NATIONAL INDEX

OF

AGRICULTURAL

FIELD

EXPERIMENTS

VOL. 13 PART 3

BOOK 1

UTTAR PRADESH

1960—65

THE COMPENDIUM PREPARED BY

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FOREWORD

The I. C. A. R. has adopted the 'Co-ordinated approach' to crop improvement as the 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 Agricultural 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 fro m 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 Agricultural 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 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 refers, 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) Assam, Manipur, Meghalaya, Arunachal Pradesh, Nagaland, Tripura and Mizoram, (3) Bihar, (4) Gujarat, (5) Kerala, (6) Madhya Pradesh, (7) Maharashtra, (8) Mysore, (9) Orissa, (10) 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 contain the 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 expreriments conducted only for one year and also those conducted for more than one year but were continuing beyond 1960-65, the results of individual experiments have been presented.

The work under the scheme was carried out at the Indian Agricultural Statistics Research Institute. As it was spread over a number of years, there were changes in the officers responsible for the scheme. In successive stages, collection and analysis of data were carried out under the guidance of Shri T. P. Abraham, Assistant Statistical Adviser, now Additional Director, Central Statistical Organisation; Government of India, Dr. B.N. Tyagi, Senior Statistician, now Additional Director of Agricultural (Statistics), Uttar Pradesh ond Shri M.G, Sardana, Senior Statistician, now Additional Director, Central Statistical Organisation, Government of India. At the preparatory stage, the work of the third series of Compendia was looked after by Shri O.P. Kathuria, Senior Seientist, and Shri R.K. Khosla, Sceintist (S-2), who were responsible for the actual working of the scheme. Sarvashri P.P. Rao, S.N. Bajpai, Mahesh Kumar, J.K. Kapoor, S.L. Garg and Dr. G.V.S.R. Krishna, Scientist S-1 and Sarvashri D.P. Singh, A.D. Lahiri and Mahender Singh, Statistical staff of the Institute carried out the work in the initial stages.

The final stages of the analysis and the printing was carried out under the guidance and supervision of Shri P.N. Bhargava and Shri K.S. Krishnan, Senior Scientists of this Institute duly assisted by Dr. M.G. Mittal, Shri P.K. Batra and Shri Prabhat Kumar, Scientists (S-1), S/Shri M.P. Saksena and P.R. Yeri, Senior Research Assistants. S/Shri H.C. Jain, O.P. Sharma, Kuldeep Singh, P.K. Azad, S.S. Kutaula, Ashok Kumar, N.K. Sharma and O.P. Khanduri and Pramod Kumar Statistical staff of the Institute deserve special mention for their careful work in analysing the data and combining the results of similar experiments. It is not out of place to mention the name of Shri Sudershan Sharma, typist, for his labourious work in typing the part of voluminous manuscript of this compendium.

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.

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. S. R. I. 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
Indian Agriculture Statistics Research
Institute (I.C.A.R.) New Delhi

NEW DELHI.
March. 31, 1978.

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. Inst 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 Pradesh (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 CULTIVATORS' 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 bracket 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 number has 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 Glassland & Fooder 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 cultivators' fields, whether under an Indian Council of Agricultural Research scheme or by the State Government, the abbreviation (c.f.) is given along with the site or centre as, for example, Cuttack (c.f.).

Type :—Abbreviations used against this item are one, or more than one, of the following : C—Cultural ; D—Control of Diseases and Pests ; I—Irrigational ; M—Manurial ; R—Rotational ; V—Varietal and X—Mixed cropping. 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 topography of the experimental area. (ii) Type of tract it represents. (iii) Year of establishment. (iv) Cropping pattern. (v) Programme of research.

B. Normal Rainfall :

Average 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 cultivators' 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 operation 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 cultivators' 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 cultivators' 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

Sl. No.	Name of Crop	Botanical Name	Assamese	Bengali	Oriya	Telugu	Tamil	Malayalam	Kannada	Marathi	Gujarati	Hindi	Punjabi	Kashmir
1	Paddy	*Oryza sativa* L.	Dhan	Dhan	Dhano	Vadlu,	Nel	Nellu	Bhatta	Bhat	Dangar	Dhan	Dhanb	Shali
2	Wheat	*Triticum sativum* Lamk,	Gani ; Ghehu	Gam	Gaham	Godumalu	Kothumai	Gothambu	Godhi	Gahu	Ghahu	Gehon	Kanak	—
3	Maize	*Zea mays* L.	Gomdhan	Bhutta	Macca	Mokka-jonna	Makka-cholam	Cho am	M na jola	Makka	Makkai	Makka	Makki	—
4	Barley	*Hordeum vulgare L.*	Jaidhan	Joba	Jaba	Barley	Baarliarisi	Barley	Ba ley akki	Salu	Jau	Jau	J un	
5	Gram	*Cicer arietinum* L.	Butmah	Chola	Boot	Sanagalu	Kadalai	Kada i	Kadal	Harbara	Chana	Chana	Chana	Moong
6	Bajra	*Pennisetum typhoides staph. Ex hubbard*	—	Bajra	Bajra	Sajja	Kambu	Kambu	Sajje	Bajri	Bajr i	Bajra	Bajra	—
7	Urd	*Phaseolus mungo var.*	Matimah	Maskhalai	Biri	Minumulu	Uzhundu	Uzhunnu	Uddu	Udid	Udad	Urd	Mash	Mash
8	Oats	*Avena Sativa* L.	Oat	Jai	—	—	Oatarisi	Oat	Thoke Godhi	Jai	Jav	Jaie	Jaee	—
9	Jowar	*Andropogon Sorghum Brot Sorghum vulgare Pers.*	—	Jowar	Juara	Jonna	Cholam	Cholam	Jola	Jowari Jondhla	Jowari Juar	Jowar Jaur	Jowar	—
10	Mandua	—	—	—	—									—
11	Ragi	*Eleusine coracana Gaertn*	—	Marwa	Mandia	Ragi Chodi	Keppai, Ragi	Ragi Muthari	Ragi	Nagli Nachni	Nagli Bavto	Ragi Mandika Marwah	Mandhuka Mandhal	—
12	Moong	*Phaseolu saureus Roxb*	Magumah	Sonamung	Mung	Pachape-salu	Pachape-salu	Cerupayaru Payaru	Hesaru	Mugh	Mag	Moong	Moongi Mug	—
13	Lentil	*Lens esculenta Moench Lens culinaris Medic*	Masurmah	Musuri	Masur	Chiru-senaga	Masur Paruppu	—	Masooru bele	Masur	Masur	Massur	Massar	—
14	Lobia	*Vigna Catiang walp; vigna sinesis savi*	—	Barbati		—	Thatapa-yaru	Manbayar	Alasande	Chavli	Chola, Choli	—	Lobia	—
15	Pea	*Pisumarvense L.*	Motor	Chota pyara matar	Badachana	Desavali, Batani	Pattani	—	Holda bataani	Votnna Matar	Vatana	Mutter	Mattri	—

CONTENTS

UTTAR PRADESH

(Salient features of experimentation)

The general information regarding the agro-climatic regions, extent of cultivation, normal cropping pattern, etc. of the state of Uttar Pradesh is available in the volumes of Ist & 2nd parts of National Index of Agricultural Field Experiments already published for the periods 1948-53 & 1954-59 rospectively.

This volume includes the results of 1,070 experiments on cereals, millets and pulse crops conducted during the period 1960-65, besides those belonging to the All-India Co-ordinated Agronomic Experiments Scheme of I.C.A.R. . The results of experiments conducted on other crops for the period 1960-65 are being published in the subsequent volume. 702 experiments conducted on cereals, millets and pulse crops during the period 1948-53 were avaliable in Part I while the experiments corresponding these crops during 1954-59, available in Part 2, are 859.

The crop-wise distribution of experiments is given in Table-1. The experiments which had been conducted for more than one year have been grouped together and the combined results of such experiments are presented in group form. There are 215 such groups comprising of 623 experiments the distribution of these are presented in Table 2. From these tables, it can be inferred that the experiments conducted on Paddy and Wheat together contributed to 78% of the total experiments conducted on cereals, millet and pulse crop in the State while experiments conducted on Pulse crops constitute only little over 6%. Thus the number of experiments conducted on these crops is much less and there is a need to intensify experimentation on these crops. The salient features of experimentation on different crops are given in the ensuing paragraphs.

Paddy—Paddy crop covered about 4425 thousand hectares i e. 19.41% of the total cropped area, 343 experiments were reported on this crop. Generally the net plot size used in the experimentation varied from 25 sq.m. to 70 sq.m.. However, in a few experiments the maximum plot size employed was 174 sq.m. while minimum was 5 sq.m.. Important varieties of Paddy used for experimentation were N—12. N—22, T—9, T—21, T—26, T—36, T—100 and Chakia-59. About 81.43% of the experiments were either purely manurial or where manure was one of the factors tried in the experiments Maximum doses of N, P and K tried in the experiments were 135 kg/ha, 100kg/ha and 50kg/ha respectively. 71% of experiments were of factorial type. 52% experiments were laid out using Randomised Block Design, 30% with Split-plot Design and rest Confounded Designes. Number of replication employed for experimentation varied from 1 to 12.

Wheat—Wheat crop covered 6152 thousand hectares i.e. 26.99% of the total cropped area. Out of 490 experiments reported on Wheat crop 183 experiments were conducted for one year only while other 307 experiments were grouped together to form 97 groups and pooled analysis of these groups is also presented. About 75% of the experiments were either purely manurial or had manure as one the factors tried in the experiments. Maximum doses af N,P. and K tried in the experiments were 140kg/ha, 135kg/ha aud 90kg/ha respectively. 12% of the experiments were conducted for control of pests and diseases. In case of cultural experiments different practices such as dates of sowing, date and method of sowing, plant and row-spacings etc. were tried. About 26% of experiment were either of purely cultural type or this as one of the factors. For most of the experiments net plot-size varied from 20 sq.m, to 70 sq.m., while for few experiments net plot-size employed was more than 100 sq.m. About 63% of experiment were of factorial type. 66% of experiments laid out using Randomised Block Design, 24% using Spilt plot aud 8% using Confounding and rest other Designs. Generally the number of replication employed varied from 2 to 6. For some of experiments num-

ber of replications employed were as high as 12. In majority of the experiments the varieties used for experimentation were Pb-621, k-66, k-68, NP-710, NP-718, NP-824, C-13, C-273 & C-281. The maximum yield obtained was 41 q/ha.

