kg/ha. of N as A/S+33·6 Kg/ha. of P_2O_5 as Super. (vi) As per treatments. (vii) Unirrigated. (viii) 2 weedings. (ix) N.A. (x) 7.11.64 ; 6.11.65.

2. TREATMENTS :

All combinations of (1) and (2)

(1) 2 methods of sowing : M_1=Dibbling and M_2=Line sowing.

(2) 3 varieties : V_1=*Khonorullo*, V_2=*Tangla* and V_3=*Abor*. A.

3 DESIGN :

(i) 2×3 Fact. in R.B.D. (ii) (a) 6. (b) 9·1 m.×6·1 m. (iii) 3. (iv) (a) and (b) 3·1 m.×3·1 m. (v) Nil. (vi) Yes.

4. GENERAL :

(i) Normal. (ii) N.A. (iii) Grain yield. (iv) (a) 1964—65. (b) No. (c) Results of combined analysis are given under 5. Results. (v) No. (vi) N.A. (vii) Error variances are homogeneous and Treatments×years interaction is absent.

5. RESULTS :

Pooled results.

(i) 1554 Kg/ha. (ii) 355·0 Kg/ha. (based on 25 d.f. made up of pooled error and Treatments×years interaction). (iii) None of the effects is significant. (iv) Av. yield of grain in Kg/ha.

	V_1	V_2	V_3	Mean
M_1	1577	1574	1661	1604
M_2	1597	1392	1525	1504
Mean	1587	1483	1593	1554

Individual results.

Av. yield of grain in Kg/ha.

Years	M_1	M_2	Sig.	V_1	V_2	V_3	Sig.	G.M.	S.E./plot
1964	1533	1406	N.S.	1649	1297	1464	N.S.	1470	387·1
1965	1675	1603	N.S.	1525	1669	1722	N.S.	1639	279·9
Pooled	1604	1504	N.S.	1587	1483	1593	N.S.	1554	355·0

Crop :- Paddy (*Kharif*). **Ref :- As. 63(39).**

Site :- Agri. College, Jorhat. **Type :- 'CM'.**

Object :—To study the effect of dates of planting, different spacings and levels of N on the growth and yield of *Sali* Paddy.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Potato. (b) N.A. (ii) Sandy loamy. (iii) As per treatments. (iv) (a) 2 ploughings. (b) Transplanting. (c) N.A. (d) As per treatments. (e) 3. (v) 138·3 Q/ha. of Cowdung+22·4 Kg/ha. of P_2O_5 as Super. (vi) *Hati Sali*. (vii) Unirrigated. (viii) Nil. (ix) 180·2 cm. (x) 16, 17.12.63.

2. TREATMENTS :

Main-plot treatments :

2 dates of planting : D_1=16.7.63 and D_2=16.8.63.

Sub-plot treatments :

All combinations of (1) and (2)

(1) 3 levels of N as A/S : N_0=0, N_1=33·6 and N_2=67·2 Kg/ha.

(2) 3 spacings : S_1=15 cm.×15 cm., S_2=23 cm.×23 cm. and S_3=30 cm.×30 cm.

3. DESIGN :

(i) Split-plot. (ii) (a) 2 main-plots/replication and 9 sub-plots/main-plot. (b) N.A. (iii) 3. (iv) (a) 0·1902 ha. (b) 0·1578 ha. (v) N.A. (vi) Yes.

4. GENERAL :

(i) Normal. (ii) Copper fungicide sprayed twice in the month of September, 1963. (iii) Grain yield. (iv) (a) No. (b) and (c) —. (v) No. (vi) N.A. (vii) Nil.

5. RESULTS :

(i) 2579 Kg/ha. (ii) (a) 490·7 Kg/ha. (b) 269·3 Kg/ha. (iii) Main effect of S and interactions D×S and D×S×N are high ly significant. (iv) Av. yield of grain in Kg/ha.

	N_0	N_1	N_2	S_1	S_2	S_3	Mean
D_1	2398	2693	2315	2312	2610	2481	2468
D_2	2778	2652	2638	2914	2794	2361	2689
Mean	2588	2672	2476	2613	2702	2421	2579
S_1	2619	2684	2536				
S_2	2610	2887	2610				
S_3	2536	2444	2283				

C.D. for S marginal means =182·9 Kg/ha.
C.D. for S means at the same level of D=258·7 Kg/ha.
C.D. for D means at the same level of S=609·1 Kg/ha.

Crop :- Paddy (*Kharif*). **Ref :- As. 64(17) and 65(12)·**

Site :- Rice Exptl. Stn. Karimganj. **Type :- 'CM'.**

Object :—To ascertain the best cultural practices as regards dates of sowing, seed rates and levels of fertilizers for short duration and *Aus* Paddy, sown as broadcast.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Paddy. (c) N.A. ; As per treatments. (ii) Clayey loam (acidic). (iii) As per treatments. (iv) (a) Ploughings, laddering, and puddling, etc. (b) Broadcast. (c) As per treatments. (d) and (e) —. (v) Nil. (vi) M. 142—*Koimurali* (early). (vii) Unirrigated. (viii) 1 weeding. (ix) 276·9 cm., N.A. (x) 1.7.64, 31.7.64 and 29.8.64 ; 13.7.65, 9.8.65 and 3.9.65.

2 TREATMENTS :

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

(1) 3 dates of sowing : D_1=Early, D_2=Normal and D_3=Late sowing.

(2) 3 seed rates : R_1=67·2, R_2=89·6 and R_3=112·0 Kg/ha.

(3) 3 levels of fertilizers : F_1=44·8 Kg/ha. of N+22·4 Kg/ha. of P_2O_5+22·4 Kg/ha. of K_2O, F_2=67·2 Kg/ha. of N+33·6 Kg/ha. of P_2O_5+33·6 Kg/ha. of K_2O and F_3=2F_1.

Form of fertilizers : N as A/S, P_2O_5 as Super, and K_2O as Mur. Pot.

3. DESIGN :

(i) 3^3 confd. (ii) (a) 9 plots/block and 3 blocks/rep. (b) N.A. (iii) 2. (iv) (a) and (b) 3·8 m.×3·1 m. (v) Nil. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Negligible ; N.A. (iii) Grain yield. (iv) (a) 1964-65. (b) Yes. (c) Results of individual as well as combined analysis are presented under 5. Results. (v) No. (vi) Nil. (vii) Error variances are homogeneous and Treatments×years interaction is absent.

5. RESULTS :

Pooled results.

(i) 1855 Kg/ha. (ii) 327·3 Kg/ha. (based on 62 d.f. made up of pooled error and Treatments×years interaction). (iii) Only the main effect of D is highly significant. (iv) Av. yield of grain in Kg/ha.

	F_1	F_2	F_3	R_1	R_2	R_3	Mean
D_1	1956	1982	2162	1888	2147	2065	2033
D_2	1848	1812	1882	1855	1880	1807	1847
D_3	1836	1593	1624	1540	1759	1754	1684
Mean	1880	1796	1889	1761	1929	1875	1855
R_1	1799	1679	1805				
R_2	1939	1899	1948				
R_1	1901	1810	1915				

C.D. for D marginal means=154·3 Kg/ha.

Av. yield of grain in Kg/ha.

Years	F_1	F_2	F_3	Sig.	D_1	D_2	D_3	Sig.
1964	2095	2061	2082	N.S.	2141	2168	1929	N.S.
1965	1665	1531	1697	N.S.	1926	1527	1440	*
Pooled	1880	1796	1889	N.S.	2033	1847	1684	**

Years	R_1	R_2	R_3	Sig.	G.M.	S.E./plot
1964	1959	2177	2102	N.S.	2079	352·0
1965	1563	1681	1097	N.S.	1631	289·1
Pooled	1761	1929	1875	N.S.	1855	327·3

Crop :- Paddy (*Kharif*). **Ref :- As. 65(22).**

Site :- Rice Res. Stn., Titabar. **Type :- 'CM'.**

Object :—To study the effect of dates of planting, spacings and level of N, P and K on the yield of *Sali* Paddy.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) *Ahu* Paddy. (c) N.A. (ii) Heavy clayey loam. (iii) As per treatments. (iv) (a) 3-4 ploughings. (b) Transplanting of 30 days old seedlings. (c) N.A. (d) As per treatments. (e) 2-3. (v) N.A. (vi) Sc.—412, 125. (vii) Unirrigated. (viii) 2-3 weedings. (ix) N.A. (x) 22, 23.12.65.

2. TREATMENTS :

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

(1) 3 dates of planting : D_1=14.7.65, D_2=3.8 65 and D_3=24.8.65.

(2) 3 spacings : S_1=23 cm.×23 cm., S_2=30 cm.×30 cm. and S_3=38 cm.×38 cm.

(3) 3 levels of manuring : M_0=Nil. M_1=22·4 Kg/ha. of N as A/S+33·6 Kg/ha. of P_2O_5 as Super+16·8 Kg/ha. of K_2O as Mur. Pot. and $M_2=2\times M_1$.

Method of application : ½ N, P_2O_5 and K_2O applied before transplanting and ½ N applied after transplanting.

3. DESIGN :

(i) 3^3 partially confd. (ii) (a) 9 plots block and 3 blocks/rep. (b) N.A. (iii) 2. (iv) (a) N.A. (b) 4·3 m.× 8·8 m. (v) N.A. (vi) Yes.

4. GENERAL :

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

5 RESULTS :

(i) 2920 Kg/ha. (ii) 403·3 Kg/ha. (iii) Main effect of M and interaction D×M are significant. (iv) Av. yield of grain in Kg/ha.

	M_0	M_1	M_2	S_1	S_2	S_3	Mean
D_1	2642	3186	3427	3106	3060	3060	3085
D_2	2990	2683	3075	3048	2856	2843	2916
D_3	2308	2990	2977	2732	2830	2713	2758
Mean	2647	2953	3160	2962	2925	2872	2920
S_1	2732	2947	3206				
S_2	2509	3100	3167				
S_3	2700	2811	3106				

C.D. for M marginal means =278·8 Kg/ha.
C.D. for means in D×M table=482·9 Kg/ha.

Crop :- Paddy (*Zaid*). **Ref :- As. 65(20).**

Site :- Rice Res. Stn., Titabar. **Type :- 'CM'.**

Object :—To study the effect of different levels of A/S and different spacings on the yield of *Boro* Paddy.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Paddy. (c) N.A. (ii) Heavy clayey loam. (iii) 1st week of February, 1965. (iv) (a) 3-4 ploughings. (b) Transplanting. (c) N.A. (d) As per treatments. (e) 2. (v) 33·6 Kg/ha. of P_2O_5 as Super. (vi) *Topabaro*. (vii) Unirrigated. (viii) 2 weedings. (ix) N.A. (x) 3rd week of May, 1965.

2. TREATMENTS :

Treatments in one direction :

4 levels of N as A/S : N_0=0, N_1=22·4, N_2=44·8 and N_3=67·2 Kg/ha.

Treatments in orthogonal direction :

3 spacings : S_1=15 cm.×15 cm., S_2=23 cm.×23 cm. and S_3=30 cm.×30 cm.

3. DESIGN :

(i) Strip-plot. (ii) (a) 12 plots/replication. (b) N.A. (iii) 3. (iv) (a) N.A. (b) 1/246·9 ha. (v) N.A. (vi) Yes.

4. GENERAL :

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

5. RESULTS:

(i) 542 Kg/ha. (ii) (a) 185·2 Kg/ha. (for N). (b) 111·1 Kg/ha. (for S). (c) 108·6 Kg/ha. (for N×S). (iii) Main effect of S is significant. (iv) Av. yield of grain in Kg/ha.

	N_0	N_1	N_2	N_3	Mean
S_1	494	691	642	815	660
S_2	329	461	576	658	506
S_3	362	379	527	576	461
Mean	395	510	582	683	542

C.D. for S marginal means=125·9 Kg/ha.

Crop :- Paddy (*Kharif*). **Ref :- As. 63(2) and 64(4).**

Site :- Rice Res. Stn., Titabar. **Type :- 'CM'.**

Object :—To study the effect of methods of sowing and time of application of Nitrogen on the yield of *Ahu* Paddy.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) *Sali* paddy. (c) N.A. (ii) Heavy clayey loam. (iii) Middle of March, 63 ; Middle of March, 64. (iv) (a) 3-4 ploughings. (b) As per treatments. (c) 91 Kg/ha. for broadcasting ; N.A. for line sowing. (d) Rows 15 cm. apart for the line sowing (e) Nil. (v) Nil. (vi) *Rangadoria*. (vii) Unirrigated. (viii) 3-4 hand weedings. (ix) N.A. for 63 ;81·7 cm. for 64. (x) July, 1963 ; July, 1964.

2. TREATMENTS :

Main-plot treatments :

2 methods of sowing : M_1=Line sowing and M_2=Broadcasting.

Sub-plot treatments :

4 times of application of N as A/S : T_0=Control, T_1=44·8 Kg/ha. of N applied 4 days before sowing, T_2=44·8 Kg/ha. of N-½ dose applied 4 days before sowing and ½ dose applied 20 days after sowing, T_3=44·8 Kg/ha. of N-⅓ dose applied 4 days before, ⅓ dose applied 20 days after sowing and ⅓ dose applied 35 days after sowing.

3. DESIGN :

(i) Split-plot. (ii) (a) 2 main plots/replication and 4 sub-plots/main plot. (b) N.A. (iii) 3. (iv) (a) N.A. (b) 9·1 m.×4·9 m. for 63 and 1/249·7 ha. for 64. (v) N.A. (vi) Yes.

4. GENERAL :

(i) Poor. (ii) N.A. (iii) Yield of grain. (iv) (a) 1963-64. (b) Yes. (c) Nil. (v) No. (vi) N.A. (vii) Main-plot error variances are homogeneous. Sub-plot error variances are heterogenous. The results of individual experiments are given under 5 Results.

5. RESULTS :

63(2)

(i) 1956 Kg/ha. (ii) (a) 331·1 Kg/ha. (b) 304·6 Kg/ha. (iii) None of the effects is significant. (iv) Av. yield of grain in Kg/ha.

	T_0	T_1	T_2	T_3	Mean
M_1	2146	1897	2027	1857	1982
M_2	1830	1620	2127	2146	1931
Mean	1988	1758	2076	2002	1956

64(4)

(i) 2047 Kg/ha. (ii) (a) 89·9 Kg/ha. (b) 147·9 Kg/ha. (iii) Main effect of T is significant. (iv) Av. yield of grain in Kg/ha.

	T_0	T_1	T_2	T_3	Mean
M_1	1780	2005	2197	2072	2014
M_2	2046	1930	2197	2147	2080
Mean	1913	1968	2197	2110	2047

C.D. for T marginal means=186·8 Kg/ha.

Crop :- Paddy (*Kharif*). **Ref :- As. 61, 62, 63, 64, 65(M.A.E.).**

Site :- M.A.E. Centre, Titabar. **Type :- 'CM'.**

Object :—Type VII : To study the effect of different dates of sowing, spacings, number seedlings per hole along with different levels of N and P on the yield of Paddy.

1. BASAL CONDITIONS :

(i) (a) N.A. (ii) Old alluvium. (iii) As per treatments. (iv) (a) and (b) N.A. (c) to (e) As per treatments. (v) N.A. (vi) *Prosadbhog* (vii) Unirrigated. (viii) to (x) N.A.

2. TREATMENTS :

Main-plot treatments :

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

(1) 3 dates of sowing : D_1=15 days before normal, D_2=Normal and D_3=15 days after normal.

(2) 3 spacings : S_1=20·3 cm.×20·3 cm., S_2=25·4 cm.×25·4 cm. and S_3=30·5 cm.×30·5 cm.

(3) 3 numbers of seedlings per hole : R_1=1, R_2=2 and R_3=3.

Sub-plot treatments :

All combinations of (1) and (2)

(1) 2 levels of N as A/S : N_0=0 and N_1=44·8 Kg/ha.

(2) 2 levels of P_2O_5 as Super : P_0=0 and P_1=44·8 Kg/ha.

3. DESIGN :

(i) Split-plot confd. (ii) (a) 3 blocks/replication, 9 main-plots/block and 4 sub-plots/main-plot. (iii) 1 (iv) (a) 10·1 m.×5·0 m. (b) 9·5 m.×4·4 m. (v) 30 cm. on all sides. (vi) Yes.

4. GENERAL :

(i) Satisfactory. (ii) N.A. (iii) Yield of grain. (iv) (a) 1961-cond (b) Yes. (c) Nil. (v) and (vi) N.A. (vii) Nil.

5. RESULTS :

1961

(i) 2408 Kg/ha. (ii) (a) 377·2 Kg/ha. (b) 392·0 Kg/ha. (iii) Main effects of N and P are significant. (iv) Av. yield of grain in Kg/ha.

Treatment	D_1	D_2	D_3	Sig.	S_1	S_2
Mean yield	2484	2370	2370	N.S.	2404	2432
	S_3	Sig.	R_1	R_2	R_3	Sig.
	2388	N.S.	2432	2404	2388	N.S.
	N_0	N_1	Sig.	P_0	P_1	Sig.
	2268	2548	*	2305	2511	*

C.D. for N or P marginal means=184 Kg/ha.

1962

(i) 2745 Kg/ha. (ii) (a) 799·1 Kg/ha. (b) 615·6 Kg/ha. (iii) Main effect of P alone is significant. (iv) Av. yield of grain in Kg/ha.

Treatment	D_1	D_2	D_3	Sig.	S_1	S_1
Mean yield	2861	2770	2603	N.S.	3016	2649
	S_3	Sig.	R_1	R_2	R_3	Sig.
	2569	N.S.	2772	2882	2580	N.S.
	N_0	N_1	Sig.	P_0	P_1	Sig.
	2651	2839	N.S.	2596	2893	**

C.D. for P marginal means=240·6 Kg/ha.

1963

(i) 2479 Kg/ha. (ii) (a) 621·5 Kg/ha. (b) 475·8 Kg/ha. (iii) None of the effects is significant. (iv) Av. yield of grain in Kg/ha.

Treatment	D_1	D_2	D_3	Sig.	S_1	S_2
Mean yield	2336	2569	2532	N.S.	2431	2519
	S_3	Sig.	R_1	R_2	R_3	Sig.
	2487	N.S.	2454	2552	2431	N.S.
	N_0	N_1	Sig.	P_0	P_1	Sig.
	2509	2449	N.S.	2517	2441	N.S.

1964

(i) 3988 Kg/ha. (ii) (a) 250·8 Kg/ha. (b) 376·8 Kg/ha. (iii) Main effects of N and P are highly significant. (iv) Av. yield of grain in Kg/ha.

Treatment	D_1	D_2	D_3	Sig.	S_1	S_2
Mean yield	3938	4010	4017	N.S.	4067	3998
	S_3	Sig.	R_1	R_2	R_3	Sig.
	3899	N.S.	3956	3987	4022	N.S.
	N_0	N_1	Sig.	P_0	P_1	Sig.
	3856	4121	**	3825	4152	**

C.D. for N or P marginal means=176 Kg/ha.

1965

(i) 2775 Kg/ha. (ii) (a) and (b) N.A. (iii) None of the effects is significant. (iv) Av. yield of grain in Kg/ha.

Treatment	D_1	D_2	D_3	Sig.	S_1	S_2
Mean yield	2813	2679	2833	N.S.	2687	2729
	S_3	Sig.	R_1	R_2	R_3	Sig.
	2909	N.S.	2786	2841	2698	N.S.
	N_0	N_1	Sig.	P_0	P_1	Sig.
	2607	2943	N.S.	2645	2905	N.S.

Crop :- Paddy (*Kharif*). **Ref :- As. 65(44).**

Site :- Agri. College, Jorhat. **Type :- 'CMV'.**

Object : —To study the effect of varieties, levels of nitrogen and planting densities on the growth and yield of *Sali* Paddy.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) *Dhaincha*. (c) Nil. (ii) Sandy loam. (iii) 21.7.65. (iv) (a) 2 ploughings followed by laddering. (b) Transplanting. (c) N.A. (d) As per treatments. (e) 4. (v) 92·2 Q/ha. of cowdung+33·6 Kg/ha. of P_2O_5 as Super+33·6 Kg/ha. of K_2O as Mur. Pot. (vi) As per treatments. (vii) Unirrigated. (viii) One weeding. (ix) 142·6 cm (x) 14, 15.12.65.

2. TREATMENTS :

Main-plot treatments :

3 varieties : V_1=SC-412/125, V_2= *Prosadbhog* and V_3=SC-406(b)/93-1,

Sub-plot treatments :

All combinations of (1) and (2)

(1) 3 spacings : S_1=15 cm.×15 cm., S_2=23 cm.×23 cm. and S_3=30 cm.×30 cm.

(2) 3 levels of N as A/S : N_0=0, N_1=33·6 and N_2=67·2 Kg/ha.

3. DESIGN :

(i) Split-plot. (ii) (a) 3 main-plots/replication and 9 sub-plots/main-plot. (b) N.A. (iii) 3. (iv) (a) and (b) 0·2954 ha. (v) Nil. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Guesarol 550 sprayed to control Hispa, Stem borer, etc. (iii) Grain yield. (iv) (a) No. (b) and (c)—(v) No. (vi) N.A. (vii) Nil.

5. RESULTS :

(i) 4018 Kg/ha. (ii) (a) 822·4 Kg/ha. (b) 382·9 Kg/ha. (iii) Main effects of N and S are highly significant. Main effect of V and interaction V×N are significant. (iv) Av. yield of grain in Kg/ha.

	S_1	S_2	S_3	N_0	N_1	N_2	Mean
V_1	4452	4632	4816	4066	4829	5005	4633
V_2	3566	3586	3881	3519	3633	3883	3678
V_3	3607	3662	3963	3616	3764	3853	3744
Mean	3875	3960	4220	3733	4075	4246	4018
N_0	3522	3756	3922				
N_1	4092	3966	4167				
N_2	4011	4158	4570				

C.D. for V marginal means =621·2 Kg/ha.
C.D. for N or S marginal means =209·7 Kg/ha.
C.D. for N means at the same level of V=363·3 Kg/ha.
C.D. for V means at the same level of N=614·6 Kg/ha.

Crop :- Paddy (*Kharif*).

Site :- Agri. College, Jorhat.

Ref :- As. 65(43).

Type :- 'CMV'.

Object :— To study the response of three *Sali* Paddy varieties to two sources of nitrogeneous fertilizers and three different planting rates of seedlings.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) *Dhaincha*. (c) Nil. (ii) Sandy loam. (iii) 26.7.65. (iv) (a) 3 ploughings followed by laddering. (b) Transplanting. (c) —. (d) 23 cm. × 23 cm. (e) As per treatments. (v) 92 Q/ha. of F.Y.M. +22·4 Kg/ha. of P_2O_5 as Super+22·4 Kg/ha. of K_2O as Mur. Pot. (vi) As per treatments. (vii) Unirrigated. (viii) 2 weedings. (ix) 142·6 cm. (x) 14/15.12.65 and 22.12.65.

2. TREATMENTS :

Main-plot treatments :

3 varieties : V_1=*Prosadbhog*, V_2=SC. 412/125 and V_3=SC. 406 (b)/93—1.

Sub-plot treatments :

All combinations of (1) and (2),

(1) 2 sources of N at 33·6 Kg/ha. S_1=A/S and S_2=Urea.

(2) 3 seedling rates : R_1=2, R_2=4 and R_3=6 seedlings per hole.

3. DESIGN :

(i) Split-plot. (ii) (a) 3 main-plots/replication and 6 sub-plots/main-plot. (b) N.A. (iii) 3. (iv) (a) 1/588·2 ha. (b) 1/430·9 ha. (v) N.A. (vi) Yes.

4. GENERAL :

(i) Normal. (ii) Guesarol—550 sprayed during August, 1965 as a preventive against paddy caseworm and stem-borer. (iii) Grain yield. (iv) (a) No. (b) and (c) —. (v) No. (vi) N.A. (vii) Nil.

5. RESULTS :

(i) 3980 Kg/ha. (ii) (a) 514·3 Kg/ha. (b) 633·2 Kg/ha. (iii) None of the effects is significant. (iv) Av. yield of grain in Kg/ha.

	R_1	R_2	R_3	S_1	S_2	Mean
V_1	3640	3860	3930	3780	3840	3810
V_2	4310	3820	4560	4210	4250	4230
V_3	3690	4290	3720	3680	4120	3900
Mean	3880	3990	4070	3890	4070	3980
S_1	3720	3980	3970			
S_2	4040	4000	4170			

Crop :- Paddy (*Kharif*). **Ref :- As. 63(19), 64(16) and 65(11).**

Site :- Rice Exptl. Stn., Karimganj. **Type :- 'CMV'.**

Object :— To study the effect of different dates of planting under normal and heavy doses of manuring on the yield of different varieties of Paddy.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Paddy. (c) N.A. for 63 and as per treatments for others. (ii) Clayey loam (acidic). (iii) As per treatments. (iv) (a) Ploughing, laddering, and puddling etc. (b) Transplanting. (c) N.A. (d) 23 cm. × 23 cm. (e) 4. (v) N.A. (vi) As per treatments. (vii) Unirrigated. (viii) 2 weedings. (ix) 161·8 cm ; 148·3 cm. ; N.A. (x) Dec., 63 ; Dec., 64 ; Dec., 65.

2. TREATMENTS :

Main-plot treatments :

All combinations of (1) and (2).

(1) 3 dates of planting : D_1=Early planting, D_2=Normal planting and D_3=Late planting.

(2) 2 levels of manuring : F_1=44·8 Kg/ha. of N+22·4 Kg/ha. of P_2O_5+11·2 Kg/ha. of K_2O and F_2=89·6 Kg/ha. of N+67·2 Kg/ha. of P_2O_5+44·8 Kg/ha. of K_2O.

Sub-plot treatments :

6 varieties : V_1=Z×H/1—113, V_2=Z×H/1—443, V_3=Z×H/2—379, V_4=Z×H/2—381, V_5=Z×H/3—166 and V_6=Sc. 1177—6 (*Handique Sail*).

Note 1 : V_1 to V_5 are Indica × Japonica hybrids and V_6 is a Indica variety.

Note 2 : Dates of planting : D_1=5.8.63, 24.7.64 and 15.7.65, D_2=21.8.63, 23.8.64 and 14.8 65, D_3=7.9.63, 11.9.64 and 15.9.65.

Note 3 : N applied as A/S, P_2O_5 as Super and K_2O as Mur. Pot.

3. DESIGN :

(i) Split-plot. (ii) (a) 6 main-plots/replication and 6 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) and (b) 3·4 m.×2·5 m. (v) Nil. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Negligible. (iii) Grain yield. (iv) (a) 1963-65. (b) Yes. (c) Nil. (v) No. (vi) Nil. (vii) As the dates of sowing are different in various years, individual results are presented under 5. Results.

5. RESULTS :

63(19)

(i) 2697 Kg/ha. (ii) (a) 1287·4 Kg/ha. (b) 521·9 Kg/ha. (iii) Main effect of V is highly significant and V × D interaction is significant. (iv)Av. yield of grain in Kg/ha.

	V_1	V_2	V_3	V_4	V_5	V_6	F_1	F_2	Mean
D_1	3068	3100	3093	2587	1788	3156	3039	2538	2799
D_2	3083	2886	2765	2504	1633	2908	2699	2560	2630
D_3	2819	2616	2672	2714	2617	2539	2977	2348	2663
Mean	2990	2868	2843	2602	2012	2867	2905	2489	2697
F_1	3319	3048	3032	2784	2175	3075			
F_2	2660	2687	2655	2419	1850	2660			

C.D. for V marginal means =299·8 Kg/h.
C.D. for V means at the same level of D =519·2 Kg/ha.
C.D. for D means at the same level of V =732·8 Kg/ha.

64(16)

(i) 3601 Kg/ha. (ii) (a) 1036·3 Kg/ha. (b) 494·0 Kg/ha. (iii) Main effect of V is highly significant and interaction V × D is significant. (iv) Av. yield of grain in Kg/ha.

	V_1	V_2	V_3	V_4	V_5	V_6	F_1	F_2	Mean
D_1	4053	4225	3999	4018	2580	3999	3645	3979	3812
D_2	4203	3479	3559	3571	2854	3715	3664	3463	3563
D_3	3785	3556	3452	3449	2987	3337	3338	3517	3427
Mean	4014	3753	3670	3679	2807	3684	3549	3653	3601
F_1	4118	3639	3746	3689	2552	3551			
F_2	3910	3867	3593	3670	3062	3816			

C.D. for V marginal means =283·8 Kg/ha.
C.D. for V means at the same level of D =491·5 Kg/ha.
C.D. for D means at the same level of V =636·5 Kg/ha.

65(11)

(i) 2578 Kg/ha. (ii) (a) 827·0 Kg/ha. (b) 509·8 Kg/ha. (iii) Main effect of D is highly significant and interactions D×V and V×F are significant. (iv) Av. yield of grain in Kg/ha.

	V_1	V_2	V_3	V_4	V_5	V_6	F_1	F_2	Mean
D_1	3207	2901	2947	2612	2606	3015	2840	2923	2881
D_2	2932	2257	2613	2930	2777	2938	2889	2594	2741
D_3	1689	2464	2390	2615	1475	2042	2273	1952	2112
Mean	2609	2541	2650	2719	2286	2665	2667	2487	2578
F_1	2460	2842	2762	2659	2514	2765			
F_2	2759	2239	2538	2779	2025	2564			

C.D. for D marginal means = 359·7 Kg/ha.
C.D. for V marginal means at the same level of D=507·2 Kg/ha.
C.D. for D marginal means at the same level of V=585·9 Kg/ha.
C.D. for V marginal means at the same level of F=414·2 Kg/ha.
C.D. for F marginal means at the same level of V=478·3 Kg/ha.

Crop :- Paddy (*Kharif*). **Ref :- As. 63(18), 64(15) and 65(10).**

Site :- Rice Exptl. Stn., Karimganj. **Type :- 'CMV'.**

Object :— To study the effect of dates of planting and different doses of manures on the yield of two medium duration hybrid varieties of Paddy.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Paddy. (c) N.A. ; As per treatments. (ii) Clayey loam (acidic). (iii) As per treatments. (iv) (a) Ploughing, laddering, puddling, etc. (b) Transplanting. (c) N.A. (d) 23 cm.×23 cm. (e) 4. (v) N.A. (vi) As per treatments. (vii) Unirrigated. (viii) 2 weedings. (ix) 256·1 cm. ; 148·3 cm. ; N.A. (x) 1st week of Dec., 1963 ; 29.11.64 to 3.12.64 ; 30.11.65 and 3, 8.12.65.

2. TREATMENTS:

Main-plot treatments:
2 varieties : V_1=Z×H/1—443 and V_2=Z×H/1—381.

Sub-plot treatments :
4 dates of planting : D_1=15th July, D_2=30th July, D_3=15th August and D_4=30th August.

Sub-sub-plot treatments :

3 doses of manures : M_1 =44·8 Kg/ha. of N+22·4 Kg/ha. of P_2O_5+22·4 Kg/ha. of K_2O, M_2=67·2 Kg/ha. of N+33·6 Kg/ha. of P_2O_5+33·6 Kg/ha. of K_2O and M_3=89·6 Kg/ha. of N+44·8 Kg/ha. of P_2O_5+44·8 Kg/ha. K_2O.

N as A.S, P_2O_5 as Super and K_2O as Mur. Pot.

Sowing in the seed bed was done 30 days before each date of planting.

Nitrogen was applied in split doses, half dose during the final preparation of the field and the remaining half during the active stage of tillering.

3. DESIGN :

(i) Split-plot. (ii) (a) 2 main-plots/replication, 4 sub-plots/main-plot and 3 sub-sub-plots/sub-plot. (b) N.A. (iii) 3. (iv) (a) 4·8 m. × 1·5 m. (b) 4·6 m. × 1·2 m. for 1963 and 4·8 m. × 1·5 m. for others. (v) 11·4 cm. discarded alround the plot in 1963 ; Nil for others. (vi) Yes.

4 GENERAL :

(i) Good. (ii) Nil. (iii) Grain yield. (iv) (a) 1963-65. (b) Yes. (c) Nil. (v) No. (vi) Nil. (vii) Main-plot and sub-sub-plot error variances are homogeneous and sub-plot error variances are heterogeneous. Results of individual years are presented under 5-Results.

5. RESULTS:

63(18)

(i) 3562 Kg/ha. (ii) (a) 215·3 Kg/ha. (b) 735·5 Kg/ha. (c) 394·7 Kg/ha. (iii) V × D × M interaction is highly significant and main effect of V is significant. (iv) Av. yield of grain in Kg/ha.

	D_1	D_2	D_3	D_4	M_1	M_2	M_3	Mean
V_1	3936	4088	3584	3468	3637	3861	3809	3769
V_2	3512	3140	3316	3460	3421	3177	3473	3357
Mean	3724	3614	3450	3464	3529	3519	3641	3562
M_1	3528	3693	3535	3360				
M_2	3872	3623	3319	3262				
M_3	3732	3526	3496	3770				

C.D. for V marginal means=218·4 Kg/ha.

64(15)

(i) 3902 Kg/ha. (ii) (a) 353·7 Kg/ha. (b) 556·3 Kg/ha. (c) 468·3 Kg/ha. (iii) Only the main effect of D is significant. (iv) Av. yield of grain in Kg/ha.

	D_1	D_2	D_3	D_4	M_1	M_2	M_3	Mean
V_1	4169	4222	3437	3396	3652	3751	4015	3806
V_2	4369	4196	3907	3520	3858	4093	4043	3998
Mean	4269	4209	3672	3458	3755	3922	4029	3902
M_1	4109	4222	3433	3256				
M_2	4509	4150	3613	3416				
M_3	4189	4255	3970	3702				

C.D. for D marginal means=404·0 Kg/ha.

65(10)

(i) 2741 Kg/ha. (ii) (a) 431·0 Kg/ha. (b) 217.3 Kg/ha. (c) 353·7 Kg/ha (iii) Only the main effect of D is significant. (iv) Av. yield of grain in Kg/ha.

	D_1	D_2	D_3	D_4	M_1	M_2	M_3	Mean
V_1	2816	2458	2863	2775	2769	2633	2782	2728
V_2	2964	2500	2885	2667	2881	2827	2554	2754
Mean	2890	2479	2874	2721	2825	2730	2668	2741
M_1	2957	2551	2966	2826				
M_2	2776	2447	2855	2842				
M_3	2937	2439	2801	2495				

C.D. for D marginal means=157·9 Kg/ha.

Crop :- Paddy (*Kharif*). **Ref :- As. 65(13).**

Site :- Rice Exptl. Stn., Karimganj. **Type :- 'CMV'.**

Opject :— To study the effect of methods of planting and different fertilizer doses on the yield of different varieties of *Aus* Paddy.

1. BASAL CONDITIONS :

(i) (a) Nil. (p) Paddy. (c) N.A. (ii) Clayey loam (acidic). (iii) M_1 and M_3 on 20.5.65 and M_2 on 10, 11.6.65. (iv) (a) Ploughing, laddering, puddling, etc. (b) As per treatments. (c) N.A. (d) 23 cm.×23 cm. for M_2 and 15 cm. between rows for M_1. (e) 1 for M_2. (v) Nil. (vi) As per treatments. (vii) Un-irrigated. (viii) One weeding. (ix) N.A. (x) 22 to 25.8.65.

2. TREATMENTS :

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

(1) 3 varieties : V_1=C. 203—3 (*Chengri*), V_2=M. 142 (*Koimurali*) and V_3=*Dular*.

(2) 3 methods of planting : M_1=Line sowing, M_2=Transplanting and M_3=Broadcasting.

(3) 3 doses of fertilizer : F_1=44·8 Kg/ha. of N+22·4 Kg/ha. of P_2O_5+22·4 Kg/ha. of K_2O, F_2=67·2 Kg/ha. of N+33·6 Kg/ha. of P_2O_5+33·6 Kg/ha. of K_2O and F_3=2×F_1.

Form of fertilizers : N as A/S, P_2O_5 as Super and K_2O as Mur. Pot.

Method of application of fertilizers: 1/2 N, P_2O_5 and K_2O applied as basal dressing, and 1/2 N as top dressing.

3. DESIGN :

3^3 confd. (ii) (a) 9 plots/block and 3 blocks/replication. (b) N.A. (iii) 2. (iv) (a) N.A. (b) 6·4 m.×6·1 m. (v) N.A. (vi) Yes.

4. GENERAL :

(i) Good. (ii) N.A. (iii) Grain yield. (iv) (a) No. (b) and (c) —. (v) No. (vi) N.A. (vii) As the supply of V_3 was very limited, the spacing for transplanting was increased to 23 cm.×23 cm. instead of the usual 15 cm.×15 cm.

5. RESULTS :

(1) 1838 Kg/ha. (ii) 270·4 Kg/ha. (iii) Main effect of V and interaction V×F are significant. (iv) Av. yield of grain in Kg/ha.

	F_1	F_2	F_3	M_1	M_2	M_3	Mean
V_1	2060	2036	1796	2081	1942	1869	1964
V_2	1890	2074	2361	2145	2181	1999	2108
V_3	1388	1356	1582	1416	1466	1444	1442
Mean	1779	1822	1913	1881	1863	1771	1838
M_1	1824	1879	1939				
M_2	1757	1883	1949				
M_3	1757	1704	1851				

C.D. for V marginal means =186·9 Kg/ha.
C.D. for means in V × F table=323·8 Kg/ha.