Barley—Barley crop covered about 1231 thousand hectares i.e. 5.94% of the total cropped area, 62 experiments were reported on this crop. Out of these experiments, 25 experiments were conducted for one year only while other 37 experiments were grouped together to form 14 groups and pooled analysis of these experiments have also been provided. About 60% of experiments were either purely manurial or had manure as one of the factors tried in the experiments. Maximum doses of N.P and K tried in the experiment were 150kg/ha, 67kg/ha and 60kg/ha respectively. 24% of the experiments reported were on control of pests and disease. In these experiments, various fungicidal treatments were tried for control of pests and diseases of Barley crop. 27% of experiments were tried with cultural treatments. Method of sowing, row-spacing, dates of sowing, types of ploughing, seed rates, etc. were the treatments tried for cultural experiments. The important varieties tried for experimentation were K—12, C—251 and NP-21. Maximum plot size used for experimentation was 80 sq.m. Number of replications in an experiment varied from 2 to 7. 66% experiments were laid out, using R.B.D. lay out, 33% using Split plot and rest with Latin Square and Coufounding.

Maize—Maize crop covered obout 1376 thousand hectares i.e. 6.04% of the total cropped area. 59 experiments were reported on this crop out of these 35 experiments were conducted for single year while rest of the 27 experiments were grouped together to form 7 groups and pooled results for these groups have also been presented. 58% of experiments were either of purely manurial type or where manure was one of the factors tried. Maximum doses of N,P and K tried were 200Kg/ha, 100Kg/ha and 90Kg/ha respectively. 14% of experiments were on control of pests, diseases and weeds. In these experiments various fungicidal and weedicidal treatments were tried. 57% of experiments were tried with cultural treatments. Methods of sowing, earthing, dates of sowing, method of compactetion, types of ploughing, row-spacing, etc. were the treatements tried for cultural experiments. The important varieties tried for experimentation were T-41, Ganga-1 and local etc. Number of replications varied from 2 to 6. 64% experiments were laid out in R.B.D. layout, 21% in split-plot design. In 10% of experiments, principle of Confounding was employed. Mostly net plot size employed varied from 20 sq.m. to 60 sq.m. Maximum net plot size used was 892 sq.m.. The maximum yield obtatned was 68 q/ha.

Pulse—Pulse crops covered about 3149 thousand hectares i.e. 13.82% of the total cropped area. 38 experiments were reported on Gram, 7 on Urd, 6 on Moong, 13 on Lentil, 3 on Lobia and 2 on Pea. Out of 7 experiment reported on Urd crop, 6 were of manurial type while one experiment was on control of pest and disease. Out of 6 experiments on Moong, 3 were conducted with manurial treatments while the other three were on control of pest and disease. One and two experiments of manurial type were reported for Lobia and Pea crop respectively. Out of 38 experiments reported on Gram crop, 13 experiments were conducted for one year only while 25 experiments were grouped to form 10 groups and pooled analysis of these groups have been presented. 76% of experiments reported on Gram were either of purely manurial type or where manure was one of the factors. Maximum doses of N, P and K tried in experimentation were 112,90 and 45 kg/ha respectively. 69% of experiments on this crop were laid out in Randomised Block Design. 25% of experiments with Split-plot design and rest with other designs. Maximum number of replication used for experiments were 4. Varieties employed in experimentation were T-1, T-3 and T-87. Maximum yield obtained was 37 q/ha.

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Table—1

Experiments Conducted during the period 1960-65
(Cropwise and Typewise distribution of experiment)

Crop / Type	M	MV	C	CV	CM	CMV	I	IV	IM	IMV	IC	ICM	D	TOTAL
Paddy	153	42	24	7	58	5	2	—	18	2	1	—	31	343
Wheat	228	34	53	3	30	8	9	3	58	3	1	7	53	490
Barley	18	11	9	—	8	—	—	—	1	—	—	—	15	62
Oats	7	2	3	—	3	—	—	—	—	—	—	—	1	16
Jowar	3	—	1	—	—	—	—	—	—	—	—	—	4	8
Bajara	8	1	—	—	—	—	—	—	—	—	—	—	3	12
Maize	11	6	12	5	12	5	—	—	—	—	—	—	8	59
Mandua	6	—	4	—	—	—	—	—	—	—	—	—	—	10
Ragi	—	—	—	—	—	—	—	—	—	—	—	—	1	1
Gram	13	4	1	4	2	—	—	—	10	—	—	—	4	38
Urd	6	—	—	—	—	—	—	—	—	—	—	—	1	7
Moong	3	—	—	—	—	—	—	—	—	—	—	—	3	6
Lentil	5	—	1	2	4			—	1	—	—	—	—	13
Lobia	9	—	—	—	—	2	—	—	—	—	—	—	—	3
Pea	2	—	—	—	—	—	—	—	—	—	—	—	—	2
TOTAL	464	100	108	21	117	20	11	3	88	5	2	7	124	1070

Table—2

Number of Group of experiments conducted during the period 1960-65
(Number of experiments with in group are given in per inthesis)

Crop / Type	M	MV	C	CV	CM	CMV	I	IV	IM	IMV	IC	ICM	D	Total
Paddy	36(103)	6(12)	4(10)	—	11(31)	2(5)	1(2)	—	8(16)	—	—	—	5(17)	73(196)
Wheat	42(151)	4(10)	13(42)	1(2)	8(21)	1(2)	3(6)	—	14(45)	1(3)	—	1(2)	9(23)	97(307)
Barley	4(11)	2(4)	3(8)	—	3(8)	—	—	—	—	—	—	—	2(6)	14(37)
Oats	1(3)	—	1(3)	—	—	—	—	—	—	—	—	—	—	2(6)
Jowar	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Bajara	2(6)	—	—	—	—	—	—	—	—	—	—	—	—	2(6)
Maize	1(4)	1(2)	2(8)	1(4)	2(6)	—	—	—	—	—	—	—	—	7(24)
Mandua	2(5)	—	2(4)	—	—	—	—	—	—	—	—	—	—	4(9)
Ragi	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Gram	4(8)	—	—	1(3)	1(2)	—	—	—	3(10)	—	—	—	1(2)	10(25)
Urd	2(5)	—	—	—	—	—	—	—	—	—	—	—	—	2(5)
Moong	1(2)	—	—	—	—	—	—	—	—	—	—	—	—	1(2)
Lentil	—	—	—	1(2)	—	—	—	—	—	—	—	—	—	1(2)
Lobia	—	—	—	—	—	1(2)	—	—	—	—	—	—	—	1(2)
Pea	1(2)	—	—	—	—	—	—	—	—	—	—	—	—	1(2)
Total	96(300)	13(28)	25(75)	4(11)	25(68)	4(9)	4(8)	—	25(71)	1(3)	—	1(2)	17(48)	215(623)

PARTICULARS OF RESEARCH STATIONS AND SOIL ANALYSIS

1. Allahabad Agricultural Institute, Allahabad.

A. General Information :

(i) In Karchhana *tehsil* of Allahabad district. 3Km. from Naini Railway Station. Not undualting land. (ii) Indo-Gangetic alluviun. (iii) It was established in 1942 (iv) Fodder. Maize-Wheat-Cowpea; Cowpea-Wheat-Fodder Maize; Jowar fodder-Barley-Maize; Jowar fodder-Barley+Gram-Maize are the normal rotations. (v) To conduct experiments on different aspects of erops.

B. Normal Rainfall in cm. :

June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.
0·7, 1·9	21·7, 13·1	13·2, 21·7	13·7, 10·1	3·2, —,	—, 0·1	0·7, 0·3	0·9, 2·0	5·4, 3·0

March	Aplil	May	Total.
0·3, 0·4	0·1, 0·7	1·0, 0·1	140·5

(The above is the average fort nightly rainfall for the period 1960-1965).

C. Irrigation and Drainage Facilities :

(i) (a) Irrigation facilities exist since 1940 for 50ha. (b) Source of irrigation-N.A. (ii) Most of the soils are well-drained.

D. Soil type and Soil analysis :

(i) Sandy loam to loam, deep loam soil grey in colour with fairly loose cultivated structure. (ii) Chemical analysis : Base ex. capacity-6.0 to 29.3 available P_2O_5 36 to 734·7Kg/ha. absorbed P_2O_5 0 to 129Kg/ha., available K_2O 134 to 708Kg/ha, pH 7.0 to 9.25, Organic Carbon 0.30 to 99% stickly point piper 14.6 to 28.35% and ratio of *Kankar* 5 to 20 : 236 (iii) Mechanical analysis-N.A.

E. No. of Experiments.

Paddy—4, Wheat—6 and Maize—3; Total = 13.

2. Government Regional Agricultural Research Station, Amrukh

A. General Information:

(i) In Moth tehsil of Jhansi district. 10Km from Moth Railway Station. Slope from west to east. Hill rock situated about 0.4Km. west of research station. (ii) Bundelkhand tract representing Kabar and Parwa soils. (iii) Established in 1956. (iv) G.M. (fallow)—Wheat; Paddy—Gram; Paddy—Pea and Maize—Wheat. (v) To conduct experiments on cultural, varietal, manurial and inseeticidal aspects.

B. Normal Rainfall : N.A.

C. Irrigation and Drainage Facilities :

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

D. Soil type and Soil analysis :

(i) Kabar and parwa 15cm. to 22cm deep, brown to dark brown in colour, granular, circular and hexagonal in structure,. (ii) Chemical analysis: pH-6.6 to 8.3, total soluble salt 0.022, to 0.066%, water holdlng capacity 40.22 to 58.73% Organic Carbon. 588 to 1.37, total nitrogen 1098 to 2060 Kg/ha, available P_2O_5 13.4 to 13.3Kg/ha. and water soluble K_2O: 22 to 199.4Kg/ha. (iii) Machnical analysis—N.A.

E No. of Experiments :

Paddy—6, Wheat—27, Jowar—1, Maize—1, Gram—4 and Pea—2, Total = 41.

3. Wheat Research Farm, Araul :

A. General Information:

(i) Situated near Araul Makanpur Railway Station in Kanpur district with Lat 26°94/N/Long.80°05/Alt-28m. above m. s. l, levelled topography. (ii) Indogangetic plain (iii) Established in October, 1961 (iv) Double Cropped area (v) Trial on important crop are conducted.

B. Normal Rainfall : *N A.*

C. Irrigation and Drainage Facilities :

(i) (a) Yes, since 1968 (b) tube-well (ii) no.

D. Soil type and soil analysis :

(i) Sandy loam (ii) Organic Carbon=0.34%, Available P=35.00Kg/ha, Available K=144.00Kg/ha. pH=7.8 (iii) n.a.

E. No. *of Experiments* :

Wheat—1; Total=1.

4. Deep water Paddy Res. Stn. Bansedip
Information from A to D is N.A.

E. No. of Experiments :

Paddy—3 and Lentil—2 Total=5.

5. Government Agricultural Farm. Atarra.

A. General Information:

(i) In Naraini tehsil of Banda district, 1Km. from Atarra Railway Station. (ii) *Parwa* tract. (iii) Establishment in 1912. (iv) Paddy-Sugarcane-Barley-Gram-Pea-Wheat and Potato. (v) N.A.

B. Normal Rainfall : *N.A.*

C. Irrigation and Drainage Facilities :

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

D. Soil type and Soil analysis :

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

E. No. of Experiments :

Paddy—3 and Gram—4; Total=7.

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

A. General Information:

(i) In Agra tehsil of Agra district. 1.6Km. from Bichpuri Railway Station, Well levelled

land. (ii) Semi-arid (Indo-Gengetic) (iii) Established in 1943 (iv) Kharif: Jowar-Bajra-Sanai for G.M. and Rabi: Wheat-Gram-Peas-Potato-Berseem and Sugarcane. (v) Research work is done in agriculture by M.Sc. and Ph.D. students and on research scheme of ICAR New Delhi.

B. Normal Rainfall in cm. :

June	July	Aug.	Sept,	Oct.	Nov.	Dec.
0·3, 0·2	9·2, 8·6	13·6, 12·9	8·1, 3·6	0·6, 0·4	0·1, 0·1	0 1, 0·2

Jan.	Feb.	March	April	May	Total
0·4, 0·7	0·5, 0·1	0·3, 0·3	0·3, 0·1	0·3, 0·3	60·9

(The above is the average fortnightly rain fall for the period 1960-65).

C. Irrigation and Drainage Facilities:

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

D. Soil type and Soil analysis:

(i) Sandy loam 90cm. to 150cm. deep, brownish in colour and structure less. (ii) Chemical analysis : Nitrogen 0.045%. Phosphorus 0.08%. Potash 1.213% and pH 7.2 (iii) Mechanical analysis : Loamy sand 0.454%, pure sand 58.925%, silt 22.821% and clay 16.66%.

E. No.of Experiments :

Paddy—1, Wheat—31, Jowar—2, Maize—1 and Gram—5; Total=40

7. Cotton Research Station, Bulandshahar

A. General Information :

(i) In Bulandshahr tehsil of Bulandshahar district, 5Km. from Bulandshahar Railway Station. The farm is well levelled and well laid. Lat 28°.25',/N/Long. 77o75',/E/Alt. 609m. about m.s.l. (ii) It represents the alluvial tract of western U.P. (iii) Established in 1944. (iv) G.M.-Wheat-Cotton-Pea. (v) Evolution of long shaped strain of deshi Cotton through acclimatisation selection and hybridisation which is suitable to mill industry improving quality of local survey selections by crossing them with quality cotton of other states. Research work is also done on other fibre crops and Tobacco.

B. Normal Rainfall in cm. :

June	July	Aug.	Sept.	Oct.	Nov.	Dec.
0·4, 0·3	7·5, 9·4	16·7, 15·0	5·7, 10·7	2·7, 1·4	0·0, 0·0	0·2 0·2

January	Feburary	March	April	May	Total
0·9, 1·1	1·1, 1·4	0·2, 0·9	0·1, 0·1	0.0, 0·3	62.8

(The fortnightly average rainfall data is based on the period 1960 to 1965.)

C. Irrigation and Drainage Facilities :

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

D. Soil type and Soil analysis :

(i) Loam. 15cm. deep, whitish in colour and granular and crumb in structure. (ii) Chemical analysis: pH 7.8, total soluble salt 0.3%, organic carbon 0.34% and average P_2O_5 9.2 lb./ac. (iii) Mechanical analysis : Coarse fune 4.50% and 61.2—, clay and silt 16.5%

E. No. of Experiments :

Wheat--2; Total=2

8. Usar Reclamation Farm, Chakeri (Kanpur)

A. General Information.

(i) In Kanpur tehsil of Kanpur district. 3Km. from Chakeri Railway Station. Even land (ii) Alluvial with halomorphic phase. (iii) Established in 1954. (iv) Paddy-Wheat. (v) Research is done in method of reclamation of saline alkali soils including manurial and cultural methods.

B. Normal Rainfall in cm

Same as in Govt. Research Farm, Kanpur.

C. Irrigation and Drainage Facilities :

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

D. Soil type and Soil analysis :

(i) Saline alkali soil, very deep, greyish brown to ash grey in colour subangular blocky to cloddy in structure. (ii) Chemical analysis: pH 8.4, E. Condcutivity 0.5m. mhos /cm., Organic Carbon 0.5%, available P_2O_5 40Kg/ha. (iii) Mechanical analysis : Sand 56.8% silt 22.72% and clay 20.48%

E. No. of Experiments :

Paddy--- and Barley—2; Total—6

9. Soil Conservation Research, Demonstration and Training Farm, Chhalesar.

A. General Information

(i) In Etmadpur tehsil of Agra district. Adjacent to Chhalesar Railway Station. Land on the back of the Jamuna, cut up by numerous ravines. (ii) Alluvial tract. (iii) Established in August, 1956. (v) Bajra, cowpea and jowar in Kharif followed by Bengal gram, mustard, wheat etc. in rabi. (v) Reclamation of ravine land for agricultural purposes.

B. Normal rainfall in cm :

June	July	Aug.	Sept.	Oct.	Nov.	Dec.
2·4	20·5	35·1	70·3	2·9	0·2	0·3

Jan.	Feb.	March	April	May	Total
1·6	1·0	0·4	0·1	0·7	135·5

(The average rainfall data is based on the period 1960 to 1964)

C. Irrigation and Drainage Facilities :

(i) (a) and (b) Irrigation facilities exist only for an area of about 0·8 ha. since 1957. The existing well is being used for irrigation (ii) Adequate surface drainage system exists.

D. Soil type and soil analysis :

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

Depth	pH	Organic Carbon	Total nitrogen	C/N	Available P_2O	Available K_2O
0 to 15cm	7.8	0.19	0.026	8.05	0.00056	0.0063
15em to 50cm	7.6	0.11	0.020	5.05	0.00960	0.0036

(iii) Mechanical analysis: Depth 0 to 15cm, clay 13.89%, silt 7.44% and sand 80.56%.

E. No. of Experiments :

Wheat—8 and Bajra—6; Total=14.

10. State Usar Reclamation Farm, Dhakauni

A. General Information :

(i) In Sandia tehsil of Hardoi district. 20Km. from Rehamiabad and Sandila Railway Station. The experimental area was slightly slopy but got levelled before conducting the experiments (ii) Saline-alkali soils. (iii) Established in 1950. (iv) Kharif-Paddy and Rabi-Wheat and Barley. (v) Experiments relating to raclamation of saline-alkali land are conducted.

B. Normal Rainfall in cm., : N.A.

C. Irrigation and Drainage Facilities :

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

D. Soil type and Soil analysis :

(i) Gangetic alluvial soil, black and brownish in colour and variable type of structure. (ii) Chemical analysis : pH 9 to 10, K in M.E%—0.1 to 0.6%, Na in M.E.%—.55 to 7.7, permeability in cm/hour—0.0037 to 00.625. (iii) Mechanical analysis : Coarse sand 0.521 to 2.169%, Fine Sand, 40.93 to 44.79%, Silt 30.00 to 38.75%, Clay 15.90 to 23.45% and Kankar 5.71 to 8.8%.

E. No. of experiments :

Paddy—11 and Wheat—10; Total=21

11. Government Agriculture Farm, Dhanauri

A. General Information :

(i) Situated in Roorkee tehsil of Sahranpur district. 14 km. away from Roorkee Railway Station with Lat. 29°30'/N/Long. 77°57' E/Alt. 222·8 m. above m.s.l. Levelled topogr aphy. (ii) Alluvial tract (iii) Established in 1960-61. (iv) Kharif : paddy-Fodder-Cotton-Bajra-Maize, Sugarcane. Rabi : Wheat-Barley-Gram-Pea-Sugarcane (v) Research on water requirement of Wheat, Maize and Rice.

B. Normal Rainfall in an :

June	July	August	Sept.	Oct.	Nov.	Dec.
2·0, 1·8	10·6, 21·5	16·0, 18·6	11·7, 7·4	1·7, 0·7	— 0·4	0·7, 1·0
Jan.	Feb.	March	April	May	Total	
3·3, 3·9	2·8, 0·9	0·8, 0·8	0.5, —	0.5, 1·2	115·1	

(The average fortnightly rainfall data based on the period 1961-65).