Crop :- Paddy (*Kharif*) **Ref :- As. 65(14)**

Site :- Rice Res. Stn., Titabar. **Type :- 'CMV'.**

Object :—To study the effect of different methods of planting and different levels of fertilizers on the yield of different varieties of *Ahu* Paddy.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Paddy. (c) N.A. (ii) Heavy clayey loam. (iii) 1.5.65. (iv) (a) 3—4 ploughings. (b) As per treatments. (c) 30 Kg/ha. for M_2, 25 Kg/ha. for M_1 and 5 Kg/ha. for M_3. (d) 15 cm. × 15 cm. for M_3, Rows 15 cm. apart for M_1 (e) 3—4 for Transplanting. (v) Nil. (vi) As per treatments. (vii) Unirrigated. (viii) One weeding. (ix) N.A. (x) 2, 12 and 16.7.65.

2. TREATMENTS :

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

(1) 3 varieties : V_1=C.H. 63, V_2=*Dular* and V_3=*Rangadoria*.

(2) 3 methods of planting : M_1=Line sowing, M_2=Broadcasting and M_3=Transplanting.

(3) 3 levels of fertilizers : F_1=44·8 Kg/ha. of N+22·4 Kg/ha. of P_2O_5+22·4 Kg/ha. of K_2O, F_2=67·2 Kg/ha. of N+33·6 Kg/ha. of P_2O_5+33·6 Kg/ha. of K_2O and F_3=2 × F_1.

Forms of Fertilizers : N as A/S, P_2O_5 as Super. and K_2O as Mur. Pot.

Time of application : N, P and K applied before sowing.

3. DESIGN:

(i) 3^3 confd. (ii) (a) 9 plots/block and 3 blocks/replication. (b) N.A. (iii) 2. (iv) (a) N.A. (b) 4·0 m. × 1·5 m. (v) N.A. (vi) Yes.

4. GENERAL :

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

5. RESULTS :

(i) 2784 Kg/ha. (ii) 3266·7 Kg/ha. (iii) None of the effects is significant. (iv) Av. yield of grain in Kg/ha.

	M_1	M_2	M_3	F_1	F_2	F_3	Mean
V_1	3695	3805	3417	3361	3583	3972	3639
V_2	1972	2028	2889	2167	2444	2279	2296
V_3	1889	2389	2927	2472	2194	2583	2417
Mean	2519	2741	3093	2667	2740	2945	2784
F_1	2500	2806	2694				
F_2	2556	2222	3444				
F_3	2500	3194	3139				

Crop :- Paddy (*Kharif*) **Ref :- As. 64(6)**

Site :- Rice Res. Stn., Titabar **Type :- 'CMV'.**

Object :—To study the effect of A/S at different levels on the yield of different varieties of *Sali* Paddy planted on different dates.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) *Ahu* Paddy. (c) N.A. (ii) Heavy clayey loam. (iii) As per treatments. (iv) (a) 3—4 ploughings. (b) Transplanting. (c) N.A. (d) 23 cm.×23 cm. (e) 3 to 4. (v) N.A. (vi) As per treatments. (vii) Unirrigated. (viii) 3—4 weedings. (ix) 121·3 cm. (x) December, 1964.

2. TREATMENTS :

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

(1) 3 levels of N as A/S : N_0=0, N_1=22·4 and N_2=44·8 Kg/ha.

(2) 3 dates of planting : D_1=2 weeks before Normal date of planting i.e. on 10.7.64. D_2=Normal date of planting i.e. on 25.7.64. and D_3=3 weeks after normal date of planting i.e. on 18.8.64.

(3) 3 varieties : V_1=Local *Gazep*, V_2=Improved *Prosadbhog* and V_3=Improved *Ahom Sali*.

3. DESIGN :

(i) 3^3 Partially confd. (ii) (a) 9 plots/block and 3 block/replication. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 9.0 m.×4.5 m. (v) N.A. (vi) Yes.

4. GENERAL :

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

5. RESULTS :

(i) 4280 Kg/ha. (ii) 447·1 Kg/ha. (iii) Main effects of V and D are highly significant. (iv) Av. yield of grain in Kg/ha.

	V_1	V_2	V_3	D_1	D_2	D_3	Mean
N_0	3974	4197	4555	4474	4357	3895	4242
N_1	4012	4214	4557	4552	4207	4024	4261
N_2	4195	4345	4470	4687	4295	4029	4337
Mean	4060	4252	4527	4571	4286	3983	4280
D_1	4262	4466	4985				
D_2	4198	4141	4519				
D_3	3720	4150	4078				

C.D. for V or D marginal means=208·3 Kg/ha.

Crop :- Paddy (*Kharif*) **Ref :- As. 65(25)**

Site :- Rice Res. Stn., Titabar. **Type :- 'D'.**

Object :--To study the effect of methods of planting and weedicides on the yield of *Sali* Paddy.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) *Ahu* Paddy. (c) N A. (ii) Heavy clayey loam. (iii) 5.8.65. (iv) (a) 3 - 4 ploughings. (b) As per treatments. (c) N A (d) Rows 25 cm. apart for M_1 and 25 cm. × 25 cm. for M_2. (v) 33·6 Kg/ha. of N as A.S+22·4 Kg/ha. of P_2O_5 as Super. and 16·8 Kg/ha. of K_2O as Mur. Pot. (vi) *Prosadbhog*. (vii) Unirrigated. (viii) Nil. (ix) N.A. (x) 2,12.65.

2 TREATMENTS :

Main-plot treatments:

2 methods of planting : M_1 = Direct sowing in lines and M_2 = Transplanting

Sub-plot treatments:

6 weedicides : W_0 = Control, W_1 = 9·9 litres/ha. of Stam. F—34, W_2 = 1·4 Kg ha. of 2,4 —D, W_3 = $W_1 + W_2$, W_4 = 37·1 Kg/ha. of TOK granular and W_5 = $W_1 + W_4$.

3 DESIGN

(i) Split-plot. (ii) (a) 2 main-plots replication and 6 sub-plots/main-plot. (b) 20·0 m. × 21·0 m. (iii) 3 (iv) (a) 10·0 m. × 3·5 m. (b) 9·50 m. × 3·0 m. (v) 0·3 m. discarded alround. (vi) Yes.

4. GENERAL :

(i) Normal. (ii) N A. (iii) Grain yield. (iv) (a) 1965—67. (b) Yes. (c) Nil (v) No. (vi) N.A. (vii) Nil.

5. RESULTS :

(i) 2836 Kg/ha. (ii) (a) 498·5 Kg/ha. (b) 595·6 Kg/ha. (iii) None of the effects is significant. (iv) Av. yield of grain in Kg/ha.

	W_0	W_1	W_2	W_3	W_4	W_5	Mean
M_1	3130	3204	2074	2381	2842	2842	2746
M_2	2448	2976	2362	3322	3630	2822	2927
Mean	2789	3090	2218	2851	3236	2832	2836

Crop :- Maize (*Kharif*). **Ref :- As. 64(24).**

Site :- Exptl. Res. Stn., Upper Shillong. **Type :- 'M'.**

Object :—To study the effect of different doses of Nitrogen on the yield of Maize.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) and (c) N.A. (ii) Sandy loam. (iii) 22 4.64. (iv) (a) Ploughing followed by laddering. (b) Line sowing. (c) N A. (d) Rows 76 cm. apart and plants 30 cm. apart. (e) —. (v) 184·5 Q/ha. of Cowdung. (vi) Local white. (vii) Unirrigated. (viii) Hand weeding. (ix) N.A. (x) 7.10.64.

2. TREATMENTS :

4 levels of N as A.S : N_0=0, N_1=44·8, N_2=67·2 and N_3=89·6 Kg/ha.

3 DESIGN :

(i) Latin Sq. (ii) (a) 4. (b) N.A. (iii) 4. (iv) (a) 12·5 m. × 15·5 m. (b) 12·2 m. × 15·2 m. (v) 15 cm. discarded alround. (vi) Yes.

4. GENERAL :

(i) Normal. (ii) Nil. (iii) Yield of maize. (iv) (a) 1963—64. (b) No. (c) Nil. (v) No. (vi) Nil. (vii) Data of 1963 were not available.

5. RESULTS :

(i) 942 Kg/ha. (ii) 59·2 Kg/ha. (iii) Treatment differences are significant. (iv) Av. yield of grain in Kg/ha.

Treatment	N_0	N_1	N_2	N_3
Av. yield	834	982	924	1027

C.D.=102·4 Kg/ha.

Crop :- Maize (*Kharif*). **Ref :- As. 64(25).**

Site :- Exptl. Res. Stn., Upper Shillong. **Type :- 'M'.**

Object :—To study the effect of different doses of fertilizers on the yield of Maize.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Maize. (c) 184·5 Q/ha. of F.Y.M. (ii) Sandy loam. (iii) 9.4.64. (iv) (a) Ploughings followed by laddering. (b) Line sowing. (c) N.A. (d) Rows 76 cm. apart and plants 30 cm. apart. (e) —. (v) 184·5 Q/ha. of Cowdung. (vi) Ganga—101. (vii) Unirrigated. (viii) Hand weeding. (ix) N.A. (x) 20.10.64.

2. TREATMENTS :

4 manurial treatments : T_0=Control, T_1=89·6 Kg/ha. of N+44·8 Kg/ha. of P_2O_5+44·8 Kg/ha. of K_2O, T_2=112 Kg/ha. of N+67·2 Kg/ha. of P_2O_5+67·2 Kg/ha. of K_2O and T_3=134·4 Kg/ha. of N+89·6 Kg/ha. of P_2O_5+89 6 Kg/ha. of K_2O.

N as A/S, P_2O_5 as Super and K_2O as Mur. Pot.

3. DESIGN :

(i) Latin Sq. (ii) (a) 4. (b) N.A. (iii) 4. (iv) (a) 15·5 m.×15.5 m. (b) 15·2 m.×15·2 m. (v) 15 cm. discarded alround. (vi) Yes.

4. GENERAL :

(i) Normal. (ii) Nil. (iii) Yield of maize. (iv) (a) 1963—64. (b) No. (c) Nil. (v) No. (vi) Nil. (vii) Data of 1963 were not available.

5. RESULTS:

(i) 1211 Kg/ha. (ii) 45·2 Kg/ha. (iii) Treatment differences are highly significant. (iv) Av. yield of grain in Kg/ha.

Treatment	T_0	T_1	T_2	T_3
Av. yield	578	1523	1175	1567

C.D.=78·2 Kg/ha.

Crop :- Maize (*Kharif*). **Ref :- As. 65(33).**

Site :- Exptl. Res. Stn., Upper Shillong. **Type :- 'MV'.**

Object :—To study the effect of different doses of Nitrogen on the yield of different varieties of Maize.

1. BASAL CONDITIONS :

(i) (a) to (c) Nil. (ii) Sandy loam. (iii) 10.4.65. (iv) (a) Ploughing followed by ladderig. (b) Line sowing. (c) N.A. (d) Rows 76 cm. apart and plants 30 cm. apart. (e) —. (v) 185·5 Q/ha. of Cowdung+67·2 Kg/ha. of P_2O_5 as Super+44·8 Kg/ha. of K_2O as Mur. Pot. (vi) As per treatments. (vii) Unirrigated. (viii) Hand weeding. (ix) N.A. (x) 15.10.65.

2. TREATMENTS:

All combinations of (1) and (2) :

(1) 2 varieties : V_1=Ganga—101 and V_2=Local white.

(2) 4 levels of N as A/S : N_0=0, N_1=44·8, N_2=89 6 and N_3=134·4 Kg/ha.

3. DESIGN :

(i) 4×2 Fact. in R.B.D. (ii) (a) 8. (b) N.A. (iii) 3. (iv) (a) 4·9 m.×3·3 m. (b) 4·6 m.×3·1 m. (v) 15 cm. discarded alround. (vi) Yes.

4. GENERAL :

(i) Normal. (ii) Nil. (iii) Yield of maize. (iv) (a) 1965—66. (b) No. (c) Nil. (v) No. (vi) Nil. (vii) Expt. failed in 1966.

5. RESULTS :

(i) 293 Kg/ha. (ii) 645·0 Kg/ha. (iii) Main effects of N and V are highly significant. (iv) Av. yield of grain in Kg/ha.

	N_0	N_1	N_2	N_3	Mean
V_1	2033	2631	2751	2512	2482
V_2	1674	4066	4066	3708	3379
Mean	1854	3349	3409	3110	2930

C.D. for N marginal means=798·7 Kg/ha.

C.D. for V marginal means=564·8 Kg/ha.

Crop :- Maize (*Kharif*). **Ref :- As. 65(34),**

Site :- Exptl. Res. Stn., Upper Shillong. **Type :- 'CMV'.**

Object :—To study the effect of different fertiliser doses with different spacing on the yield of two varieties of Maize.

1. BASAL CONDITIONS :

(i) (a) to (c) Nil. (ii) Sandy loam. (iii) 9.4.65. (iv) (a) Ploughing followed by laddering. (b) Line sowing. (c) N.A. (d) 75 cm. between rows and 30 cm. between plants. (e) —. (v) 92·2 Q/ha. of Cowdung. (vi) As per treatments. (vii) Unirrigated (viii) Hand weeding. (ix) N.A. (x) 15.10.65.

2. TREATMENTS :

Main-plot treatments :

2 varieties : V_1=Ganga and V_2=Local white.

Sub-plot treatments :

All combinations of (1) and (2)

3 fertiliser levels : F_1=89 6 Kg/ha. of N as A/S+67·2 Kg/ha. of P_2O_5 as Super+44·8 Kg/ha. of K_2O as Mur. Pot., F_2=112·0 Kg/ha. of N as A/S+89·6 Kg/ha. of P_2O_5 as Super+56·0 Kg/ha. of K_2O as Mur. Pot. and F_3=134·4 Kg/ha. of N as A/S +89·6 Kg/ha. of P_2O_5 as Super+67·2 Kg/ha. of K_2O as Mur. Pot.

(2) 4 spacings : S_1=30 cm.×61 cm., S_3=30 cm.×76 cm., S_2=30 cm.×91 cm. and, S_4=30 cm. ×107 cm.

3. DESIGN :

(i) Split-plot. (ii) (a) 2 main-plots/replication and 12 sub-plots/main-plot. (b) N.A. (iii) 3. (iv) (a) 4·9 m.×3·4 m. (b) 4·6 m.×3·1 m. (v) 15 cm. discarded alround. (vi) Yes.

4. GENERAL:

(i) Normal. (ii) Nil. (iii) Yield of grain. (iv) (a) 1965—66. (b) No. (c) Nil. (v) No. (vi) N.A. (vii) Nil.

5. RESULTS:

(i) 2085 Kglha. (ii) (a) 214·7 Kg/ha. (b) 313·5 Kg/ha. (iii) Only the main effect of S is significant. (iv) Av. yield of grain in Kg/ha.

	F_1	F_2	F_3	S_1	S_2	S_3	S_4	Mean
V_1	1948	2160	1989	1980	2172	2124	1854	2032
V_2	2189	2006	2217	1994	2282	2276	1998	2138
Mean	2068	2083	2103	1987	2227	2200	1926	2085
S_1	1922	1922	2118					
S_2	2220	2208	2253					
S_3	2044	2411	2146					
S_4	2088	1793	1897					

C.D. for S marginal means=210·9 Kg/ha.

Crop :- Arhar (*Kharif*). **Ref :- As. 64(2).**

Site :- Pulse and Oilseeds Res. Stn., Roha. **Type :- 'C'.**

Object :— To study the effect of different dates of sowing and spacings on the yield of Arhar.

1. BASAL CONDITIONS :

(i) Nil. (ii) N.A. (iii) As per treatments. (iv) (a) 3—4 ploughings. (b) As per treatments. (c) 14·8 Kg/ha. in S_0. (d) As per treatments. (e) 1. (v) 185 Q/ha. of Cowdung. (vi) T—1. (vi) Unirrigated. (vii) 3 hand weedings and hoeings. (ix) and (x) N.A.

2. TREATMENTS:

Main-plot treatments :

4 dates of sowing : 31st May, T_2=15th June, T_3=30th June and T_4=15th July.

Sub-plot treatments :

4 spacings : S_0=Broadcasting, S_1=61 cm.×61 cm., S_2=91 cm.×61 cm. and S_3=91 cm.×91 cm.

3. DESIGN :

(i) Split-plot. (ii) 4 main-plots/replication and 4 sub-plots/main-plot. (b) 73·2 m.×73·2 m. (iii) 4. (iv) (a) 4·6 m.×4·6 m. (b) 4·6 m.×3·7 m. (v) Two rows on either side. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of grain. (iv) (a) 1964—65. (b) No. (c) —. (v) No. (vi) Nil. (vii) Expt. modified in 1965.

5. RESULTS :

(i) 1150 Kg/ha. (ii) (a) 408·4 Kg/ha. (b) 107·0 Kg/ha. (iii) Main effects of T and S are significant. (iv) Av. yield of grain in Kg/ha.

	T_1	T_2	T_3	T_4	Mean
S_0	4446	1313	1270	747	1199
S_1	1473	1540	1312	770	1274
S_2	1265	1323	1178	728	1124
S_3	1175	1027	1136	679	1004
Mean	1341	1306	1124	731	1150

C.D. for S marginal means=76·8 Kg/ha.
C.D. for T marginal means=526·4 Kg/ha.

Crop :- Arhar (*Kharif*). **Ref :- As. 65(3).**

Site :- Pulse and Oilseeds Res. Stn., Roha. **Type :- 'C'.**

Object :—To study the effect of different dates of sowing and differemt spacings on the yield of Arhar.

1. BASAL CONDITIONS :

(i) (a) N.I. (ii) N.A. (iii) As per treatments. (iv) (a) 5—6 ploughings. (b) As per treatments. (c) N A (d) As per treatments. (e) 4-5 seeds. (v) 184·5 Q/ha. of Cowdung. (vi) T-1. (vii) Unirrigated. (viii) Only hand weeding, hoeing and earthing up. (ix) and (x) N A.

2. TREATMENTS :

Main-plot treatments :

4 dates of sowing : T_1=15th June, T_2=30th June, T_3=15th July and T_4=30th July.

Sub-plot treatments :

4 spacings : S_0=Broadcasting, S_1=80 cm. × 80 cm., S_2=100 cm. × 80 cm. and S_3=100 cm. × 100 cm.

3. DESIGN :

(i) Split-plot. (ii) (a) 4 main-plots/replication and 4 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 5 m. × 4 m. (v) Two rows on either side. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of grain. (iv) (a) 1964—65. (b) No. (c) —. (v) No. (vi) Nil. (vii) Expt. conducted in modified form in 1964.

5. RESULTS :

(i) 280 Kg/ha. (ii) (a) 19.9 Kg/ha. (b) 16·2 Kg/ha. (iii) None of the effects is significant. (iv) Av. yield of grain in Kg/ha.

	S_0	S_1	S_2	S_3	Mean
T_1	275	279	293	272	280
T_2	284	272	279	290	281
T_3	286	276	244	264	268
T_4	294	294	285	284	289
Mean	285	280	275	278	280

Crop :- Matikalai (*Rabi*). **Ref :- As. 60(2), 61(2) and 62(2).**

Site :- Seed Farm, Barpeta. **Type :- 'M'.**

Object :—To study the effect of N and P on the yield of Paddy.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) and (c) N.A. (ii) N.A. (iii) 23.9.60, 23.9.61, Sept., 1962. (iv) (a) 3-4 ploughings. (b) Broadcasting. (c) 11·2 Kg/ha. (d) and (e) —. (v) As per treatments (vi) MK—18, (vii) Unirrigated. (viii) Hand weeding. (ix) N.A. (x) In January of 1961, 1962 and 1963.

2. TREATMENTS :

All combinations of (1) and (2)

(1) 2 levels of N as A/S : N_0=0 and N_1=22·4 K/ha. of N.

(2) 2 levels of P_2O_5 as Super : P_0=0 and P_1=22·4 Kg/ha. P_2O_5.

Manure applied before sowing.

3. DESIGN :

(i) Fact. in R.B.D. (ii) (a) 4. (b) N.A. (iii) 4 for 1960 and 1961 ; 3 for 1962. (iv) (a) N.A. (b) 3·1 m.× 3·1 m. (v) N.A. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of grain. (iv) (a) 1960—62. (b) N.A. (c) Results of combined analysis are given under 5. Results. (v) No. (vi) N.A. (vii) Error variances are heterogeneous and Treatments × years interaction is present.

5. RESULTS :

Pooled results

(i) 801 Kg/ha. (ii) 270·8 Kg/ha. (based on 6 d.f. made up of Treatments × years interaction). (iii) None of the effects is significant. (iv) Av. yield of grain in Kg/ha.

	N_0	N_1	Mean
P_0	878	818	848
P_1	752	758	755
Mean	815	788	801

Years	N_0	N_1	Sig.	P_0	P_1	Sig.	G.M.	S.E./plot
1960	652	828	N.S.	852	628	N.S.	740	145·1
1961	902	720	N.S.	860	762	N.S.	811	419·1
1962	916	829	N.S.	828	916	N.S.	872	89·6
Pooled	815	788	N.S.	848	755	N.S.	801	270·8

Crop :- Matikalai (*Rabi*). **Ref :- As. 65(2).**

Site :- Pulse and Oilseed Res. Stn., Roha. **Type :- 'M'.**

Object :—To study the effect of different doses of N, P and K in combination on the yield of Matikalai.

1. BASAL CONDITIONS :

(i) Nil. (ii) N.A. (iii) 22.10.65. (iv) (a) 3-4 ploughings. (b) Broadcasting. (c) 13 Kg/ha. (d) and (e) —. (v) N.A. (vi) MK—18. (vii) Unirrigated. (viii) Hand weeding. (ix) and (x) N.A.

2. TREATMENTS :

All combinations of (1) and (2) with a control (no fertilizer)

(1) 3 levels of N as A/S : N_0 =0, N_1=11·2 and N_2=22·4 Kg/ha.

(2) 3 levels of P and K : L_1 22·4 Kg/ha. of P_2O_5 + 22·4 Kg/ha. of K_2O, L_2 2 × L_1 and L_3=3 L_1. P_2O_5 as Super and K_2O as Mur. Pot..

3. DESIGN :

(i) R.B.D. (ii) (a) 10. (b) N.A. (iii) 6. (iv) (a) N.A. (b) 8 m. × 5 m. (v) N.A. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of grain. (iv) (a) 1964-65. (b) No. (c) Nil. (v) No. (vi) Nil. (vii) Data for 1964 not available.

5. RESULTS :

(i) 368 Kg/ha. (ii) 24·1 Kg/ha. (iii) Main effect of L is significant. (iv) Av. yield of grain in Kg/ha.

Control=384 Kg/ha.

	L_1	L_2	L_3	Mean
N_0	332	336	382	350
N_1	336	408	393	379
N_2	310	384	414	369
Mean	326	376	396	366

C.D. for L marginal means=16·1 Kg/ha.

Crop :- Mung (*Rabi*). **Ref :- As. 62(1).**

Site :- Pulse and Oilseed Res. Stn., Roha. **Type :- 'M'.**

Object. -To study the effect of different doses of A/S and Super on the yield of Mung.

1. BASAL CONDITIONS :

(i) Nil (ii) N.A. (iii) 30.9.62. (iv) (a) 3-4 ploughings. (b) Broadcasting. (c) 11·2 Kg/ha. (d) and (e) – (v) N.A. (vi) Mg. –51 (vii) Unirrigated. (viii) Hand weeding. (ix) and (x) N.A.

2. TREATMENTS :

All combinations of (1) and (2)

(1) 2 levels of N as A/S : N_0=0 and N_1=22·4 Kg/ha.

(2) 2 levels of P_2O_5 as Super : P_0=0 and P_1=22·4 Kg/ha.

A/S and Super applied as basal dressing before sowing.

3. DESIGN :

(i) Fact in R.B.D. (ii) (a) 4. (b) 14·6 m. × 14·6 m. (iii) 3. (iv) (a) 3·7 m. × 3·7 m. (b) 3·1 m. × 3·1 m (v) 30 cm. discarded alround. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of grain. (iv) 1960-62. (b) No. (c) Nil. (v) No. (vi) Nil. (vii) Expt. failed in 1960 and 1961

5. RESULTS :

(i) 933 Kg/ha. (ii) 100·8 Kg/ha (iii) Main effect of P and interaction N × P are significant. (iv) Av. yield of grain in Kg/ha.

	P_0	P_1	Mean
N_0	742	1103	922
N_1	774	1113	944
Mean	758	1108	933

C.D. for P marginal means =142·4 Kg/ha.
C.D. for means in the body of the table=201·4 Kg/ha.

Crop :- Mung (*Rabi*). **Ref :- As. 64(1) and 65(1).**

Site :- Pulse and Oilseed Res. Stn., Roha. **Type :- 'M'.**

Object : -To study the effect of different combinations of P and K on yield of Mung.

1. BASAL CONDITIONS :

(i) Nil. (ii) N.A. (iii) N.A., 21.10.65. (iv) (a) 3-5 ploughings. (b) Broadcasting. (c) 11·2 Kg/ha. (d) and (e) —. (v) N.A. (vi) Mg.—51. (vii) Unirrigated. (viii) N.A., 1 weeding. (ix) and (x) N.A.

2. TREATMENTS :

All combinations of (1) and (2) with control
(1) 3 levels of P_2O_5 as Super : P_1=22·4, P_2=44·8 and P_3=67·2 Kg/ha.
(2) 3 levels of K_2O as Mur. Pot. : K_1=22·4, K_2=44·8 and K_3=67·2 Kg/ha.

3. DESIGN :

(i) Fact. in R.B.D. (ii) (a) 10. (b) N.A. (iii) 6. (iv) (a) N.A. (b) 4·6 m.×3·7 for 64 ; 5·0 m.×5·0 m. for 65. (v) N.A. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of grain. (iv) (a) 1964-65. (b) No. (c) Results of combined analysis are given under 5. Results. (v) No. (vi) Nil. (vii) Error variances are heterogeneous and Treatments×years interaction is present.

5. RESULTS :

Pooled results

(i) 494 Kg/ha. (ii) 65·5 Kg/ha. (based on 9 d.f. made up of Treatments×years interaction). (iii) Main effect of P and control vs. others are highly significant and interaction P×K is significant. (iv) Av. yield of grain in Kg/ha.

Control=434 Kg/ha.

	K_1	K_2	K_3	Mean
P_1	391	454	458	434
P_2	570	523	512	535
P_3	588	520	489	532
Mean	516	499	486	500

C.D. for P marginal means =34·9 Kg/ha.
C.D. for the body of the table =60·4 Kg/ha.
C.D. for control mean vs. mean of other treatments=45·1 Kg/ha.

Individual results

Years	P_1	P_2	P_3	Sig.	K_1	K_2	K_3	Sig.	Control	Sig.	G.M	S E. p ot
1964	208	315	290	**	302	260	250	N.S.	183	**	262	18·7
1965	661	755	775	**	730	737	723	N.S.	685	*	726	27·6
Pooled	434	535	532	**	516	499	486	N.S.	434	**	494	65·4

Crop :- Mung (*Rabi*). **Ref :- As 63(1).**

Site :- Pulse and Oilseed Res. Stn., Roha. **Type :- C.**

Object :- To study the effect of different spacings taking broadcasting as standard on the yield of Mung.

1 BASAL CONDITIONS·

(i) Nil. (ii) and (iii) N.A. (iv) (a) Ploughing 4—5 times. (b) As per treatments. (c) 16·8 Kg/ha. (d) As per treatments. (e) 4. (v) 184·5 Q/ha. of Cowdung (vi) Mg.—51. (vii) Unirrigated. (viii) Weeding. (ix) and (x) N.A

2. TREATMENTS :

4 plant to plant spacings : T_1=Broadcasting, T_2=Line sowing with plants 15 cm. apart, T_3 =Line sowing with plants 20 cm. apart and T_4=Line sowing with plants 25 cm. apart.

3. DESIGN :

(i) R.B.D. (ii) (a) 4. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 3·1 m. × 3.1 m. (v) N.A. (vi) Yes.

4. GENERAL:

(i) and (ii) N.A. (iii) Yield of grain. (iv) (a) 1963—Only. (b) and (c) — (v) No. (vi) and (vii) Nil.

5. RESULTS:

(i) 212 Kg/ha. (ii) 24·3 Kg/ha. (iii) Treatment differences are significant. (iv) Av. yield of grain in Kg/ha.

Treatments	T_1	T_2	T_3	T_4
Av. yield	267	255	194	130

C.D.=38·9 Kg/ha.

Crop :- Potato (*Rabi*). **Ref :- As. 63(40).**

Site :- Agri. College, Jorhat. **Type :- 'CMV'.**

Object :—To study the effect of dates of planting and levels of N on the growth and yield of different varieties of Potato.

1. BASAL CONDITIONS :

(i) (a) Nil (b) *Dhaincha*. (c) Nil. (ii) Sandy loam. (iii) As per treatments. (iv) (a) Ploughing followed by harrowing and laddering. (b) Planted in furrows. (c) N.A. (d) Rows 61 cm. apart. (e) 1 tuber. (v) 10 Kg. of F.Y.M. per furrow. (vi) As per treatments. (vii) Unirrigated. (viii) 2 earthings. (ix) 13·7 cm. (x) 24, 25.1.64.

2. TREATMENTS :

Main-plot treatments :

2 varieties : V_1=Kufri red and V_2=Up-to-date.

Sub-plot treatments :

All combinations of (1) and (2)

(1) 3 levels of N as A/S : N_0=0, N_1=67·2 and N_2=134·4 Kg/ha.

(2) 3 dates of planting : D_1=15.10.63, D_2=30.10.63 and D_3=14.11.63.

3. DESIGN :

(i) Split-plot. (ii) (a) 2 main-plots/rep. and 9 sub-plots/main-plot. (b) N.A. (iii) 3. (iv) (a) 9·0 m.× 3·6 m. (b) 9·0 m.×3·6 m. (v) Nil. (vi) Yes.

4. GENERAL :

(i) Good. (ii) N.A. (ii) Yield of potato tuber. (iv) (a) No. (b) and (c) —. (v) No. (vi) N.A. (vii) Nil.

5. RESULTS :

(i) 7242 Kg/ha. (ii) (a) 929·3 Kg/ha. (b) 1402·2 Kg/ha. (iii) Main effects of D and N and interaction V×D are highly significant. Main effect of V and interaction D×N are significant. (iv) Av. yield of tubers in Kg/ha.

	D_1	D_2	D_3	V_1	V_2	Mean
N_0	7252	7727	3841	5315	7225	6270
N_1	9790	10950	3321	6910	9130	8020
N_2	9493	9293	3522	6633	8239	7436
Mean	8845	9320	3561	6286	8198	7242
V_1	7647	7412	3799			
V_2	10043	11228	3324			

C.D. for V marginal means =1539 Kg/ha.
C.D. for D or N marginal means =953 Kg/ha.
C.D. for D means at the same level of V=1347 Kg/ha.
C.D. for V means at the same level of D=1031 Kg/ha.
C.D. for means of D×N table =1650 Kg/ha.

Crop :- Sugarcane. **Ref :- As. 59(62), 61(8) 62(9) and 63(9).**

Site :- Sugarcane Res. Stn., Buralikson. **Type :- 'M'.**

Object : —To study the effect of different levels of P with different sources of N under limed and unlimed conditions.

1. BASAL CONDITIONS :

(i) (a) Nil in 1961 ; Sugarcane—Ratoon—Fallow for others. (b) Fallow. (c) Nil. (ii) Sandy loam. (iii) 31.3.61 to 6.4.61, 24.4.62 to 2.5.62, 4.4.63 to 6.4.63. (iv) (a) 1 ploughing followed by 2 harrowings. (b) Planted in 23 cm. deep trenches. (c) N.A. (d) Rows 1·2 m. apart. (e) —. (v) N.A. (vi) Co.--419 (late). (vii) Unirrigated. (viii) 2 weedings and 2 earthings. (ix) 2·0 cm.; N.A. ; 2·2 cm. (x) 20.4.62 to 23.4.62 ; 15.4.63 to 23.4.63 ; 13.3.64 to 19.3.64.

2. TREATMENTS :

Main-plot treatments :

2 levels of slacked lime L_0=0 and L_1=11·1 Q/ha.

Sub-plot treatments :

All combination of (1) and (2)

(1) 2 sources of N @ 179·2 Kg ha. of N : S_1=F.Y.M. and S_2=A/S.

(2) 3 levels of P_2O_5 Super P : 0, P_1=67·2 and P_2=134·4 Kg/ha.

Time of application :

Lime was applied on 23.2.61 ; 10.4.62 ; 3.3.63.

F.Y.M. was applied from 16.3.61 to 25.3.61 ; 27.4.62 to 2.5.62 ; 15.3.63 to 18.3.63.

A/S was applied from 25.3.61 to 26.3.61 ; 23.4.62 to 25.4.62 ; 4.4.63.

Super was applied from 16.3.61 to 19.3.61 ; 20.4.62 to 25.4.62 ; 4.4.63.

3. DESIGN :

(i) Split-plot. (ii) (a) 2 main-plots/rep. and 6 sub-plots/main-plot (b) 29·9 m. × 58·5 m. (iii) 4. (iv) (a) 14·9 m. × 9·8 m. (b) 13·7 m. × 7·3 m. (v) One row on either side and 61 cm. at each end. (vi) Yes.

4. GENERAL :

(i) Fair. (ii) N.A. (iii) Yield of sugarcane. (iv) (a) 1959–63. (b) No. (c) Results of combined analysis are given under 5. Results. (v) No. (vi) N.A. Results for 1960 were not available. The results for 1959 have been taken into consideration for pooling the results. (vii) Main-plot and sub-plot error variances are homogeneous and main and sub-plot Treatments × years interaction is absent.

5. RESULTS :

Pooled results

(i) 397·4 Q ha. (ii) (a) 128·5 Q ha. (based on 15 d.f. made up of pooled error and Treatments × years interaction). (b) 191·9 Q ha. (based on 144 d.f. made up of pooled error and Treatments × years interaction). (iii) Only the main effect of S is highly significant. (iv) Av. yield of cane in Q/ha.

	P_0	P_1	P_2	S_1	S_2	Mean
L_0	325·2	421·9	402·9	439·6	327·1	383·3
L_1	382·0	439·7	412·8	464·8	358·2	411·5
Mean	353·6	430·8	407·9	452·2	342·6	397·4
S_1	422·6	461·8	472·2			
S_2	284·6	399·8	343·5			

C.D. for S marginal means=53·2 Q/ha.

Individual results

Years	L_0	L_1	Sig.	P_0	P_1	P_2	Sig.
1961	313·7	376·5	*	281·7	362·6	391·0	N.S.
1962	555·7	608·7	N.A.	533·9	643·2	569·5	N.A.
1963	306·8	267·4	N.S.	238·4	312 1	310·8	N.S.
Pooled	383·3	411·5	N.S.	353·6	430·8	407·9	N.S.

Years	S_1	S_2	Sig.	G.M.	S.E./plot (a)	(b)
1961	467·2	223·0	N.S.	345·1	23·2	69·1
1962	682 0	482·4	N.A.	582·2	85·8	107 0
1963	271·4	302·8	N.S.	287·2	75·0	104·4
Pooled	452·2	342·6	**	397·4	128·5	191·9

Crop :- Sugarcane (*1st ratoon*). **Ref :- As. 63(11).**

Site :- Sugarcane Res. Stn., Buralikson. **Type :- 'M'.**

Object :—To study the residual effect of different levels of P with different sources of N under limed and unlimed conditions applied to plant cane in the previous year.

1. BASAL CONDITIONS :

(i) (a) Sugarcane—Ratoon. (b) Plant cane. (c) As per treatments. (ii) Sandy loam. (iii) Plant cane harvested on 15.24.4.63. (iv) (a) Burning of trashes and ridge breaking. (b) and (c) N.A. (d) Rows 1·2 m. apart. (e) —. (v) 44.8 Kg/ha. of N as castor cake applied at the time of first earthing. (vi) CO.—419 (late). (vii) Unirrigated. (viii) 2 weedings and earthings. (ix) 218·8 cm. (x) 3. 10.3.64.

2. TREATMENTS :

The following treatments were applied to previous plant cane crop.

Main-plot treatments :

2 levels of slaked lime : L_0=0 and L_1=11·1 Q/ha.

Sub-plot treatments :

All combinations of (1) and (2)

(1) 2 sources of N at 179·2 Kg/ha. of N : S_1=F.Y.M. and S_2=A/S.

(2) 3 levels of P as Super : P_0=0, P_1=67·2 and P_2=134·4 Kg/ha.

3. DESIGN :

(i) Split-plot. (ii) (a) 2 main-plots/rep. and 6 sub-plots/main-plot. (b) 29·9 m.×58·5 m. (iii) 4. (iv) (a) 14·9 m.×9·8 m. (b) 13·7 m.×7·3 m. (v) One row on either side and 61 cm. at each end. (vi) Yes.

4. GENERAL :

(i) Fair. (ii) N.A. (iii) Yield of cane. (iv) (a) 1963-64. (b) No. (c) Nil. (v) No. (vi) N.A. (vii) Results for 1964—N.A.

5. RESULTS :

(i) 259·6 Q/ha. (ii) (a) 57·6 Q/ha. (b) 66·1 Q/ha. (iii) None of the effects is significant. (iv) Av. yield of cane in Q/ha.