C. Irrigation and Drainage Facilities :

(i) and (ii) Yes, available since established (iii) Yes.

D. Soil type and Soil analysis :

(i) Alluvial soil. Variable in colour and structure at different depths. (ii) N.A. (iii) Mechanical analysis.

Depth of soil cm.	*Clay* %	*Silt* %	*Sand* %
0—20	6.0	45.0	49.0
30—60	7.0	55.0	38.0
60—90	7.0	58.0	35.0
90—120	7.0	18.0	80.0
120—150	0.50	8.0	92.0
150—180	0.00	2.0	98.0

E. No. of Experiments :

Paddy—1, Wheat—8 and Barley—2; Total=11.

12. Institute of Crop Physiology, Dilkusha (LucKnow).

A. General Information :

(i) In Lucknow tehsil of Lucknow district, 8km from Charbagh, Lucknow Railway Station. The fields are even and uniform though the experimental area is in different tiers. (ii) Gangeitc alluvilial. (iii) Established in 1948. (iv) (a) Kharif : Paddy or other crops, Rabi : Gram or Pea (b) Kharif : G.m. or legume-Maize-Jowar or Chari, Rabi : Wheat/Barley-Gram or oil-seed crops. (v) Mainly agro-physiological in nature. Undertaking of Agronomical and physiological research on cultivated crops.

B. Normal Rainfall-in cm :

June	July	Aug.	Sept.	Oct.	Nov.	Dec.
6·4	34·2	26·0	15·2	9·6	0·1	0·7
January	Febuary	March	April	May	Total	
1·9	0·6	0·2	0·3	2·8	98·0	

(The average rainfall data is based on the period 1960-1964).

C, Irrigation and Drainage Facilities :

(i) (a) and (b) Kachcha well-since establishment of the farm. From 1960 tubewell. (ii) No proper drainage system exists-

D. Soil type and Soil analysis :

(i) Shallow, light brown and sandy loam to loam (ii) Chemical analysis : Total N 0.0061%, Organic carbon 0.684%, available P_2O_5 0.0065%, available K_2O 0.00025%, pH 7,5 (iii) Mechanical analysis : Clay 14.2% silt 11.2%, and sand 71.4%.

E. No. of Experiments :

Paddy—16, Wheat—13, Maize—1 and Urd—1; total=31.

13. Agricultural Research Farm, Fatehabad.

A. General Information :

(i) Situated near Agra Fort Railway Station in Agra district. The experimental area is 164.4ha (ii) Slopy tract. (iii) Established in 1957 (iv) Bajra-Wheat, Barley, Gram, etc. (v) Varietial and agronomical trials.

B. Normal Rainfall : N.A.

C. Irrigation and Drainage Facilities :

(i) (a) Yes, since 1957 (b) Tube-well (ii) No

D. Soil type and Soil analysis :

(i) Sandy soil (ii) N.A. (iii) N.A.

E. No. of Experiments :

Bajra—1; Total=1.

14. Wheat Research Sub-Station, Girthan.

A. General Information :

(i) Situated near Orai Railway Station in Jalaun district (ii) Bundelkhand tract (iii) Established in 1956 (iz) Wheat, Barley, Groundnut, etc. (v) Varietal and agronomical trials are conducted.

B. Normal Rainfall : N.A.

C. Irrigation and Drainage Facilities :

(i) (a) nil (b) nil (ii) nil

D. Soil Type and Soil analysis :

(i) Mar II (ii) N.A. (iii) N.A.

E. No. of Experiment :

Wheat—4; Total=4.

15. Government Agricultural Flood Research Station, Goghraghat.

A. General Information :

(i) Situated near Goghraghat Railway Station in Baharaich district with lat 270°/Long 80°/Alt. 103. 6m. above m.s.l. The farm is situated on the bank of the river Gharga low levelled with sandy patchs. (ii) Trai (East) Tract (iii) Established in 1959 (iv) Kharif : Paddy, Rabi : Wheat, Barley, *Lahi* and Sugarcane (v) Paddy research associated with flood and deep water conditions.

B. Normal Rainfall in cm :

June	July	Aug.	Sept.	Oct.	Nov.	Dec.
—, 7·3	92·0, 134·6	43·7, 99·1	257·3, 29·9	7·3, 5·1	— —	8·25, —
Jan.	Feb.	March	April	May	Total	
— —	— —	—, 1·6	17·2, —	—, 3·8	685·2	

(The fortnightly rainfall based on the period 1964-65).

C. Irrigation and drainage Facilities :

(i) (a) and (b) Yes, since 1969 (ii) Tube well (iii) No

D. Soil type and Soil analysis :

(i) Sandy loam to loam (ii) Chemical analysis :

(Soil samples (depth 0—22cm).

Sample No.	Organiecarbon%	Available NitrogenKg/ha	Available $P_2 0_5$	Available $K_2 0$	pH	Soilcolour
1.	0 37	21.9 (low)	Low	Low	7.5	Lightgrey
2.	0.34	235 (Low)	Mediam	Low	7·6	-do-
3.	0.48	266 (Low)	Low	Medium	7.3	-do-
4.	I.05	203 (Medium)	V. Low	Low	7.5	Darkgrey

(iii) Mechnical analysis :

Soil samples (depth 0—22cm.)

Sample No.	Course Sand%	Finesand%	Silt%	Clay%	Soil texture
1.	1.94	53.21	34.90	10.50	Sandy loam
2.	4.34	52.25	32.12	12.00	-do-
3.	0.41	35.38	49.00	15.00	Loam
4.	52.38	29.57	10.40	8.10	Loamy sand

Details of sample

1. A Block Front of the office, 2. B Block Back of the office, 3. C Block North of the bund (transfund) and 4. D Block Jarwa area.

E. No. *of Experiments*:

Paddy—7, Wheat—16, Barley—7, Gram—2 and Lentil—2; Total=34

16. Irrigational Res. Farm Gursarai.

A to D : Information from N.A.

E. No. of Experiments :

Wheat—2; Total=2.

17. Government Regional Agricultural Research Station, Hardoi.

A. General Information :

(i) In Hardoi tehsil of Hardoi district, 3.5/km from Hardoi Rail way Station. Flat land.

(ii) Alluvial soil. (iii) Established in 1956. (iv) Paddy-Berseem; Sanai (G.M.)/Moong/Urd/ Lobia-Potato/Wheat/Barley; Sugarcane-Berseem-Paddy-Pea-G.M., Jowar/Mize/Bhindi Gram/ Berseem and Bhindi/Sanai (G.M). Potato-Wheat-Tomato are the different rotations of the traet. (v) Varietal, mannurial, cultural, rotational, weed control, botanical, soil pests and diseases of crops etc.,

B. Normal Rainfall in cm. :-

June	July	Aug.	Sep.	October	Nov.	Dec.
8·5	34·0	39·3	18·7	14·0	—	0·7
Jan.	Feb.	March	April	May	Total	
1·6	1.1	0·9	0·2	1·8	120·8	

(The average rainfall is based on the period 1955-64)

C. Irrigation and Drainage Facilities :

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

D. Soil type and Soil analysis :

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

Depth	0—15 cm	15—60 cm
Moisture	16.5%	16.6%
pH	6.7%	6.9%
HCI insolubles	89.0%	82.2%
Sesqui oxide	4.3%	11.6%
Fe_2O_3	2.48%	3.74%
P_2O_5	0.11%	0.07%
Al_2O_3	1.66%	7.74%
CaO	0·20%	0.46%
MgO	0.79%	0.99%
K_2O	2.43%	2.79%
Total Nitrogen	0.07%	0.07%
Total Organic Carbon	0.43%	0.17%
Watersolubesolids	0.06%	0.06%
$NaHCO_3$	0.04%	0.04%
NaCl	0.02%	0.02%
Coarse sand	1.2 %	2.1 %
Fine sand	64.6 %	50.4 %
Silt	13.7 %	22.0 %
Clay	12.3 %	21.1 %

E. No. of Experiments :

Paddy—33, Wheat—37, Jowar—1, Maize—2, Mondua—8, and Urd—1; Total=82.

18, Government Agriculture Farm, Jakhauli. Dist. : Jalaun.

A. to *D. Information* N.A.

E. No. of Experiments :

Paddy—1; Total=1.

19. Government Agricultural Farm, Kalai.

A. General Information :

(i) In Aligarh tehsil of Aligarh district. 16Km from Aligarh. Levelled land. (ii) Indo-Gangetic plain. (iii) Established in 1912. (iv) Sanai/Dhaincha (G.M.)-Wheat; Maize-Barley; Cotton-Sugarcane-Ratoon-Moong-Wheat, Cottod-Pea; Paddy-Gram (v) N.A.

B. Normal Rainfall in cm. :

June	July	Aug.	Sept.	Oct.	Nov.	Dec.
3·4	22·2	28·8	20·6	4·2	1·0	0·4
Jan.	Feb.	March	April	May	Total	
0·7	0·8	0·2	0·1	0·4	82·8	

(The averagc rainfall data is based on the period 1960-64).

C. Irrigation and Drainage Facilities :

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

D. Soil type and Soil analysis :

(i)Loam, 15cm. deep, light grey in colour and loose in structure. (ii) Chemical analysis :

Plot No.	pH	Conductivity	Organic carbon%	Available P_2O_5 in Kg/ha
1.	6.4	0.24	0.44	29.8
2.	8.0	0.25	0.42	94.1
3.	8.1	0.15	0.57	22.0
4.	7.0	0.20	0.21	14.1
5.	7.2	0.22	0.17	26.6
6.	8.2	0.22	0.31	11.0
7.	7.3	0.17	0.21	15.7
8.	7.8	0·14	0.06	18.8
9.	6.0	0.60	0.21	18.2

(iii) Mechanical analysis—N.A.

E. No. of Experiments :

Wheat—1 and Maize—1; Total=2.

20. Government Agricultural Research Farm, Kalianpur.

A. General Information :

(i) In Kanpur tehsil of Kanpur district. 1.6 KM. from Kalianpur Railway Station. Plain land. (ii) Alluvial. (iii) Established in 1912. (iv) G.M.-Wheat; Paddy-Berseem; Paddy-Pea, Moong-Wheat; Lobia, Sugar cane; *Chari*-Pea or Gram. (v) To carry out the experiments on oilseeds, millets and legumes.

B. Normal Rainfall in cm. :

same as in Govt. Research Farm Kanpur.

C. Irrigation and Drainage Facilities :

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

D. Soil type and Soil analysis :

(i) Loam soil, 22.5cm to 90cm deep, grey in colour and granular in structurc (ii) Chemical and (iii) Mechnical analysis.

Depth	0—22.5cm	22.5—45cm	45—60cm	60cm—83.5cm
Moisture (Natural)	2.06	4.98	6·00	7.78
Moisture (air dry)	1.01	1.77	1.64	1.67
Moisture equivalent	14 09	23.02	24.08	23.87
Water holding capacity	44.87	45.25	45.19	47.09
Loss on ignitioh	1.44	1.93	1.89	2.30
pH	7.2	7.2	7.8	7.8
Total HCl in solubles	86.86	81.62	80.57	78.59
Sesquioxide	7.62	10.30	10.98	12.54
Fe_2O_3	3.56	4·72	4.76	5.36
Al_2O_3	4.06	5.58	6.22	7.18
CaO	0.36	0.45	0.83	0.98

Depth	0—22.5cm	22.5—45cm	45—60cm	60cm—83.5cm
MgO	0.97	1.30	1.32	1.41
Total Nitrogen	0.06	0.05	0.05	0.05
Total watersoluble salt	0.04	0.04	0.06	0.03
$NaHCO_3$	0.03	0.02	0.03	0.02
Total exschangable calcium m.e.%	6.26	11.60	14.08	15.84
Coarse sand	0.34	0.24	0.17	1.21
Fine sand	59.66	45.71	42.99	42.41
Silt	22.35	24.70	25.50	25.40
Clay	16.00	25.95	28.60	29.15
Loss by solution	0.61	0.67	0.77	0.86
Total organic carbon	0.56	0.70	0.84	0.98
K_2O	0.46	0.42	0.35	0.22
P_2O_5	0.23	0.20	0.21	0.21

E. No. of Experiments :

Paddy— 2, Lentil-2 and Gram—2; Total=6,

21. Government Research Farm, Kanpur.

A. General Information :

(i) In Kanpur tehsil of Kanpur district. 8Km. from Rawatpur Railway Station. Levelled land. (ii) Alluvlial. (iii) Established in 1902. (iv) Maize, Jowar, Arhar, Moong, Urd, Paddy, Bajra, Til, and Guar in Kharif and Wheat, Barley Oats, Linseed, Mustard. Gram, Pea etc. in Rabi, (v) Varietal, Cultural and Manurial experiments on Wheat, Barley, Legumes and Oilseeds.

B. Normal Rainfall in cm. :

June	July	Aug.	Sept.	Oct.	Nov.	Dec.
2·8	27·7	29·6	12·9	11·3	0·2	0·4
Jan.	Feb	March	April	May	Total	
2·2	0·7	0·1	0·1	0·7	88·7	

(The average rainfall is based on the period 1960 to 1969)

C. Irrigation and Drainage Facilities :

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

D. Soil type and Soil analysis :

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

Depth	0 to 15cm.	15 to 30 cm.	30 cm. to 75 cm
Nitrogen	0.04	0.03	0.03
P_2O_5	0.25	0.30	0.18
K_2O	1.20	1.29	1.11
CaO	0.38	0.42	0.41
MgO	1.06	1.36	1.48
Organic carbon	0.35	0.40	0.31
pH	7.2	7.0	7.0
Coarse sand	0.21	1.61	0.27
Fine sand	48.37	37.78	35.34
Silt	26.90	27.25	28.15
Clay	20.25	28.85	31.20

E. No. of Experiments :

Paddy—8, Wheat—63, Barley—14, Jowar—2, Bajra—3, Maize—3, and Moong—2, Total=95.

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

A. General Information :

(i) In Kanpur tehsil of Kanpur district. 2.5Km. from Rawatpur Railway Station. The farm is bench terraced except some slopy plots. (ii) Ganga alluvial. (iii) Established in 1930. (iv) Kharif : *Jowar* fodder, Maize, Moong, Sugarcane, Arhar and Vegetables, Rabi : Wheat, Barley, Gram, Pea, and Vegetable (v) Mainly thesis work of post-graduate students on manurial and cultural problems.

B. Normal Rainfall in cm. :

Same as in Govt. Reacarch Farm, Kanpur.

C. Irrigation and Drainage Facilities :

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

D. Soil type and Soil analysis :

(i) Sandy loam, clacarious; 22.5cm deep; very light brown and hard on drying. (ii) Chemical analysis : Total Nitrogen—0.062%, P_2O_5—0.120% and pH—7.3. (iii) Mechnical analysis : Clay—12.35%, Silt—21.14, Fine Land—61.36% and Coarse Sand—0.63%.

E. No. of Experiments :

Paddy—1 and Jowar—1; Total=2.

23. State Usar Reclamation Farm, Katiyar.

A. General Information :

(i) In Malihabad *tehsil* of Lucknow district, 13Km. from Rahimabad Railway Station. Even land (ii) Alluvial tract, usar soils. (iii) Established in 1956. (iv) Paddy-Wheat-G.M. (Dhanicha)-Wheat. (v) Experiments relating to reclamation of alkali and saline soils are conducted.

B. Normal Rainfall in cm. : N.A.

C. Irrigation and Drainage Facilities :

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

D. Soil type and Soil analysis :

(i) Clay loam soil; deep but hard *kanpar* pan is found at 60cm to 90cm depth. Light of dark grey in colour. (ii) Chemical analysis pH-8.5 to 10.00, conductivity-0.406 to 1 016/mmho/cm.. total soluble salts. 0.163 to 0.406% (iii) Mechanical analysis :

Depth	Coarse sand%	Fine sand%	Silt%	Clay
0—15cm	0.02	55.64	25.62	20.75
15cm—18cm	0.24	51.70	26.37	25.00
45cm—90cm	0.30	46.05	27.05	26.75

E. No. of Experiments :

Paddy—4, Wheat—8 and Barley—1; Total=13

24. Rice Research Sub-Station, Kunraghat.

A. General Information :

(i) In Gorakpur tehsil of Gorakpur district. 18Km. from Kunraghat Railway Station. Flat land. (ii) Low land, alluvial soils with sandy texture and free drainage. (iii) Established in 1939. (iv) Early Paddy-Pea/Gram/Barley. (v) Varietal and manurial trials on Paddy are conducted.

B. Normal Rainfall in cm :

June	July	Aug.	Sept.	Oct.	Nov.	Dec.
16·9	40·3	38·1	23·1	06·0	·1	0·6
Jan.	Feb.	March	April	May	Total	
1·0	1·5	0·5	0·5	2·3	130·9	

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

C. Irrigation and Drainage Facilities :

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

D Soil type and Soil analysis :

(i) Sandy loam, 18 meter, in depth, yellowish brown, in colour and structureless. (ii) Chemical analysis and (iii) Mechanical analysis :

Depth	0 to 20cm	20 to 50cm	50 to 90cm
Moisture	0.99%	1.60%	1.83%
Loss on ignition	2.05%	2.22%	3.72%
HCl insolube	87.53%	84.38%	80.18%
R_2O_3	7.45%	10.01%	11.75%
Al_2O_3	4.49%	6.65%	7.83%
Fe03	2.96%	3.36%	3.92%
Ca0	0.84%	0.87%	0.81%
Mg0	0.41%	0.70%	0.62%
K_2O	0.44%	0.45%	0.47%
P_2O_5	0.05%	0.05%	0.05%
Nitrogen	0.03%	0.01%	0.02%
Organic Carbon	0.39%	0.12%	0.16%
C/N ratio	11.16%	8.86%	7.81%
Totalsolube salt	0.12%	0.13%	0.08%
Bocarbonates	0.03%	0.03%	—
Chlorides	0.01%	0.01%	—
Sulphate	0.02%	0.04%	—
pH	7.00	7.00	7.02
Coarse sand	11.78%	10.78%	12.56%
Fine sand	60.79%	51.40%	43.87%
Silt	9.65%	9.10%	15.45%
Clay	15.05%	25.55%	23.00%

E. No. of experiments :

Paddy—8; Total=8

25. Groundnut Research Station, Mainpuri.

A. General Infoamation :

(i) In Mainpuri tehsil of Mainpuri district. 3.2Km. from Mainpuri Railway Station. Plain land. (ii) Alluvial tract. (iii) Established in July, 1958 (iv) Kharif; Groundnut and Paddy. *Rabi*, Potato and Pea (v) Research is done on the intensive breeding of groundnut.

B. Normal Rainfall in cm ;

June	July	Aug.	Sept.	Oct.	Nov.	Dec.
3·4	25·4	31·2	18·0	9·4	0·1	0·2
Jan.	Feb.	March	April	May	Total	
1·9	0·8	0 4	0 1	0·4	91·3	

(The average rainfall data is based on the period 1960-1964).

C. Irrigation and Facilities :

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

drain water to nearby *nala*.