	P_0	P_1	P_2	S_1	S_2	Mean
L_0	210·8	282·0	255·7	257·3	241·7	249·5
L_1	292·8	250·6	265·5	316·9	222·3	269·6
Mean	251·8	266·3	260·6	287·1	232·0	259·6
S_1	291·6	299·2	270·5			
S_2	212·0	233·4	250·7			

Crop :- Sugarcane. **Ref :- As. 64(33) and 65(5).**

Site :- Sugarcane Res. Stn., Buralikson. **Type :- 'M',**

Object :—To study the effect of different organic and inorganic nitrogeneous manures under limed and unlimed conditions on the yield and quality of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) Sugarcane—Ratoon—Fallow. (b) Fallow. (c) Nil. (ii) Sandy loam. (iii) 20—22.4.64 and 9—30.4.65. (iv) (a) One ploughing followed by two harrowings. (b) Planted in 23 cm. deep trenches. (c) N.A. (d) Rows 1·2 m. apart. (e) —. (v) N.A. (vi) Co.—419 (late). (vii) Unirrigated. (viii) 2 weedings and 2 earthings. (ix) N.A. (x) 25.3.65 to 18.4.65 and March, 1966.

2. TREATMENTS

Main-plot treatments :

2 levels of slaked lime . L_0 - 0 and L_1 -11·1 Q/ha.

Sub-plot treatments :

All combinations of (1) and (2) -One control

(1) 3 levels of N : N_1=89·6, N_2=179 2 and N_3=268·8 Kg/ha.

(2) 5 sources of N : S_1=Cowdung, S_2=Castor cake, S_3 - A/S, S_4=A/S/N and S_5 Urea.

Time of application : Organic manures were applied before planting. Inorganic manures were applied in two equal doses-one before planting and other at first earthing.

Note .—Requisite quantities of Super and Mur. Pot. were applied to bring the nutrient contents of the treatments to the same level.

3. DESIGN :

(i) Split-plot. (ii) (a) 2 main-plots/rep. and 16 sub-plots/main-plot. (b) 29·9 m.×156·1 m. (iii) 3. (iv) (a) 14·9 m.×9·8 m (b) 13·7 m.×7·3 m. (v) One row on either side and 61 cm. at each end. (vi) Yes.

4. GENERAL :

(i) Fair. (ii) N.A. (iii) Yield of cane. (iv) (a) 1964—66. (b) No. (c) Nil. (v) No. (vi) N.A. (vii) Complete results or plot-wise data were not available at the Res. Stn. for 65(5).

5. RESULTS:

64(33)

i) 348·8 Q/ha. (ii) (a) 186·2 Q/ha. (b) 91 3 Q/ha. (iii) Main effects of N and S and control vs., others are all highly significant. (iv) Av. yield of cane in Q/ha.

L_0N_0=23·7 Q/ha. and L_1N_0=18·2 Q/ha.

	S_1	S_2	S_3	S_4	S_5	N_1	N_2	N_3	Mean
L_0	190·4	373·6	433·8	383·8	384·9	215·8	372·6	471·5	353·3
L_1	193·6	382·8	483·7	467·8	412·5	209·0	412·5	542·7	388·1
Mean	192·0	378·2	458·7	425·8	398·7	212·4	392·6	507·1	370·7
N_1	78·6	243·6	225·4	242·7	271·8				
N_2	197·1	388·0	540·2	437·1	400·3				
N_3	300·3	503·0	610·6	597·5	524·1				

C.D. for N marginal means=47·1 Q/ha.

C.D. for S marginal means=60·8 Q/ha.

C.D. for control vs. others=77·0 Q/ha.

65(5

(i) 414·1 Q/ha. (ii) (a) and (b) N.A. iii) None of the effects is significant. (iv) Av. yield of cane in Q/ha.

L_0N_0=164·5 Q/ha. and L_1N_0=154·4 Q/ha.

	S_1	S_2	S_3	S_4	S_5	N_1	N_2	N_3	Mean
L_0	369·8	516·7	415·5	433·7	382·4	275·2	447·0	548·6	423·6
L_1	449·8	526·6	455·7	423·1	338·1	294·4	481·2	540·2	438·6
Mean	409·8	521·6	435·6	428·4	360·2	284·8	464·1	544·4	431·1
N_1	275·6	397·0	297·4	229·0	225·0				
N_2	404·0	535·2	587·4	437·2	356·7				
N_3	549·7	632·5	422·1	619·0	498·9				

Crop :- Sugarcane (*1st ratoon*). **Ref :- As. 65(6).**

Site :- Sugarcane Res. Stn., Buralikson. **Type :- 'M'.**

Object :—To study the residual effect of different sources of N (organic and inorganic) under limed and unlimed condition applied to the plant cane in the previous year.

1. BASAL CONDITIONS :

(i) (a) Sugarcane—Ratoon. (b) Plant cane. (c) As per treatments. (ii) Sandy loam. (iii) Plant cane was harvested from 25.3.65 to 18.4.65. (iv) (a) Burning of trashes and ridge breaking. (b) and (c) —. (d) Rows 1·2 m. apart. (e) —. (v) N.A. (vi) Co.—419 (late). (vii) Unirrigated. (viii) 2 weedings and earthings. (ix) N.A. (x) March, 1966.

2. TREATMENTS :

Main-plot treatments :

2 levels of slaked lime : L_0=0 and L_1=11·1 Q/ha.

Sub-plot treatments :

All combinations of (1) and (2)+a control (N_0).

(1) 3 levels of N : N_1=89·6, N_2=179·4 and N_3=269·0 Kg N/ha.

(2) 5 sources of N : S_1=Cowdung, S_2=Castor cake, S_3=A/S, S_4=A/S/N and S_5=Urea.

3. DESIGN :

(i) Split-plot. (ii) (a) 2 main-plots/replication and 16 sub-plots/main-plot. (b) 29·9 m.×156·1 m. (iii) 3. (iv) (a) 14·9 m.×9·8 m. (b) 13·7 m.×7·3 m. (v) Row on either side and 30 cm. at each end. (vi) Yes.

4. GENERAL :

(i) Fair. (ii) N.A. (iii) Yield of Sugarcane. (iv) (a) 1965-66. (b) No. (c) Yes. (v) No. (vi) N.A. (vii) —.

5. RESULTS :

(i) 169·6 Q/ha. (ii) (a) N.A. (b) 78·6 Q/ha. (iii) Main effect of N and control vs. others are highly significant. (iv) Av. yield of cane in Q/ha.

L_0N_0=46·7 Q/ha. and L_1N_0=36·3 Q/ha.

	S_1	S_2	S_3	S_4	S_5	N_1	N_2	N_3	Mean
L_0	126·1	206·0	163·0	169·9	182·6	139·8	163·5	205·3	169·5
L_1	135·1	188·7	214·1	212·4	183·2	143·2	204·5	212·5	186·7
Mean	130·6	197·3	188·5	191·1	182·9	141·5	184·0	208·9	178·1
N_1	70·8	169·8	141·1	181·8	144·0				
N_2	129·6	204·1	221·0	180·9	184·4				
N_3	191·4	218·1	203·7	210·8	220·5				

C.D. for N marginal means=40·6 Q/ha.
C.D. for control vs. others=75·9 Q/ha.

Crop :- Sugarcane. **Ref :- As. 64(32) and 65(7).**

Site :- Sugarcane Res. Stn., Buralikson. **Type :- 'M'.**

Object :—To study the effect of different levels of N, P and K on the yield and quality of Sugarcane.

1. BASAL CONDITIONS

(i) (a) Sugarcane—Ratoon—Fallow. (b) Fallow. (c) Nil. (ii) Sandy loam. (iii) 12—15.5.64 and 30.3.65 to 7.4.65 (iv) (a) 1 ploughing followed by 2 harrowings. (b) Planted in 23 cm. deep trenches. (c) N.A. (d) Rows 1·2 m. apart. (e)—. (v) 44·8 Kg/ha. of N as Castor Cake applied before planting. (vi) Co.—419 (late). (vii) Unirrigated. (viii) 2 weedings and 2 earthings. (ix) N.A. (x) 6—24.3.65 and March, 1966.

2. TREATMENTS :

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

(1) 3 levels of N as A/S : N_0=0, N_1=89·6 and N_2=179·2 Kg/ha.
(2) 3 levels of P_2O_5 as Super : P_0=0, P_1=67·2 and P_2=134·4 Kg/ha.
(3) 3 levels of K_2O as Mur. Pot. : K_0=0, K_1=67·2 and K_2=134·4 Kg/ha.

Time of application : In 1964 fertilizers applied before planting. Information N.A. for 1965.

3. DESIGN :

(i) Fact. in R.B.D. (ii) (a) 27. (b) 44·8 m.×87·8 m. (iii) 3. (iv) (a) 14·9 m.×9·8 m. (b) 13·7 m.×7·3m. (v) One row on either side and 61 cm. at each end. (vi) Yes.

4. GENERAL :

(i) Fair. (ii) N.A. (iii) Yield of cane. (iv) (a) 1964-66. (b) No. (c) Nil. (v) No. (vi) N.A. (vii) As the experiment is continued beyond 1965, results of individual years are given under 5. Results.

5. RESULTS :

64(32)

(i) 128·4 Q/ha. (ii) 62·5 Q/ha. (iii) Main effects of N, P and K are highly significant. (iv) Av. yield of cane in Q/ha.

	P_0	P_1	P_2	K_0	K_1	K_2	Mean
N_0	67·6	95·4	132·8	54·7	92·2	148·9	98·6
N_1	70·8	102·3	155·6	84·7	116·1	128·0	109·6
N_2	105·1	203·2	222·5	97·9	215·3	217·5	176·9
Mean	81·2	133·6	170·3	79·1	141·2	164·8	128·4
K_0	48·8	71·6	116·9				
K_1	74·3	145·2	204·1				
K_2	120·4	184·1	189·8				

C.D. for N P or K marginal means=34·2 Q/ha.

65(7)

(i) 441·7 Q/ha. (ii) 35·5 Q/ha. (iii) All the main effects and interactions are highly significant. (iv) Av. yield of cane in Q/ha.

	P_0	P_1	P_2	K_0	K_1	K_2	Mean
N_0	228·4	276·1	340·0	262·0	304·5	278·0	281·5
N_1	317·7	557·3	496.3	387·5	441·0	542·8	457·1
N_2	317·1	693·6	748·6	508·1	596·7	654·7	586·5
Mean	287·7	509·0	528·3	385·8	447·4	491·8	441·7
K_0	267·9	442·9	446·5				
K_1	282·7	537·1	522·5				
K_2	312·6	547·0	615·9				

C.D. for all the marginal means =19·4 Q/ha.
C.D. for means in the body of any table=33·7 Q/ha.

Crop :- Sugarcane (*1st ratoon*). **Ref :- As. 65(8).**

Site : Sugarcane Res. Stn., Buralikson. **Type :- 'M'.**

Object :— To study the residual effect of different levels of N, P and K applied to plant cane in the previous year.

1. BASAL CONDITIONS :

(i) (a) Sugarcane-Ratocn-Fallow. (b) Plant cane. (c) As per treatments + 44·8 Kg/ha. of N as Castor Cake. (ii) Sandy loam. (iii) Plant cane harvested from 6.3.65 to 24.3.65. (iv) (a) Burning of trashes and ridge breaking. (b) and (c) —. (d) Rows 1·2 m. apart. (e) —. (v) N.A. (vi) Co. 419 (late). (vii) Unirrigated. (viii) 2 weedings and 2 earthings. (ix) N.A. (x) March, 1966.

2. TREATMENTS :

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

(1) 3 levels of N as A/S : N_0=0, N_1=89·6 and N_2=179·2 Kg/ha.
(2) 3 levels of P_2O_5 as Super : P_0=0, P_1=67·2 and P_2=134·4 Kg/ha.
(3) 3 levels of K_2O as Mur. Pot. : K_0=0, K_1=67·2 and K_2=134·4 Kg/ha.

3. DESIGN :

(i) Fact. in R.B.D. (ii) (a) 27. (b) 44·8 m.×87·8 m. (iii) 3. (iv) (a) 14·9 m.×9·8 m. (b) 13·7 m.×7·3 m. (v) One row on either side and 61 cm. at each end. (vi) Yes.

4. GENERAL :

(i) Fair. (ii) N.A. (iii) Yield of Sugarcane (iv) (a) 1955-66. (b) No. (c) Nil. (v) No. (vi) N.A. (vii) Nil.

5. RESULTS :

(i) 182·8 Q/ha. (ii) 58·7 Q/ha. (iii) Main effect of K is significant. (iv) Av. yield of cane in Q/ha.

	P_0	P_1	P_2	K_0	K_1	K_2	Mean
N_0	141·5	187·8	172·7	145·6	177·0	179·3	167·3
N_1	166·6	183·5	183·0	145·7	220·9	166·6	177·7
N_2	190·9	207·8	211·7	172·3	204·1	233·8	203·5
Mean	166·3	193·0	189·1	145·5	200·7	193·2	182·8
K_0	134·4	173·5	155·6				
K_1	179·6	209·3	213·1				
K_2	185·0	196·2	198·6				

C.D. for K marginal means=32·1 Q/ha.

Crop :- Sugarcane (*1st ratoon*). **Ref :- As. 62(10) and 63(13).**

Site :- Sugarcane Res. Stn., Buralikson. **Type :- 'M'.**

Object :— To study the effect of application of Molasses on the yield of cane.

1. BASAL CONDITIONS :

(i) (a) Sugarcane-Ratoon. (b) Plant cane. (c) N.A. (ii) Sandy loam. (iii) Plant cane hervested on 4, 5.5.62 ; 24, 25.4.63. (iv) Burning trashes and 1 ploughing. (b) and (c) —. (d) 1·2 m. between rows. (e) N.A. (v) 179·2 Kg/ha. of N as A/S in two equal doses in 1962 and 200 Kg/ha. of N is two equal doses in 1963. (vi) Co. 419 (late). (vii) Unirrigated. (viii) 2 weedings and 2 earthings. (ix) N.A. ; 218·8 cm. (x) 24.4.63 and 25.4.63, 11.3.64 and 12 .3.64.

2. TREATMENTS :

T_1=Cane setts planted after soaking overnight in a 35% solution of Molasses neutralised with lime. T_2= Cane setts planted after soaking overnight in water and crop irrigated with water flowing over a pit filled with Molasses, the Molasses being stirred gently when the water passes over it, T_3=Cane setts planted after soaking overnight in water and sprayed once a month from July to December with 20% Molasses solution, T_4=Cane setts planted after soaking overnight in a 35% solution of Molasses neutralised with lime, irrigated as in T_2 and sprayed as in T_3, T_5 =Control : Cane setts soaked overnight in water and the crop was sprayed with water once a month from July to December and irrigated with plain water.

3. DESIGN :

(i) R.B.D. (ii) (a) 5. (b) 14·9 m.×48 8 m. (iii) 4. (iv) (a) 14·9 m.×9·8 m. (b) 13·7 m.×7·3 m. (v) N.A. (vi) Yes.

4. GENERAL :

(i) Fair. (ii) Negligible. (iii) Yield of Sugarcane. (iv) (a) 1962-63. (b) No. (c) Results of combined as well as individual analysis are given under 5.-Results. (v)No. (vi) N.A. (vii) Error variances are homogeneous and Treatments×years interaction is absent.

5. RESULTS :

Pooled results

(i) 310·9 Q/ha (ii) 104·1 Q/ha. (based on 28 d.f made up of pooled error and Treatments×years interaction. (iii) Treatment differences are not significant. (iv) Av. yield of cane in Q/ha.

Treatment	T_1	T_2	T_3	T_4	T_5
Av. yield	282·6	292·8	317·4	374·2	292·6

Individual results

Years	T_1	T_2	T_3	T_4	T_5	Sig.	G.M.	S.E./plot
1962	262·0	325·7	354·4	433·4	373·4	N.S.	349·8	87·3
1963	303·2	259·9	280·2	315·0	211·8	N.S.	274·0	117·6
Pooled	282·6	292·8	317·4	374·2	292·6	N.S.	310·9	104·1

Crop :- Sugarcane. **Ref :- As. 65(4).**

Site :- Sugarcane Res. Stn., Buralikson. **Type :- 'M'.**

Object:— To study the response of different levels of Nitrogen with and without Green Manure under limed and unlimed conditions.

1. BASAL CONDITIONS :

(i) (a) Nil (b) Fallow. (c) Nil. (ii) Sandy loam. (iii) 12 to 25 3.65. (iv) One ploughing followed by two harrowings. (b) Planted in 23 cm. deep trenches. (c) N.A. (d) Rows 1·2 m. apart (e) —. (v) N.A. (vi) Co. 419 (late). (vii) Unirrigated. (viii) 2 weedings and earthings. (ix) N.A. (x) March, 1966.

2. TREATMENTS:

Main-plot treatments :

2 levels of green manure : G_0=Nil and G_1=Sannhemp green manure.

Sub-plot treatments :

All combinations (1) and (2)

(1) 2 levels of slaked lime : L_0=0 and L_1=11·1 Q/ha.

(2) 4 levels of N as A/S : N_0=0, N_1=67·2, N_2=134·4 and N_3=201·6 Kg/ha.

3. DESIGN :

(i) Split-plot. (ii) (a) 2 main-plots/replication and 8 sub-plots/main-plot. (b) 29·9 m.×78·0 m. (iii) 4. (iv) (a) 14·9 m.×9·8 m. (b) 13·7 m.×7·3 m. (v) One row on either side and 61 cm. at each end. (vi) Yes.

4. GENERAL :

(i) Fair. (ii) N.A. (iii) Yield of Sugarcane. (iv) (a) 1965-contd. (b) No. (c) —. (v) No. (vi) N.A. (vii) Raw data not available at Res. Stn.

5. RESULTS :

(i) 428·2 Q/ha. (ii) (a) 119·1 Q/ha. (b) N.A. (iii) None of the effects is significant. (iv) Av. yield of cane in Q/ha.

	N_0	N_1	N_2	N_3	L_0	L_1	Mean
G_0	392·2	381·9	419·9	483·1	415·2	423·4	419·3
G_1	375·9	415·4	440·2	517·2	437·5	436·8	437·2
Mean	384 0	398·6	430·0	500·2	426·4	430·1	428·2
L_0	442·9	325·2	418·5	519·0			
L_1	325·2	472·1	441·5	481·5			

Crop :- Sugarcane. **Ref :- As. 63(10).**

Site :- Sugarcane Res. Stn., Buralikson. **Type :- 'M'.**

Object :- To study the effect of different organic and inorganic sources of N under limed and unlimed condition.

1. BASAL CONDITIONS :

(i) (a) Sugarcane-Ratoon. (b) Fallow. (c) Nil. (ii) Sandy loam. (iii) 4 to 7.5.63. (iv) (a) One ploughing followed by two harrowings. (b) Planted in trenches 23 cm. deep. (c) N.A. (d) 122 cm. between rows. (e) N.A. (v) Nil. (vi) Co- 419 (late). (vii) Unirrigated. (viii) 2 weedings and 2 earthings. (ix) 218·8 cm. (x) 6.4.64 to 30.4.64.

2. TREATMENTS :

Main-plot treatments :

2 levels of slaked lime : L_0=0, and L_1=9·2 Q/ha.

Sub-plot treatments :

All combinations of (1) and (2)

(1) 3 levels of N : N_1=89·7, N_2=179·3 and N_3=269·0 Kg/ha.

(2) 5 sources of N : S_1=A/S, S_2=Urea, S_3=A/S/N, S_4=Castor cake and S_5=F.Y.M.

Dates of liming : 2 and 3.3.63.

Dates of manuring : F.Y.M. was applied from 23 to 29.3.63 ; Castor cake was applied on 22.3.63 ; Urea was applied on 30.4.63 ; A/S was applied on 1.5.63 and A/S/N was applied on 3.5.63 The requisite quantities of Super and Mur. Pot. were applied from 3 to 6.5.63 and from 2 to 4.4.63 respectively to bring the nutrient content of all plots to the same level.

3. DESIGN :

(i) Split-plot. (ii) (a) 2 main-plots/replication and 15 sub-plots/main-plot. (b) 29·9 m.×146·3 m. (iii) 3. (iv) (a) 14·9 m.×9·8 m. (b) 13·7 m.×7·3 m. (v) 60 cm.×121 cm. (vi) Yes.

4. GENERAL :

(i) Poor. (ii) N.A. (iii) Yield of cane. (iv) (a) Nil. (b) No. (c) Nil. (v) No. (vi) N.A. (vii)—

5. RESULTS :

(i) 109·5 Q/ha. (ii) (a) 21 3 Q/ha. (b) 57·6 Q/ha. (iii) None of the effects is significant. (iv) Av. yield of cane in Q/ha.

	S_1	S_2	S_3	S_4	S_5	N_1	N_2	N_3	Mean
L_0	116·0	133·2	155·2	74·4	70·3	71·8	101·4	156·2	109·8
L_1	88·6	180·1	121·6	82·9	72·9	73·4	115·4	138·7	109·2
Mean	102·3	156 6	138·4	78·6	71·6	72·6	108·4	147 4	109 5
N_1	59·1	92·6	89·4	72·1	50·0				
N_2	71·7	174·0	141·9	83·2	71·0				
N_3	176·0	203·3	183·8	80·4	93·7				

Crop :- Sugarcane. **Ref :- As. 61(S.F.T.).**

Site :- (District) : Cachar and Sibsagar (*c.f*). **Type :- 'M'.**

Object :— Type A - To study the response of Sugarcane to levels of N, P and K applied individually and in combination.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Hilly. (iii) to (x) N.A.

2. TREATMENTS :

O =Control (no manure).
N =67·2 Kg/ha. of N.
P =44 8 Kg/ha. of P_2O_5.
K =44 8 Kg/ha. of K_2O.
NP =67 2 Kg/ha. of N+44·8 Kg/ha. of P_2O_5.
NK =67·2 Kg/ha. of N+44·8 Kg/ha. of K_2O.
PK =44 8 Kg/ha. of P_2O_5+44·8 Kg/ha. of K_2O.
NPK =67·2 Kg/ha. of N+44·8 Kg/ha. of P_2O_5+44·8 Kg/ha. of K_2O.
N applied as A/S, P_2O_5 as Super and K_2O Mur. Pot.

3. DESIGN .

(i) and (ii) The district has been divided into four agriculturally homogeneous zones and one field assistant posted in each zone The field assistant conducts the trials in one revenue circle/thana in the zone and the circle thana is changed once in two years within the same zone. Each field assistant is required to conduct 31 trials in a year, 8 on *kharif* cereal, 8 on a *rabi* cereal, 8 on cash crop, 4 on an oilseed crop and 3 on a leguminous crop Half the number of trials conducted are of type A and the other half of type B on crops other than the legumes. The three trials on legumes are of type C. Residual effects of Phosphate application are studied on type C trials in two out of the four zones in each district every year. The experiments are laid out in randomly located fields in randomly selected villages in each of the 4 zones at the rate of one experiment per village. (iii) (a) 1/98·8 ha. (b) 1 197·7 ha. (iv) Yes.

4. GENERAL :

(i) to (iii) N.A. (iv) (a) 1961 only for both places. (b) and (c) Nil. (v) to (vii) N.A.

5. RESULTS :

Av. response in Q/ha.

District	No of trials	Control in Q/ha.	Main effect N	P	K	S.E.	Interaction effects NP	NK	PK	NPK	S.E.
Cachar	6	484·5	59·6	60·2	56·5	15·1	—0·2	—3·9	18·2	—4·1	10·4
Sibsagar	12	461·1	102·9	63·2	53·3	24·0	38·3	—2·8	15·2	12·7	18·1

Crop :- Sugarcane (*Annual*). **Ref :- As. 61(S.F.T).**

Site :- (District) : Cachar, Lakhimpur and Sibsagar, (*c. f.*). **Type :- 'M'.**

Object :—Type B : To investigate the relative efficiency of different nitrogeneous fertilizers applied at different doses.

1. BASAL CONDITIONS :

(i) N.A. (ii) Alluvial for Lakhimpur ; Hilly for others. (iii) to (x) N.A.

2. TREATMENTS :

8 manurial treatments :

O =Control (no manure).
N_1 =67·2 Kg/ha. of N as A/S.
N_2 =134·4 Kg/ha. of N as A/S.
N_1' =67·2 Kg/ha. of N as Urea.
N_2' =134·4 Kg/ha. of N as Urea.
N_1'' =67·2 Kg/ha. of N as A/S/N.
N_2'' =134·4 Kg/ha. of N as A/S/N.

3. DESIGN :

(i) and (ii) The district has been divided into four agriculturally homogeneous zones and one field assistant posted in each zone. The field assistant conducts the trials in one revenue circle or thana in the zone and the circle/thana is changed once in two years within the same zone. Each field assistant is required to conduct 31 trials in a year, 8 on *Kharif* cereal. 8 on a *rabi* cereal: 8 on cash crop, 4 on an oilseed crop and 3 on a legumenous crop. Half the number of trials conducted are of type A and the other half of type B on crops other than the legumes. The three trials on legumes are of type C. Residual effects of Phosphate application are studied on Type C trials in two out of the four zones in each district every year. The experiment are laid out in randomnly located fields in randomnly selected villages in each of the 4 zones at the rate of one experiment per village. (iii) (a) 1/98·8 ha. (b) 1/197·7 ha. (iv) Yes.

4. GENERAL :

(i) to (iii) N.A. (iv) (a) 1961 only for all the places. (b) and (c) Nil. (v) to (vii) N.A.

5. RESULTS :

Av. yield of Sugarcane in Q/ha.

District	No. of trials	O	N_1	N_2	N_1'	N_2'	N_1''	N_2''	G.M.	S.E./Mean
Cachar	6	461·1	542·6	548·4	527·5	570·2	572·4	628·7	550·1	20·9
Lakhimpur	3	472·2	541·1	639·5	578·0	639·5	553.4	602·6	575·2	27·8
Sibsagar	9	423·8	468·1	519·9	490·7	520·6	493·1	474·4	484·4	13·5

Crop :- Sugarcane. **Ref :. As. 63, 64, 65(S.F.T.) for Sibsagar 63, 64(S.F.T.) for Lakhimpur and 63, 65 (S.F.T.) for Darrang.**

Site :- (District) Lakhimpur, Sibsagar and Darrang (c.f). **Type :- 'M'.**

Object :—Type A_1 : To study the response curves of important cereal, oilseed and cash crops to Nitrogen applied singly and in combination with other nutrients.

1. BASAL CONDITIONS :

(i) N.A. (ii) Alluvial for all. (iii) to (vi) N.A. (vii) Unirrigated. (viii) to (x) N.A.

2. TREATMENTS :

8 manurial treatments :

N_0 = Control (no manure).
N_1 = 70 Kg/ha. of N.
N_2 = 140 Kg/ha. of N.
P_1 = 70 Kg/ha. of P_2O_5.
N_1P_1 = 70 Kg/ha. of N + 70 Kg/ha. of P_2O_5.
N_2P_1 = 140 Kg/ha. of N + 70 Kg/ha. of P_2O_5.
N_2P_2 140 Kg/ha. of N + 140 Kg/ha. of P_2O_5.
$N_2P_2K_1$ 140 Kg/ha. of N + 140 Kg/ha of P_2O_5 + 70 Kg/ha. K_2O.
N applied as A/S, P_2O_5 as Super and K_2O as Mur. Pot.

3. DESIGN :

(i) and (ii) A selected district is divided into four agriculturally homogeneous zones based on climate, soil, cropping pattern, etc. In each zone one block is selected at random. A block normally consists of a group of 50--100 villages. In each block 36 experiments are conducted in a year of which 11 are of type A_1, 11 of type A_2, 11 of type A_3 and 3 are of type C. The eleven experiments under type A_1, A_2 and A_3 are distributed as 3 on a *Kharif* cereal, 3 on a *rabi* cereal, 3 on a cash crop and 2 on oilseed. All the three type C experiments are conducted on a legume crop. For the purpose of conducting the A_1, A_2 and A_3 experiments 11 villages are randomly selected in each block and in each village 3 experiments one each of type A_1, A_2 and A_3 are laid out. For conducting the three type C trials three villages are randomly selected in each block. (iii) (a) 1/100 ha. (b) 1/200 ha. (iv) Yes.

4. GENERAL :

(i) to (iii) N.A. (iv) (a) 1963 to 64 for Lakhimpur, 1963 to 65 for Sibsagar and 1963 to 65 (64 N.A.) for Darrang. (b) N.A. (c) Nil. (v) to (vii) N.A.

5. RESULTS :

Lakhimpur

63(S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of cane in Kg/ha.	3686	1838	5525	7373	9211	11060	11060	3535·2

Control yield=22140 Kg/ha. ; No. of trials=2.

64(S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of cane in Kg/ha.	27803	7314	5589	21206	12508	9014	32725	2868·2

Control yield=44240 Kg/ha. ; No. of trials=3.

Sibsagar

63(S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of cane in Kg/ha.	2971	5551	165	1451	3140	6183	7497	1804·7

Control yield=29635 Kg/ha. ; No. of trials=10.

64(S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of cane in Kg/ha.	4061	5521	937	5963	8203	9189	13694	2547·3

Control yield=38837 Kg/ha. ; No. of trials=9.

65(S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of cane in Kg/ha.	2633	3366	2400	9066	9100	25033	25233	398·3

Control yield=25499 Kg/ha. ; No. of trials=4.

Darrang

63(S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of cane in Kg/ha.	1765	1581	1087	2111	2388	5647	8711	790·5

Control yield=19840 Kg/ha. ; No. of trials=6.

65(S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of cane in Kg/ha.	1666	1566	1800	3966	4533	7566	10033	1021·7

Control yield=70066 Kg/ha. ; No. of trials=5.

Crop :- Sugarcane. **Ref :- As. 63, 64(S.F.T.) for Lakhimpur and Darrang and 63, 64, 65(S.F.T.) for Sibsagar.**

Site :- (District): Lakhimpur, Sibsagar and Darrang (*c.f.*). **Type :- 'M'.**

Object :—Type A_2 : To study the response curve of important cereals, oil seeds and cash crops to Phosphorus applied singly and in combination with other nutrients.

1. BASAL CONDITIONS :

(i) N.A. (ii) Alluvial for all. (iii) to (vi) N.A. (vii) Unirrigated. (viii) to (x) N.A.

2. TREATMENTS :

8 manurial treatments :

O =Control (no manure).
N_1 =70 Kg/ha. of N.
P_1 =70 Kg/ha. of P_2O_5.
P_2 =140 Kg/ha. of P_2O_5.
N_1P_1 =70 Kg/ha. of N+70 Kg/ha. of P_2O_5.
N_1P_2 =70 Kg/ha. of N+140 Kg/ha. of P_2O_5.
N_2P_2 =140 Kg/ha. of N+140 Kg/ha. of P_2O_5.
$N_2P_2K_2$=140 Kg/ha. of N+140 Kg/ha. of P_2O_5+140 Kg/ha. of K_2O.
N applied as A/S, P_2O_5 as Super and K_2O as Mur. Pot.

3. DESIGN :

Same as the experiment Type A_1 on Sugarcane on page 95.

4. GENERAL :

(i) to (iii) N.A. (iv) (a) 1963 to 1965 for Sibsagar ; 63 to 64 for others. (b) and (c) Nil. (v) to (vii) Nil.

5. RESULTS :

Lakhimpur

63(S.F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of cane in Kg/ha.	3686	1838	1848	7373	7373	11070	12908	5735·8

Control yield=36887 Kg/ha. ; No. of of trials=2.

64(S.F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of cane in Kg/ha.	5075	474	4581	4264	6049	3805	15023	5789·0

Control yield=47294 Kg/ha. ; No. of trials=3.

Sibsagar

63(S.F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of cane in Kg/ha.	5178	2022	5293	4848	4764	6481	10332	1225·5

Control yield=28034 Kg/ha. ; No. of trials=10.

64(S.F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of cane in Kg/ha.	4608	1331	2148	5653	6068	9787	10013	1251·5

Control yield=41416 Kg/ha. ; No. of trials=8.

65(S.F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of cane in Kg/ha.	8050	850	3050	8050	8700	8750	7200	299·4

Control yield=21750 Kg/ha. ; No. of trials=3.

Darrang

63(S.F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of cane in Kg/ha.	2172	2589	3209	2360	3426	4663	8254	1592·4

Control yield=15997 Kg/ha. ; No. of trials=5.

64(S.F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of cane in Kg/ha.	2333	3266	3933	5666	5233	8933	8766	1204·5

Control yield=57733 Kg/ha. ; No. of trials=6.

Crop :- Sugarcane (*Annual*). **Ref :- As. 63, 65, (S.F.T.) for Darrang, 63, 64,65(S.F.T.) for Sibsagar and 63,64 (S.F.T.) for Lakhimpur.**

Site :- (District) : Lakhimpur, Sibsagar and Darrang (*c.f.*). **Type :- 'M'.**

Object :—Type A_2 : To study the response curves of important cereals, oilseeds and cash crops to Potash applied singly and in combination with other nutrients.

1. BASAL CONDITIONS :

(i) N.A. (ii) Alluvial for all. (iii) to (vi) N.A. (vii) Unirrigated. (viii) to (x) N.A.

2. TREATMENTS :

8 manurial treatments :

O=Control (no manure)

N_1=70 Kg/ha. of N.

K_1=70 Kg/ha. of K_2O.

K_2=140 Kg/ha. of K_2O.

N_1K_1=70 Kg/ha. of N+70 Kg/ha. of K_2O.

N_1K_2=70 Kg/ha. of N+140 Kg/ha. of K_2O.

N_2K_2=140 Kg/ha. of N+140 Kg/ha. of K_2O.

$N_1P_1K_1$=70 Kg/ha. of N+70 Kg/ha. of P_2O_5+70 Kg/ha. of K_2O.

N applied as A/S, P_2O_5 as Super and K_2O as Mur. Pot.

3. DESIGN:

Same as the expt. Type A_1 on Sugarcane on page 95.

4. GENERAL :

(i) to (iii) N.A. (iv) (a) 1963 to 65 (64 N.A.) for Darrang, 1963 to 64 for Lakhimpur, 1963 to 65 for Sibsagar. (b) N.A. (c) Nil. (v) to (vii) N.A.

5. RESULTS :

Lakhimpur

63(S.F.T.)

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of cane in Kg/ha.	3686	7373	00	3686	7383	7383	9221	1940·8

Control yield=55330 Kg/ha.; No. of trials=2.

64(S.F.T.)

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of cane in Kg/ha.	20173	15685	2243	14796	5386	2243	19718	9580·9

Control yield=35869 Kg/ha. ; No. of trials=2.

Sibsagar

63(S.F.T.)

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of cane in Kg/ha.	3486	1401	2348	3674	5126	5000	6964	1373·3

Control yield=26571 Kg/ha. ; No. of trials=8.

64(S.F.T.)

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of cane in Kg/ha.	11513	8913	7772	9950	10995	13569	14906	3742·4

Control yield=32719 Kg/ha. ; No. of trials=7.

65(S.F.T.)

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of cane in Kg/ha.	8066	2800	2666	7700	8933	14800	13066	3444·5

Control yield=31099 Kg/ha.; No. of trials=5

Darrang

63(S.F.T.)

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of cane in Kg/ha.	3393	2589	4675	2859	3456	6365	7525	1040·3

Control yield=17501 Kg/ha.; No. of trials=6.

65(S.F.T.)

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of cane in Kg/ha.	2666	2566	2833	3666	5700	8666	6966	2939·2

Control yield=72499 Kg/ha.; No. of trials=4.

Crop :- Sugarcane. **As. 60(3), 61(9), 63(12).**

Site :- Sugarcane Res. Stn., Buralikson. **Type :- 'C'.**

Object :— To study the effect of time and method of harvesting on the yield of Sugarcane.

1. BASAL CONDITIONS :

(i) (a) Sugarcane-Ratoon. (b) Fallow. (c) Nil. (ii) Sandy loam. (iii) 23 to 25.5.60; 21 to 23.4.61; 29 to 31.3.63. (iv) (a) One ploughing fallowed by two harrowings. (b) Planted in trenches 23 cm. deep. (c) N.A. (d) 122 cm. between rows. (e) Nil. (v) 89·7 Kg/ha. of N as Castor Cake. (vi) Co.-419 (late). (vii) Unirrigated (viii) 2 weedings and earthings. (ix) N.A.; 202·6 cm.; 218·8 cm. (x) As per treatments.

2. TREATMENTS :

Main-plot treatments :

2 methods of harvesting : H_1=Harvested flush with ridge, and H_2=Harvested flush with ground.

Sub-plot treatments :

5 dates of harvesting : D_1=18th Jan., D_2=18th Feb., D_3=18th March, D_4=18th April and D_5=18th May.

3. DESIGN :

(i) Split-plot (ii) (a) 2 main-plots/replication and 5 sub-plots/main-plot. (b) 29·9 m.×48·8 m. (iii) 3. (iv) (a) 14·9 m.×9·8 m. (b) 13·7 m.×7·3 m. (v) 61 cm.×122 cm. (vi) Yes.

4. GENERAL :

(i) Fair. (ii) N.A. (iii) Yield of Sugarcane. (iv) (a) 1959 to 63. (b) No. (c) Nil. (v) No. (vi) N.A. (vii) As the sub-plot error variances are heterogeneous, results of individual years are given (Expt. modified in 1960) under 5-Results.

5. RESULTS :

60(3)

(i) 269·5 Q/ha. (ii) (a) N.A. (b) 46·1 Q/ha. (iii) Only the main effect of D is significant. (iv) Av. yield of cane in Q/ha.