D. Soil type and Soil analysis :

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

	Surface soil	Subsoil
pH	7.7	7.7
Total soluble salts	0.13%	0.17%
Organic carbon	0.31%	0.13%
Available P_2O_5	Very Low	Very Low
Coarce Sand	1.94%	1.86%
Fine sand	76.00%	72.62%
Silt	11.56%	13.70%
Clay	9.43%	11.34%
Water holding capacity	32.88%	33.47%

E. No. of Experiments :

Wheat—1; Total=1

26. State Soil Conservation Research, Demonstration and Training Centre, Majkhali (Almora).

A. General Information :

(i) Situated in Ranikhet tehsil of Almora district. 96 km. away from Kathgodam Railway Station with lat.—29°N/Long—79°/Alt.—1700m. above m.s.l. (ii) Himalayan Tract. (iii) Established in 1960. (iv) Maize, French Bean, Madua in Kharif and Wheat-fallow in Rabi season (v) Varietal. Manurial, Rotational and Weedicidal trials are conducted.

B. Normal Rainfall :

June	July	Aug.	Sept.	Oct.	Nov.	Dec.
0·38, 7·50	12·49, 14·25	31·48, 15·55	18·35, 4·57	0·40, 0·71	0·15, —	1·08, 0·11
Jan.	Feb.	March	April	May	Total	
1·58, 0·14	2·19, 1·89	1·47, 3·93	1·79, 1·94	1·61, 2·93	127·9	

(Average fortnightly rainfall based on the period 1963-65)

C. Irrigation and Drainage Facilities :

(i) (a) N.A. (b) N.A. (ii) Nil

D. Soil type and soil analysis :

(i) Sandy loam, 7.5cm. to 90.00ha depth and light brown in colour (ii) N A. (iii) N.A.

E. No. of Experiments.

Wheat—4, Jowar—1 and Maize—3; Total=8.

27. Regional Research Station, Majhera.

A. General Information :

(i) In Nainital tehsil of Nainital district. 66Km, from kathgodam Railway Station and 4 km from Garampani Research Station. Terraces are irregular in shape-general gradation of slope is from west to east. (ii) Valley area of hill tract of district Nainital. (iii) Established in 1956-57. (iv) Kharif : Mandua-Urd or Til, Rabi : Wheat-Barley-Oats-Sarson or Pea (v) Isolation of pure line cultures. Introduction and testing the varietal performances of different varieties of different crops evolved or recommended for the region by different Economic Botanists of the State.

B: Normal rainfall in cm : Information N.A.

C. Irrigation and Drainage Facilities:

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

D. Soil type and Soil analysis : Information N. A.

E. No of Experiments :

Paddy—2, Wheat—7, Barley 1, Mandua—10 and Urd—5; Total=25

28. Central Rice Research Station, Masodha.

A. General Information :

(i) In Faizabad tehsil of Faizabad district. 9 km. from Faizabad Railway Station. Well drained even land. (ii) Irrigated upland (iii) Rice Research Station established in 1961 (Farm in 1918). (iv) Paddy-Pea, Sugarcane-G.M.-Wheat/Barley are the normal rotations of the tract. (v) Research work done on rice breeding.

B. Normal Rainfall in cm. :

June	July	Aug.	Sept.	Oct.	Nov.	Dec.
9·3	34·9	31·5	21·2	4·2	0·2	0·5
Jan	Feb.	March	April	May	Total	
1.1	0·9	0·2	0·3	2·0	106·3	

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

C. Irrigation and Drainage Facilities :

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

D. Soil type and Soil analysis :

(i) Loam to light loam, grey to light brown in colour and light loam in structure. (iii) Chemical analysis : pH 6.5, organic carbon 0.41 to 0.31%, available P_2O_5 10 to 20 kg/ha, K_2O 100 kg/ha. (iii) Mechanical analysis N.A.

E. No. of Experiments :

Paddy—19; Total—19

29. Government Research Farm, Mauranipur.

A. to D : Information N.A.

E. No. of Experiments :

Wheat—2. Jowar—1; Total=3

30. Government Regional Agricultural Research Station, Meerut.

A. General Information :

(i) Situated in Meerut in Meerut District on Delhi Road 5 Km. away from Meerut Railway Station, with a Lat—29°/Long—77°/Alt. 224m. above m.s.l. (ii) Alluvial tract. (iii) Established in 1956. (iv) The normal cropping pattern is Maize-Wheat, Maize-Potato-Onion or Lobia, Paddy-Pea or Barseem and Paddy-Wheat (iv) Experiments on Botancial, Agronomical Pathological, entomological and soil sciences disciplines.

*B. Normal Rainfall : —*N.A.

June	July	Aug.	Sept.	Oct.	Nov.	Dec.
4 2	21·4	32·8	21·2	3·0	0·2	1·3
Jan.	Feb.	March	April	May	Total	
2·4	1 2	0·4	0·2	0·9	89·2	

(Average rainfall is based on the data for the period 1960 to 1964).

C. Irrigation and Drainage Facilities :

(i) (a) Yes, since 1918. (b) It is a well laid out farm (ii) Yes; there is a proper drainage channels.

D. Soil type and Soil analysis :

(i) Sandy loam, Brownish in colour, and loaming granular structure (ii) N.A. (iii) N.A.

E. No. of Experiments :

Paddy—25, Wheat—42, Barley—2, Maize—5, Gram—3 and Moong—3; Total=80

31. Rice Research Station, Nagina.

A. General Information :

(i) In Nagina tehsil of Bijnor district. 2.5Km. from Nagina Railway Station. The slope of the farm is north to south and east to west. Canal runs from north to south. Nearest Himlayan range in the east about 13km. (ii) Semi Tarai area. (iii) Established in 1926. (iv) *Chari* fodder Gram; Paddy-Berseem, Dhaincha-Paddy-Pea-Wheat-Barley and Cotton-Sugarcane Wheat. (v) Plant breeding and agronomy are the main aspect of research work.

B. Normal Rainfall in cm : N.A.

C. Irrigation and Drainage Facilities :

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

D. Soil type and Soil analysis :

(i) Loam to sandy loam, 15cm. deep, light brown in colour and medium compact in structure. (ii) Chemical analysis and (iii) Mechanical analysis.

Field No. G—5

Depth	0—22cm	22—52cm	52—82cm
Moisture	0.17%	1.05%	0.67%
Loss of ignition	1.45%	1.81%	2.02%
HCl insolube	92.05%	85.65%	86.24%
R_2O_3	5.06%	9.54%	9.61%
Al_2O_3	3.22%	6.26%	5.69%
Fe_2O_3	1.84%	3.28%	3.92%
Ca O	0.17%	0.20%	0.20%
MgO	0.95%	0.40%	0.61%
K_2O	0.40%	0.70%	0.52%
P_2O_5	0.09%	0.16%	0.24%
Nitrogen	0.04%	0.03%	0.03%
Organic Carbon	0.30%	0.29%	0.24%
C/N	7.9	9.3	8.5
pH	7.0	6.8	6.9
Coarse Sand	19.49%	13.57%	16.23%
Fine sand	55.61%	44.47%	43.36%
Silt	11.00%	17.90%	17.40%
Clay	12.00%	21.45%	19.90%

Field No. B-16

Depth	0—22cm	22—52cm	52—82cm
Moisture	0.52%	1.06%	1.11%
Loss of ignition	2.70%	3.24%	2.26%
HCl insoluble	84.33%	78.80%	80.66%
P_2O_5	10.58%	14.31%	13.71%

Al_2O_3	6.90%	9.43%	8.67%
Fe_2O_3	3.68%	4.88%	5.04%
CaO	0.63%	0.31%	0.45%
MgO	0.36%	0.77%	0.64%
K_2O	0.70%	0.94%	0.85%
P_2O_5	0.12%	0.07%	0.09%
Nitrogen	0.05%	0.04%	0.04%
Organic Carbon	0.52%	0.44%	0.33%
C/N	10.5	9.8	8.1
pH	7.3	7.1	7.1
Coarse Sand	1.55%	0.61%	0.26%
Fine Sand	48.57%	27.67%	27.42%
Silt	9.00%	38.45%	41.35%
Clay	37.30%	28.95%	27.45%

E. No. of Experiments :

Paddy—14 and Wheat—1; Total==15

32. Regional Research Station, Nawabganj.

A. General Information :

(i) In Nawabganj tehsil of Barielly district. 5km. from Bijauria Railway Station. The experimental area is low lying and gets water logged during rainy seasson. The general slope is towards east. (ii) Sub-Tarai tract of Rohilkhand division. (iii) Established in 1956. (iv) Early Paddy-Wheat or Barley, medium Paddy-Wheat or Pea, Barley or Gram, Late Paddy-Oats, Linseed or Lentil, Sugarcane-G,M. (Dhaincha)-Wheat; Moong, Lobia (Fodder)-Wheat. (v) Varietal, cultural, manurial, rotational, mixed cropping as well as pests diseases problems of all crops, arising in Rohilkhand and Kumaun division of the state.

B. Normal Rainfall in cm. : Information N.A.

C. Irrigation and Drainage Facilities :

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

D. Soil type and Soil analysis

(i) Clay loam, varying from 15cm. to 60cm. depending upon fluctuating water table, Blackish grey and cloddy. (ii) Chemical analysis and (iii) Mechanical analysis :

Depth	0—15cm	15—40cm	40—60cm	60—90c.m
pH	7.1	7.2	7.3	7.4
Moisture	2.82%	2.59%	1.99%	1.19%
Loss on ignition	4.20%	3.46%	3.39%	2.11%
HCl insoluble	75.93%	N.A.	N.A.	N.A
Sesquioxide	14.31%	14.36%	10.79%	8.55%
Calcium oxide	0.64%	1.06%	0.63%	0.43%
Magnesium oxide	—	1.39%	0.71%	0.55%
P_2O_5	0.18%	0.20%	0.13%	0.16%
K_2O	0.72%	—	—	—
Organic Carbon	1.11%	0.60%	0.38%	0.19%
Nitrogen	0.12%	0.05%	0.03%	0.03%
Coarse Sand	1.78%	3.43%	16.52%	30.07%
Fine Sand	20.20%	25.83%	34.25%	33.94%
Silt	49.38%	33.48%	41.03%	32.58%
Clay	26.73%	35.88%	7.73%	2.23%

E. No. af experiments :

Paddy—85, Wheat—63, Barley—7, Oat—5, Maize—1, Gram—1, Lantil—4 and Lobia—1; Total = 167

33. G.B. Pant University of Agricultural and Technology, Pantnagar

A. General Information :

(i) Situated in Kichha tehsil of Nanital district, 3Km. away from Pant Nagar Railway Station with Lat—29°N/ Long—79.3°E/Alt.—243.84m. above m.s.l. The experimental area is uniformily well levelled (ii) Sub-mountaineous tarai-tract. (iii) Established in 1960 (iv) Paddy, Wheat, Lahi-Sugarcane (v) Agriculture Research on all the discipline of Agriculture, Horticulture, Livestock and Engineering.