	D_1	D_2	D_3	D_4	D_5	Mean
H_1	289·1	394·1	268·8	233·9	180·5	273·3
H_2	316·5	287·9	287·6	235·9	200·3	265·7
Mean	302·8	341·0	278·2	234·9	190·4	269·5

C.D. for D marginal means=56·4 Q/ha.

61(9)

(i) 278·4 Q/ha. (ii) (a) 92·0 Q/ha. (b) 80·1 Q/ha. (iii) None of the effects is significant. (iv) Av. yield of cane in Q/ha.

	D_1	D_2	D_3	D_4	D_5	Mean
H_1	280·9	278·9	364·0	217·5	230·3	274·3
H_2	363·7	282·6	277·3	235·0	253·5	282·4
Mean	322·3	280·8	320·7	226·3	241·9	278·4

63(12)

(i) 138·8 Q/ha. (ii) (a) 27·0 Q/ha. (b) 35·8 Q/ha. (iii) None of the effects is significant. (iv) Av. yield of cane in Q/ha.

	D_1	D_2	D_3	D_4	D_5	Mean
H_1	152·8	164·4	124·1	185·0	98·0	144 9
H_2	98·1	138·7	174·2	138·9	113·1	132·6
Mean	125·4	151·6	149·2	162·0	105·6	138·8

Crop :- Sugarcane (*1st ratoon*). **Ref :- As. 61(10).**

Site :- Sugarcane Res. Stn., Buralikson. **Type :- 'C'.**

Object :—To study the effect of time and method of harvesting plant cane on the ratoon.

1. BASAL CONDITIONS :

(i) (a) Sugarcane-Ratoon. (b) Plant cane. (c) As per treatments. (ii) Sandy loam. (iii) As per treatments. (iv) (a) to (c) —. (d) 122 cm. between rows. (e) N.A. (v) 101 Kg/ha. of N as Mustard oil cake applied at 1st earthing and 101 Kg/ha. of N as A/S applied from 19.7.61 to 1.8.61. (vi) Co.-419 (late). (vii) Un-irrigated. (viii) 2 weedings and earthings. (ix) 202·7 cm. (x) 6.3.62 to 9.3.62.

2. TREATMENTS :

Main-plot treatments :

2 methods of harvesting : H_1=Flush with ridge and H_2=Flush with ground.

Sub-plot treatments :

5 dates of harvesting : D_1=18th Jan., D_2=18th Feb., D_3=18th March, D_4=18th April and D_5=18th May 1961.

3. DESIGN :

(i) Split-plot. (ii) (a) 2 main-plots/replication and 5 sub-plots/main-plot. (b) 29·9 m.×48·8 m. (iii) 3. (iv) (a) 14·9 m.×9·8 m. (b) 13·7 m.×7·3 m. (v) N.A. (vi) Yes.

4. GENERAL :

(i) Fair. (ii) N.A. (iii) Yield of cane. (iv) (a) 1961-only. (b) No. (c) Nil. (v) No. (vi) N.A. (vii) Nil.

5. RESULTS :

(i) 397·4 Q/ha. (ii) (a) 59·9 Q/ha. (b) 74·5 Q/ha. (iii) None of the effects is significant. (iv) Av. yield of cane in Q/ha.

	D_1	D_2	D_3	D_4	D_5	Mean
H_1	347·1	384·4	402·6	436·5	405·4	395·2
H_2	307·0	354·9	320·3	408·7	427·6	363·7
Mean	327·0	369·6	361·4	422·6	416·5	379·4

Crop :- Jute (*Kharif*). **Ref :- As. 63(23).**

Site :- Jute Res. Stn., Sorbhog. **Type :- 'M'.**

Object :— To find the response to the applicant of increasing levels of Nitrogen either alone or with Phosphorus and Potash on the yield of capsularis Jute fibre.

1. BASAL DONDITIONS :

(i) (a) N.. (b) Jute. (c) N.A. (ii) Sandy loam. (iii) 1.5.63. (iv) (a) 3 ploughings and 2 ladderings. (b) Line sowing with Jute seed-drill. (c) 7·4 Kg/ha. (d) 30 cm. between rows and 7·5 cm. between plants. (e) N A. (v) 25·1 Q ha. of F.Y.M. (vi) JRC-212. (vii) Unirrigated. (viii) 2 hand-weedings, 1 thinning and 3 wheel-hoeings. (ix) 220·4 cm. (x) 30.9.63.

2. TREATMENTS :

12 manurial treatments : T_0=Control, T_1=22·5 Kg/ha. of N, T_2=45 Kg/ha. of N, T_3=67·5 Kg/ha. of N, T_4=90 Kg/ha. of N, T_5=180 Kg/ha. of N, T_6=11·2 Kg/ha. of P_2O_5+11·2 Kg/ha. of K_2O, T_7=T_1+T_6, T_8=T_2+2×T_6, T_9=T_3+T_6, T_{10}=T_4+4×T_6 and T_{11}=T_5+8×T_6.

Form of fertilizers :— N as A.S, P_2O_5 as Super and K_2O as Mur. Pot.

3. DESIGN :

(i) R.B.D. (ii) (a) 12. (b) N.A. (iii) 6. (iv) (a) 7·9 m.×7·3 m. (b) 6·7 m.×6·1 m. (v) 61 cm. discarded alround. (vi) Yes.

4. GENERAL :

(i) Normal. (ii) Attack of Semi-looper and hairy catter-pillar-Endrex 20 E.C. sprayed as control measure. (iii) Yield of fibre. (iv) (a) 1962-63. (b) No. (c) —. (v) No. (vi) N.A. (vii) Expt. failed in 1963

5. RESULTS :

(i) 1612 Kg/ha. (ii) 452·9 Kg/ha. (iii) Treatment differences are significant. (iv) Av. yield of fibre in Kg/ha.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5
Av. yield	1235	1592	1911	1876	1586	1406

T_6	T_7	T_8	T_9	T_{10}	T_{11}
1365	1231	2035	1618	1923	1570

C.D.=524·3 Kg/ha.

Crop :- Jute (*Kharif*). **Ref :- As. 62(16).**

Site :- Jute Res. Stn., Sorbhog. **Type :- 'M'.**

Object :— To study the effect of N, P, and K alone and in combinations on the yield of Olitorious Jute fibre.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Jute. (c) N.A. (ii) Sandy soil. (iii) 15, 16.5.62. (iv) (a) 3 ploughings and 2 ladderings. (b) Line sowing with Jute seed-drill. (c) 4·9 Kg/ha. (d) 30 cm. between rows and 7·5 cm. between plants. (e) N.A. (v) 25·1 Q/ha. of F.Y.M. (vi) JRO-632 (late). (vii) Unirrigated. (viii) 2 hand-weedings 1 thinning. and 3 wheel-hoeings. (ix) 270·6 cm. (x) 3.10.62.

2. TREATMENTS:

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

(1) 3 levels of N as A/S : N_0=0, N_1=45 and N_2=90 Kg/ha.

(2) 3 levels of P_2O_5 as Super : P_0=0, P_1=22·5 and P_2=45 Kg/ha.

(3) 3 levels of K_2O as Mur. Pot. : K_0=0, K_1=22·5 and K_2=45 Kg/ha.

3. DESIGN :

(i) 3^3 patially confd. (ii) (a) 9 plots/block and 3 blocks replication. (b) N.A. (iii) 2. (iv) (a) 7·9 m.× 7·3 m. (b) 6·7 m.×6·1 m. (v) 61 cm. discarded alround. (vi) Yes.

4. GENERAL :

(i) Normal. (ii) Attack of Semi-looper and hairy catter-pillar-Endrex 20 E.C. sprayed as control measure. (iii) Yield of fibre. (iv) (a) 1960-62. (b) and (c) No.—(v) No. (vi) N.A. (vii) Results of 1960 and 1961 were not available.

5. RESULTS :

(i) 1519 Kg/ha. (ii) 311·5 Kg/ha. (iii) Main effect of N is highly significant and interaction N×K is significant. (iv) Av. yield of fibre in Kg/ha.

	P_0	P_1	P_2	K_0	K_1	K_2	Mean
N_0	929	903	719	1098	924	529	850
N_1	1846	1741	1816	1814	1788	1802	1801
N_2	1809	1746	2163	1753	1936	2029	1906
Mean	1528	1463	1566	1555	1549	1453	1519
K_0	1480	1606	1580				
K_1	1542	1454	1651				
K_2	1562	1330	1468				

C.D. for N marginal means =215·3 Kg/ha.

C.D. for means in the body of N×K table =373·0 Kg/ha.

Crop :- Jute (*Kharif*). **Ref :- As. 61(S.F.T.).**

Site :- (District) : Cachar and Kamrup (*c.f.*). **Type :- 'M'.**

Object :—Type A : To study the response of Jute to levels of N, P and K applied individually and in combinations.

1. BASAL CONDITIONS :

(i) N.A. (ii) Hilly for Cachar and Alluvial for Kamrup. (iii) to (x) N.A.

2 TREATMENTS :

8 manurial treatments :

O = Control (no manure).

N 22·4 Kg/ha. of N.

P 22·4 Kg/ha. of P_2O_5.

K 22·4 Kg/ha. of K_2O.

NP 22·4 Kg/ha. of N + 22·4 Kg/ha. of P_2O_5.

NK 22·4 Kg/ha. of N + 22·4 Kg/ha. of K_2O.

PK 22·4 Kg/ha. of P_2O_5 + 22·4 Kg/ha. of K_2O.

NPK 22·4 Kg/ha. of N + 22·4 Kg/ha. of P_2O_5 + 22·4 Kg/ha. of K_2O.

N applied as A/S, P_2O_5 as Super and K_2O as Mur. Pot.

3. DESIGN :

(i) and (ii) The district has been divided into four agriculturally homogeneous zones and one field assistant posted in each zone. The field assistant conducts the trials in one revenue circle or thana in the zone and the circle/thana is changed once in two year within the same zone. Each field assistant is required to conduct 31 trials in a year, 8 on *Kharif* cereal, 8 on a *rabi* cereal, 8 on cash crop, 4 on an oilseed crop and 3 on a leguminous crop. Half the number of trials conducted are of type A and the other half of type B on crops other than the legumes. The three trials on legumes are of Type C. Residual effects of Phosphate application are studied on Type C trials in two out of the four zones in each district every year. The experiments are laid out in randomly located fields in randomly selected villages in each of the 4 zones at the rate of one experiment per village. (iii) (a) 1/98·8 ha. (b) 1/197·7 ha. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of green weight of Jute steams. (iv) (a) 1961 only. (b) and (c) — (v) to (vii) N.A.

5. RESULTS :

District	No. of trials	Control yield in Q/ha.	Av. response in Q/ha. Main effect N	P	K	S.E.	Interaction effect NP	NK	PK	NPK	S.E.
Cachar	3	296·3	15·4	11·1	4·3	5·44	5·5	—3·7	3·1	—4·9	8·0
Camrup	6	271·4	57·6	13·5	7·8	2·78	—3·1	11·1	16·9	15·5	2·95

Crop :- Jute (*Kharif*). **Ref :- As. 63, 64, 65(S.F.T) for Nowgong ; 63, 64(S.F.T.) for Goalpara and Kamrup.**

Site :- (District) : Nowgong, Goalpara and Kamrup (*e.f.*). **Type :- 'M'.**

Object :—Type A_1 : To study the response curve of important cereals, oilseeds and cash crops to Nitrogen applied singly and in combination with other nutrients.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Alluvial. (iii) to (vi) N.A. (vii) Unirrigated. (viii) to (x) N.A.

2. TREATMENTS :

8 manurial treatments :

O = Control (no manure)

N_1 = 60 Kg/ha. of N

N_2 = 120 Kg/ha of N

P_1 = 35 Kg/ha. of P_2O_5

N_1P_1 = 60 Kg/ha. of N + 35 Kg/ha of P_2O_5

N_2P_1 = 120 Kg/ha. of N + 35 Kg/ha. of P_2O_5

N_2P_2 = 120 Kg/ha. of N + 70 Kg/ha. of P_2O_5

$N_2P_2K_1$ = 120 Kg/ha. of N + 70 Kg/ha. of P_2O_5 + 35 Kg/ha. of K_2O.

N applied as A/S, P_2O_5 as Super and K_2O as Mur. Pot.

3. DESIGN :

(i) and (ii) A selected district is divided into four agriculturally homogeneous zones based on climate, soil, cropping pattern, etc. In each zone one block is selected at random. A block normally consists of a group of 50-100 villages. In each block 36 experiments are conducted in a year of which 11 are of type A_1, 11 of type A_2, 11 of type A_3 and 3 are of type C. The eleven experiments under type A_1, A_2 and A_3 are distributed as 3 on a *Kharif* cereal, 3 on a *rabi* cereal; 3 on a cash crop and 2 on oilseed. All the three type C experiments are conducted on a legume crop. For the purpose of conducting the A_1, A_2 and A_3 experiments, 11 villages are randomly selected in each block and in each village 3 experiments, one each of type A_1, A_2 and A_3 are laid out. For conducting the three type C trials three villages are randomly selected in each block. (iii) (a) 1/100 ha. (b) 1/200 ha. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of green weight of jute steams. (iv) (a) 1963-65 for Nowgong ; 1963-64 for others. (b) N.A. (c) Nil. (v) to (vii) N.A.

5. RESULTS :

Nowgong

63(S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of green jute steams in Kg/ha.	2189	2311	2270	3192	3965	6025	7162	281·3

Control yield=21980 Kg/ha. ; No. of trials=10.

64(S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of green jute steams in Kg/ha.	1329	2668	518	5806	6301	7116	8623	1225·9

Control yield=20237 Kg/ha. ; No. of trials=3.

65(S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of green jute steams in Kg/ha.	1140	1924	342	1461	2385	3887	4292	471·2

Control yield=20860 Kg/ha. ; No. of trials=9.

Goalpara

63(S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of green jute steams in Kg/ha.	6819	850	2451	—6	118	9712	9956	4204·6

Control yield=80172 Kg/ha. ; No. of trials=3.

64(S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of green ute steams in Kg/ha.	309	303	—619	—625	309	1838	1225	895·1

Control yield=27055 Kg/ha. ; No. of trials=3.

Kamrup

63(S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of green jute steams in Kg/ha.	7841	9307	4645	10453	10282	10111	11765	1111·8

Control yield=26574 Kg/ha. ; No. of trials=6.

64(S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of green jute steams in Kg/ha.	5857	7366	3584	7461	8142	7986	9229	552·9

Control yield=20754 Kg/ha. ; No. of trials=9.

Crop :- Jute (*Kharif*). **Ref :- As. 63, 64, 65(S.F.T.)for Nowgong, 63, 64 (S.F.T.) for Kamrup and Goalpara.**

Site :- (District) : Nowgong, Kamrup and Goalpara (*c.f.*). **Type :- 'M'.**

Object :—Type A_2 : To study the response curve of important cereals, oilseeds and cash crops to Phosphorus applied singly and in combination with other nutrients.

1. BASAL CONDITIONS :

(i) N.A. (ii) Alluvial. (iii) to (vi) N.A. (vii) Unirrigated. (viii) to (x) N.A.

2. TREATMENTS :

8 manurial treatments :

N_0=Control (no manure)
N_1=60 Kg/ha. of N
P_1=35 Kg/ha. of P_2O_5
P_2=70 Kg/ha. of P_2O_5
N_1P_1=60 Kg/ha. of N+35 Kg/ha. of P_2O_5
N_1P_2=60 Kg/ha. of N+ 70 Kg/ha. of P_2O_5
N_2P_2=120 Kg/ha. of N+70 Kg/ha. of P_2O_5
$N_2P_2K_2$=120 Kg/ha. of N+70 Kg/ha. of P_2O_5+70 Kg/ha of K_2O

N applied as A/S, P_2O_5 as Super and K_2O as Mur. Pot.

3. DESIGN :

Same as in experiment Type A_1 on Jute on page 104.

4. GENERAL :

(i) and (ii) N A. (iii) Yield of green weight of Jute steams. (iv) 1963 to 65 for Nowgong ; 1963 to 54 for others. (v) to (vii) N.A.

5. RESULTS :

Nowgong

63(S.F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of green jute steams in Kg/ha.	2167	1105	1337	2742	3590	6079	6527	299·9

Control yield=19554 Kg/ha. ; No. of trials=8.

64(S.F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of green jute steams in Kg/ha.	662	192	1008	3009	1230	5999	8396	2502·1

Control yield=19847 Kg/ha. ; No. of trials=3.

65(S.F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av response of green jute steams in Kg/ha.	2880	1795	1942	3128	4665	6860	9771	648·2

Control yield=21530 Kg/ha. ; No. of trials=9.

Kamrup

63(S.F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of green jute steams in Kg/ha.	9172	4846	4675	10282	9864	9841	10832	1149·4

Control yield=25464 Kg/ha. ; No. of trials=6.

64(S.F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of green jute steams in Kg/ha.	5650	2740	3960	6830	7650	7750	8920	445·0

Control yield=21000 Kg/ha. ; No. of trials=9.

Goalpara

63(S.F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of green jute steams in Kg/ha.	2088	—1172	—4184	112	2517	10444	9337	5268·3

Control yield=85766 Kg/ha. ; No. of trials=3

64(S.F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of green jute steams in Kg/ha.	2240	85	85	2853	1317	3465	4085	1202·7

Control yield=26041 Kg/ha. ; No. of trials=3.

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Crop :- Jute (*Kharif*). **Ref :- As. 63, 64, 65(S.F.T.) for Nowgong ; 63, 64(S.F.T.) for Kamrup and 64(S.F.T.) for Goalpara.**

Site :- (District) Nowgong, Goal para, Kamrup (*c. f.*). **Type :- 'M'.**

Object :—Type A_3 : To study the response curve of important cereals, oilseeds and cash crop to potash applied singly and in combination with other nutrients.

1. BASAL CONDITIONS :

(i) N.A. (ii) Alluvial. (iii) to (vi) N.A. (vii) Unirrigated. (viii) to (x) N.A.

2. TREATMENTS :

8 manurial treatments :

N_0=Control (no manure).
N_1=60 Kg/ha. of N.
K_1=35 Kg/ha. of K_2O.
K_2=70 Kg/ha. of K_2O.
N_1K_1=60 Kg/ha. of N+35 Kg/ha. of K_2O.
N_1K_2=60 Kg/ha. of N+70 Kg/ha. of K_2O.
N_2K_2=120 Kg/ha. of N+70 Kg/ha. of K_2O.
$N_1P_1K_1$=60 Kg/ha. of N+35 Kg/ha. of P_2O_5+35 Kg/ha. of K_2O.

N applied as A/S, P_2O_5 as Super and K_2O as Mur. Pot.

3. DESIGN :

Same as in experiment Type A_1 on Jute on page 104.

4. GENERAL :-

(i) and (ii) N.A. (iii) Yield of green weight of jute steams. (iv) 1964 for Goalpara, 1963—64 for Kamrup and 1963—65 for Nowgong. (v) to (vii) N.A.

5. RESULTS :

Nowgong

63(S.F.T.)

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of green jute steams in Kg/ha.	2350	1217	1648	3110	3160	5403	4132	339·8

Control yield=18838 Kg/ha. ; No. of trials=7.

64(S.F.T.)

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of green jute steams in Kg/ha.	1704	716	1828	2935	4793	5673	7660	671·6

Control yield=19570 Kg/ha. ; No. of trials=3.

65(S.F.T.)

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of green jute steams in Kg/ha.	1700	298	712	2167	2668	4608	3436	833 8

Control yield=19165 Kg/ha. ; No. of trials=9.

Kamrup

63(S.F.T.)

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of green jute steams in Kg/ha.	8167	3271	2988	9379	8935	11096	10948	18329

Control yield=24647 Kg/ha. ; No. of trials=6.

64(S.F.T.)

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of green jute steams in Kg/ha.	7839	1753	2564	8340	8571	9589	10496	763·8

Control yield=22187 Kg/ha. ; No. of trials=9.

Goalpara

64(S.F.T.)

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of green jute steams in Kg/ha.	1232	929	—309	—303	1238	2767	619	1202·3

Control yield=27049 Kg/ha No.of trials=3.

Crop :- Jute (*Kharif*). **Ref :- As. 65(38).**

Site :- Jute Res. Stn., Shillongani. **Typa :- 'MV'.**

Object :—To study and compare the effect of foliar spray and soil application of urea on the yield of two capsularis varieties of Jute.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) and (c) N.A. (ii) Sandy loam. (iii) 19.4.65. (iv) (a) 3 ploughings, 2 ladderings and levelling. (b) Line sowing with Jute seed-drill. (c) 7·4 Kg/ha. (d) Rows 30 cm. apart and plants 7·5 cm. apart. (e) —. (v) N.A. (vi) As per treatments. (vii) Unirrigated. (viii) Weeding, mulching, thinning and wheel-hoeing. (ix) N.A. (x) 24.8.65.

2. TREATMENTS :

Main-plot treatments :

2 varieties : V_1=JRC—212 and V_2=JRC –321.

Sub-plot treatments :

8 methods of application of Urea : T_0=Control (No fertilizer), T_1=Water spray (No fertilizer), T_2=22·4 Kg/ha. of N as soil application, T_3=44·8 Kg/ha. of N as soil application, T_4=5·6 Kg/ha. of N as foliar spray, T_5=11·2 Kg/ha. of N as foliar spray, T_6=16·8 Kg/ha. of N as foliar spray and T_7=22·4 Kg/ha. of N as foliar spray.

3. DESIGN :

(i) Split-plot. (ii) (a) 2 main-plots/rep. and 8 sub-plots/main-plot. (b) 22·2 m.×17·8 m. (iii) 4. (iv) (a) 5·0 m.×4·0 m. (b) 4·4 m.×3·4 m. (v) 30 cm. discarded alround. (vi) Yes

4. GENERAL :

(i) N.A. (ii) Endrex 20 E.C. sprayed to control attack of semi—looper. (iii) Yield of fibre. (iv) (a) 1965—66. (b) No. (c) Nil. (v) No. (vi) N A. (vii) Nil.

5. RESULTS :

(i) 2013 Kg/ha. (ii) (a) 283·6 Kg/ha. (b) 221·7 Kg/ha. (iii) Main effects of V and T are significant, interaction V×T is highly significant. (iv) Av. yield of fibre in Kg/ha.

	T_0	T_1	T_2	T_3	T_4	T_5	T_6	T_7	Mean
V_1	1811	1611	1798	2146	1818	1691	1684	1965	1815
V_2	2106	2086	2045	2433	2052	2467	2467	2032	2211
Mean	1958	1849	1921	2289	1935	2079	2075	1999	2013

C.D. for V marginal means =225·6 Kg/ha.
C.D. for T marginal means =223·8 Kg/ha.
C.D. for T means at the same level of V=316·5 Kg/ha.
C.D. for V means at the same level of T=364·8 Kg/ha.

Crop :- Jute (*Kharif*). **Ref :- As. 65(36).**

Site :- Jute Res. Stn., Shillongani. **Type :- 'MV'.**

Object :—To study the effect of different sources of N in different instalments of application on the yield of two capsularis varieties.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) and (c) N.A. (ii) Sandy loam. (iii) 16.6.65. (iv) (a) 3 ploughings, 2 ladderings and levelling. (b) Line sowing with Jute seed drill. (c) 7·4 Kg/ha. (d) Rows 30 cm. apart, Plants 7·5 cm. apart. (e) —. (v) 25·1 Q/ha. of F.Y.M. (vi) As per treatments. (vii) Unirrigated. (viii) Weeding and wheel-hoeing. (ix) N.A. (x) 21.9.65.

2. TREATMENTS :

Main-plot treatments :

2 varieties : V_1=JRC—212 and V_2=JRC—321.

Sub-plot treatments :

5 sources of N at 44·8 Kg/ha. of N+one control : S_0=Control, S_1=A/S, S_2=A/S/N, S_3=Urea, S_4=A/C and S_5=C/A/N.

Sub-sub-plot treatments :

4 times of application of N : T_1=Full dose at sowing, T_2=$\frac{1}{2}$ dose at sowing+$\frac{1}{2}$ dose to 30 days old crop, T_3=$\frac{1}{3}$ dose at sowing+2/3 dose to 30 day's old crop and T_4=Full dose to 30 dav's old crop.

3. DESIGN :

(i) Split-plot. (ii) (a) 2 main-plots/rep., 6 sub-plots/main-plot and 4 sub-sub-plots/sub-plot. (b) 50·8 m. × 27·0 m. (iii) 2. (iv) (a) 6·0 m. × 4·0 m. (b) 5·4 m. × 3·4 m. (v) 30 cm. discarded alround. (vi) Yes.

4. GENERAL :

(i) N.A. (ii) Endrex 20 E.C. sprayed to control the attack of hairy catter-pillars. (iii) Yield of fibre. (iv) (a) 1965—66. (b) No. (c) Nil. (v) No. (vi) N.A. (vii) Nil.

5. RESULTS.

(i) 951·2 Kg/ha. (ii) (a) 127·2 Kg/ha. (b) 165·4 Kg/ha. (c) 110·1 Kg/ha. (42 d.f.). (iii) None of the effects is significant (iv) Av. yield of fibre in Kg/ha.

	S_1	S_2	S_3	S_4	S_5	T_1	T_2	T_3	T_4	Mean
V_1	969·5	1033·5	1015·8	1055·3	917·8	986·9	990·2	1010·9	1005·4	998·4
V_2	877·6	878·3	869·4	957·2	878·3	854·0	913·9	906·9	893·8	892.2
Mean	923·5	955·9	942·6	1006·2	898·0	920·5	952·1	958 9	949·6	945·3
T_1	923·2	932·7	908·2	953·2	885·1					
T_2	996·7	925·9	945·0	1010·3	882·4					
T_3	969·5	958·6	932·7	996·7	936·8					
T_4	804·7	1006·3	984·5	1064·8	887·8					

	S_6 Other sources of N		Mean
V_1	1078·4	998·4	1011·7
V_2	883·0	892·2	890·6
Mean	980·7	945·3	951·2

Crop :- Jute (*Kharif*). **Ref :- As. 65(35).**

Site :- Jute Res. Stn., Shillongani. **Type :- 'MV'.**

Object : -To study the maximum response of different capsularis varieties to fertilizer application at successive higher doses of N, P and K.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) and (c) N.A. (ii) Sandy loam. (iii) 13.6.65. (iv) (a) 3 ploughings, 2 laddernings and levelling. (b) Line sowing with Jute seed-drill, (c) 7·4 Kg/ha. (d) Rows 30 cm. apart, Plants 7·5 cm. apart. (e) —. (v) 46 Q/ha. of compost. (vi) As per treatments (vii) Unirrigated. (viii) Weeding, mulching and wheel-hoeing. (ix) N.A. (x) 17, 30.9.65 and 13.10.65.

2. TREATMENTS :

Main-plot treatments :

3 varieties : V_1=J.R.C.—212, V_2=J.R.C.—632 and V_3=D.—154.

Sub-plot treatments :

5 levels of fertility : F_0=Nil, F_1=44·8 Kg/ha. of N as A/S+22·4 Kg/ha. of P_2O_5 as Super+22·4 Kg/ha. of K_2O as Mur. Pot., $F_2=2\times F_1$, $F_3=3\times F_1$ and $F_4=4\times F_1$.

3. DESIGN :

(i) Split-plot. (ii) (a) 3 main-plots/rep. and 5 sub-plots/main-plot. (b) 22·4 m. × 26·0 m. (iii) 4. (iv) (a) 8·0 m. × 4·0 m. (b) 7·4 m. × 3·4 m. (v) 30 cm. discarded alround. (vi) Yes.

4. GENERAL:

(i) Normal. (ii) N.A. (iii) Yield of fibre. (iv) (a) No. (b) and (c) —. (v) No. (vi) N.A. (vii) Expt. was conducted in modified form from 1966 to 1968.

5. RESULTS :

(i) 649·2 Kg/ha. (ii) (a) 119·2 Kg/ha. (b) 112·4 Kg/ha. (iii) Interaction V×F is significant. (iv) Av. yield of fibre in Kg/ha.

	F_0	F_1	F_2	F_3	F_4	Mean
V_1	714·4	793·9	743·2	670·7	543.5	693·1
V_2	468·0	679·7	677·7	740·3	724·4	658·0
V_3	571·3	616·1	588·2	660·8	545·5	596·4
Mean	584·6	696·6	669·7	690·6	604·5	649·2

C.D. for F means at the same level of V=161·3 Kg/ha.
C.D. for V means at the same level of F=189·5 Kg/ha.

Crop :- Jute (*Kharif*). **Ref :- As. 63(26) and 64(26).**

Site :- Jute Res. Stn., Sorbhog. **Type :- 'MV'.**

Object :—To study the response of different capsularis varieties of Jute to various sources of Nitrogenous fertilizer applied in instalments.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) and (c) N.A. (ii) Sandy soil. (iii) 2.5.63 ; 3.5.64. (iv) (a) 3 ploughings and 2 laddderings. (b) Line sowing with Jute seed drill. (c) 7·4 Kg/ha. (d) 30 cm between rows and 8 cm. between plants. (e) N.A. (v) 25 Q/ha. of F.Y.M.+22·4 Kg/ha. of P_2O_5 as Super+22·4 Kg/ha. of K_2O as Mur. Pot. (vi) As per treatments. (vii) Unirrigated. (viii) 2 hand weedings and thinning and 3 wheel-hoeings. (ix) 220·4 cm. ; 292·9 cm. (x) 29·9.63 and 2.10.64.

2. TREATMENTS :

Main-plot treatments :
2 varieties : V_1=JRC—212 and V_2=JRC—321.

Sub-plot treatments :
5 sources of N at 44·8 Kg/ha. of N+One control (S_0.) : S_1=A/S, S_2=A/S/N, S_3=Urea, S_4=A/C and S_5=C/A/N.

Sub-sub-plot treatments :
4 times of application : T_1=Full dose at sowing time, T_2=½ dose at sowing+½ dose at 30 days old crop, T_3=⅓rd dose at sowing time+2/3rd dose at 30 days old crop and T_4=Full dose at 30 days old crop.

3. DESIGN :

(i) Split-plot. (ii) (a) 2 main-plots/rep., 6 sub-plots/main-plot and 4 sub-sub-plots/sub-plot. (b) 50·8 m.× 27·0 m. (iii) 2. (iv) (a) 6·0 m.×4·0 m. (b) 5·4 m.×3·4 m. (v) 30 cm. discarded alround. (vi) Yes.

4. GENERAL :

(i) Not good. (ii) Attack of Hairy catterpillar and Semi-looper—Endrex 20 E.C. was sprayed. (iii) Yield of fibre. (iv) (a) 1963—64. (b) No. (c) Nil. (v) No. (vi) N.A. (vii) As the sub-sub-plot error variances are heterogeneous, the individual results of experiments are given below.

5. RESULTS :

63(26)

(i) 630 Kg/ha. (ii) (a) 99·7 Kg/ha. (b) 361·1 Kg/ha. (c) 205·3 Kg/ha. (42 d.f.) (iii) None of the effects is significant. (iv) Av. yield of fibre in Kg/ha.

	S_1	S_2	S_3	S_4	S_5	T_1	T_2	T_3	T_4	Mean
V_1	869	672	774	945	512	739	719	775	785	754
V_2	609	574	530	602	526	614	526	587	546	568
Mean	739	623	652	773	519	676	623	681	665	661
T_1	684	614	667	743	674					
T_2	681	667	628	761	376					
T_3	1014	590	566	790	444					
T_4	577	621	746	799	583					

Control yields in Kg/ha. : S_0V_1=484 ; S_0V_2=462 Kg/ha.

64(26)

(i) 1786 Kg/ha. (ii) (a) 1113 Kg/ha. (b) 665 7 Kg/ha. (c) 307 7 Kg/ha. (42 d.f.) (iii) Interaction S × T is significant. (iv) Av. yield of fibre in Kg/ha.

	S_1	S_2	S_3	S_4	S_5	T_1	T_2	T_3	T_4	Mean
V_1	1632	1714	1639	2140	1878	1564	1784	1843	2012	1801
V_2	2225	1437	1694	1673	2144	1783	1841	1845	1870	1835
Mean	1929	1576	1667	1907	2011	1673	1813	1844	1941	1818
T_1	1808	1220	1627	2000	1710					
T_2	1679	1746	1377	2082	2180					
T_3	2062	1884	1791	1671	1811					
T_4	2166	1453	1872	1874	2342					

Control yields in Kg/ha. : S_0V_1=1548 and S_0V_2=1703 Kg/ha.
C.D. for T means at the same level of S=432·5 Kg/ha.
C.D.for S means at the same level of T=647·9 Kg/ha.

Crop :- Jute (*Kharif*). **Ref :- As. 63(28) and 64 28).**

Site :- Jute Res. Stn., Sorbhog. **Type :- 'MV'.**

Object : To study the maximum response of different olitorius varieties to fertilizer application at successive higher doses of N, P and K.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) and (c) N.A. (ii) Sandy loam. (iii) April. (iv) (a) 3 ploughings and 2 ladderings. (b) Line sowing with jute seed dirll. (c) 2·2 Kg/ha. (d) 30 cm. between rows and 7·5 cm. between plants.(e) –. (v) N.A. (vi) As per treatments. (vii) Unirrigated. (viii) 2 hand-weedings, One thinning and 3 wheel-hoeings. (ix) 220·5 cm. ; 292·9 cm. (x) September.

2. TREATMENTS :

Main-plot treatments :

3 varieties : V_1=JRO-632, V_2=JRO-620 and V_3=JRO-514.

Sub-plot treatments :

6 fertilizer levels : F_0=Control, F_1=22·4 Kg/ha. of N +11·2 Kg/ha. of P_2O_5 +11·2 Kg/ha. of K_2O, F_2=2×F_1, F_3=4×F_1, F_4=6×F_1 and F_5=8×F_1.

N applied as A/S, P_2O_5 as Super and K_2O as Mur. Pot.

3. DESIGN :

(i) Split-plot. (ii) (a) 3 main-plots/replication and 6 sub-plots/main-plot. (b) 32·0 m.×27·0 m. (iii) 4. (iv) (a) 10·0 m.×4·0 m. (b) 9·4 m.×3·4 m. (v) 0·3 cm. discarded alround. (vi) Yes.

4. GENERAL :

(i) Normal in 63 and not good in 64. (ii) Attack of hairy catterpillar. Endrex 20 E.C. sprayed as a control measure. (iii) Yield of fibre. (iv) (a) 1963-64. (b) No. (c) Results of combined analysis are given under 5-Results. (v) No. (vi) N.A. (vii) Main-plot error variances are heterogeneous and Main-plot Treatments × years interaction is present. Sub-plot error variances are homogeneous and Sub-plot Treatments × years interaction is absent.

5. RESULTS :

Pooled results

(i) 1699 Kg/ha. (ii) (a) 1130·2 Kg/ha. (based on 2 d.f. made up of Main-plot Treatments × years interaction). (b) 384·0 Kg/ha. (based on 105 d.f. made up of pooled error and Sub-plot Treatments × years interaction). (iii) Only the main effect of F is highly significant. (iv) Av. yield of fibre in Kg/ha.

	F_0	F_1	F_2	F_3	F_4	F_5	Mean
V_1	890	1393	1862	1953	2109	1832	1673
V_2	938	1231	1736	1639	1860	1758	1527
V_3	1310	2016	1583	2050	2294	2115	1895
Mean	1046	1547	1727	1881	2088	1903	1699

C.D. for F marginal means=219·5 Kg/ha.

Years	F_0	F_1	F_2	F_3	F_4	F_5	Sig.
1963	841	1701	1832	1952	2267	1966	**
1964	1251	1393	1622	1811	1909	1840	**
Pooled	1046	1547	1727	1881	2088	1903	**

Years	V_1	V_2	V_3	Sig.	G.M.	S.E./plot	
						Main-plot	Sub-plot
1963	1637	1777	1865	**	1760	126·4	338·0
1964	1710	1278	1925	N.S.	1638	780·2	390·0
Pooled	1673	1527	1895	N.S.	1699	1130·2	384·0

Crop :- Jute (*Kharif*). **Ref :- As. 63(27), 64(27):**

Site :- Jute Res. Stn., Sorbhog. **Type :- 'MV'.**

Object :— To study the maximum response of different capsularis varieties to fertilizer application at successive higher doses of N, P and K:

1. BASAL CONDITIONS :

(i) (a) Nil. (b) and (c) N.A. (ii) Sandy. (iii) April. (iv) 3 ploughings and 2 ladderings. (b) Line sowing with Jute seed drill. (c) 7·4 Kg/ha. (d) 30 cm. between rows and 75 mm. between plants. (e) N.A. (v) N.A. (vi) As per treatments. (vii) Unirrigated. (viii) 2 handweedings, 1 thinning and 3 wheel-hoeings. (ix) 220·4 cm.; 292·9 cm. (x) September.

2. TREATMENTS :

Main-plot treatments

3 varieties : V_1 =JRC—212, V_2 =JRC—321 and V_3 =D. 154.

Sub-plot treatments :

6 fertilizer doses : F_0 =Control, F_1 =44·8 Kg/ha. of N—22·4 Kg/ha of P_2O_5 - 22·4 Kg/ha. of K_2O. F_2 =2 × F_1, F_3 =3 × F_1, F_4 =4 × F_1 and F_5 =5 · F_1.

N applied as A S, P_2O_5 as Super and K_2O as Mur. Pot.