B. Normal Rainfall : Information N.A.

C. Irrigation and Drainage Facilities :

(i) (a) and (b) Yes, since 1965 (ii) Yes.

D Soil type and Soil analysis :

(i) Mollitude (Bunizenip); 270cm. to 450cm deep, alluvial soil with dark brown colour. (ii) N.A. (iii) N.A.

E. No. of Experiments :

Wheat—3 and Maize—10; Total=13

34. Fertiliser Research Farm, Pura.

A. General Information :

(i) Situated near Uttari Pur Railway Station Kanpur district. Even topography (ii) Central Alluvial (semi and zone). (iii) Established in 1953 (iv) Maize-Wheat, Paddy-Wheat, Paddy-Pea etc. (v) Agronomical, microbiological and soil analysis trials. are conducted.

B. Normal Rainfall : Information N.A.

C. Irrigation and Drainage Facilities :

(i) (a) Yes, N A. (G), Tube-well and canal (ii) No.

D. Soil type and Soil analysis :

(i) Sandy loam (ii) pH-6.9, E. Conductivity-0-56 m.mho/cm., Organic Carbon 0.48%, available P_2O_5. 89.80kg/ha (iii) Sand 68.8%, Silt. 20.78% and Clay 10.48%.

E. No. of Experiments :

Paddy—10 and Wheat—9; Total=19

35. State Usar Reclamation Farm, Rahimabad.

A, General Information :

(i) In Malihabad tehsil of Lucknow district. 5Km. from Rahimabad Railway Station. The experimental area was slightly slopy but got levelled before conducting the experiments. (ii) Saline alkaline soil, alluvial tract. (iii) Established in 1950. (iv) Kharif : Dhaincha (G.M. Paddy; Rabi : Wheat and Barley. (v) Experiments relating to reclamation of saline and alkaline lands are conducted.

B. Normal Rainfall in cm : Information N.A.

C. Irrigation and Drainage Facilities :

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

D. Soil type and Soil analysis :

(i) Gangetic alluvial soil, halomorphic phase. Sufficient soil depth are available, Light to dark grey, in colour and structure is Platy and granular. (ii) Chemical analysis : pH—8.4 to 9.7. E, conductivity—0.406 to 5.097, total soluble salts 0.103 to 2.37. (iii) Mechnical analysis : Coarse Sand : 0.25° to, Fine Sand : 50 to 60% Silt : 20% and Clay : 20 to 30%

E. No. of Experiments :

Paddy—3, Wheat—4, Barley—1; Total=8

36. State Soil Conservation Research, Demonstration and Training Centre, Rahmankhera.

A. General Information :

(i) In Malihabad tehsil of Lucknow district. 5Km. from Kakon Railway Station. Slopy with 1—2.50% slopes. (ii) Alluvial tract. (iii) Established in 1956-57. (iv) G.M., Wheat or Potato, Jowar-Arhar, fallow-Barley or Gram; Urd-Barley, (v) Research pertaining to soils fertilizers, grasses and forest under eroded land.

B. Normal Rainfall in cm. :

June	July	Aug.	Sep.	Oct.	Nov.	Dec.
1·91, 6·20	17 54, 13·14	6·40 17·88	12·36, 7·29	9·05, 1·09	0·11, 0·03	0·60, 0·29
Jan.	Feb.	March	April	May		Total
0·56, 1·01	0·81, 0·08	0·37, 0·33	1·12, 0·35	1·37, 0·76		29·96

(The fortnightly average rainfall is based on data for the period 1960 to 1965)

C. Irrigation and Drainage Facilities :

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

D. Soil type and Soil analysis :

(i) Sandy loam to lomy sand. Deep alluvial, light brown and variable structure. (ii) Chemical analysis : pH 6.7 .to 7.4, P_2O_5—10 to 40%, Nitrogen 0.03 to 0.06% K_2O—0.33 to 0.65% and Organic matter—0.25 to 0.54% (iii) Mechanical analysis : Sand—45.85%, Silt—10.40% and Clay—5.10%

E. No. of Experiments:

Wheat—39, Barley—17, Maize—11 and Gram—2; Total=69

37. Government Agricultural Farm, Rampur.

A. General Information :

(i) Situatied near Padrauna Railway Station in Deoria district, the experimental is 12 to 20 ha. (ii) N.A. (iii) Established in 1960. (iv) Paddy-Wheat, Urd-Wheat, Maize-Wheat, etc. (v) Agronomical trials are conducted.

B. Normal rainfall : Information N.A.

C. Irrigation and Drainage Facilities :

(i) (a) Yes, since 1966 (b) tube well (ii) yes.

D. Soil type and Soil analysis :

(i) clay and sandy loam (ii) N.A. (iii) N.A.

E. No. of Experiments :

Paddy—2 and Wheat—2; Total=4

38. Government Cotton Research Sub-Station, Raya.

A. General Information :

(i) In Mat tehsil of Mathura district. 3km. from Raya Railway Station. The farm is well levelled and well laid out but the drainage of a part of it is defective. (ii) The tract is characterised by dry climate and scanty rainfall. (iii) Established in 1918. (iv) G.M.-Wheat-Cotton-Pea; other crops grown-Barley, Gram, Moong, Urd and fodder. (v) Experiments are conducted on breeding, agronomic-cum-physiological, pest and disease aspect.

B. Normal Rainfall in cm. :

June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1·4	16·1	29·9	14·3	2·4	0·3	0·3
Jan	Feb.	March	April	May	Total	
0·6	01·0	0·5	—	0·8	67·6	

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

C. Irrigation and Drainage Facilities :

(i) (a) an l (b) canal since long, (ii) No proper drainage system exists.

D. Soil type and Soil analysis :

(i) Loam to sandy loam with moderate fertility. The south strip is characterised by gravelly sub-soil. greyish yellow and granular in structure. (ii) Chemical analysis : Organic Carbon-0.55%, total Nitrogen-0.43%, available Nitrogen-0.014%, pH-7.0, available P_2O_5-0.00037% and conductivity in m.mhos/cm.—0.09. (iii) Mechanical analysis : Clay-19.53% Fine Silt-9.17%, Fine Sand-54 09%, Silt-13 78% Coarse Sand-1.4% and Misc.-2.03%.

E. No. of Experiments :

Wheat –2; Total = 2

39. Regional Research Station, Rudrapur.

A. General Information :

(i) In Kichha tehsil of Nianital district. 15km. from Kichha Railway Station. Slopy from north to south. (ii) Tarai region. (iii) Established in 1958. (iv) Wheat-Barley-Gram-Pea-Oats-Toraia, Sugarcane, Paddy, Maize, Dhaincha-Lobia and Jowar. (v) Varietal, Manurial and Weed control experiments are conducted.

B. Normal rainfall : Information N.A.

C. Irrigation and drainage facilities

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

D. Soil type and Soil analysis :

(i) Loam to clay loam, 22cm. deep, grey and sticky in structure. (ii) Chemical analysis : pH 3.0 to 8.1, Organic Carbon 0.17 to 1.0%, Nitrogen 0.07 to 0.10%, P_2O_5 0.065 to 0.071%, K_2O 0.79 to 0.86% (iii) Mechanical analysis : Coarse sand-2.0 to 10.0%, Fine Sand 20 to2 2%, Silt-45 to 50% and Clay 25 to 29%.

E. No. of Experiments: :

Paddy—8, Wheat—12, Barley—1, Oats—1 and Gram—1; Total=23

40. Soil Conservation Research Station, Selakui.

A. General Information :

(i) In Dehra Dun tehsil of Dehra Dun district. 20km. from Dehra Dun Railway Station. Rolling topograyhy. (ii) Alluvial soil. (iii) Established in 1954. (iv) Maize-Wheat. (v) Soil and water conservation research covering the disciplines of soils, agronomy, agri-engineering and forestry.

B. Normal Rainfall : Information N.A.

C. Irrigation and Drainage Facilities :

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

D. Soil type and Soil analysis :

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

	Surface soil	Sub-soil
pH	6.0 to 7.2	4.8 to 7.8
Organic matter	0.4 to 2.5	0.1 to 1.3
Nitrogen	0.05 to 0.16	0.02 to 0.10
Total CaO	0.14 to 1.00	0.10 to 1.00
Total P_2O_5	0.13 to 0.23	0.20. to 2.20
Coarse sand	2.4 to 35.0	0.7 to 85.0
Fine sand	5.5 to 86.0	2.6 to 62.0
Silt	1.6 to 48.5	0.3 to 65.4
Clay	2.4 to 45.7	2.2 to 50.0

E. No. of Experiments :

Wheat—11, Oats—3, Maize—10 and Lobia—2; Total=26

41. Rice Research Sub-Station, Tissuhi.

A. General Informatian :

(i) In Mirzapur tehsil of Mirzapur district 30Km. from Mirzapur Railway Station. Even and flat land. (ii) Bindhyan soil. (iii) Established in 1935. (iv) Late Paddy followed by Fallow, Linseed, Gram, Pea, Masoor etc. (v) Usually varietal and manurial experiments on Paddy are being conducted.