3 DESIGN :

(i) Split-plot. (ii) (a) 3 main-plots/replication and 6 sub-plots/main-plot. (b) 32·0 m. × 27·0 m. (iii) 4. (iv) (a) 10·0 m. × 4 0 m (b) 9 4 m. × 3·4 m. (v) 0·3 m. discard alround. (vi) Yes.

4 GENERAL :

(i) (a) Not good. (ii) Attack of semi-looper and hairy catterpillar. Endrex 20 E.C. sprayed as a control measure. (iii) Yield of fibre. (iv) (a) 1963-64. (b) No. (c) Nil. (v) No (vi) N.A. (vii) Main-plot error variances are homogeneous. Sub-plot error variances are heterogeneous. The results of individual years are presented under 5-Results.

5. RESULTS :

63(27)

(i) 1300 Kg/ha. (ii) (a) 122·8 Kg/ha. (b) 163·6 Kg/ha. (iii) Main effects of V and F are highly significant. (iv) Av. yield of fibre in Kg/ha.

	F_0	F_1	F_2	F_3	F_4	F_5	Mean
V_1	610	1369	1348	1236	1252	1267	1180
V_2	1017	1232	1338	1287	1424	1428	1287
V_3	1173	1492	1521	1412	1467	1527	1432
Mean	933	1364	1402	1312	1381	1407	1300

C.D. for V marginal means=86·8 Kg/ha.

C.D. for F marginal means=134·9 Kg/ha.

64(27)

(i) 1169 Kg/ha. (ii) (a) 217·2 Kg/ha. (b) 231·4 Kg/ha. (iii) Main effects of V and F are highly significant. (iv) Av. yield of fibre in Kg/ha.

	F_0	F_1	F_2	F_3	F_4	F_5	Mean
V_1	730	1133	1073	938	1074	925	979
V_2	857	1123	1181	1197	1072	936	1061
V_3	1221	1566	1429	1618	1537	1440	1468
Mean	936	1274	1228	1250	1228	1100	1169

C.D. for V marginal means=153·4 Kg/ha.

C.D. for F marginal means=190·8 Kg/ha.

Crop :- Jute (*Kharif*). **Ref :- As. 65(37).**

Site :- Jute Res. Stn., Shillongani. **Type :- 'C'.**

Object :— To test the effect of different close spacings with a view to obtain better quality of fibre.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) and (c) N.A. (ii) Sandy loam. (iii) 12.4.65. (iv) (a) 3 ploughings, 2 ladderings and levelling. (b) Line sowing with Jute seed-drill (c) 7·4 Kg/ha. (d) As per treatments. (e) —. (v) 25·1 Q/ha. of F.Y.M.; 44.8 Kg/ha. of N as A/S top dressed. (vi) JRC-212 (Capsularis variety) (vii) Unirrigated. (viii) Weeding and mulching. (ix) N.A. (x) 7.10.65.

2. TREATMENTS :

All combinations of (1) and (2).

(1) 4 row spacings : R_1=20, R_2=22·5, R_3=25 and R_4=30 cm.

(2) 2 plant spacings : P_1=5·0, P_2=7·5 cm.

3. DESIGN :

(i) 4×2 Fact. in R.B.D. (ii) (a) 8. (b) 19·5 m.×12·5 m. (iii) 6. (iv) (a) 4·5 m.×6·0 m. (b) 3·9 m.×5·4m. (v) 30 cm. discarded alround. (vi) Yes.

4. GENERAL:

(i) N.A. (ii) Endrex 20 E.C. sprayed to control attack of semi-looper. (iii) Yield of fibre. (iv) (a) 1965-68. (b) No. (c) Nil. (v) No. (vi) N.A. (vii) Nil.

5. RESULTS :

(i) 3019 Kg/ha. (ii) 276·9 Kg/ha. (iii) None of the effects is significant. (iv) Av. yield of fiber in Kg/ha.

	R_1	R_2	R_3	R_4	Mean
P_1	3034	3096	2906	2901	2984
P_2	3167	3143	2877	3025	3053
Mean	3101	3119	2891	2963	3019

Crop :- Jute (*Kharif*). **Ref :- As. 62(18) and 63(24).**

Site :- Jute Res. Stn., Sorbhog. **Type :- 'CV'.**

Object :— To study the optimum date of sowing for two olitorius varieties of Jute.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) and (c) N.A. (ii) Sandy soil. (iii) As per treatments. (iv) (a) 3 ploughings and 2 ladderings. (b) Line sowing with jute seed drill. (c) 4·9 Kg/ha. (d) 30 cm. between rows and 7·5 cm. between plants. (e) N.A. (v) 25·1 Q/ha. of F.Y.M. (vi) As per treatments. (vii) Unirrigated. (viii) 2 weedings, 1 thinning and 3 wheel-hoeing. (ix) 270·6 cm.; 220·4 cm. (x) 28.9.62 and 30.9.63.

2. TREATMENTS :

Main-plot treatments :

2 varieties : V_1=JRO—632 and V_2=C.G.

Sub-plot treatments :

4 dates of sowing : D_1=1st March, D_2=21st March, D_3=10th April and D_4=1st May.

3. DESIGN:

(i) Split-plot. (ii) 2 main-plots/replication and 4 sub-plots/main-plot. (b) 15·9 m.×21·3 m. (iii) 4. (iv) (a) 4·0 m. ×10·7 m. (b) 3·4 m.×10·1 m. (v) 30 cm. discarded alround. (vi) Yes.

4. GENERAL :

(i) Fair. (ii) Attack of semi-looper—Guseral @ 3·9 Kg/ha. sprayed. (iii) Yield of fibre. (iv) (a) 1962-63. (b) No. (c) Nil. (v) No. (vi) N.A. (vii) Main-plot error variances are homogeneous. Sub-plot error variances are heterogeneous. The results of individual years are presented under 5-Results.

5. RESULTS :

62(18)

(i) 602 Kg/ha. (ii) (a) 171·1 Kg/ha. (b) 321·1 Kg/ha. (iii) None of the effects is significant. (iv) Av. yield of fibre in Kg/ha

	D_1	D_2	D_3	D_4	Mean
V_1	666	334	649	678	581
V_2	374	561	611	946	623
Mean	520	447	630	812	602

63(24)

(i) 705 Kg/ha (ii) (a) 77·3 Kg/ha. (b) 77·4 Kg/ha. (iii) Main effects of D is highly significant. (iv) Av. yield of fibre in Kg/ha.

	D_1	D_2	D_3	D_4	Mean
V_1	745	908	890	1024	892
V_2	413	467	597	597	810
Mean	579	688	744	810	705

C.D. for D marginal means=81·3 Kg/ha.

Crop :- Jute (*Kharif*). **Ref :- As. 63(25).**

Site :- Jute Res. Stn., Sorbhog. **Type :- 'D'.**

Object :—To study the influence of different doses and time of application of Dowpon for the control of weeds in capsularis Jute.

1. BASAL CONDITIONS :

(i) (a) Nil (b) and (c) N.A. (ii) 6.4.63. (iii) Sandy soil. (iv) (a) 3 ploughings and 2 ladderings. (b) Line sowing with Jute seed-drill. (c) 7·4 Kg/ha (d) Rows 30 cm. apart and plants 7·5 cm. apart. (e) —. (v) 25·1 Q/ha of F.Y.M. +44·8 Kg/ha. of N as A/S+22·4 Kg/ha of P_2O_5 as Super +22·4 Kg/ha. of K_2O as Mur. Pot. (vi) JRC—212 (late). (vii) Unirrigated. (viii) 1 raking. (ix) 220·4 cm. (x) 9.10.63.

2. TREATMENTS :

All combinations of (1) and (2) +2 extra treatments

(1) 4 levels of Dowpon : D_1=5·6, D_2=8·4, D_3=11·2 and D_4=16·8 Kg/ha.

(2) 4 times of post-emergence application of Dowpon : T_1=1, T_2=2, T_3=3 and T_4=4 weeks old crop.

Extra treatments : E_1=Control—usual hand weeding and thinning and E_2=Control—No hand weeding, no weedicide and no thinning.

3. DESIGN :

(i) R.B.D, (ii) (a) 18. (b) 39·0 m.×13·2 m. (iii) 3. (iv) (a) 6·0 m.×4·0 m. (b) 5·7 m ×3·7 m. (v) 15 cm. discarded alround. (vi) Yes.

4. GENERAL :

(i) Poor. (ii) Endrex 20 E.C. sprayed to control attack of hairy catterpillers and semi-looper. (iii) Yield of fibre (iv) (a) No. (b) and (c) —. (v) No. (vi) N.A. (vii) Nil,

5. RESULTS :

(i) 437·4 Kg/ha (ii) 170·5 Kg/ha. (iii) Interaction D×T is significant. (iv) Av. yield of fibre in Kg/ha.

E_1=605·3 Kg/ha. and E_2=333·5 Kg/ha.

	T_1	T_2	T_3	T_4	Mean
D_1	170·7	461·5	635·4	354·0	405·4
D_2	279·8	515·2	349·3	480·5	406·2
D_3	393·6	466·2	328·7	521·6	427·5
D_4	697·0	497·9	510·5	271·9	494·3
Mean	385·3	485·2	456·0	407·0	433·4

C.D. for means in the body of table=283·1 Kg/ha.

Crop :- Mustard (*Rabi*). **Ref :- As. 62(19) and 63(29).**

Site :- Pulse and Oilseeds Res. Stn., Roha. **Type :- 'M'.**

Object :—To study the effect of different doses of N and P on the yield of Mustard.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) and (c) N.A. (ii) Loamy. (iii) 5.11.62 ; 7.11.63. (iv) (a) 5 top ploughings. (b) Broad casting. (c) 5·6—6·7 Kg/ha. (d) and (e) —. (v) Nil. (vi) M—27. (vii) Unirrigated. (viii) 1 weeding. (ix) N.A. (x) 25.1.63 and 28.1.64.

2. TREATMENTS :

6 manurial treatments : T_0=Control, T_1=22·4 Kg/ha. of N as A/S+22·4 Kg/ha. of P_2O_5 as Super, T_2=33·6 Kg/ha. of N as A/S+33·6 Kg/ha. of P_2O_5 as Super, T_3=44·8 Kg/ha. of N as A/S+44·8 Kg/ha. of P_2O_5 as Super, T_4=56 Kg/ha. of N as A/S+56 Kg/ha. of of P_2O_5 as Super and T_5=67·2 Kg/ha. of N as A/S+67·2 Kg/ha. of P_2O_5 as Super.

3. DESIGN :

(i) R.B.D. (ii) (a) 6. (b) N.A (iii) 3. (iv) (a) 5·6 m.×5·6 m. (b) 5·0 m.×5·0 m. (v) 30 cm. discarded alround. (vi) Yes.

4. GENERAL :

(i) Normal. (ii) N.A. (iii) Yield of seed. (iv) (a) 1962—64. (b) No. (c) Nil. (v) No. (vi) N.A. (vii) Expt. failed in 1964. As the error variances are heterogeneous and Treatments×years interaction is absent, the results of individual experiments are given below.

5. RESULTS :

62(19)

(i) 555 Kg/ha. (ii) 54·1 Kg/ha. (iii) Treatment differences are highly significant. (iv) Av. yield of Mustard in Kg/ha.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5
Av. yield	334	598	576	502	714	603

C.D.=98·4 Kg/ha.

63(29)

(i) 522 Kg/ha. (ii) 113·7 Kg/ha. (iii) Treatment differences are highly significant. (iv) Av. yield of Mustard in Kg/ha.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5
Av. yield	252	492	469	638	610	670

C.D. = 206·8 Kg/ha.

Crop :- Mustard (*Rabi*). **Ref :- As. 62(20) and 63(30).**

Site :- Pulse and Oilseeds Res. Stn., Roha. **Type :- 'M'.**

Object : —To study the effect of N, P and K alone and in combination on the yield of Mustard.

1 BASAL CONDITIONS :

(i) (a) Nil. (b) and (c) N.A. (ii) Loamy. (iii) 7.11.62 ; 5.11.63. (iv) (a) 5 to 6 ploughings. (b) Broadcasting. (c) 5·6 to 6·7 Kg/ha. (d) and (e) —. (v) N.A. (vi) M—27. (vii) Unirrigated. (viii) Weeding. (ix) N.A. (x) 27.1.63 ; 26.1.64.

2. TREATMENTS :

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

(1) 2 levels of N as A/S : N_0=0 and N_1=33·6 Kg/ha. of N.

(2) 2 levels of P as Super : P_0=0 and P_1=33·6 Kg/ha. of P_2O_5.

(3) 2 levels of K as Mur. Pot. : K_0=0 and K_1=33·6 Kg/ha. of K_2O.

3. DESIGN :

(i) Fact. in R.B.D (ii) (a) 8. (b) N.A. (iii) 3. (iv) (a) 5·6 m. × 3·2 m. (b) 5·0 m. × 2·6 m. (v) 30 cm. × 30 cm. (vi) —.

4. GENERAL :

(i) Not good. (ii) N.A. (iii) Yield of seed. (iv) (a) 1962—63. (b) No. (c) Results of combined analysis are given under 5. Results. (v) No. (vi) N.A. (vii) Error variances are homogeneous and Treatments years interaction is present.

5. RESULTS :

Pooled results

(i) 376 Kg ha. (ii) 135·1 Kg/ha. (based on 6 d.f. made up of Treatments × years interaction). (iii) Only the main effect of K is significant. (iv) Av. yield of Mustard in Kg/ha.

	P_0	P_1	K_0	K_1	Mean
N_0	318	370	287	401	344
N_1	389	429	342	476	409
Mean	353	400	314	439	376
K_0	284	345			
K_1	423	454			

C.D. for K marginal means = 95·4 Kg/ha.

Results of individual years

Years	N_0	N_1	Sig.	P_0	P_1	Sig.	K_0	K_1	Sig	G.M.	S.E./plot
1962	448	578	N.S.	509	517	N.S.	449	577	N.S.	513	57·9
1963	240	240	N.S.	198	282	N.S.	180	300	*	240	66·3
Pooled	344	409	N.S.	353	400	N.S.	314	439	*	376	135·1

Crop :- Mustard (*Rabi*).

Ref :- As. 63, 64 (S.F.T.) for Kamrup and Goalpara 63, 64, 65 (S.F.T.) for Lakhimpur, Sibsagar, Nowgong and Darrang.

Site :- (District): Goalpara, Lakimpur, Sibsagar, Nowgong, Darrang and Kamrup (c.f.)

Type :- 'M'.

Object :—Type A_1 : To study the response curves of important cereal, cash and oilseed crops to nitrogen applied singly and in combination with other nutrients.

1. BASAL CONDITIONS :

(i) N.A. (ii) Alluvial. (iii) to (vi) N.A. (vii) Unirrigated. (viii) to (x) N.A.

2. TREATMENTS :

8 manurial treatments

N_0 =Control (no manure)
N_1 =25 Kg/ha. of N
N_2 =50 Kg/ha. of N
P_1 =25 Kg/ha. of P_2O_5
N_1P_1 =25 Kg/ha. of N+25 Kg/ha. of P_2O_5
N_2P_1 =50 Kg/ha. of N+25 Kg/ha. of P_2O_5
N_2P_2 =50 Kg/ha. of N+50 Kg/ha. of P_2O_5
$N_2P_2K_1$ =50 Kg/ha. of N+50 Kg/ha. of P_2O_5+25 Kg/ha of K_2O

N applied as A/S, P_2O_5 as Super and K_2O as Mur. Pot.

3. DESIGN :

(i) and (ii) A selected district is divided into four agriculturally homogeneous zones based on climate, soil, cropping pattern etc. In each zone one block is selected at random. A block normally consists of a group of 50-100 villages. In each block 36 experiments are conducted in a year of which 11 are of type A_1, 11 of type A_2, 11 of type A_3 and 3 are of type C. The eleven experiments under type A_1, A_2 and A_3 are distributed as 3 on a *Kharif* cereal, 3 on a *rabi* cereal, 3 on a cash crop and 2 on oilseed. All the three type C experiments are conducted on legume crop. For the purpose os conducting the A_1, A_2 and A_3 experiments 11 villages are randomly selected in each block and in each village 3 experiments one each of type A_1, A_2 and A_3 are laid out. For conducting the three type C trials three villages are randomly selected in each block.
(iii) (a) 1/100 ha. (b) 1/200 ha. (iv) Yes.

4. GENERAL:

(i) to (iii) N.A. (iv) 1963 to 1964 for Goalpara, 1963 to 66 (65 N.A.) for Kamrup, 1963 to 65 for others.
(v) to (vii) N.A.

5. RESULTS:

Goalpara

63(S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of Mustard in Kg/ha.	21	2	57	81	88	140	163	42·3

Control yield=709 Kg/ha. ; No. of trials=5.

64(S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E
Av. response of Mustard in Kg/ha.	28	38	60	49	51	59	64	23·1

Control yield=568 Kg/ha. ; No. of trials=5.

Lakhimpur

63(S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. yield of Mustard in Kg/ha.	24	—51	126	93	103	145	210	39·7

Control yield=373 Kg/ha. ; No. of trials=3.

64(S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_1P_2K_1$	S.E.
Av. response of Mustard in Kg/ha	84	124	62	177	188	306	261	43·7

Control yield=369 Kg/ha. ; No. of trials=5.

65 S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_1P_2K_1$	S.E.
Av. response of Mustard in Kg/ha.	117	65	215	200	130	265	450	103·7

Control yield=350 Kg/ha ; No. of trials=2.

Sibsagar

63(S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_1P_2K_1$	S.E.
Av. response of Mustard in Kg/ha	76	87	112	241	260	399	343	54·9

Control yield=553 Kg/ha, ; No. of trials=10.

64(S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_1P_2K_1$	S.E.
Av. response of Mustard in Kg/ha.	112	152	96	178	218	226	324	40 5

Control yield=391 Kg/ha. ; No. of trials=12.

65(S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_1P_2K_1$	S.E.
Av. response of Mustard in Kg/ha.	- 31	95	26	130	223	246	406	31·2

Control yield=696 Kg/ha. ; No. of trials=5.

Nowgang

63(S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_1P_2K_1$	S.E.
Av. response of Mustard in Kg/ha.	139	163	46	191	304	424	473	21·4

Control yield=998 Kg/ha. ; No. of trials=8.

64(S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_1P_2K_1$	S.E.
Av. response of Mustard in Kg/ha.	90	100	120	150	150	210	190	44·0

Control yield=770 Kg/ha. ; No. of trials=12.

65 S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_1P_2K_1$	S.E.
Av. response of Mustard in Kg/ha.	70	114	99	149	208	248	325	20·5

Control yield=830 Kg/ha. ; No. of trials=9.

Darrang

63(S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of Mustard in Kg/ha.	114	208	133	203	232	228	346	61·2

Control yield=964 Kg/ha. ; No. of trials=5.

64(S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of Mustard in Kg/ha.	136	139	160	148	130	251	267	49 8

Control yield=834 Kg/ha. ; No. of trials=6.

65(S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of Mustard in Kg/ha.	26	62	8	55	70	352	138	216·3

Control yield=783 Kg/ha. ; No. of trials=6.

Kamrup

63(S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of Mustard in Kg/ha.	176	198	99	164	214	408	322	65·3

Control yield=340 Kg/ha. ; No. of trials=5.

65(S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of Mustard in Kg/ha.	85	97	56	160	215	221	376	24·9

Control yield=371 Kg/ha. ; No. of trials=6.

Crop :- Mustard (*Rabi*).

Ref :- As. 63, 64(S.F.T.) for Goalpara and Kamrup; 64(S.F.T.) for Lakhimpur; 63, 64,65(S.F.T.) for Sibsagar, Nowgong and Darrang.

Site :- (District) : Goalpara, Lakhimpur, Sibsagar, Nowgong, Darrang and Kamrup (*c.f.*).

Type :- 'M'.

Object :—Type A_2 : To study the response curves of important cereals, oilseeds and cash crops to Phosphorus applied singly and in combination with other nutrients.

1. BASAL CONDITIONS :

(i) N.A. (ii) Alluvial for all. (iii) to (vi) N.A. (vii) Unirrigated. (viii) to (x) N.A.

2. TREATMENTS :

8 manurial treatments :

O=Control (no manure).
N_1=25 Kg/ha. of N.
P_1=25 Kg/ha of P_2O_5.
P_2=50 Kg/ha. of P_2O_5.
N_1P_1=25 Kg/ha. of N+25 Kg/ha. of P_2O_5.
N_1P_2=25 Kg/ha. of N+50 Kg/ha. of P_2O_5.
N_2P_2=50 Kg/ha. of N+50 Kg/ha. of P_2O_5.
$N_2P_2K_2$=50 Kg/ha. of N+50 Kg/ha. of P_2O_5+50 Kg/ha. of K_2O.
N applied as A/S, P_2O_5 as Super and K_2O as Mur. Pot.

3. DESIGN :

Same as the expt. type A_1 on Mustard on page 119.

4. GENERAL :

(i) to (iii) N.A. (iv) (a) 1964 for Lakhimpur ; 1963 to 66 (65 N.A.) for Goalpara, and Kamrup; 1963 to 65 for others. (b) No. (c)— (v) to (vii) N.A.

5. RESULTS :

Goalpara

63(S.F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of Mustard in Kg/ha.	80	36	56	111	103	149	179	37·6

Control yield=711 Kg/ha. ; No. of trials=4.

64(S.F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of Mustard in Kg/ha.	6	5	—6	19	17	34	58	16·1

Control yield=527 Kg/ha. ; No. of trials=5.

Lakhimpur

64(S.F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of Mustard in Kg/ha.	49	191	222	210	299	192	359	77·0

Control yield=512 Kg/he. ; No. of trials=5.

Sibsagar

63(S.F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of Mustard in Kg/ha.	164	149	205	284	305	354	481	50·3

Control yield=535 Kg/ha. ; No. of trials=10.

64(S.F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of Mustard in Kg/ha.	2	—33	61	118	72	145	218	70·8

Control yield=568 Kg/ha.; No. of trials=11.

65(S.F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of Mustard in Kg/ha.	135	208	160	279	180	463	473	140·9

Control yield=598 Kg/ha. ; No. of trials=4.

Nowgong

63(S.F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of Mustard in Kg/ha.	88	72	112	207	262	364	393	10·5

Control yield=932 Kg/ha. ; No. of trials=7.

64(S.F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of Mustard in Kg/ha.	00	00	00	80	90	80	280	58·0

Control yield=770 Kg/ha. ; No. of trials=9.

65(S.F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of Mustard in Kg/ha.	104	113	150	208	217	311	371	22·2

Control yield=778 Kg/ha. ; No. of trials=9.

Darrang

63(S.F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of Mustard in Kg/ha.	59	138	182	158	163	162	287	41·2

Control yield=750 Kg/ha. ; No. of trials=4.

64(S.F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of Mustard in Kg/ha.	123	140	128	159	151	163	322	40·9

Control yield=925 Kg/ha. ; No. of trials=7.

65(S.F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of Mustard in Kg/ha.	44	67	67	109	41	148	207	57·9

Control yield=842 Kg/ha. ; No. of trials=7.

Kamrup

63(S.F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of Mustard in Kg/ha.	129	61	79	252	355	443	476	25·5

Control yield=371 Kg/ha. ; No. of trials=5.

64(S.F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of Mustard in Kg/ha.	61	21	60	133	163	193	242	37·8

Control yield=340 Kg/ha. ; No. of trials=6.

Crop :- Mustard (*Rabi*).

Ref :- As. 63, 64(S.F.T.) for Goalpara and Kamrup ; 64, 65(S.F.T.) for Lakhimpur and Darraag ; 63, 64, 65(S.F.T.) for Sibsagar and Nowgong.

Site :- (District) : Goalpara, Lakhimpur, Sibsagar, Nowgong, Darrang and Kamrup (*c.f.*)

Type :- 'M'.

Object :— Type A_2 : To study the response curves of important oilseeds, cereals and cash crops to Phosphorous applied singly and in combination with other nutrients.

1. BASAL CONDITIONS

(i) N.A. (ii) alluvial for all. (iii) to (vi) N.A. (vii) Unirrigated. (viii) to (x) N.A.

2. TREATMENTS :

8 manurial treatments :

O =Control (no manure).
N_1 =25 Kg/ha. of N.
K_1 =25 Kg/ha. of K_2O.
K_2 =50 Kg/ha. of K_2O.
N_1K_1 =25 Kg/ha. of N+25 Kg/ha. of K_2O.
N_1K_2 =25 Kg/ha. of N+50 Kg/ha. of K_2O.
N_2K_2 =50 Kg/ha. of N+50 Kg/ha. of K_2O.
$N_1P_1K_1$ =25 Kg/ha. of N+25 Kg/ha. of P_2O_5+25 Kg/ha. of K_2O.
N applied as A/S, P_2O_5 as Super and K_2O as Mur. Pot.

3. DESIGN :

Same as the experiment Type A_1 on Mustard on page 119.

4. GENERAL :

(i) to (iii) N.A. (iv) (a) 1963 to 66 [65 N.A.]. for Goalpara and Kamrup; 1964 to 65 for Lakhimpur and Darrang; 1963 to 65 for Sibsagar and Nowgong. (b) N.A. (c) Nil. (v) to (vii) N.A.

5. RESULTS :

Goalpara

63(S.F.T.)

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of Mustard in Kg/ha.	49	128	95	39	134	76	99	17·3

Control yield =780 Kg/ha. ; No. of trials=4.

64(S.F.T.)

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of Mustard in Kg/ha.	13	—11	—20	11	28	50	67	15·1

Control yield=528 Kg/ha.; No. of trials=5.

Lakhimpur

64(S.F.T.)

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of Mustard in Kg/ha.	148	247	158	206	168	182	227	164.1

Control yield=543 Kg/ha. ; No. of trials=3.

65(S.F.T.)

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of Mustard in Kg/ha.	—19	258	261	267	280	379	390	63·6

Control yield=854 Kg/ha. ; No. of trials=2.

Sibsagar

63(S.F.T.)

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of Mustard in Kg/ha.	107	52	105	147	250	278	343	36·5

Control yield=570 Kg/ha. No. of trials=6.

64(S.F.T.)

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of Mustard in Kg/ha.	79	48	84	103	96	179	227	57·0

Control yield=371 Kg/ha. No. of trials=9.

65(S.F.T.)

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of Mustard in Kg/ha.	92	16	61	211	198	293	395	51·7

Control yield=644 Kg/ha.; No. of trials=5.

Nowgong

63(S.F.T.)

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of Mustard in Kg/ha.	117	31	117	224	232	415	555	23.0

Control yield=1004 Kg/ha. ; No. of trials=6.

64(S.F.T.)

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of Mustard in Kg/ha.	110	80	130	140	160	190	230	30·0

Control yield=720 Kg/ha. ; No. of trials=11.

65(S.F.T.)

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of Mustard in Kg/ha.	82	73	129	190	225	294	287	18·2

Control yield=754 Kg/ha. ; No. of trials=9.

Darrang

64(S.F.T.)

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of Mustard in Kg/ha.	65	56	39	72	72	72	103	66·3

Control yield=873 Kg/ha. ; No. of trials=5.

65(S.F.T.)

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av response of Mustard in Kg/ha	16	14	90	−53	72	184	111	120·5

Control yield=939 Kg ha. ; No. of trials=5.

Kamrup

63(S.F.T.)

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of Mustard in Kg/ha.	62	1	69	130	142	261	307	61·3

Control yield=410 Kg/ha. ; No. of trials=6.

64(S.F.T.)

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of Mustard in Kg/ha.	91	53	142	172	185	235	297	16·2

Control yield=378 Kg/ha. ; No. of trials=6.

Crop :- Mustard (*Rabi*). **Ref :- 65(40).**

Site :- Pulse and Oilseed Res. Stn., Roha. **Type :- 'C'.**

Object :—To study the effect of different seed rates with different dates of sowing on the yield of Mustard.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) and (c) N.A. (ii) Loamy. (iii) As per treatments. (iv) (a) 5 to 6 ploughings. (b) Broadcasting. (c) As per treatments. (d) and (e) — (v) 163·1 Q/ha. of Cowdung. (vi) M—27. (vii) Unirrigated. (viii) Weeding. (ix) N.A. (x) 3.2.66.

2. TREATMENTS :

All combinations of (1) and (2)

(1) 3 dates of sowing : D_1=Middle of October, D_2=1st half of November and D_3=Late November

(2) 4 seed rates : S_1=2·80, S_2=3·36, S_3=3·92 and S_4=4·48 Kg/ha.

3. DESIGN

(i) Fact. in R.B.D. (ii) (a) 12. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 3 4 m. × 6·7 m. (v) N.A.

4. GENERAL

(i) Normal. (ii) N.A. (iii) Yield of mustard seeds. (iv) (a) 1965—66. (b) No. (c) Nil. (v) No. (vi) N.A (vii) Expt. failed in 1966.

5. RESULTS

(i) 706 Kg/ha. (ii) 120·2 Kg/ha. (iii) None of the effects is significant. (iv) Av. yield of Mustard in Kg/ha.

	S_1	S_2	S_3	S_4	Mean
D_1	415	533	896	917	690
D_2	338	502	1007	938	696
D_3	327	603	1006	996	733
Mean	360	546	970	950	706

Crop :- Mustard (*Rabi*). **Ref :- As. 64(31) and 65(39).**

Site :- Pulse and Oilseed Res. Stn., Roha. **Type :- 'C'.**

Object :—To study the effect of different spacings on the yield of Mustard.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) and (c) N.A. (ii) Loamy. (iii) 8.11.64 ; 5.11.65. (iv) (a) 5 to 6 ploughings. (b) As per treatments. (c) N.A. (d) As per treatments. (e) N.A. (v) 163·1 Q/ha. of Cowdung. (vi) M—27. (vii) Irrigated. (viii) As per treatments. (ix) N.A. (x) 30.1.65 ; 25.1.66.

2. TREATMENTS:

5 cultural treatments : T_1=Broadcasting, T_2=15 cm.×15 cm. with weeding, T_3=20 cm.×20 cm. with weeding, T_4=15 cm ×15 cm. without weeding and T_5=20 cm.×20 cm. without weeding.

3. DESIGN :

(i) R.B.D. (ii) (a) 5. (b) N.A. (iii) 4. (iv) (a) 10·1 m.×5·0 m. (b) 9·5 m.×4·4 m. (v) 30 cm. alround. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of mustard seeds. (iv) (a) Yes., 1964—65. (b) No. (c) Nil. (v) No. (vi) N.A. (vii) As complete results for 1964 are not available, pooling of results has not been done.

5. RESULTS :

64(31)

(i) 353 Kg/ha. (ii) N.A. (iii) Treatment differences are not significant. (iv) Av. yield 0f mustard in Kg/ha.

Treatment	T_1	T_2	T_3	T_4	T_5
Av. yield	419	357	326	329	334

65(39)

(i) 182 Kg/ha. (ii) 39·2 Kg/ha. (iii) Treatment differences are not significant. (iv) Av. yield of mustard in Kg/ha.

Treatment	T_1	T_2	T_3	T_4	T_5
Av. yield	188	178	193	178	173

Crop :- Sesamum (*Rabi*). **Ref :- As. 64(3).**

Site :- Pulse and Oilseed Res. Stn., Roha. **Type :- 'C'.**

Object :—To find out the suitable spacing for Sesamum.

1. BASAL CONDITIONS :

(i) Nil. (ii) and (iii) N.A. (iv) (a) 5 to 6 ploughings. (b) As per treatments. (c) N.A. (d) As per treatments. (e) N.A. (v) 163·1 Q/ha. of Cowdung. (vi) Local. (vii) Unirrigated. (viii) Weeding. (ix) and (x) N.A.

2. TREATMENTS :

5 methods of sowing : T_1=Rows 23 cm. apart, T_2=Rows 30 cm. apart, T_3=Rows 38 cm. apart, T_4=Rows 45 cm. apart and T_5=Broadcasting.

3. DESIGN :

(i) R.B.D. (ii) (a) 5. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 10·1 m.×5·0 m. (v) N.A. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of grain. (iv) (a) 1964—only. (b) No. (c) Nil. (v) No. (vi) and (vii) Nil.

5. RESULTS :

(i) 143 Kg ha. (ii) 54·5 Kg/ha. (iii) Treatment differences are not significant. (iv) Av. yield of grain in Kg ha

Treatment	T_1	T_2	T_3	T_4	T_5
Av. yield	211	125	86	96	198

Crop :- Arecanut. **Ref :- As. 63(35).**

Site :- Reg. Arecanut Res. Stn., Kahikuchi. **Type :- 'M'.**

Object :—To determine the optimum N, P and K requirements of the Arecanut palm.

1. BASAL CONDITIONS :

(i) N.A. (ii) New alluvial. (iii) By seednuts. (iv) Local. (v) September, 1962. Planted with a spacing of 23 cm. × 23 cm. (vi) 1 year. (vii) N.A. (viii) Weeding and hoeing. (ix) Nil. (x) Irrigated in summer season with power pump. (xi) N.A. (xii) Nil.

2. TREATMENTS :

All combinations of (1), (2), (3) and (4)

(1) 3 levels of N : N_0=0, N_1=22·7 and N_2=45·4 Kg/500 palms.

(2) 3 levels of P_2O_5 : P_0 =0, P_1=18·1 and P_2=36·3 Kg/500 palms.

(3) 3 levels of K_2O : K_0=0, K_1=34·0 and K_2=68·0 Kg/500 palms.

(4) 3 levels of green leaves : G_0=0, G_1=3401 and G_2=6802 Kg/500 palms.

N.B. :— 1 5th of the above doses of manures was applied during the year 1963.

3. DESIGN :

(i) 3^4 confd. (ii) (a) 81 plots/replication. (b) N.A. (iii) 1. (iv) (a) N.A. (b) 20 palms/plot. (v) N.A. (vi) Yes.

4. GENERAL :

(i) Normal. (ii) N.A. (iii) Girth, height and No. of functioning leaves taken after one year of planting. (iv) 1962 - contd. (v) No. (vi) N.A. (vii) Nil.

5. RESULTS :

Results of Girth

(i) 3·3 cm plant. (ii) 0·4 cm/plant. (iii) Only interactions P × K and P × G are significant. (iv) Av. girth plant in cm

	K_0	K_1	K_2	G_0	G_1	G_2	Mean
P_0	3·3	3·0	3·5	3·0	3·5	3·3	3·3
P_1	3·5	3·1	3·5	3·4	3·3	3·4	3·4
P_2	3·2	3·4	3·1	3·4	3·2	3·1	3·2
Mean	3·3	3·2	3·4	3·3	3·3	3·3	3·3

C.D. for means of the body of any table=0·4 cm/plant.

Treatment	N_0	N_1	N_2
Av. girth/plant in cm.	3·2	3·3	3·3

Results for plant height

(i) 93·7 cm/plant. (ii) 11·7 cm/plant. (iii) Only interaction P × K is significant. (iv) Av. height plant in cm.

	K_0	K_1	K_2	G_0	G_1	G_2	Mean
P_0	92·0	87·1	100·3	91·2	96·7	91·5	93·1
P_1	97·1	87·7	101·3	97·3	87·8	101·1	95·4
P_2	90·3	99·2	88·3	93·1	91·7	92·9	92·6
Mean	93·1	91·3	96·6	93·8	92·1	95·1	93·7

C.D. for means of P × K table = 10·8 cm/plant.

Treatment	N_0	N_1	N_2
Av. height/plant in cm.	91·7	94·1	95·3

Results for No. of leaves

(i) 5·1 leaves/plant. (ii) 0·42 leaves/plant. (iii) None of the effects is significant. (iv) Av. No. of leaves/plant.

	K_0	K_1	K_2	G_0	G_1	G_2	Mean
P_0	5·2	4·8	5·3	5·1	5·0	5·1	5·1
P_1	5·2	5·1	5·2	5·2	5·2	5·1	5·2
P_2	5·1	5·2	5·1	5·1	5·3	5·0	5·1
Mean	5·1	5·1	5·2	5·2	5·2	5·1	5·1

Treatment	N_0	N_1	N_2
Av. No. of leaves/plant	1·1	5·2	5·0

Crop :- Arecanut. **Ref :- As. 62(29) and 63(34).**

Site :- Reg. Arecanut Res. Stn., Kahikuchi. **Type :- 'C'.**

Object :—To determine the effect of planting inter-crops in Arecanut garden on palm performance.

1. BASAL CONDITIONS :

(i) N.A. (ii) New alluvial. (iii) By seednuts. (iv) Local. (v) September, 1961. Planted with a spacing of 27 cm. × 27 cm. (vi) 1 year. (vii) N.A. (viii) Weeding and hoeing. (ix) As per treatments. (x) Irrigated in summer season with power pump. (xi) N.A. (xii) Nil.

2. TREATMENTS :

6 intercrops : T_0 = Control (no intercrop), T_1 = Banana, T_2 = Pineapple, T_3 = Ginger, T_4 = Khasi Mandarine Orange (citrus) and T_5 = Betel-vine.

N.B.:-- Banana, Pineapple and Khasi Mandarine Orange (which is commonly grown as an intercrop in K and J. Hills) were planted during 1962. Subsequently, Khasi Mandarine Orange was excluded from the treatments and a fodder grass namely Guinea grass was introduced. Betel-vines were planted during 1963.

3. DESIGN :

(i) R.B.D. (ii) (a) 6, (b) N.A. (iii) 4. (iv) (a) N.A. (b) 20 palms/plot. (v) N.A. (vi) Yes.

4. GENERAL :

(i) Normal. (ii) N.A. (iii) Girth, height and No. of functioning leaves taken after two years of planting in 1962 and after two years of planting in 1963. (iv) 1961—N.A. (v) No. (vi) N.A. (vii) Nil.

5. RESULTS :

62(29)

I. **Girth**

(i) 3·3 cm/plant. (ii) 0 29 cm/plant. (iii) Treatment differences are significant. (iv) Av. girth/plant in cm.

Treatment	T_c	T_1	T_2	T_3	T_4	T_5
Av. girth	3 5	3·0	3 2	3·1	3·7	3·3

C.D.=0 44 cm/plant.

II. **Height**

(i) 98·9 cm/plant. (ii) 9·53 cm/plant. (iii) Treatment differences are not significant. (iv) Av. height plant in cm.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5
Av. height	96 9	93·7	95·1	97 7	110 1	99·9

III. **No. of leaves**

(i) 5 8 leaves/plant. (ii) 0·28 leaves/plant. (iii) Treatment differences are not significant. (iv) Av. No. of leaves/plant.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5
Av. No. of leaves	5·6	5·7	5·8	5·5	5·8	5·8

63(34)

I. **Girth**

(i) 8 0 cm/plant. (ii) 0·70 cm/plant. (iii) Treatment differences are not significant. (iv) Av. girth/plant in cm.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5
Av girth	7·8	7·8	7·3	8·6	8·0	8·3

II. **Height**

(i) 217·6 cm/plant. (ii) 23·80 cm/plant. (iii) Treatment differences are not significant. (iv) Av. height plant in cm.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5
Av. girth	206·4	213·9	196·9	238·7	217·4	232·3

III. **No of leaves**

(i) 5·7 leaves/plant. (ii) 0·25 leaves/plant. (iii) Treatment differences are not significant. (iv) Av. No. of leaves/plant.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5
Av. No. of leaves	4·7	5·6	5·7	5·8	5·8	5·8

Crop :- Arecanut. **Ref :- As. 62(28) and 63(33).**

Site :- Reg. Arecanut Res. Stn., Kahikuchi. **Type :- 'C'.**

Object :—To determine the optimum spacing for Arecanut palm.

1. BASAL CONDITIONS :

(i) N.A. (ii) New alluvial. (iii) By seednuts. (iv) Local. (v) November, 1961. Planted with spacings as per treatments. (vi) 1 year. (vii) N.A. (viii) Weeding and hoeing. (ix) Nil. (x) Irrigated in Summer. (xi) N.A. (xii) Nil.

2. TREATMENTS :

6 spacings : S_1=1·83 m.×1·83 m., S_2=1·83 m.×2·74 m., S_3=1·83m.×3·66 m., S_4=2·74 m.×2·74 m., S_5=2·74 m.×3.66m. and S_6=3·66 m,×3·66 m.

3. DESIGN :

(i) R.B D. (ii) (a) 6. (b) N.A. (iii) 6. (iv) (a) N.A. (b) 20 palms/plot. (v) N.A. (vi) Yes.

4. GENERAL :

(i) Normal. (ii) N.A. (iii) Girth, height and No. of functioning leaves taken after one year of planting in 1962 and after two years of planting in 1963. (iv) 1962 –N.A. (v) No. (vi) N.A. (vii) Nil.

5. RESULTS ;

62(78)

I. Girth

(i) 1·9 cm./plant. (ii) 0·20 cm./plant. (iii) Treatment differences are not significant. (iv) Av. girth/plant in cm.

Treatment	S_1	S_2	S_3	S_4	S_5	S_6
Av. girth	1·8	1·9	1·7	1·9	1·9	2·0

II. Height

(i) 72·6 cm./plant. (ii) 7·75 cm./plant. (iii) Treatment differences are not significant. (iv) Av. height/plant in cm.

Treatment	S_1	S_2	S_3	S_4	S_5	S_6
Av. height	73·2	72·8	66·8	72·8	75·8	74·1

III. No. of leaves

(i) 5·5 leaves/plant. (ii) 0·22 leaves/plant. (iii) Treatment differences are not significant. (iv) Av. No. of leaves/plant.

Treatment	S_1	S_2	S_3	S_4	S_5	S_6
Av. No. of leaves/plant	5·5	5·5	5·5	5·5	5·5	5·5

I. Girth

63(33)

(i) 5·0 cm./plant. (ii) 0·42 cm./plant. (iii) Treatment differences are not significant. (iv) Av. girth/plant in cm.

Treatment	S_1	S_2	S_3	S_4	S_5	S_6
Av. girth	5·2	4·9	4·8	4·9	5·2	4·9

II. Height

(i) 149·4 cm./plant. (ii) 19·3 cm./plant. (iii) Treatment differences are not significant. (iv) Av. height/plant in cm.

Treatment	S_1	S_2	S_3	S_4	S_5	S_6
Av. height	160·1	148 6	146·2	142·7	152·2	146·5

III. No. of leaves

(i) 4·8 leaves/plant. (ii) 0·3 leaves/plant. (iii) Treatment differences are not significant. (iv) Av. No. of leaves/plant.

Treatment	S_1	S_2	S_3	S_4	S_5	S_6
Av. No. of leaves/plant	4·9	4·7	4·7	4·8	4·8	4·9

Crop :- Arecanut. **Ref :- As. 61(23) and 62(27).**

Site :- Reg. Arecanut Res. Stn., Kahikuchi. **Type :- 'C'.**

Object :—To find out the influence of certain pre-sowing treatments on the vigour of the resulting seedlings

1. BASAL CONDITIONS :

(i) N.A. (ii) New alluvial. (iii) By seednuts. (iv) Local. (v) N.A. ; Line sowing. (vi) Nil since seednuts sown. (vii) N.A. (viii) Periodical weeding. (ix) Nil. (x) Irrigated in summer season with power pump (xi) N.A. (xii) Seedlings were uprooted after one year for transplanting.

2. TREATMENTS :

12 pre-sowing treatments : T_1=Harvesting and immediate sowing, T_2=Treating with Cowdung slurry and immediate sowing, T_3=Treating with Cowdung slurry, air-drying for 3 days, and sowing, T_4=Treating with Cawdung slurry, air-drying for 6 days and sowing, T_5=Treating with Cowdung slurry, air-drying for 9 days and sowing, T_6=Sun-drying for 2 days and sowing, T_7=Sun-drying for 4 days and sowing, T_8=Sun-drying for 6 days and sowing, T_9=Air-drying for 3 days and sowing, T_{10}=Air-drying for 6 days and sowing, T_{11}=Air-drying for 9 days and sowing. and T_{12}=Soaking in water for 3 days and sowing.

3. DESIGN :

(i) R.B.D. (ii) (a) 12. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 50 nuts/plot. (v) N.A (vi) Yes.

4. GENERAL :

(i) Normal. (ii) N.A. (iii) Girth and height measurements and No of functioning leaves taken after one year of sowing. (iv) 1960—N.A. (v) No. (vi) N.A. (vii) Nil.

5. RESULTS :

61(23)

I. Girth

(i) 1·2 cm/plant. (ii) 0 10 cm/plant. (iii) Treatment differences are not significant. (iv) Av. girth/plan in cm.

Treatment	T_1	T_2	T_3	T_4	T_5	T_6
Av. girth	1·3	1·3	1·3	1·1	1·3	1 2
	T_7	T_8	T_9	T_{10}	T_{11}	T_{12}
	1·2	1·1	1 2	1·1	1·0	1·3

II. Height

(i) 54·3 cm/plant (ii) 3·1 cm/plant. (iii) Treatment differences are not significant. (iv) Av. height/plant in cm.

Treatment	T_1	T_2	T_3	T_4	T_5	T_6
Av. height	59·8	63·0	55·0	52·0	54·0	54·5
	T_7	T_8	T_9	T_{10}	T_{11}	T_{12}
	55·0	44·3	52 0	53·3	48·3	60·8

III. No. of leaves

(i) 4·0 leaves/plant. (ii) 0 68 leaves/plant. (iii) Treatment differences are not significant. (iv) Av. No. of leaves/plant.

Treatment	T_1	T_2	T_3	T_4	T_5	T_6
Av. No. of leaves	4·8	4·8	4·3	4·0	3·8	3·3
	T_7	T_8	T_9	T_{10}	T_{11}	T_{12}
	4·3	3.3	4·5	4·0	3·3	4·3

62(27)

I. Girth

(i) 1·1 cm./plant. (ii) 0·57 cm./plant. (iii) Treatment differences are not significant. (iv) Av. girth/plant in cm.

Treatment	T_1	T_2	T_3	T_4	T_5	T_6
Av. girth	0·9	1·1	1·1	1·1	1·1	1·2
	T_7	T_8	T_9	T_{10}	T_{11}	T_{12}
	1·2	1·1	1·1	1·1	1·1	1·0

II. Height

(i) 52·5 cm./plant. (ii) 5·70 cm./plant. (iii) Treatment differences are significant. (iv) Av. height/plant in cm.

Treatment	T_1	T_2	T_3	T_4	T_5	T_6
Av. height	54·2	54·7	59·3	41·2	53·5	48·7
	T_7	T_8	T_9	T_{10}	T_{11}	T_{12}
	46·2	55·0	53·5	54·0	50 8	59·2

C.D.=8·2 cm./plant.

III. No. of leaves

(i) 4·0 leaves/plant. (ii) 0·50 leaves/plant. (iii) Treatment differences are not significant. (iv) Av. No. of leaves/plant.

Treatment	T_1	T_2	T_3	T_4	T_5	T_6
Av. No. of leaves	4·0	4·0	4·0	4·2	4·0	3·7
	T_7	T_8	T_9	T_{10}	T_{11}	T_{12}
	4·0	4·2	3·7	3·8	4·2	4·0

Crop :- Arecanut. **Ref :- As. 61(22) and 62(26).**

Site :- Reg. Arecanut Res. Stn., Kahikuchi **Type :- 'C'.**

Object :—To study the effect of shade *vs.* no shade on the growth of seedlings.

1. BASAL CONDITIONS :

(i) N.A. (ii) New alluvial. (iii) By seednuts. (iv) Local. (v) Oct., 60 ; Oct. 61 ; Line sowing. (vi) Nil as seednuts sown. (vii) N.A. (viii) Periodical weedings. (ix) Nil. (x) Irrigated in summer season with power pump. (xi) N.A (xii) Seedlings were uprooted after one year for transplanting.

2. TREATMENTS :

3 cultural treatments : T_1=No shade, T_2=Partial shade and T_3=Complete shade.

3. DESIGN :

(i) R.B.D. (ii) (a) 3. (b) N.A. (iii) 8. (iv) (a) N.A. (b) 50 nuts/plot. (v) N.A. (vi) Yes.

4. GENERAL :

(i) Normal. (ii) N.A. (iii) Girth and height measurements and No. of functioning leaves taken after one year of sowing. (iv) 1960—N.A. (v) No. (vi) N.A. (vii) Nil.

5. RESULTS :

61(22)

I. Girth

(i) 1·2 cm./plant. (ii) 0·37 cm./plant. (iii) Treatment differences are not significant. (iv) Av. girth/plant in cm.

Treatment	T_1	T_2	T_3
Av. girth	1·2	1·3	1·1

II. Height

(i) 56·8 cm. plant. (ii) 1·2 cm./plant. (iii) Treatment differences are significant. (iv) Av. height/plant in cm.

Treatment	T_1	T_2	T_3
Av. height	54·8	57·5	58·3

C.D.=1·3 cm./plant.

III. No. of leaves

(i) 4·3 leaves/plant. (ii) 0·8 leaves plant. (iii) Treatment differences are not significant. (iv) Av. No. of leaves/plant.

Treatment	T_1	T_2	T_3
Av. No. of leaves	4·0	4·6	4·4

62(26)

I. Girth

(i) 1·3 cm./plant. (ii) 0·17 cm./plant. (iii) Treatment differences are significant. (iv) Av. girth/plant in cm.

Treatment	T_1	T_2	T_3
Av. yield	1·2	1·3	1·5

C.D.=0·21 cm./plant.

II. Height

(i) 56·6 cm. plant (ii) 9·23 cm./plant. (iii) Treatment differences are significant. (iv) Av. height/plant in cm.

Treatment	T_1	T_2	T_3
Av. girth	43·9	61·0	65·0

C.D.=11·44 cm./plant.

III. No of leaves

(i) 4·0 leaves/plant. (ii) 0·5 leaves/plant. (iii) Treatment differences are not significant. (iv) Av. No. of leaves/plant.

Treatment	T_1	T_2	T_3
Av. No of leaves	4·0	3·8	4·4

Crop :- Arecanut. **Ref :- As. 61(21) and 62(25).**

Site :- Reg. Arecanut Res. Stn., Kahikuchi. **Type :- 'C'.**

Object :—To study the effect of different spacings and efficiency of sowing unsprouted and sprouted seeds on seedling performance.

1. BASAL CONDITIONS :

(i) N.A. (ii) New alluvial. (iii) By seednuts. (iv) Local. (v) Sept., 1960 ; Sept. 1961 ; Line sowing. (vi) Nil as Seednuts sown. (vii) N.A. (viii) Periodical weedings. (ix) Nil. (x) Irrigated. (xi) N.A. (xii) Seedlings were uprooted after one year for transplanting.

2. TREATMENTS:

All combinations of (1) and (2)

(1) 4 spacings : S_1=23 cm.×23 cm., S_2=30 cm.×30 cm., S_3=38 cm.×38 cm. and S_4=46 cm.×46 cm.

(2) 2 natures of nuts : A_1=Unsprouted and A_2=Sprouted.

3. DESIGN :

(i) Fact. in R.B.D. (ii) (a) 8. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 50 nuts/plot. (v) N.A. (vi) Yes.

4. GENERAL :

(i) Normal. (ii) N.A. (iii) Measurements of girth and height and No. of functioning leaves taken after one year of sowing. (iv) 1960—N.A. (v) No. (vi) N.A. (vii) Nil.

5. RESULTS :

61(21)

I. Girth

(i) 1·3 cm./plant. (ii) 0·12 cm./plant. (iii) None of the effects is significant. (iv) Av. girth/plant in cm.

	S_1	S_2	S_3	S_4	Mean
A_1	1·3	1·3	1·3	1·3	1·3
A_2	1·5	1·4	1·2	1·3	1·3
Mean	1·4	1·4	1·3	1·3	1·3

II. Height

(i) 57·3 cm./plant. (ii) 0·87 cm./plant. (iii) Main effects of A and S are highly significant. (iv) Av. height/plant in cm.

	S_1	S_2	S_3	S_4	Mean
A_1	58·3	56·5	58·5	58·5	58·0
A_2	55·8	54·8	58·0	57·6	56·6
Mean	57·0	55·6	58·3	58·1	57·3

C.D. for S marginal means=0·9 cm./plant.

C.D. for A marginal means=0·6 cm./plant.

III. No. of leaves

(i) 4·3 leaves/plant. (ii) 0·72 leaves/plant. (iii) None of the effects is significant. (iv) Av. No. of leaves/plant

	S_1	S_3	S_2	S_4	Mean
A_1	4·0	4·8	4·3	4·3	4·3
A_2	4·5	4·3	4·0	4·0	4·2
Mean	4·3	4·5	4·1	4·1	4·3

62(25)

I. Girth

(i) 1·2 cm./plant. (ii) 0·21 cm./plant, (iii) Only the main effect of A is significant. (iv) Av. girth/plant n cm.

	S_1	S_2	S_3	S_4	Mean
A_1	1·5	1·2	1·1	1·4	1·3
A_2	1·0	1·1	1·1	1·1	1·1
Mean	1·3	1·1	1·1	1·3	1·2

C.D for A marginal means=0·2 cm./plant.

II. Height

(i) 58·4 cm /plant. (ii) 5·59 cm. plant. (iii) Only the main effect of A is significant. (iv) Av. height plant in cm.

	S_1	S_2	S_3	S_4	Mean
A_1	62·5	63·0	62·0	61·5	62·3
A_2	55 5	54·3	53·0	55·3	54·5
Mean	59 0	58·6	57·5	58·4	58·4

C.D. for A marginal means=4·1 cm./plot.

III. No. of leaves

(i) 3·81 leaves/plant. (ii) 0 69 leaves plant. (iii) None of the effects is significant. (iv) Av. No. of leaves/ plant.

	S_1	S_2	S_3	S_4	Mean
A_1	4·0	3·8	4·0	3·8	3·9
A_2	3·8	4·0	3·8	3·5	3·8
Mean	3·9	3·9	3·9	3 6	3·8

Crop :- Arecanut. **Ref :- As. 61(20) and 62(24).**

Site :- Reg. Arecanut Res. Stn., Kahikuchi. **Type :- 'C'.**

Object : To determine a suitable medium or method for sprouting Arecanut seednuts.

1. BASAL CONDITIONS :

(i) N.A. (ii) New alluvial. (iii) By seednuts (iv) Local. (v) Sept, 1960 ; Sept., 1961 ; Line sowing. (vi) Nil as seednuts sown. (vii) N.A. (viii) Periodical weedings. (ix) Nil. (x) Irrigated. (xi) N.A. (xii) Seedlings were uprooted after one year for transplanting.

2. TREATMENTS :

5 cultural treatments : T_1=Sowing seednuts in soil medium, T_2=Sowing seednuts in sand medium, T_3= Arranging seednuts in country baskets with a layer of straw as cover, T_4=Tying seednuts in straw bundles and T_5=Heaping seednuts under shade.

3. DESIGN :

(i) R.B.D. (ii) (a) 5. (b) N.A. (iii) 6. (iv) (a) N.A. (b) 53 nuts/plot. (v) N.A. (vi) Yes.

4. FENERAL :

(i) Normal (ii) Nil. (iii) Measurements of girth and height and No. of functioning leaves taken after one year of sowing. (iv) 1960—N.A. (v) No. (vi) N.A. (vii) Nil.

5. RESULTS :

61(20)

I. Girth

(i) 1·2 cm./plant. (ii) 0·1 cm./plant. (iii) Treatment differences are significant. (iv) Av. girth/plant in cm.

Treatment	T_1	T_2	T_3	T_4	T_5
Av. girth	1·4	1·3	1·2	1·1	1·2

C.D. = 0·1 cm./plant.

II. Height

(i) 54·2 cm./plant. (ii) 2·7 cm./plant. (iii) Treatment differences are significant. (iv) Av. height/plant in cm.

Treatment	T_1	T_2	T_3	T_4	T_5
Av. height	58·7	55·3	55·5	49·3	52·0

C.D. = 3·3 cm./plant.

III. No. of leaves

(i) 4·2 leaves/plant. (ii) 3·9 leaves/plant. (iii) Treatment differences are not significant. (iv) Av. No. of leaves/plant.

Treatment	T_1	T_2	T_3	T_4	T_5
Av. No of leaves	4·5	4·8	3·8	4 0	3·7

62(24

I. Girth

(i) 1·0 cm./plant. (ii) 1·7 cm./plant. (iii) Treatment differences are not significant. (iv) Av. girth/plant in cm.

Treatment	T_1	T_2	T_3	T_4	T_5
Av. girth	1·1	1·0	1·0	1·1	1 0

II. Height

(i) 50·9 cm./plant. (ii) 6·3 cm./plant. (iii) Treatment differences are not significant. (iv) Av. height/plant in cm.

Treatment	T_1	T_2	T_3	T_4	T_5
Av. height	51·2	49·3	48·3	51·3	54 5

III. No of leaves

(i) 4·2 leaves/plant. (ii) 0·6 leaves/plant. (iii) Treatment differences are not significant. (iv) Av. No. of leaves/plant.

Treatment	T_1	T_2	T_3	T_4	T_5
Av. No. of leaves	4·0	4·0	4·2	4·3	4·5

Crop :- Arecanut. **Ref :- As. 61(19) and 62(23).**

Site :- Reg. Arecanut Res. Stn., Kahikuchi. **Type :- 'C'.**

Object :— To study the effect of different positions of seednuts and optimum depth of sowing.

1. BASAL CONDITIONS :

(i) N.A. (ii) New alluvial. (iii) By seednuts. (iv) Local. (v) Oct., 1960 ; Oct., 1961 ; Line sowing. (vi) Nil as seednuts sown. (vii) N.A. (viii) Periodical weeding. (ix) Nil. (x) Irrigated. (xi) N.A. (xii) Seedlings were uprooted after one year for transplanting.

2. TREATMENTS :

All combinations of (1) and (2)

(1) 4 positions of seednuts : A_1=Vertical, A_2=Slanting, A_3=Horizontal and A_4=Topsy turoy.

(2) 4 depths of sowing seednuts : B_1=0, B_2=2·5, B_3=5 and B_4=7·5 cm.

3. DESIGN :

(i) Fact. in R.B.D. (ii) (a) 16. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 50 nuts/plot. (v) N.A (vi) Yes.

4. GENERAL :

(i) Normal. (ii) N.A. (iii) Girth and height measurements and No. of functioning leaves were taken after one year of sowing. (iv) Yes, 1960-62. (v) No. (vi) N.A. (vii) Nil.

5. RESULTS :

61(19)

I. Girth at collar

(i) 1 2 cm plant. (ii) 0 2 cm./plant. (iii) Only the main effect of B is significant. (iv) Av. girth/plant in cm

	B_1	B_2	B_3	B_4	Mean
A_1	1·4	1·3	1·3	1·1	1·3
A_2	1·2	1·2	1·2	1·1	1·2
A_3	1·4	1·3	1·2	1·1	1·2
A_4	1·2	1·2	1.1	1·1	1·1
Mean	1·3	1·2	1·2	1·1	1·2

C.D. for B marginal means=0·1 cm./plant.

II. Height

(i) 53·7 cm./plant, (ii) 1 0 cm./plant. (iii) Main effect of A, B and interaction A×B are highly significant. (iv) Av height/plant in cm.

	B_1	B_2	B_3	B_4	Mean
A_1	58·5	57·5	57·3	56·0	57·3
A_2	51·3	52 0	52·5	53·5	52·3
A_3	53·5	54·0	52·5	52·5	53·1
A_4	54·5	52·3	51·8	50·3	52·1
Mean	54·3	54·0	53·5	53·1	53·7

C.D. for A or B marginal means =0·7 cm /plant.

C.D. for means in the body of the table=1·4 cm/plant.

III. No. of leaves

(i) 4·1 leaves/plant. (ii) 0·5 leaves/plant. (iii) Only the main-effect of A is highly significant. (iv) Av. No. of leaves/plant.

	B_1	B_2	B_3	B_4	Mean
A_1	4.8	4·3	4·5	4.3	4·4
A_2	3·8	4·3	4·0	4·0	4·0
A_3	4·5	4·8	4·8	4·3	4·6
A_4	4 0	3.3	3·0	3·3	3·4
Mean	4·3	4·1	4·1	3·9	4·1

C.D. for A marginal means=0·3 leaves/plant.

62(23)

I. **Girth at collar**

(i) 1·2 cm./plant. (ii) 0·2 cm./plant. (iii) Main effects of A and B are significant. (iv) Av. girth/plant in cm.

	B_1	B_2	B_3	B_4	Mean
A_1	1.5	1·3	1·1	1·1	1·2
A_2	1·1	1·1	1·0	0·9	1·0
A_3	1·4	1·4	1·4	1·4	1·4
A_4	1·1	1·1	1·0	1·0	1·0
Mean	1·3	1·2	1·1	1·2	1·2

C.D. for A or B marginal means=0·1 cm.

II. **Height**

(i) 52·3 cm./plant. (ii) 8·4 cm./plant. (iii) Main effects of A and B are significant. (iv) Av. height/plant in cm.

	B_1	B_2	B_3	B_4	Mean
A_1	61·0	59·2	48·7	47·3	54·1
A_2	61·0	59·0	54·8	48·8	55·9
A_3	60·2	64·0	61·5	49·5	58·8
A_4	47·8	43·3	37·5	32·7	40·3
Mean	57·5	56·4	50·6	44·6	52·3

C.D. for A or B marginal means=6·0 cm./plant.

III. **No. of leaves**

(i) 3·8 leaves/plant. (ii) 0·6 leaves/plant. (iii) None of the effects is significant. (iv) Av. No. of leaves/plant.

	B_1	B_2	B_3	B_4	Mean
A_1	4·0	3·7	3·8	3·8	3·8
A_2	3·8	4·0	3·7	3·8	3·8
A_3	3·8	3·8	4·2	4·0	4.0
A_4	3·8	3·5	3·5	3·8	3·7
Mean	3·9	3·8	3·8	3·9	3·8

Crop :- Coconut. **Ref :- As. 60(11), 61(18),62(22) and 63(32).**

Site :- Reg. Coconut Res. Stn., Kahikuchi. **Type :- 'C'.**

Object :— To evolve the best method of planting nuts for getting quality seedlings of Coconut.

1. BASAL CONDITIONS :

(i) Cultivable waste ; Newly reclaimed. (ii) Clay loamy soil. (iii) By seednuts. (iv) Local tall for 1960 and 1961 ; West coast tall for others. (v) N.A. (vi) Nil as seednuts sown. (vii) Nil. (viii) Only weeding and cleaning of bed. (ix) Nil. (x) Irrigated. (xi) 179·7 cm. ; 147·2 cm. ; 123·2 cm. ; 190·5 cm. (xii) Nil.

2. TREATMENTS :

T_1=Horizontal, T_2=Vertical and T_3=Oblique.

3. DESIGN :

(i) R.B.D (ii) (a) 3. (b) N.A. (iii) 6. (iv) (a) N.A. (b) 50 nuts/plot. (v) Nil. (vi) Yes.

4. GENERAL :

(i) Fair. (ii) Nil (iii) Girth, height and No. of functioning leaves. (iv) 1958 – 64. (v) No. (vi) N.A. (vii) The data for 1964 not available.

5 RESULTS :

60(11)

I. Girth at collar

(i) 3·4 c.m./plant. (ii) 1·2 c.m./plant. (iii) Treatment differences are not significant. (iv) Av. girth/plant in cm.

Treatment	T_1	T_2	T_3
Av girth	3·1	3·3	3·9

II. Height

(i) 33·1 cm./plant. (ii) 11·0 cm./plant. (iii) Treatment differences are not significant. (iv) Av. height/plant in cm.

Treatment	T_1	T_2	T_3
Av height	32·4	30·5	36·3

III. No. of leaves

(i) 1·5 leaves/plant. (ii) 0·5 leaves/plant. (iii) Treatment differences are not significant. (iv) Av. No. of leaves/plant.

Treatment	T_1	T_2	T_3
Av. No. of leaves	1·5	1·6	1·6

61 18)

I. Girth at collar

(i) 3·9 cm./plant (ii) 1·4 cm./plant. (iii) Treatment differences are not significant. (iv) Av. girth/plant in cm.

Treatment	T_1	T_2	T_3
Av girth	3·6	3·5	4·5

II. Height

(i) 49·3 cm./plant. (ii) 13·6 cm./plant. (iii) Treatment differences are not significant. (iv) Av. height/plant in cm.

Treatment	T_1	T_2	T_3
Av height	48·6	45·2	54·2

III. No. of leaves

(i) 2·1 leaves/plant. (ii) 0·9 leaves/plant. (iii) Treatment diffrrences are not significant. (iv) Av. No. of leaves/plant.

Treatment	T_1	T_2	T_3
Av. No. of leaves	2·0	1·9	2·5

62(22)

I. Girth at collar

(i) 6·8 cm./plant. (ii) and (iii) N.A. (iv) Av. girth/plant in cm.

Treatment	T_1	T_2	T_3
Av. girth	6·7	6·7	6·9

II. Height

(i) 47·0 cm./plant. (ii) and (iii) N.A. (iv) Av. height/plant in cm.

Treatment	T_1	T_2	T_3
Av. height	46·9	45·2	48·8

III. No. of leaves

(i) 2 3 leaves/plant. (ii) and (iii) N.A. (iv) Av. No. of leaves/plant.

Treatment	T_1	T_2	T_3
Av. No. of leaves	1·9	2·4	2·4

62(32)

I. Girth at collar

(i) 6·8 cm./plant. (ii) and (iii) N.A. (iv) Av. girth/plant in cm.

Treatment	T_1	T_2	T_3
Av. girth	7·3	6·4	6·7

II. Height

(i) 51·2 cm /plant. (ii) and (iii) N.A. (iv) Av. height/plant in cm.

Treatment	T_1	T_2	T_3
Av. height	59·4	46·6	47·6

III. No. of leaves

(i) 1·7 leaves/plant. (ii) and (iii) N.A. (iv) Av. No. of leaves/plant.

Treatment	T_1	T_2	T_3
Av. No. of leaves	1·6	1·8	1·8

Crop :- Coconut. **Ref :- As. 60(10), 61(17), 62(21), 63(31).**

Site :- Reg. Coconut Res. Stn., Kahikuchi. **Type :- 'C'.**

Object :— To find out the best time of planting nuts for raising quality seedlings of Cocount.

1. BASAL CONDITIONS :

(i) Cultivable waste; Newly reclaimed. (ii) Loamy soil. (iii) By seednuts. (iv) Local tall for 1960 and 61; West coast tall for 1962 and 63. (v) As per treatments/Line sowing. Between lines—45 cm.and within lines—37 cm. (vi) Nil ; Seednuts only sown. (vii) Nil. (xiii) Weeding and cleaning the bed. (ix) Nil. (x) Irrigated. (xi) 179·7 cm. ; 147 2 cm. ; 123·2 cm. ; 190·5 cm. (xii) Nil.

2. TREATMENTS :

T_1 = Early planting (in February), T_2 = Mid planting (in April) and T_3 = Late planting (in June).

3. DESIGN :

(i) R.B.D. (ii) (a) 3. (b) N.A. (iii) 6. (iv) (a) N.A. (b) 50 nuts/plot. (v) N.A. (vi) Yes.

4. GENERAL :

(i) Fair. (ii) N.A. (iii) Girth, height and No. of functioning leaves. (iv) 1959 to 64. [The data of 1964 is not available]. (v) No. (vi) N.A. (vii) Nil.

5. RESULTS :

60(10)

I. Girth at collar

(i) 2·1 cm./plant. (ii) 1·6 cm./plant. (iii) Treatment differences are not significant. (iv) Av. girth/plant in cm.

Treatment	T_1	T_2	T_3
Av. girth	1·2	2·8	2·4

II. Height

(i) 18 1 cm. plant. (ii) 11·1 cm. plant. (iii) Treatment differences are significant. (iv) Av. height/plant in cm.

Treatment	T_1	T_2	T_3
Av. height	9·2	21·5	23·7

C.D.=14 3 cm. plant.

III No. of leaves

(i) 1 1 leaves/plant. (ii) 0·2 leaves/plant. (iii) Treatment differences are significant. (iv) Av. No. of leaves plant.

Treatment	T_1	T_2	T_3
Av. No. of leaves	0·6	1·3	1·6

C.D.=0·2 leaves plant.

61 17)

I Girth at collar

(i) 4 4 cm. plant. (ii) 1·0 cm. plant. (iii) Treatment differences are not significant. (iv) Av. girth/plant in cm.

Treatment	T_1	T_2	T_3
Av. girth	5 0	4·4	4·0

II. Height

(i) 54 3 cm. plant. (ii) 24·9 cm./plant. (iii) Treatment differences are not significant. (iv) Av. height/plant in cm.

Treatment	T_1	T_2	T_3
Av. height	59·1	53·2	50·5

III. No. of leaves

(i) 2 2 leaves plant. (ii) 1·3 leaves/plant. (iii) Treatment differences are not significant. (iv) Av. No. of leaves, plant.

Treatment	T_1	T_2	T_3
Av. No. of leaves	2·4	2·2	1·9

62(21)

I. Girth at collar

(i) 7·5 cm. plant. (ii) and (iii) N.A. (iv) Av. girth, plant in cm.

Treatment	T_1	T_2	T_3
Av. girth	8·5	7·4	6·6

II. Height

(i) 53·4 cm./plant. (ii) and (iii) N.A. (iv) Av. height/plant in cm.

Treatment	T_1	T_2	T_3
Av. height	58·0	53·5	48·8

III. No. of functioning leaves

(i) 2·2 leaves/plant. (ii) and (iii) N.A. (iv) Av. No. of leaves plant.

Treatment	T_1	T_2	T_3
Av. No. of leaves	2·7	1·9	1·9

63(31)

I. Girth at collar

(i) 8·0 cm./plant. (ii) and (iii) N.A. (iv) Av. girth/plant in cm.

Treatment	T_1	T_2	T_3
Av. girth	8·1	8·0	7·9

II. Height

(i) 52·9 cm./plant. (ii) and (iii) N.A. (iv) Av. height/plant in cm.

Treatment	T_1	T_2	T_3
Av. height	57·0	54·5	47·1

III. No. of leaves

(i) 1·6 leaves/plant. (ii) and (iii) N.A. (iv) Av. No. of leaves/plant.

Treatment	T_1	T_2	T_3
Av. No. of leaves	1·7	1·9	1·2

Crop :- Pineapple. **Ref :- As. 60(15), 61(24) and 62(30).**

Site :- Reg. Fruit Res. Stn., Kahikuchi. **Type :- 'M'.**

Object :— To study the effect of N, P and K on the yield.

1. BASAL CONDITIONS :

(i) Cultivable waste, Newly reclaimed. (ii) New alluvial. (iii) Vegetative. (iv) Kew. (v) 2.10.58 by digging holes at 1·1m.×1·1m. spacing. (vi) 4 months. (vii) 230·6 Q/ha. F.Y.M. (viii) 12 hoeings and 6 weedings. (ix) Nil. (x) Irrigated. (xi) and (xii) N.A.

2. TREATMENTS :

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

(1) 2 levels of N as A/S : N_0=0 and N_1=22·4 Kg/ha.
(2) 2 levels of P_2O_5 as Super : P_0=0 and P_1=73·9 Kg/ha.
(3) 2 levels of K_2O as Pot. Sul. : K_0=0 and K_1=103·0 Kg/ha.

3. DESIGN :

(i) L. Sq. (ii) (a) 8. (b) N.A. (iii) 8. (iv) (a) N.A. (b) 25 plants. (v) 1 row. (vii) Yes.

4. GENERAL :

(i) Normal. (ii) N.A. (iii) Yield of fruits. (iv) 1958-62. (v) No. (vi) N.A. (vii) Nil.

5. RESULTS :

(i) 8·0 Kg/plot. (ii) 3·5 Kg/plot. (iii) Main effects of P and interaction N×K are significant. (iv) Av. yield of fruits in Kg/plot.

	P_0	P_1	K_0	K_1	Mean
N_0	7·6	7·1	5·6	9·1	7·3
N_1	10·7	6·7	8·8	8·7	8·7
Mean	9·2	6·9	7·2	8·9	8·0
K_0	8·2	6·2			
K_1	10·2	7·6			

C.D. for P marginal means =1·8 Kg/plot.
C.D. for means in the body of N×K table=2·5 Kg/plot.

61(24)

(i) 3936 Kg/ha (ii) 1030·1 Kg/ha (iii) Main effects of N and interaction N × K are significant. (iv) Av. yield of fruits in Kg/ha.

	P_0	P_1	K_0	K_1	Mean
N_0	3748	3314	3672	3390	3531
N_1	4438	4242	3896	4785	4340
Mean	4093	3778	3784	4087	3936
K_0	4072	3496			
K_1	4114	4060			

C.D. for N marginal means = 520·2 Kg/ha.
C.D. for means in the body of N × K table = 730·6 Kg/ha.

62.30

(i) 12·1 Kg/plot. (ii) 4·4 Kg/plot. (iii) Main effects of N, K and interaction N × P are highly significant. Av. yield of fruits in Kg/plot

	P_0	P_1	K_0	K_1	Mean
N_0	9·9	11·5	11·8	9·6	10·7
N_1	16·4	10·5	15·2	11·8	13·5
Mean	13·2	11·0	13·5	10·7	12·1
K_0	15·1	11·8			
K_1	11·2	10·2			

C.D. for N or K marginal means = 2·2 Kg/plot.
C.D. for means in the body of N × P table = 3·1 Kg/plot.

Crop :- Pineapple. **Ref :- As. 60(16), 61(25), 62(31).**

Site :- Reg. Fruit Res. Stn., Kahikuchi. **Type :- 'M'.**

Object :— To find out the response of pineapple to organic manures.

1. BASAL CONDITIONS:

(i) (a) Cultivable waste ; newly reclaimed. (ii) New alluvial. (iii) Vegetative. (iv) Queen. (v) 15.9.58 By digging holes at 1·1 m. × 1·1 m. spacing. (vi) 5 months. (vii) 230·6 Q/ha. of F.Y.M. (viii) 12 hoeings and 6 weedings. (ix) Nil. (x) Irrigated. (xi) and (xii) N.A.

2. TREATMENTS :

All combinations of (1), (2) and (3)
(1) 2 levels of N : N_0=0 and N_1=336 Kg/ha. of mustard oilcake.
(2) 2 levels of P : P_0=0 and P_1=134·4 Kg/ha. of B.M.
(3) 2 levels of K : K_0=0 and K_1=336 Kg/ha of wood ash.

N.B. : The manures were applied in one annual dose.

3. DESIGN :

(i) L. Sq. (ii) (a) 8. (b) N.A. (iii) 8. (iv) (a) N.A. (b) 25 plants. (v) 1 row. (vii) Yes

4. GENERAL

(i) Normal. (ii) N.A. (iii) Yield of fruits. (iv) 1958-62. (v) No. (vi) N.A. (vii) Nil.

5. RESULTS :

60(16)

(i) 1·5 Kg/plant. (ii) 1·92 Kg/plant (iii) None of the effects is significant. (iv) Av. yield of fruits in Kg/plant.

	P_0	P_1	K_0	K_1	Mean
N_0	1·1	1·8	1·6	1·4	1·5
N_1	1·4	1·6	1·5	1·4	1·5
Mean	1·3	1·7	1·6	1·4	1·5
K_0	1·2	2·0			
K_1	1·3	1·4			

61(25)

(i) 924 Kg/ha. (ii) 510·90 Kg/ha. (iii) None of the effects is significant. (iv) Av. yield of fruits in Kg/ha.

	P_0	P_1	K_0	K_1	Mean
N_0	1038	860	968	929	949
N_1	982	813	923	872	898
Mean	1010	837	946	901	924
K_0	1018	874			
K_1	1002	799			

62(31)

(i) 7·0 Kg/plant. (ii) 1·46 Kg/plant. (iii) N×P interaction is highly significant. (iv) Av. yield of fruits in Kg/plot.

	P_0	P_1	K_0	K_1	Mean
N_0	6·9	7·7	7·2	7·4	7·3
N_1	7·3	6·0	6·6	6·7	6·7
Mean	7·1	6·9	6·9	7·0	7·0
K_0	7·2	6·7			
K_1	7·0	7·1			

C.D. for body of N×P table=0·74 Kg/plot.

Crop :- Pineapple. **Ref :- As. 60(18), 61(27), 62(33) and 63(37).**

Site :. Reg. Fruit Res. Stn., Kahikuchi. **Type :- 'M'.**

Object :— To study the response of pineapple to the various practices of mulching.

1. BASAL CONDITIONS :

(i) Cultivable waste ; newly reclaimed. (ii) New alluvial. (iii) Vegetative. (iv) Kew. (v) June, 1959. By digging holes at 1·1 m.×1·1 m. spacing. (vi) 3 to 4 months. (vii) 230·6 Kg/ha. of F.Y.M. (viii) As per treatments. (ix) Nil. (x) Irrigated. (xi) and (xii) N.A.

2. TREATMENTS :

5 mulching treatments : T_0=Control, T_1=Black Alkathene film (700 gauge) to be spread between rows, T_2= 46 6 Q ha. of green tops of Bogamedeloa (Tephrosia candida), T_3=173·7 Q/ha. of Saw dust and T_4=173·7 Q/ha. of Paddy husk.

N.B. : Mulching were done once in a year in the month of October.

3. DESIGN :

(i) R.B.D. (ii) (a) 5. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 25 plants. (v) 1 row. (vi) Yes.

4. GENERAL :

(i) Normal (ii) N.A (iii) Height of plants in 1960 and yield of fruits from 1961. (iv) 1959-63. (v) N.A. (vi) N.A. (vii) Nil.

5 RESULTS :

60(18)

(i) 59·1 cm./plant. (ii) 9 38 cm /plant. (iii) Treatment differences are not significant. (iv) Av. height/plant in cm.

Treatment	T_0	T_1	T_2	T_3	T_4
Av. height	50·7	70·7	65·2	53·7	55·3

61(27)

(i) 2384 Kg/ha. (ii) 272 2 Kg/ha. (iii) Treatment differences are not significant. (iv) Av. yield of fruits in Kg ha.

Treatment	T_0	T_1	T_2	T_3	T_4
Av. yield	513	5628	3640	3002	1638

62(33)

(i) 2·2 Kg plot. (ii) 3·0 Kg plot. (iii) Treatment differences are not significant. (iv) Av. yield of fruits in Kg/plot.

Treatment	T_0	T_1	T_2	T_3	T_4
Av. yield	0·8	3·0	2·5	2·5	2·4

63(37)

(i) 1 3 Kg plant. (ii) 0·21 Kg plant. (iii) Treatment differences are not significant. (iv) Av. yield of fruits in Kg plant.

Treatment	T_0	T_1	T_2	T_3	T_4
Av. yield	1·3	1·0	1·3	1·2	1·5

Crop :- Pineapple. **Ref :- As. 64(34).**

Site :- Reg. Fruit Res. Stn., Kahikuchi. **Type :- 'M'.**

Object :— To study the effect of N, P and K on the growth and yield of Pineapple.

1. BASAL CONDITIONS :

(i) Cultivable waste ; newly reclaimed. (ii) New alluvial. (iii) Vegetative. (iv) Kew. (v) June, 1959. By digging holes at 1·14 m. × 1·14 m. (vi) 4 months. (vii) 230·6 Q/ha. of F.Y.M. (viii) 12 hoeings and 6 weedings. (ix) Nil. (x) Irrigated. (xi) and (xii) N.A.

2. TREATMENTS :

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

(1) 3 levels of N as A.S : N_0=0, N_1=56 and N_2=112 K/ha.
(2) 3 levels of P_2O_5 as Super : P_0=0, P_1=247 and P_2=493 K/ha.
(3) 3 levels of K_2O as Pot. Sul. : K_0=0, K_1=44·8 and K_2=89·6 Kg/ha.

N.B.:— The fertilizers were applied in one annual dose.

3. DESIGN :

(i) 3^3 confd. (ii) (a) 9 plots/block and 3 blocks/replication. (b) N.A. (iii) 2. (iv) (a) N. A. (b) 25 plants. (v) 1 row. (vi) Yes.

4. GENERAL :

(i) Normal. (ii) N.A. (iii) Yield of fruits. (iv) 1959-64. (v) No. (vi) N.A. (vii) Data for 1960, 1961 and 1963 not available. Expt. for 1962 failed.

5. RESULTS :

(i) 29·3 Kg/plot. (ii) 3·59 Kg/plot. (iii) Only the main effect of N is highly significant. (iv) Av. yield of fruits in Kg/plot.

	P_0	P_1	P_2	K_0	K_1	K_2	Mean
N_0	27·1	25·3	29·0	26·1	26·4	28·9	27·1
N_1	29·7	25·8	31·2	29·7	28·4	28·7	28·9
N_2	30·0	32·1	33·7	33·7	32·1	30·0	32·0
Mean	28·9	27·8	31·3	29·8	28·9	29·2	29·3
K_0	28·5	28·8	32·1				
K_1	29·7	26·6	30·0				
K_2	28·5	27·8	31·4				

C. D. for N marginal means=2 48 Kg/plot.

Crop :- Pineapple. **Ref :- As. 60(17), 61(26), 62(32) and 63(36).**

Site :- Reg. Fruit Res. Stn., Kahikuchi. **Type :- 'M'.**

Object :— To find out the response of Pineapple to the application of trace elements.

1. BASAL CONDITIONS :

(i) Cultivable waste ; newly reclaimed. (ii) New alluvial. (iii) Vegetative. (iv) Kew. (v) June, 1959. By digging holes at 1·14 m. × 1·14 m. spacing. (vi) 4 months. (vii) 230·6 Q/ha. of F.Y.M. (viii) 12 hoeings and 6 weedings. (ix) Nil. (x) Irrigated. (xi) and (xii) N.A.

2. TREATMENTS :

8 trace element treatments : T_0=Control, T_1=Boron applied in the form of Granular Boric Acid @ 33·6 Kg/ha., T_2=Iron applied in the form of Fe. Sul. @ 22·4 Kg/ha., T_3=Manganese applied in the form of Mn. Sul. @ 33·6 Kg/ha., T_4=Copper applied in the form of Cu. Sul. @ 16·8 Kg/ha., T_5=Zinc applied in the form of Zn. Sul. @ 5·6 Kg/ha., T_6=Magnesium applied in the form of Mg. Sul. at 22·4 Kg/ha. and T_7=Sulphur applied in the form of Elemental Sulphur at 11·2 Kg/ha.

N.B. :— Trace elements were applied as spray in ten instalments.

3. DESIGN :

(i) R.B.D. (ii) (a) 8. (b) N.A. (iii) 3. (iv) (a) N.A. (b) 25 plants. (v) 1 row. (vi) Yes.

4. GENERAL :

(i) Normal. (ii) N.A. (iii) Height of plants in 1960 and yield of fruits for others. (iv) 1959-63. (v) No. (vi) N.A. (vii) Nil.

5. RESULTS :

60(17)

(i) 79·9 cm./plant. (ii) 10·60 cm./plant. (iii) Treatment differences are not significant. (iv) Av. height/plant in cm.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5	T_6	T_7
Av height	73·8	86·5	85·2	82·5	73·0	79·8	85·3	73·3

61(26)

(i) 984 Kg/ha. (ii) 501 8 Kg/ha. (iii) Treatment differences are not significant. (iv) Av. yield of fruits in Kg/ha.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5	T_6	T_7
Av. yield	630	955	1172	1300	762	946	1394	715

62(32)

(i) 537 Kg/ha. (ii) 177·50 Kg/ha. (iii) Treatment differences are not significant. (iv) Av. yield of fruits in Kg/ha.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5	T_6	T_7
Av yield	383	553	744	596	450	567	588	417

63(36)

(i) 1022 Kg/ha. (ii) 404·60 Kg/ha. (iii) Treatment differences are not significant. (iv) Av. yield of fruits in Kg/ha.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5	T_6	T_7
Av yield	954	954	1412	946	782	810	1221	1101

Crop :- Pineapple. **Ref :- As. 60(20) and 62(35).**

Site :- Reg. Fruit Res. Stn., Kahikuchi. **Type :- 'C'.**

Object : To find out the difference if any, in planting Pineapples at different depths with and without defoliation of basal leaves.

1. BASAL CONDITIONS :

(i) Cultivable waste ; newly reclaimed. (ii) New alluvial. (iii) Vegetative. (iv) Kew. (v) June, 1959. By digging holes at 1·14 m. × 1·14 m. spacing. (vi) 4 months. (vii) 230·6 Q/ha. of F.Y.M. (viii) N.A. (ix) Nil. (x) Irrigated. (xi) and (xii) N.A.

2. TREATMENTS :

All combinations of (1) and (2)

(1) 3 depths of planting : D_1=5·1, D_2=7·6 and D_3=10·2 cm.

(2) 4 basal defoliation : B_0 - 0, B_1=5·1, B_2=7·6 and B_3=10·2 cm.

3. DESIGN :

(i) Fact. in R.B.D. (ii) (a) 12. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 25 plants. (v) 1 row. (vi) Yes.

4. GENERAL :

(i) Normal. (ii) N.A. (iii) Height of plants in 1960 and yield of fruits in 62. (iv) 1959—63. (v) No. (vi) N.A. (vii) The data for 1961 and 63 not available.

5. RESULTS :

60(20)

(i) 56·2 cm. plant. (ii) 10·02 cm. plant. (iii) None of the effects is significant. (iv) Av. height/plant in cm.

	B_0	B_1	B_2	B_3	Mean
D_1	36·8	44·6	56·9	69·4	51·9
D_2	49·4	43·4	62·1	70·4	56·3
D_3	53·6	50·9	68·5	68·3	60·3
Mean	46·6	46·3	62·5	69·4	56·2

62(35)

(i) 267 Kg/ha. (ii) 108·3 Kg/ha. (iii) None of the effects is significant. (iv) Av. yield of fruits in Kg/plot.

	B_0	B_1	B_2	B_3	Mean
D_1	186	156	255	337	233
D_2	180	207	308	285	245
D_3	321	165	439	371	324
Mean	229	176	334	331	267

Crop :- Pineapple. **Ref :- As. 65(42).**

Site :- Reg. Fruit Res. Stn., Kahikuchi. **Type :- 'C'.**

Object :—To study the response of Pineapple to various practices of mulching with shade.

1. BASAL CONDITIONS :

(i) Cultivable waste ; newly reclaimed. (ii) New alluvial. (iii) Vegetative. (iv) Kew. (v) June, 1963. By digging holes at 91 cm. × 91 cm. spacing. (vi) 4 month. (vii) 230 6 Q/ha. of F.Y.M. (viii) N.A. (ix) Nil. (x) Irrigated. (xi) and (xii) N.A.

2. TREATMENTS :

All combinations of (1) and (2)

(1) 3 different shades : S_0=No shade, S_1=Artificial shade (Banana leaves over bamboo frame) and S_2= Shade from standing legume (T. Candida).

(2) 3 different mulch : M_0=No mulch, M_1=Paddy straw and M_2=Green leaves (topping of T. Candida).

3. DESIGN :

(i) Fact. in R.B.D. (ii) (a) 9. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 9 plants. (v) 1 row. (vi) Yes.

4. GENERAL :

(i) Normal. (ii) N.A (iii) Yield of fruits. (iv) 1963—N.A. (v) No. (vi) N.A. (vii) Data for 1963 and 64 not available.

5. RESULTS :

(i) 11·8 Kg/plot. (ii) 1·13 Kg/plot. (iii) Main effects of S and M are highly significant. (iv) Av. yield of fruits in Kg/plot.

	M_0	M_1	M_2	Mean
S_0	11·7	13·1	11·0	11·9
S_1	11·1	13·8	12·9	12·6
S_2	10·3	11·5	10·6	10·8
Mean	11·0	12·8	11·5	11·8

C.D. for S or M marginal means=0·97 Kg/plot.

Crop :- Pineapple. **Ref :- As. 60(19) and 62(34).**

Site :- . eg. Fruit Res. Stn.. Kahikuchi. **Type :- 'CMV'.**

Object :—To investigate the performances of Kew and Queen varieties of Pineapple to different spacings in combination with different levels of N, P and K fertilizers.

1. BASAL CONDITIONS:

(i) Cultivable waste ; newly reclaimed. (ii) New alluvial. (iii) Vegetative. (iv) As per treatments. (v) June, 1959. As per treatments. (vi) 4 months. (vii) 230·6 Q/ha. of F.Y.M. (viii) 12 hoeings and 6 weedings. (ix) Nil. (x) Irrigated. (xi) and (xii) N.A.

2. TREATMENTS :

Main-plot treatments :

All combinations of (1) and (2)

(1) 2 varieties : V_1=Kew and V_2=Queen.

(2) 2 levels of fertilizer : F_1=56 Kg/ha. of A/S+246 Kg/ha. of Super+45 Kg/ha. of Pot. Sul. and F_2=112 Kg/ha. of A/S+49·3 Kg/ha. of Super+90 Kg/ha. of Pot. Sul.

Sub-plot treatments :

3 spacings : S_1=76 cm both ways, S_2=114 cm. both ways and S_3=152 cm. both ways.

N B. — The fertilizers were applied in one annual dose.

3. DESIGN :

(i) Split-plot. (ii) (a) 4 main-plots/replication and 3 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 64 plants including guard row for S_1, 36 plants including guard row for S_2 and 25 plants including guard row for S_3. (v) 1 row. (vi) Yes.

4. GENERAL :

(i) Normal. (ii) N.A. (iii) Height of plants in 1960 and yield of fruits in 1962. (iv) 1959—63. (v) No. (vi) N.A. (vii) The data for 1961 and 63 not available.

5. RESULTS.

60(19)

(i) 42·3 cm. plant (ii) (a) 16·94 cm /plant. (b) 9·44 cm plant. (iii) None of the effects is significant. (iv) Av. height plant in cm.

	F_1	F_2	V_1	V_2	Mean
S_1	38·7	39·5	40·9	37·3	39·1
S_2	45·5	47·5	47·1	45·8	46·5
S_3	40·3	42·4	43·5	39·3	41·4
Mean	41·5	43·2	43·8	40·8	42·3
V_1	43·0	44·7			
V_2	46·6	41·7			

62(34)

(i) 8·1 Kg/plant. (ii) and (iii) N.A. (iv) Av. yield of fruits in Kg/plot.

	F_1	F_2	V_1	V_2	Mean
S_1	7·4	7·3	7·9	6·8	7·4
S_2	12·3	8·1	8·1	12·2	10·2
S_3	6·5	6·5	4·6	8·5	6·5
Mean	8·8	7·3	6·9	9·2	8·1
V_1	7·0	6·8			
V_2	10·6	7·8			

MANIPUR

Crop :- Paddy (*Kharif*). **Ref :- Mn. 65(1).**

Site :- Rice Res. Stn., Wangbal. **Type :- 'M'.**

Object :—To study the effect of doses of N with and without different doses of P on the yield of Paddy.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Fallow. (c) Nil. (ii) Clay loam. (iii) 15.8.65. (iv) (a) 3 ploughings followed by laddering and harrowing. (b) Transplanting. (c) 25 Kg/ha. (d) 15 cm. × 15 cm. (e) 2 to 3. (v) Nil. (vi) Phouren (medium). (vii) Unirrigated. (viii) 3 weedings. (ix) N.A. (x) 18.12.65.

2. TREATMENTS :

5 manurial treatments : T_0 =Control, T_1 =20 Kg/ha of N, T_2=40 Kg/ha. of N, T_3=T_1+15 Kg/ha of P_2O_5 and T_4=T_2+30 Kg/ha. of P_2O_5.

N is applied as A.S and P_2O_5 as Super.

3. DESIGN :

(i) R.B.D. (ii) (a) 5. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 7·5 m. × 2·4 m. (v) N.A. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Nil. (iii) Grain yield. (iv) (a) 1965—66. (b) No. (c) Nil. (v) No. (vi) and (vii) Nil.

5. RESULTS :

(i) 5605 Kg/ha. (ii) 943·4 Kg/ha. (iii) Treatment differences are highly significant. (iv) Av. yield of grain in Kg/ha.

Treatment	T_0	T_1	T_2	T_3	T_4
Av. yield	3958	5222	5653	5653	7542

C.D. = 1453·5 Kg/ha.

Crop :- Paddy (*Kharif*). **Ref :- Mn. 65(2).**

Site :- Rice Res. Stn., Wangbal. **Type :- 'M'.**

Object :—To study the effect of N, P and K with lime on the yield of Paddy.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Fallow. (c) . (ii) Clay loam. (iii) 7.8.65. (iv) (a) 3 ploughings followed by laddering and harrowing. (b) Transplanting (c) 25 Kg/ha. (d) 15 cm. × 15 cm. (e) 2-3. (v) Nil. (vi) Moirang-phou (medium). (vii) Unirrigated. (viii) 3 weedings. (ix) N.A. (x) 10.12.65.

2. TREATMENTS :

6 manurial treatments : T_0 = Control, T_1 =25 Q/ha. of lime, T_2=T_1+50 Kg/ha. of N as A/S, T_3=T_1+38 Kg/ha. of P_2O_5 as Super, T_4=T_1+50 Kg/ha. of N as A/S+ 38 Kg/ha. of P_2O_5 as Super and T_5=T_2+38 Kg/ha. of K_2O as Mur. Pot.

3. DESIGN :

(i) R.B.D. (ii) (a) 6. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 4·5 m. × 3·0 m. (v) N.A. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Nil. (iii) Grain yield. (iv) (a) 1965-66. (b) No. (c) Nil. (v) No. (vi) and (vii) Nil

5. RESULTS :

(i) 3333 Kg/ha. (ii) 400·0 Kg/ha. (iii) Treatment differences are highly significant. (iv) Av. yield of grain in Kg/ha.

Treatment	T_0	T_1	T_2	T_3	T_4	T_5
Av. yield	3333	3148	3426	2778	4259	3055

C.D.=602·5 Kg/ha.

Crop :- Paddy (*Kharif*). **Ref :- Mn. 65(3).**

Site :- Rice Res. Stn., Wangbal. **Type :- 'M'.**

Object :—To study the effect of compost reinforced with Super on the yield of Paddy.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Fallow. (c) —. (ii) Clay loam. (iii) 5.8.65. (iv) (a) 3 ploughings followed by laddering and harrowing. (b) Transplanting. (c) 25 Kg/ha. (d) 15 cm ×15 cm. (e) 2—3. (v) Nil. (vi) *Moirangphou* (medium). (vii) Unirrigated. (viii) 3 weedings. (ix) N.A. (x) 13.12.65.

2. TREATMENTS :

4 manurial treatments : T_1=Compost, T_2=Compost reinforced by adding Super at the time of filling pits, T_3=Equivalent quantity of Super and compost applied separately in usual way and T_4=Equal quantity of Super and compost applied mixed at the time of field preparation.

Doses of compost and Super : compost at 50 Q/ha. and Super at 62·5 Kg/ha.

3. DESIGN :

(i) R.B.D. (ii) (a) 4. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 10·5 m.×3·0 m. (v) N.A. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Nil. (iii) Grain yield. (iv) (a) 1965-68. (b) No. (c) Nil. (v) No. (vi) and (vii) Nil.

5. RESULTS :

(i) 3280 Kg/ha. (ii) 770·7 Kg/ha. (iii) Treatment differences are not significant. (iv) Av. yield of grain in Kg/ha.

Treatment	T_1	T_2	T_3	T_4
Av. yield	3230	2817	3095	3976

NAGALAND

Crop :- Paddy (*Kharif*). **Ref : N.L. 65(2).**

Site :- Agri. Res. Farm, Yisemyong, Mokokchung. **Type :- 'C'.**

Object — To determine the optimum date of planting for Paddy in Yisemyong locality.

1. BASAL CONDITIONS :

(i) (a) N.I. (b) and (c) N.A. (ii) Sandy loam. (iii) As per treatments. (iv) (a) Ploughing and pulverising. (b) Transplanting. (c) 25 Kg/ha. (d) 23 cm. × 23 cm. (e) 2-3. (v) 184·5 Q ha. of Cowdung. (vi) Rossem (Local Angami). (vii) Unirrigated. (viii) Weeding. (ix) N.A. (x) 18.11.65.

2. TREATMENTS :

2 dates of planting : D_1=30th June and D_2=15th July.
30 days old seedlings were planted.

3. DESIGN :

(i) R.B.D. (ii) (a) 2. (b) N.A. (iii) 3. (iv) (a) N.A. (b) 1 355·7th ha. (v) N.A. (vi) Yes.

4. GENERAL :

(i) Normal. (ii) N.A. (iii) Grain yield. (iv) (a) 1965-66. (b) No. (c) Nil. (v) No. (vi) N.A. (vii) Nil.

5. RESULTS :

1876 Kg/ha. (ii) 130·1 Kg/ha. (iii) Treatment differences are not significant. (iv) Av. yield of grain in Kg/ha.

Treatment	D_1	D_2
Av. yield	1949	1803

Crop :- Maize (*Kharif*). **Ref :- N.L. 65(1).**

Site :- Agri. Res. Farm, Yisemyong, Mokokchung. **Type :- 'C'.**

Object :- To determine the optimum date of sowing for Maize.

1. BASAL CONDITIONS :

(i) (a) N.I. (b) and (c) N.A. (ii) Sandy loam. (iii) As per treatments. (iv) (a) 2-3 ploughings folllowed by laddering and harrowing. (b) Dibbling. (c) 5 Kg/ha. (d) 45 cm. × 30 cm. (e) N.A. (v) 184·5 Q/ha. of Cowdung. (vi) Ganga-101. (vii) Unirrigated. (viii) Earthing up once. (ix) N.A. (x) 12.8.65.

2. TREATMENTS :

2 dates of sowing : D_1=15th March and D_2=30th March.

3. DESIGN :

(i) R.B.D. (ii) (a) 2. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 3·6 m. × 1·8 m. (v) N.A. (vi) Yes.

4. GENERAL :

(i) Good. (ii) N.A. (iii) Yield of maize. (iv) (a) 1965-66. (b) N.A. (c) Nil. (v) No. (vi) N.A. (vii) Nil

5. RESULTS :

(i) 8172 Kg/ha. (ii) 366·5 Kg/ha. (iii) Treatment differences are not significant. (iv) Av. yield of maize in Kg/ha.

Treatment	D_1	D_2
Av. yield	7975	8369

Crop :- Potato (*Rabi*). **Ref :- N.L. 65(3).**

Site :- Agri. Res. Farm, Yisemyong, Mokokchung. **Type :- 'M'.**

Object :— To study the effect of different doses of fertilizer on the yield of Potato.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) and (c) N.A. (ii) Sandy loam (with high percentage of stony particles). (iii) 20.10.65. (iv) Ploughing and pulverising. (b) Planted in furrows. (b) 15 Q/ha. (d) 45 cm.×22·5 cm. (e) 1. (v) 184·5 Q/ha. of Cowdung. (vi) Darjeeling Red Round (medium). (vii) Unirrigated. (viii) Weeding and earthing. (ix) N.A. (x) 20.2.66.

2. TREATMENTS :

3 manurial treatments : T_0=0, T_1=16·8 Kg/ha. of N as A/S+16·8 Kg/ha. of P_2O_5 as Super and T_2= Double the doses of T_1.

3. DESIGN :

(i) R.B.D (ii) (a) 3. (b) N.A. (iii) 3. (iv) (a) N.A. (b) 4·5 m.×2·7 m. (v) N.A. (vi) Yes.

4. GENERAL :

(i) Normal. (ii) N.A. (iii) Yield of tubers. (iv) (a) 1965-66. (b) No. (c) Nil. (v) No. (vi) N.A. (vii) Nil.

5. RESULTS :

(i) 8069 Kg/ha. (ii) and (iii) N.A. (iv) Av. yield of tubers in Kg/ha.

Treatment	T_0	T_1	T_2
Av. yield	6175	8151	9880

Corp :- Potato (*Rabi*). **Ref :- N.L. 65(4).**

Site :- Agri. Res. Farm, Yisemyong, Mokokchung. **Type :- 'C'.**

Object :— To determine the optimum date of planting for Potato.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) and (c) N.A. (ii) Sandy loam. (iii) As per treatments. (iv) (a) Ploughing and pulverising. (b) Planted in furrows. (c) 15 Q/ha. (d) 45 cm.×22·5 cm. (e) 1. (v) 184·6 Q/ha. of Cowdung. (vi) Darjeeling Red Round (Medium). (vii) Unirrigated. (viii) Weeding and earthing. (ix) N.A. (x) 3.3.66.

2. TREATMENTS :

3 dates of planting : D_1=10th October, D_2=10th November and D_3=10th December.

3. DESIGN :

(i) R.B.D (ii) a) 3. (b) N.A. (ii) 3. (iv) (a) N.A (b) 4·5 m.×2·7 m. (v) N.A. (vi) Yes.

4. GENERAL :

(i) Normal. (ii) N.A. (iii) Yield of tubers. (iv) (a) 1965-66. (b) No. (c) Nil. (v) No. (vi) N.A. (vii) Nil.

5 RESULTS :

(i) 4827 Kg/ha. (ii) and (iii) N.A. (iv) Av. yield of tubers in Kg/ha.

Treatment	D_1	D_2	D_3
Av. yield	4612	5718	4150

TRIPURA

Crop :- Paddy (*Kharif*). **Ref .- Tr. 65(11).**

Site :- Res.-Cum-Demons. Farm, Arundhutinagar. **Type :- 'M'.**

Object :—To find out the best G.M. crop for *Aus*. Paddy.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Paddy. (c) N.A. (ii) Clay loam. (iii) 28.5.65. (iv) (a) 5 ploughings followed by laddering. (b) Transplanting. (c) 49·4 Kg/ha. (d) 25 cm.×23 cm. (e) 4. (v) Nil. (vi) *Dharial*. (vii) Unirrigated. (viii) 4 weedings. (ix) N.A. (x) 20.8.65.

2. TREATMENTS :

4 G.M. crops : T_0=Control, T_1=*Urd*, T_2 *Dhaincha* and T_3=*Cowpea*.
N.B. :—These crops were sown on 28.3.65 and incorporated in the soil for land preparation.

3. DESIGN :

(i) R.B.D. (ii) (a) 4. (b) 15·5 m.×4·6 m. (iii) 5. (iv) 4·6 m.×3·7 m. (b) 4·0 m.×3·1 m. (v) 30 cm. discarded alround. (vi) Yes.

4. GENERAL :

(i) Normal. (ii) N.A. (iii) Grain yield. (iv) (a) 1965-67. (b) No. (c) Nil. (v) No. (vi) N.A. (vii) Nil.

5. RESULTS :

(i) 2368 Kg/ha. (ii) 513·4 Kg/ha. (iii) Treatment differences are not significant. (iv) Av. yield of grain in Kg/ha.

Treatment	T_0	T_1	T_2	T_3
Av. yield	2285	2534	2401	2252

Crop :- Paddy (*Rabi*). **Ref :- Tr. 64(9) & 65(8).**

Site :- Res.-Cum-Demons. Farm, Arundhutinagar. **Type :- 'M'.**

Object :—To find out the effect of mode of application of N on the yield of *Boro* Paddy.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Paddy. (c) N.A. (ii) Clay loam. (iii) 15.12.64/15.1.65 ; 13.12.65/13.1.66. (iv) (a) 5 ploughings followed by laddering. (b) Transplanting. (c) 49·4 Kg/ha. (d) 25 cm.×23 cm. (e) 4. (v) 138 Q/ha. of Cowdung+44·8 Kg/ha. of P_2O_5 as Super. (vi) *Kali Boro*. (vii) Irrigated. (viii) 2 weedings. (ix) N.A. (x) 11.5.65 ; 13.5.66.

2. TREATMENTS :

5 manurial treatments : T_0=Control, T_1=30 Kg/ha. of N as C/A/N applied as soil application, T_2=30 Kg/ha. of N as Urea applied as soil application, T_3=15 Kg/ha. of N as Urea applied as foliar spray and T_4=30 Kg/ha. of N as Urea applied as foliar spray.

3. DESIGN :

(i) R.B.D. (ii) (a) 5. (b) 17·0 m.×3·0 m. (iii) 4. (iv) (a) 3·0 m.×3·0 m. (b) 2·5 m.×2·5 m. (v) 25 cm. discarded alround. (vi) Yes.

4. GENERAL :

(i) Normal. (ii) N.A. (iii) Grain yield. (iv) (a) 1964-66. (b) and (c) No. (v) No. (vi) N.A. (vii) As the experiment is continued beyond 1965, results of individual years are given below.

5. RESULTS :

64 9)

(i) 2186 Kg/ha. (ii) 224·0 Kg ha. (iii) Treatment differences are significant. (iv) Av. yield of grain in Kg ha.

Treatment	T_0	T_1	T_2	T_3	T_4
Av. yield	2056	2060	2084	2584	2148

C.D.=345·1 Kg/ha.

5(8

(i) 1522 Kg ha. (ii) 416·0 Kg ha. (iii) Treatment differences are not significant. (iv) Av. yield of grain in Kg ha.

Treatment	T_0	T_1	T_2	T_3	T_4
Av. yield	1200	1604	1416	1788	1600

Crop :- Paddy (*Kharif*). **Ref :- Tr. 62(4), 63(4) & 64(2).**

Site :- Res.-Cum-Demons. Farm, Arundhutinagar. **Type :- 'M'.**

Object :—To find out the effect of N on the yield of *Aman* Paddy.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Fallow in 62 ; Paddy in 63 and 64. (c) N.A. (ii) Clay loam (iii) 7.8.62 ; 13.8.63 ; 6.8.64. (iv) (a) 6 ploughings followed by ladder ing. (b) Transplanting. (c) 49 4 Kg/ha. (d) 23 cm. × 23 cm. (e) 3-4. (v) 44 8 Kg ha. of P_2O_5 as Super. (vi) *Lati Sail.* (vii) Unirrigated. (viii) 2 weedings. (ix) N.A. (x) 3.12.62 ; 2.12.63 ; 4.12.64.

2. TREATMENTS :

5 levels of N as C A/N : T_0 = 0, T_1=22 4, T_2=44 8, T_3=67·2 and T_4=89·7 Kg/ha.
50% of N was applied 30 days after transplanting and the remaining 50% of N was applied 60 days after transplanting.

3. DESIGN :

(i) R.B.D. (ii) (a) 5. (b) 24 0 m. × 4·0 m. (iii) 4. (iv) (a) 4·0 m. × 4·0 m. (b) 3·5 m. × 3·5 m. (v) One row on either side and 25 cm. at each end. (vi) Yes.

4. GENERAL :

(i) Good. (ii) N.A. (iii) Grain yield. (iv) (a) 1962—64. (b) No. (c) Results of combined analysis are given under 5. Results. (v) No. (vi) N.A. (vii) Error variances are homogeneous and Treatments × years interaction is absent.

5. RESULTS :

Pooled results

(i) 5965 Kg ha. (ii) 618·6 Kg/ha. (based on 44 d.f. made up of pooled error and Treatments × years interaction) (iii) Treatment differences are not significant. (iv) Av. yield of grain in Kg/ha.

Treatment	T_0	T_1	T_2	T_3	T_4
Av. yield	5815	6061	6257	5878	5817

Individual Results

Av. yield of grain in Kg/ha..

Years	T_0	T_1	T_2	T_3	T_4	Sig.	G.M.	S.E./ plot
1962	6143	6306	6408	6408	6429	N.S.	6339	693·9
1963	5382	5744	5865	4982	5051	N.S.	5405	677·6
1964	5920	6133	6498	6243	5971	N.S.	6153	555·1
Pooled	5815	6061	3257	5878	5817	N.S.	5965	618·6

Crop :- Paddy (*Kharif*). **Ref :- Tr. 62(2) & 63(2).**

Site :- Res.-Cum-Demons. Farm, Arundhutinagar. **Type :- 'M'.**

Object :—To find out the best G.M. crop for *Aman* Paddy.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Fallow in 62 ; Paddy in 63. (c) N.A. (ii) Clay loam. (iii) 30.7.62 ; 31.7.63. (iv) (a) 5 ploughings followed by laddering. (b) Transplanting. (c) 49·4 Kg/ha. (d) 23 cm.× 23 cm. (e) 3 to 4. (v) 22·4 Kg/ha. of N as C/A/N+44·8 Kg/ha. of P_2O_5 as Super. (vi) *Lati Sail.* (vii) Unirrigated. (viii) 4 weedings. (ix) N.A. (x) 28.11.62 ; 30.11.63.

2. TREATMENTS :

4 G.M. crops preceeding Paddy crop : T_0=Control, T_1=*Urd*, T_2=*Dhaincha* and T_3=*Cowpea*. G.M. seeds were sown in the month of April.

3. DESIGN :

(i) R.B.D. (ii) (a) 4. (b) 19·8 m.×6·71 m. (iii) 5. (iv) (a) 6·7 m.×4·3 m. (b) 6·1 m.×3·7 m. (v) 30 cm discarded alround. (vi) Yes.

4. GENERAL :

(i) Normal in 62 ; Good in 63. (ii) N.A. (iii) Grain yield. (iv) (a) 1962-63. (b) No. (c) Results of combined as well as individual analysis are given under 5. Results. (v) No. (vi) N.A. (vii) Error variances are homogeneous and Treatments×years interaction is absent.

5. RESULTS :

Pooled results

(i) 2121 Kg/ha. (ii) 332·2 Kg/ha. (based on 27 d.f. made up of pooled error and Treatments×years interaction). (iii) Treatment differences are not significant. (iv) Av. yield of grain in Kg/ha.

Treatment	T_0	T_1	T_2	T_3
Av. yield	2136	2281	2091	1976

Individual results

Av. yield of grain in Kg/ha.

Years	T_0	T_1	T_2	T_3	Sig.	G.M.	S.E /plot
1962	933	1193	843	673	N.S.	910	381·2
1963	3340	3370	3339	3279	N.S.	3332	287·0
Pooled	2136	2281	2091	1976	N.S.	2121	332·2

Crop :- Paddy (*Kharif*). **Ref :- Tr. 62(3), 63(3) and 64(1)**

Site :- Res.-cum-Demons. Farm, Arundhutinagar. **Type :- 'M'.**

Object :– To find out the effect of P on the yield of *Aman* Paddy.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Fallow in 62 ; Paddy in 63 and 64. (c) N.A. (ii) Sandy loam. (iii) 8.8.62 ; 7.8.63 ; 6.8.64. (iv) 5 ploughings with deshi plough and laddering. (b) Transplanting. (c) 20 Kg/ha. (d) 25 0 m. × 22·0 m (e) 4 -5. (v) 44 8 Kg ha. of N applied as C/A/N in two equal doses. (vi) *Lati Sail.* (vii) Unirrigated. (viii) 4 weedings. (ix) N A (x) 15 12.62 ; 12.12.63 ; 14.12.64.

2. TREATMENTS :

All combinations of (1) and (2) with a control

(1) 2 levels of P_2O_5 : P_1=22·4 and P_2=44 8 Kg/ha.

(2) 2 sources of P_2O_5 : S_1=Bone meal and S_2=Super.

Bone meal and Super were applied as basal.

3. DESIGN :

(i) Fact in R.B.D. (ii) (a) 5. (b) 32·9 m.×5 5 m. (iii) 4. (iv) (a) 5·5 m×4·6 m. (b) 4·9 m.×4·0 m. (v) 30 cm. discarded alround. (vi) Yes.

4. GENERAL :

(i) Normal. (ii) N.A. (iii) Grain yield. (iv) (a) 1962-64. (b) No. (c) Results of combined analysis are given under 5-Results. (v) At Gokulnagar in 1964 only. (vi) N.A. (vii) Error variances are homogeneous and Treatments × years interaction in presented,

5. RESULTS :

Pooled results

(i) 3029 Kg/ha. (ii) 510·4 Kg/ha. (based on 8 d.f. made up of Treatments × years interaction.) (iii) None of the effects is significant. (iv) Av. yield of grain in Kg/ha.

Control=2903 Kg/ha.

	S_1	S_2	Mean
P_1	2698	3113	2905
P_2	3182	3168	3175
Mean	2940	3140	3061

Individual results

Av. yield of grain in Kg/ha.

Years	P_1	P_2	Sig.	S_1	S_2	Sig.	Control	Sig.	G.M.	S.E./plot
1962	2742	2981	*	2632	3092	*	2287	N.S.	2747	212·2
1963	2965	3158	N.S.	3102	3022	N.S.	2878	N.S.	3025	220·0
1964	3008	3510	**	3086	3432	N.S.	3545	N.S.	3316	318·3
Pooled	2905	3175	N.S.	2940	3140	N.S.	2903	N.S.	3029	510·4

Crop :- Paddy (*Kharif*). **Ref :- Tr. 64(4), 65(1).**

Site :- Seed Multiplication Farm, Gokulnagar, Udaipur. **Type :- 'M'.**

Object :— To find out the effect of P on the yield of *Aman* Paddy.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Paddy. (c) N.A. (ii) Clay loam. (iii) 15.8.64 ; 17.8.65. (iv) (a) 4 ploughings followed by laddering, (b) Transplanting. (c) 22·4 Kg/ha. (d) 25 cm.×22 cm., (e) 4. (v) 138·3 Q/ha. of compost+ 44·8 Kg/ha. of N as C/A/N. (vi) Lati soil. (vii) Unirrigated. (viii) 3 weedings. (ix) N.A. (x) 12,12.64. 15.12.65.

2. TREATMENTS :

All combinations of (1) and (2)+Control.

(1) 2 levels of P_2O_5 : P_1=22·4 and P_2=44·8 Kg/ha
(2) 2 sources of P : S_1=Bone meal and S_2=Super.

Bonemeal and Super were applied as basal.

3. DESIGN :

(i) Fact. in R.B.D. (ii) (a) 5. (b) 32·9 m.×5·5 m. (iii) 4. (iv) (a) 5·5 m.×4·6 m. (b) 4·9 m.×4·0 m. (v) 30 cm. discarded alround. (vi) Yes.

4. GENERAL :

(i) Normal. (ii) N.A. (iii) Grain yield. (iv) (a) 1964-65. (b) No. (c) Results of combined analysis are given under 5-Results. (v) At Arundhutinagar in 1964 only. (vi) N.A. (vii) Error variances are homogeneous and Treatments×years interaction is absent.

5. RESULTS :

Pooled results

(i) 2542 Kg/ha. (ii) 388·4 Kg/ha. (based on 28 d.f. made up of pooled error and Treatments×years interaction). (iii) None of the effects is significants. (iv) Av. yield of grain in Kg/ha.

Control=2660 Kg/ha.

	S_1	S_2	Mean
P_1	2440	2474	2457
P_2	2572	2562	2567
Mean	2506	2518	2512

Individual results

Av. yield of grain in Kg/ha.

Years	P_1	P_2	Sig.	S_1	S_2	Sig.	Control	Sig.	G.M.	S.E./plot
1964	2526	2445	N.S.	2510	2461	N.S.	2574	N.S.	2503	478.1
1965	2318	2690	N.S.	2502	2576	N.S.	2745	N.S.	2580	306·4
Pooled	2457	2567	N.S.	2506	2518	N.S.	2660	N.S.	2542	388·4

Crop :- Paddy (*Kharif*). **Ref :- Tr. 65(6).**

Site :- Res.-cum-Demons. Farm, Arundhutinagar. **Type :- 'MV'.**

Object :— To study the effect of different levels of N on the yield of different varieties of *Aus* Paddy.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Paddy. (c) N.A. (ii) Clay loam. (iii) 9.5.65. (iv) (a) 3-4 ploughings followed by laddering. (b) Broadcasting. (c) N.A. (d) and (e) —. (v) 138 Q/ha. of compost+22·4 Kg/ha. of P_2O_5 as Super +22·4 Kg/ha. of K_2O as Mur. Pot. (vi) As per treatments. (vii) Unirrigated. (viii) Weeding and Thinning. (ix) N.A. (x) 26.8.65.

2. TREATMENTS:

Main-plot treatments:

3 varieties : V_1=Dharial, V_2=Sonamukhi and V_3=Halai.

Sub-plot treatments :

3 levels of N as C/A/N : N_0=0, N_1=33·6 and N_2=67·2 Kg/ha.

2 3rd. dose of N applied before sowing and 1rd. dose applied one month after sowing.

3. DESIGN :

(i) Split plot : (ii) (a) 3 main-plots/replication and 3 sub-plots/main-plot. (b) 12·8 m. × 18·3 m. (iii) 4. (iv) (a) 5·5 m. × 3·7 m. (b) 4·9 m. × 3·1 m. (v) 30 cm. discarded alround. (vi) Yes.

4. GENERAL :

(i) Normal. (ii) N.A. (iii) Grain yield (iv) (a) 1965-66. (b) No. (c) Nil. (v) No. (vi) N.A. (vii) Nil.

5. RESULTS :

(i) 2909 Kg/ha. (ii) (a) 506·9 Kg/ha. (b) 412·5 Kg/ha. (iii) Main effect of V is significant. (iv) Av. yield of grain in Kg/ha.

	N_0	N_1	N_2	Mean
V_1	2855	2910	3316	3027
V_2	2930	3584	3116	3210
V_3	2620	2608	2237	2488
Mean	2802	3034	2890	2909

C.D. for V marginal means = 506·4 Kg/ha.

Crop :- Paddy (*Kharif*). **Ref :- Tr. 65(5).**

Site :- Res.-cum-Demons. Farm, Arundhutinagar. **Type :- 'MV'.**

Object :— To see the effect of different doses of fertilizers on the yield of different *Aman* varieties of Paddy.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Paddy. (c) N.A. (ii) Clay loam. (iii) 19.8.65. (iv) (a) 3-4 ploughings following by laddering, puddling etc. (b) Transplanting. (c) 11·2 Kg/ha. in the seed bed. (d) 22·5 cm. × 15 cm. (e) 2, (v) 138·3 Q/ha. of compost. (vi) As per treatments. (vii) Unirrigated. (viii) 2 weedings. (ix) N.A. (x) 9.11.65 and 13.12.65.

2. TREATMENTS:

All combinations of (1) and (2)

(1) 2 varieties : V_1=Taichung Native—1 and V_2=H—4.

(2) 7 fertilizer doses : F_0=Control, F_1=67·2 Kg/ha. of N+67·2 Kg/ha. of K_2O, F_2=67·2 Kg/ha. of N+67·2 Kg/ha. of P_2O_5, F_3=67·2 Kg/ha. of N+67·2 Kg/ha. of P_2O_5+67·2 Kg/ha. of K_2O, F_4=134·4 Kg/ha. of N+134·4 Kg/ha. of K_2O, F_5=134·4 Kg/ha. of N+134·4 Kg/ha. of P_2O_5 and F_6=134·4 Kg/ha. of N+134·4 Kg/ha. of P_2O_5+134·4 Kg/ha. of K_2O.

N applied as C/A/N, P_2O_5 as Super. and K_2O as Mur. of Pot. P_2O_5 and K_2O were applied before sowing. 1rd of N was applied before sowing and the remaining 2/3rd was applied as top dressing in two equal splits.

3. DESIGN :

(i) Fact. in R.B.D. (ii) (a) 14. (b) 3·7 m. × 31·2 m. (iii) 2. (iv) 1·5 m. × 3·7 m. (b) 0·9 m. × 3·1 m. (v) 30 cm. discarded alround. (vi) Yes.

4. GENERAL :

(i) Normal. (ii) N.A. (iii) Grain yield. (iv) (a) 1955 only. (b) No. (c) Nil. (v) No. (vi) N.A. (vii) Nil.

5. RESULTS

(i) 2989 Kg/ha. (ii) 574·1 Kg/ha. (iii) Main effect of V is highly significant. and main effect of F is significant. (iv) Av. yield of grain in Kg/ha.

	F_0	F_1	F_2	F_3	F_4	F_5	F_6	Mean
V_1	2295	1937	2833	2762	2546	2887	3264	2646
V_2	2099	2618	3837	3802	2887	3730	4358	3333
Mean	2197	2277	3335	3282	2716	3308	3811	2989

C.D. for V marginal means=470·8 Kg/ha.
C.D. for F marginal means=880·5 Kg/ha.

Crop :- Paddy (*Kharif*). **Ref :- Tr. 62(5), 63(5) & 64(3).**

Site :- Res.-cum-Demons. Farm, Arundhutinagar. **Type :- 'C'.**

Object :—To find out the optimum date of planting for *Aman* Paddy.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Fallow for 62 ; Paddy for 63 and 64. (c) N.A. (ii) Clay loam. (iii) As per treatments. (iv) (a) 6 ploughings followed by laddering. (b) Transplanting. (c) 22·4 Kg/ha. (d) 23 cm.×23 cm. (e) 3-4. (v) 138·3 Q/ha. of Cowdung+44·8 Kg/ha. of P_2O_5 as Super+44·8 Kg/ha. of N as C/A/N: (vi) *Lati* sail. (vii) Unirrigated. (viii) 2 weedings. (ix) N.A. (x) 5.12.62 ; 6.12.63 ; 2.12.64.

2. TREATMENTS :

7 dates of planting : D_1=10th July, D_2=20th July, D_3=30th July, D_4=9th August, D_5=19th August, D_6=29th August and D_7=8th September.

3. DESIGN :

(i) R.B.D. (ii) (a) 7. (b) 22·6 m.×7·6 m. (iii) 4. (iv) (a) 7·6 m.×2·4 m. (b) 7·0 m.×1·8 m. (v) 30 cm. discarded alround. (vi) Yes.

4. GENERAL :

(i) Good. (ii) N.A. (iii) Grain yield. (iv) (a) 1962—64. (b) No. (c) Results of combined as well as individual analysis are given under 5. Results. (v) No. (vi) N.A. (vii) Error variances are homogeneous and Treatments×years interaction is present.

5. RESULTS :

Pooled results

(i) 3158 Kg/ha. (ii) 837·8 Kg/ha. (based on 12 d.f made up of Treatments×years interaction). (iii) **Treat**ment differences are highly significant. (iv) Av. yield of grain in Kg/ha.

Treatment	D_1	D_2	D_3	D_4	D_5	D_6	D_7
Av. yield	3458	3633	3668	3521	3072	2495	2260

C.D.=745·3 Kg/ha.

Individual results

Av. yield of grain in Kg/ha.

Years	D_1	D_2	D_3	D_4	D_5	D_6	D_7	Sig.	G.M.	S.E./plot
1962	3588	3549	3763	3588	3256	1735	1443	**	2989	390·0
1963	3412	3604	3732	3867	3219	2689	2673	**	3317	319·8
1964	3354	3746	3508	3108	2742	3060	2664	*	3169	483·6
Pooled	3458	3633	3668	3521	3072	2495	2260	**	3158	837·8

Crop :- Paddy (*Rabi*). **Ref :- Tr. 63(6), 64(5) & 65(2).**

Site :- Res.-cum-Demons. Farm, Arundhutinagar. **Type :- 'C'.**

Object :—To find out the optimum date of sowing and age of seedling for *Boro* Paddy.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Paddy. (c) N.A. (ii) Clay loam. (iii) As per treatments. (iv) (a) 5 ploughings followed by laddering. (b) Transplanting. (c) 49·4 Kg/ha. (d) 25 cm.×22·5 cm. (e) 4. (v) 138·3 Q/ha. of C.w.dung +22·4 Kg/ha. as P_2O_5 as Super+44·8 Kg/ha. of N as C/A/N. (vi) *Kaliboro*. (vii) Irrigated (from drain). (viii) 3 weedings. (ix) and (x) N A.

2. TREATMENTS :

All combinations of (1) and (2)

(1) 4 dates of sowing : D_1=21st November, D_2=6th December, D_3=21st December and D_4=5th January.

(2) 3 ages of seedling : A_1=20 days, A_2=30 days and A_3=40 days.

3. DESIGN :

(i) Fact. in R.B.D. (ii) (a) 12. (b) 14·9 m. × 20·1 m. (iii) 3. (iv) (a) 4·6 m.×4·6 m. (b) 4·0 m.×4·0 m. (v) 30 cm. discarded alround. (vi) Yes.

4. GENERAL :

(i) Good. (ii) N.A. (iii) Grain yield. (iv) (a) 1963–65. (b) No. (c) Results of combined as well as individual analysis are given under 5. Results. (v) No. (vi) N.A. (vii) Error variances are homogeneous and Treatments×years interaction is absent.

5. RESULTS :

Pooled results

(i) 2822 Kg/ha. (ii) 460·5 Kg/ha. (based on 88 d.f. made up of pooled error and Treatments×years interaction). (iii) Only the main effect of D is highly significant. (iv) Av. yield of grain in Kg/ha.

	D_1	D_2	D_3	D_4	Mean
A_1	3297	3046	2570	2601	2878
A_2	3118	3179	2733	2534	2891
A_3	3016	2824	2735	2214	2697
Mean	3144	3016	2679	2449	2822

C.D. for D marginal means=249·4 Kg/ha.

Individual results

Av. yield of grain in Kg/ha.

Years	D_1	D_2	D_3	D_4	Sig.	A_1	A_2	A_3	Sig.	G.M.	S.E./plot
1963	2989	2519	2310	1666	**	2630	2281	2201	*	2371	395·1
1964	3359	3665	3059	3089	*	3270	3452	3157	N.S.	3293	420·9
1965	3084	2866	2670	2593	*	2765	2941	2734	N.S.	2803	376·2
Pooled	3144	3016	2679	2449	**	2878	2891	2697	N.S.	2822	460·5

Crop :- Paddy (*Kharif*). **Ref :- Tr. 62(1) & 63(1).**

Site :- Res.-Cum-Demons. Farm, Arundhutinagar. Type :- 'CM'.

Object :—To study the effect of line sowing and broadcasting on the yield of *Aus* Paddy in presence and absence of Dhaincha and Lime.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Fallow for 62 ; Paddy for 63. (c) N.A. (ii) Clay loam. (iii) 12-13.5.62 ; 21.4.63. (iv) (a) 4 ploughings followed by laddering etc. (b) As per treatments. (c) to (e) N.A. (v) Nil. (vi) *Dharial*. (vii) Unirrigated. (viii) Weeding & hoeing. (ix) N.A. (x) 14.8.62 ; 26.7 to 5.8.63.

2. TREATMENTS :

Main-plot treatments :

2 levels of lime : L_0=0 and L_1=27·7 Q/ha.

Sub-plot treatments :

2 levels of *dhaincha* : D_0=Without *dhaincha* and D_1=With *dhaincha*.

Sub-sub-plot treatments :

2 methods of sowing : M_1=Broadcasting and M_2=Line sowing.

N.B. : *Dhaincha* seeds were broadcasted at 34·6 Kg/ha. on 13.5.62 and 21.4.63 and ploughed down after two months from the date of sowing.

3. DESIGN :

(i) Split-plot. (ii) (a) 2 main-plots/replication, 2 sub-plots/main-plot and 2 sub-sub-plots/sub-plot. (b) 18·6 m.×20·0 m. (iii) 5. (iv) (a) 8·8 m.×4·3 m. (b) 8·2 m.×3·7 m. (v) 30 cm. discarded alround. (vi) Yes.

4. GENERAL :

(i) Normal. (ii) Attack of Rice Hispa. 10 c.c. of Endrex sprayed. (iii) Grain yield. (iv) (a) 1962-63. (b) No. (c) Results of combined analysis are given under 5. Results. (v) No. (vi) N.A. (vii) Main-plot, sub-plot and sub-sub-plot error variances are homogeneous. Main-plot Treatments×years interaction is absent. Sub-plot Treatments×years interaction is present and sub-sub-plot Treatments×years interaction is absent.

5. RESULTS :

(i) 999·0 Kg/ha. (ii) (a) 533·9 Kg/ha. (based on 9 d.f. made up of Treatments×years interaction and pooled error). (b) 567·3 Kg/ha. (based on 2 d.f. made up of Treatments×years interaction). (c) 243·2 Kg/ha. (based on 35 d.f. made up of pooled error and Treatments×years interaction). (iii) None of the effects is significant. (iv) Av. yield of grain in Kg/ha.

	L_0	L_1	M_1	M_2	Mean
D_0	821	1191	1017	995	1006
D_1	868	1116	1048	936	992
Mean	844	1154	1033	965	999
M_1	926	1139			
M_2	763	1168			

Individual results

Av. yield of grain in Kg/ha.

Years	L_0	L_1	Sig	D_0	D_1	Sig	M_1	M_2	Sig.
1962	570	770	N.S.	653	687	N.S.	677	663	N.S.
1963	1119	1537	N.S.	1360	1296	N.S.	1388	1268	N.S.
Pooled	844	1154	N.S	1006	992	N.S.	1033	965	N.S.

Year	G.M.	S.E./plot (a)	(b)	(c)
1962	670	265·8	232·6	219·3
1963	1328	750·8	282·4	272·4
Pooled	999	533·9	567·3	243·2

Crop :- Potato (*Rabi*). **Ref :- Tr. 64(8) & 65(7).**

Site :- Res.-Cum-Demons. Farm, Arundhutinagar. **Type :- 'M'.**

Object —To study the effect of different doses of N, P and K and their combinations on the yield of Potato.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) and (c) N.A. (ii) Sandy loam. (iii) 4.12.64 ; 8.11.65. (iv) (a) 6 ploughings followed by laddering. (b) Sown in lines. (c) 33 Kg/ha. (d) 45 cm. × 15 cm. (e) 1. (v) As per treatments. (vi) Up-to-date. (vii) Irrigated. (vii) 5 earthings and one weeding. (ix) N.A. (x) 15.3.65 ; 11.1.66.

2. TREATMENTS :

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

(1) 3 levels of N as C.A/N : N_0=0, N_1=67·2 and N_2=134·5 Kg/ha.

(2) 3 levels of P as Super : P_0=0, P_1=33·6 and P_2=67·2 Kg/ha.

(3) 3 levels of K as Mur. Pot. : K_0=0, K_1=33·6 and K_2=67·2 Kg/ha.

N.B. : 50% of P_2O_5 and 50% of K_2O were applied as basal. 50% of N was applied during 1st earthing up. The remaining 50% of P_2O_5, K_2O and N were applied one month after 1st earthing up.

3 DESIGN :

(i) 3^3 partially confounded. (ii) (a) 9 plots block ann 3 blocks/replication. (b) 23·8 m. × 3·7 m. (iii) 4. (iv) (a) 3·7 m. × 1·8 m. (b) 2·4 m. × 1·2 m. (v) 61 cm. × 31 cm. (vi) Yes.

4. GENERAL :

(i) Normal. (ii) N.A. (iii) Yield of potato. (iv) (a) 1964—66. (b) No. (c) Nil. (v) No. (vi) N.A. (vi) As the experiment is continued in 1965, the individual results are given over leaf.

5. RESULTS :

64(8)

(i) 5833 Kg/ha. (ii) 1726·8 Kg/ha. (iii) Main effects of N and P are highly significant and effect of K is significant. (iv) Av. yield of tubers in Kg/ha.

	P_0	P_1	P_2	K_0	K_1	K_2	Mean
N_0	3526	4622	4701	3980	4280	4589	4283
N_1	5399	7386	6814	5449	6753	7397	6533
N_2	5051	6744	8252	5788	6809	7451	6682
Mean	4659	6251	6589	5073	5947	6479	5833
K_0	3919	5124	6175				
K_1	4925	6284	6632				
K_2	5132	7344	6960				

C.D. for N, P or K marginal means=812·8 Kg/ha.

65(7)

(i) 8313 Kg/ha. (ii) 2252·6 Kg/ha. (iii) Effect of N is highly significant and effect of P is significant. (iv) Av. yield of tubers in Kg/ha.

	P_0	P_1	P_2	K_0	K_1	K_2	Mean
P_0	6044	8115	6657	6772	7177	6867	6939
P_1	8535	8786	8832	8706	10147	8300	9051
P_2	8129	8829	9937	8760	9544	8591	8965
Mean	7569	8910	8475	8079	8956	7919	8318
K_0	7193	8412	8633				
K_1	7807	9348	9713				
K_2	7708	8970	7080				

C.D. for N or P marginal means=603·0 Kg/ha.

Crop :- Jute (*Kharif*). **Ref :- Tr. 63(7), 64(6) and 65(3).**

Site :- Res.-cum-Demons. Farm, Arundhutinagar. **Type :- 'M'.**

Object :— To study the effect of different doses of lime on the yield of Capsularis Jute fibre.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) and (c) N.A. (ii) Clay loam. (iii) 25.4.63 ; 6.4.64 ; 12.4.65. (iv) (a) 4 ploughings followed by laddering. (b) N.A. (c) 3·4 Kg/ha. (d) 30 cm.×10 cm. (e) N.A. (v) 184 Kg/ha. of compost+22·4 Kg/ha. of K_2O as Mur. Pot.+22·4 Kg/ha. of P_2O_5 as Super+44·8 Kg/ha. of N as C/A/N. (vi) D-154. (vii) Unirrigated. (viii) 4 weedings and 2 thinnings. (ix) N.A. (x) 7.9.63 ; 25.9.64 ; 27.9.65.

2. TREATMENTS :

5 levels of lime : T_0=0, T_1=56, T_2=112, T_3=168 and T_4=224 Kg/ha.
(Lime was applied 7 days before sowing).

3. DESIGN :

(i) R.B.D. (ii) (a) 5. (b) 19·2 m.×4·6 m. (iii) 4. (iv) (a) 4·6 m.×3·4 m. (b) 4·0 m.×2·7 m. (v) 30 cm. discarded alround. (vi) Yes.

4. GENERAL :

(i) Normal. (ii) N.A. (iii) Fibre yield. (iv) (a) 1963-65. (b) No. (c) Nil. (v) No. (vi) N.A. (vii) Error variances are heterogeneous and Treatments×years interaction is absent. Results of individul years are given under 5-Results.

5. RESULTS :

63(7)

(i) 2621 Kg/ha. (ii) 423·4 Kg/ha. (iii) Treatment differences are not significant. (iv) Av. yield of fibre in Kg/ha.

Treatment	T_0	T_1	T_2	T_3	T_4
Av. yield	2318	2962	2417	2516	2893

64(6)

(i) 1679 Kg/ha. (ii) 536·6 Kg/ha. (iii) Treatment differences are not significant. (iv) Av. yield of fibre in Kg/ha.

Treatment	T_0	T_1	T_2	T_3	T_4
Av. yield	1092	1414	1743	1805	2339

65(3)

(i) 3936 Kg/ha. (ii) 998·7 Kg/ha. (iii) Treatment differences are not significant. (iv) Av. yield of fibre in Kg/ha.

Treatment	T_0	T_1	T_2	T_3	T_4
Av. yield	2695	4006	4087	4243	4648

Crop :- Jute (*Kharif*). **Ref :- Tr. 65(12).**

Site :- Seed Multiplication Farm, Gokulnagar, Udaipur. **Type :- 'MV'.**

Object :— To study the effect of different fertilizers doses on the yield of fibre of two Capsularis varieties of Jute.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) and (c) N.A. (ii) Sandy loam. (iii) 1.5.65. (iv) (a) 5 ploughings followed by laddering. (b) Line sowing. (c) 7·4 Kg/ha. (d) 30 cm.×10 cm. (e) —. (v) 184·5 Q/ha. of compost. (vi) As per treatments. (vii) Unirrigated. (viii) 3 weedings and 2 thinnings. (ix) N.A. (x) 28.9.65.

2. TREATMENTS :

All combinations of (1) and (2)

(1) 2 varieties of fertiiizers : V_1=JRC—321 and V_2=JRC—212.

(2) 5 levels of fertilizers : F_0=Control, F_1=22·4 Kg/ha. of N as C.A/N+11·2 Kg/ha. of P_2O_5 as Super +11·2 Kg/ha. of K_2O as Mur. Pot., $F_2=2\times F_1$, $F_3=3\times F_1$ and $F_4=4\times F_2$.

Time of application : ½ doses of N, P and K were applied 30 days after sowing and the remaining doses were applied 60 days after sowing.

3. DESIGN .

(i) Fact. in R.B.D. (ii) (a) 10. (b) 22·0 m.×14·3 m. (iii) 4. (iv) (a) 6·7 m.×3·7 m. (b) 6·1 m.×3·1 m. (v) 30 cm. discarded alround. (vi) Yes.

4. GENERAL :

(i) Normal. (ii) N.A. (iii) Fibre yield. (iv) (a) 1955-56. (b) N.A. (c) —. (v) No. (vi) N.A. (vii) Nil.

5. RESULTS :

(i) 978·9 Kg/ha. (ii) 180·4 Kg/ha. (iii) Main effects of V and F and interaction V×F are highly significant. (iv) Av. yield of fibre in Kg/ha.

	F_0	F_1	F_2	F_3	F_4	Mean
V_1	418·0	875·0	691·7	933·3	870·8	757·8
V_2	381·9	1170·8	1554·2	1362·5	1530·6	1200·0
Mean	400·0	1022·9	1122·9	1147·9	1200·7	978·9

C.D. for V marginal means =117·1 Kg/ha.
C.D. for F marginal means =185·1 Kg/ha.
C.D. for means in the body of table=261·8 Kg/ha.

Crop :- Jute (*Kharif*). **Ref :- Tr. 65(13).**

Site :- Seed Multiplicatian Farm, Gokulnagar, Udaipur. **Type :- 'MV'.**

Object :— To study the effect of different fertilizer doses on the yield of fibre of two olitorious varieties of Jute.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) and (c) N.A. (ii) Sandy loam. (iii) 1.5.65. (iv) (a) 4 ploughings followed by laddering. (b) Line sowing. (c) 7·4 Kg/ha. (d) 30 cm.×10 cm. (e) —. (v) 184·5 Q/ha. of compost. (vi) As per treatments. (vii) Unirrigated. (viii) 4 weedings and 2 thinnings. (ix) N.A. (x) 9.10.65.

2. TREATMENTS :

All combinations of (1) and (2)

(1) 2 varieties : V_1=JRO—632 and V_2=JRO—514.

(2) 5 levels of fertilizers : F_0=Control, F_1=22·4 Kg/ha. of N as C/A/N+11·2 Kg/ha. of P_2O_5 as Super +11·2 Kg/ha. of K_2O as Mur. Pot., $F_2=2\times F_1$, $F_3=3\times F_1$ and $F_4=4\times F_1$.

Time of application : ½ doses of N, P and K were applied 30 days after sowing and the remaining doses were applied 60 days after sowing.

3. DESIGN :

(i) Fact. in R.B.D. (ii) (a) 10. (b) 22·0 m.×14·3 m. (iii) 4. (iv) (a) 6·7 m.×3·7 m. (b) 6·1 m.×3·1 m. (v) 30 cm. discarded alround. (vi) Yes.

4. GENERAL :

(i) Normal. (ii) N.A. (iii) Fibre yield. (iv) (a) 1965-67. (b) No. (c) —. (v) No. (vi) N.A. (vii) Nil.

5. RESULTS :

(i) 1369 Kg/ha. (ii) 307·3 Kg/ha. (iii) Main effect of F is highly significant. (iv) Av. yield of fibre in Kg/ha.

	F_0	F_1	F_2	F_3	F_4	Mean
V_1	917	1285	1306	1361	1562	1286
V_2	1042	1403	1403	1618	1792	1452
Mean	980	1344	1354	1490	1677	1369

C.D. for F marginal means=315·2 Kg/ha.

Crop :- Jute (*Kharif*). **Ref :- Tr. 64(7) and 65(4).**

Site :- Res.-cum-Demons. Farm, Arundhutinagar. Type .- 'C'.

Object :— To study the effect of different dates of sowing on Jute.

1 BASAL CONDITIONS :

( ) (a) Nil. (b) and (c) N.A. (ii) Clay loam. (iii) As per treatments. (iv) (a) 4 ploughings followed by laddering. (b) N.A. (c) 3·4 Kg/ha. (d) 30 cm.×10 cm. (e) N.A. (v) 230·6 Q/ha. of compost+11·2 Kg/ha. of P_2O_5 as Super+44·8 Kg/ha. of N as C/A/N+11·2 Kg/ha. of K_2O as Mur. Pot. (vi) JRC–212. (vii) Unirrigated. (viii) 3 weedings and 2 thinnings. (ix) N.A. (x) 22.9.64 ; 20.9.65.

2. TREATMENTS :

6 detes of sowing : D_1=1st April, D_2=10th April, D_3=20th April, D_4=30th April, D_5=10th May and D_6=20 May.

3 DESIGN :

(i) R.B.D. (ii) (a) 6. (b) 3·1 m.×10·7 m. (iii) 4. (iv) (a) 3·1 m.×1·5 m. (b) 2·7 m.×1·2 m. (v) 15 cm. discarded alround. (vi) Yes.

4. GENERAL :

(i) Poor. (ii) N.A. (iii) Fibre yield. (iv) (a) 1964-65. (b) No. (c) Nil. (v) No. (vi) N.A. (vii) Error variances are heterogeneous and Treatments×years interaction is absent, the results of individual years are given under 5-Results.

5. RESULTS :

64(7)

(i) 737 Kg/ha. (ii) 508·6 Kg/ha. (iii) Treatment differences are not significant. (iv) Av. yield of fibre in Kg/ha.

Treatment	D_1	D_2	D_3	D_4	D_5	D_6
Av. yield	1129	538	852	717	598	590

65(4)

(i) 4271 Kg/ha. (ii) 1688·0 Kg/ha. (iii) Treatment differences are not significant. (iv) Av. yield of fibre in Kg/ha.

Treatment	D_1	D_2	D_3	D_4	D_5	D_6
Av. yield	5569	5726	4365	3603	3379	2982

Crop :- Groundnut (*Kharif*). **Ref :- Tr. 64(11) and 65((10).**

Site :- Res.-cum-Demons. Farm, Arundhutinagar. **Type :- 'M'.**

Object :—To study the effect of different doses of N, P and K alone and in combination on the yield of Groundnut.

1. BASAL CONDITIONS :

( ) (a) Nil (b) and (c) N.A. (ii) Sandy loam. (iii) 13.5.64 ; 15.5.65. (iv) (a) 3 ploughings followed by laddering. (b) Line sowing. (c) N.A. (d) 60 cm.×22·5 cm. (e) N.A. (v) 184·5 Q/ha. of compost. (vi) Local. (vii) Unirrigated. (viii) Hoeing, weeding and earthing up. (ix) N.A. (x) 3 to 6.10.64 ; 11.10.65.

2. TREATMENTS :

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

(1) 3 levels of N as C/A/N : N_0=0, N_1=11·2 and N_2=22·4 Kg/ha.

(2) 3 levels of P_2O_5 as Super : P_0=0, P_1=22·4 and P_2=44·8 Kg/ha.

(3) 3 levels of K_2O as Mur. Pot. : K_0=0, K_1=22·4 and K_2=44·8 Kg/ha.

P_2O_5 and K_2O were applied before sowing while N was applied 30 days after sowing.

3. DESIGN :

(i) 3^3 partially confd. (ii) (a) 9 plots/block ; 3 blocks/replication. (b) 15·9 m.×4·3 m. (iii) 4. (iv) (a) 4·3 m.×1·2 m. (b) 3·1 m.×0·6 m. (v) 30 cm.×30 cm. (vi) Yes.

4. GENERAL :

(i) Normal. (ii) Folidol @ 3 c.c. per gallon of water and Blitox at 15 gm/gallon of water against *Tikka* disease and cutter-pillar. (iii) Pod yield. (iv) (a) 1964—67. (b) No. (c) Nil. (v) No. (vi) N.A. (vii) As the expt. is continued beyond 1965, individual results are presented under 5. Results.

5. RESULTS:

64(11)

(i) 721 Kg/ha. (ii) 203·2 Kg/ha. (iii) Main effect of K alone is significant. (iv) Av. yield of Pods in Kg/ha.

	P_0	P_1	P_2	K_0	K_1	K_2	Mean
N_0	623	722	758	623	788	771	701
N_1	677	682	785	682	686	776	715
N_2	700	749	794	736	668	839	748
Mean	667	718	779	680	688	795	721
K_0	614	673	753				
K_1	623	682	758				
K_2	762	798	825				

C.D. for K marginal means=92·8 Kg/ha.

65(10)

(i) 1603 Kg/ha. (ii) 443·3 Kg/ha. (iii) Main effect of P alone is highly significant. (iv) Av. yield of Pods in Kg/ha.

	P_0	P_1	P_2	K_0	K_1	K_2	Mean
N_0	1381	1426	1780	1444	1614	1529	1529
N_1	1386	1632	1731	1574	1466	1709	1583
N_2	1242	1740	2108	1601	1767	1722	1697
Mean	1336	1599	1873	1540	1616	1653	1603
K_0	1372	1529	1718				
K_1	1399	1529	1740				
K_2	1238	1740	1982				

C.D. for P marginal means=208·6 Kg/ha.

Crop :- Groundnut (*Kharif*). **Ref :- Tr. 64(10).**

Site :- Res.-cum-Demons Farm, Arundhutinagar. **Type :- 'C'.**

Object :—To study the effect of different dates of sowing and spacings on the yield of Groundnut.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) and (c) N.A. (ii) Sandy loam. (iii) As per treatments. (iv) (a) 3 ploughings followed by laddering. (b) and (c) N.A. (d) As per treatments. (e) N.A. (v) 184·5 Q/ha. of compost+11·2 Kg/ha. of N as C A/N+33·6 Kg/ha. of P_2O_5 as Super+22·4 Kg/ha. of K_2O as Mur. Pot. (vi) Local. (vii) Unirrigated. (viii) Hoeing, weeding and earthing up. (ix) N.A. (x) 28.10.64 to 5.11.64.

2. TREATMENTS :

Main-plot treatments :

4 dates of sowing : D_1=20.4.64, D_2=2.5.64, D_3=14.5.64 and D_4=26.5.64.

Sub-plot treatments :

3 spacings : S_1=60 cm.×10 cm., S_2=60 cm.×15 cm. and S_3=60 cm.×22·5 cm.

3. DESIGN :

(i) Split-plot. (ii) (a) 4 main-plots/replication and 3 sub-plots/main-plot. (b) 18·9 m.×9·5 m. (iii) 3. (iv) (a) 3·0 m.×1·8 m. (b) 1·8 m.×1·2 m. (v) 60 cm.×30 cm. (vi) Yes.

4. GENERAL :

(i) Normal. (ii) Blitox sprayed at 10 grams per gallon of water against *Tikka* disease. (iii) Pod yield. (iv) (a) 1964–only. (b) No. (c) Nil. (v) No. (vi) N.A. (vii) Nil.

5 RESULTS

(i) 2056 Kg/ha. (ii) (a) 601·9 Kg/ha. (b) 370·4 Kg/ha. (iii) Main effect of D is highly significant. Interaction D×S is significant. (iv) Av. yield of Pods in Kg/ha.

	D_1	D_2	D_3	D_4	Mean
S_1	3426	2500	1698	1373	2249
S_2	2438	2917	1451	1343	2037
S_3	1960	2531	1712	1327	1882
Mean	2608	2649	1620	1348	2056

C.D. for D marginal means =694·3 Kg/ha.
C.D. for S marginal means at the same level of D =641·1 Kg/ha.
C.D. for D marginal means at the same level of S=867·3 Kg/ha.

Crop :- Groundnut (*Kharif*). **Ref :- Tr. 65(9).**

Site :- Res. Cum-Demons. Farm, Arundhutinagar. **Type :- 'C'.**

Object :—To study the effect of different dates of sowing and spacings on the yield of Groundnut.

1 BASAL CONDITIONS :

(i) (a) Nil. (b) and (c) N.A. (ii) Sandy loam. (iii) As per treatments. (iv) (a) 3 ploughings followed by laddering. (b) and (c) N.A. (d) As per treatments. (e) N.A. (v) 184·4 Q/ha. of compost+11·2 Kg/ha. of N as C/A/N+33·6 Kg/ha of P_2O_5 as Super+22·4 Kg/ha. of K_2O as Mur. Pot. (vi) Local. (vii) Unirrigated. (viii) Hoeing, weeding and earthing up. (ix) N.A. (x) 1, 20, 23 and 26 11.65.

2. TREATMENTS :

Main-plot treatments :

9 dates of sowing : D_1=27.3.65, D_2=8.4.65, D_3=20.4.65, D_4=2.5.65, D_5=14.5.65, D_6=26.5.65, D_7=7.6.65, D_8=19.6.65 and D_9=1.7.65.

Sub-plot treatments :

3 spacings : S_1=60 cm.×10 cm., S_2=60 cm.×15 cm. and S_3=60 cm.×22·5 cm.

3. DESIGN :

(i) Split-plot. (ii) (a) 9 main-plots/replication and 3 sub-plots/main-plot. (b) N.A. (iii) 3. (iv) (a) 3·0 m. ×1·8 m. (b) 1·8 m.×1·2 m. (v) 60 cm.×30 cm. (vi) Yes.

4. GENERAL :

(i) Normal. (ii) Blitox sprayed @ 10 gm./gallon of water against *Tikka* disease. (iii) Yield of Pods. (iv) (a) 1965—only. (b) No. (c) Nil. (v) No. (vi) N.A. (vii) Nil.

5. RESULTS ;

(i) 877 Kg/ha. (ii) (a) 221·9 Kg/ha. (b) 278·0 Kg/ha. (iii) Only the main effect of D is highly significant. (iv) Av. yield of Pods in Kg/ha.

	D_1	D_2	D_3	D_4	D_5	D_6	D_7	D_8	D_9	Mean
S_1	1790	1759	1574	926	386	1188	123	309	201	917
S_2	1636	1898	1219	1481	617	941	231	123	185	926
S_3	1404	1312	1451	1358	324	725	216	170	123	787
Mean	1610	1656	1415	1255	442	952	190	201	170	877

C.D. for D marginal means=221·8 Kg/ha.

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