B Normal Rainfall in cm : Information N.A.

C. Irrigation and Drainage Facilities :

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

D. Soil type and Soil analysis :

(i) Karail (Kankar), 10cm. deep, grey in colour, silt, cloddy in structure. (ii) Chemical analysis : Moisture-3.79; loss on ignition-4.20—, HCl, insoluble 76.96% R_2O_3 12.28% CaO 0.81%, MgO 0.91%, K_2O 0.50% Fe_2O_3 4.32% P_2O_5 0.04%, Al_2O_3 7.93%. (iii) Mechnical analysis : Coarse sand 1.8%, Fine sand-32.39%, silt-25.75% and Clay-3388%.

E. No. of Experiments :

Whea —17; Tolal=17

42. Government Regional Agricultural Research Station, Varanasi.

A. General Information :

(i) In Varanasi tehsil of Varanasi district. 5Km. from Varanasi Cantt. Railway Station. Flat (at slightly lower level than all the surrounding fields). (ii) Brown grey alluvial soil. (iii) Established in 1956. (iv) No definite cropping pattern is observed on account of the experiments. (v) As per approved programme of research by the Department of Agriculture, U.P.

B. Normal Rainfall in cm :

June	July	Aug.	Sept.	Oct.	Nov.	Dec.
9·7	33·7	25·5	19·7	3·9	—	0·8
Jan.	Feb.	March	April	May		Total
1·1	0·6	1·1	0·7	1·6		98·4

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

C. Irrigation and Drainage Facilities :

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

D. Soil type and Soil analysis :

(i) Banaras type III, brownish grey, moderately drained soil, 15cm. to 22cm. surface soil brownish grey and crumb in structure. (ii) Chemical analysis and (iii) Mechanical analysis.

Depth	0 to 22cm	22cm to 55cm	55cm to 90cm
pH	6.8	6.6	6.2
Moisture (air dry)	1.76%	1.06%	1.28%
Loss on ignition	2.12%	2.56%	2.62%
HCl insolube	84.67%	80.27%	75.46%
R_2O_3	8.05%	12.29%	16 99%
CaO	0.28%	0.34%	0.45%
MgO	1.29%	0.93%	1.13%
F_2O_3	2.52%	1.60%	3.68%
P_2O_5	0.00%	0.04%	0.05%
K_2O	1.03%	0.99%	1.06%
Water solube salt	0.06%	0.07%	0.04%
$MgHCO_3$	0.01%	0.01%	0.01%
NaCl	0.05%	0.006%	0.006%
Organic Carbon	0.55%	0.23%	0.22%
Total Nitrogen	0.05%	0.03%	0.02%
Coarse sand	0.90%	3.20%	2.80%
Fine sand	42.25%	25.42%	25.07%
Silt	34.75%	34.50%	32.76%
Clay	17.13%	33.85%	35.98%

E. No. of Experiments ;

Paddy—44, Wheat—35, Barley—8, Maize—2, Mandua—1 and Moong—1; Total=91

43. Research Farm, College of Agriculture, B.H.U., Varanasi.

A. General Information :

(i) Varanasi tehsil of Varanasi district. 10Km. from Varanasi Cantt. Railway station. Uniform level except certain portion of the farm which is low and suited for Paddy cultivation. (ii) Gangetic alluviual. (iii) Established in 1932. (iv) As required by the technincal programme. (v) No fixed line of work.

B. Normal Rainfall in cm. :

(Same as in Govt. Regional Agricultural Research Station Varanasi).

C. Irrigation and drainage facilities :

(i) (a) and (b) Tube well since 1955. (ii) General drainage, is good except on certain area

in the farm where deep ditches are provided for removing surplus and standing water.

D. Soil type and Soil analysis :

(i) Medium alluviul soil suited for cultivation of most of the crops. Korezonnes not distinctly formed. Light brownish yellow in colour and structureless to compact in Structure. (ii) Chemical analysis-pH-7.42%, N—0.05% to 0.04%, K_2O—0.50% to 0.30%, P_2O_5—0.5% to 0.10%, CaO—0.08% and Organic Carbon 0.5% (iii) Mechnical analysis—Clay—20.0%, Silt—25.0%, Fine Sand—35.0% and Coarse Sand—15.0%.

E. No of Experiments :

Wheat—7, Barley—1, Oats—5, Maize—2, Gram—5 and Lentil—4; Total=24.

Crop :- Paddy (*Kharif*). **Ref :- U.P. 61(421).**

Site :- Govt. Reg. Agri. Res. Stn., Amrukh. **Type :- 'M'.**

Object :—To study the efficiency of organic and inorganic manures with and without phosphatic fertilizers, on Paddy crop.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Kabar and Parwa. (iii) 10.8.61. (iv) (a) 2 to 3 ploughings by *Bakhar* plough. (b) Transplanting. (c) — (d) 23cm.×15cm. (e) 2 to 3. (v) Nil. (vi) N.A. (vii) Irrigated. (viii) Nil. (ix) N.A. (x) 21.11.61.

2 TREATMENTS :

All combinations of (1), (2) and (3)+2 additional treatments

(1) 3 sources of N : F_1=A/S., F_2=F.Y.M. and F_3=½ A/S+½F.Y.M.

(2) 2 levels of N : N_1=28 and N_2=56 Kg/ha.

(3) 2 levels of P_2O_5 : P_0=0 and P_1=44·8 Kg/ha.

2 extra treatments : E_1=Control (No fertilizer) E_2=44·8 Kg/ha. of P_2O_5.

3. DESIGN :

(i) 3×2×2 fact.+2 extra treatments in R.B.D. (ii) (a) 14. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 1/197·68 ha. (v) N.A. (vi) Yes.

4. GENERAL :

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

5. RESULTS :

(i) 1262 Kg/ha. (ii) 429·9 Kg/ha. (iii) None of the effects is significant. (iv) Av. yield of grain in Kg/ha. E_1=1568 and E_2=1271 Kg/ha.

	N_1	N_2	F_1	F_2	F_3	Mean
P_0	1248	1160	1141	1196	1275	1204
P_1	1154	1382	1181	1102	1521	1268
Mean	1201	1271	1161	1149	1398	1236
F_1	1221	1101				
F_2	968	1330				
F_3	1414	1382				

Crop :- Paddy (*Kharif*). **Ref :- U.P. 64(720), 65(608).**

Site :- Govt. Reg. Agri. Res. Stn., Amrukh. **Type :- 'M'.**

Object :—To find out suitable combination of N, P and K manures on Paddy .

1. BASAL CONDITIONS

(i) (a) to (c) N.A. (ii) Kabar. and Parwa. (iii) 18/19-7.64; 8/9.8.65. (iv) (a) Hot weather cultivation, one

ploughing by soil turning plough. two ploughing by *Bakhar* plough. (b) Transplanting. (c) — (d) 20cm.×15cm. (e) 2. (v) Nil. (vi) N-22. (vii) Irrigated. (viii) Weeding by *Khurpi*. (ix) 106·6cm; 82·4cm. (x) 12/13.10.64; 25.11.65.

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 levels of P_2O_5 as Super :- P_0=0, P_1=11·2 and P_2=22·4 Kg/ha.

(3) 3 levels of K_2O as Pot chl. :-K_0=0, K_1=11·2 and K_2=22·4 Kg/ha.

3. DESIGN :

(i) 3^2 contd. (ii) (a) 9 plots/block; 3 blocks/replicacion. (b) N.A. (iii) 2. (iv) (a) 9·14m.×5·49m. (b) 9·14m.×5·49m. 8·53m.×4·88m. (v) Nil; 30cm.×30cm. (vi) Yes.

4. GENERAL :

(i) Good. (ii) N.A. (iii) Yield of grain. (iv) (a) 1964-contd. (b) Yes. (c) Nil. (v) and (vi) Nil. (vii) As the exeriment is continued beyond 65, results of individual year are presented under 5. Results.

5. RESULTS

64(720)

(i) 1954 Kg/ha. (ii) 382·8 Kg/ha. (iii) Main effect of N is highly significant and that of P 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	1319	1608	1585	1485	1502	1525	1504
N_1	1887	2103	2099	2016	1983	2090	2030
N_2	1953	2379	2651	2179	2365	2438	2328
Mean	1720	2030	2112	1894	1950	2018	1954
K_0	1651	1977	2053				
K_1	1641	2040	2169				
K_2	1867	2073	2113				

C.D. for N or P marginal means=264·6 Kg/ha.

65(608)

(i) 993 Kg/ha. (ii) 409·7 Kg/ha. (iii) Main effect of N alone is highly significant. (iv) Av. yield of grain in Kg/ha.

	P_0	P_1	P_2	K_0	K_1	K_2	Mean
N_0	521	589	657	561	661	545	589
N_1	941	953	1340	957	1173	1105	1078
N_2	1189	1257	1486	1213	1382	1337	1311
Mean	884	933	1161	910	1072	996	993
K_0	701	949	1081				
K_1	993	845	1377				
K_2	957	1005	1025				

C.D. for N marginal means=283·2 Kg/ha.

Crop :- Paddy (*Kharif*). **Ref :- U.P. 65(602).**

Site :- Govt. Reg. Agri. Res, Stn., Amrukh. **Type :- 'M'**

Object : —To see the effect of reinforced compost and ripe compost on Paddy yield.

1. BASAL CONDITIONS:

(i) (a) to (c) N.A. (ii) Kabar and Parwa. (iii) 3.8.65. (iv) (a) 2 and 3 ploughings by *Bakhar*. (b) Transplanting. (c) — (d) 23cm.×15cm. (e) 2 to 3. (v) Nil. (vi) N. 22. (vii) Irrigated. (vii) Hoeing. (ix) 82·45cm. (x) 30.10.65.

2. TREATMENTS :

4 manural treatments : T_1=50·2 Q/ha. of ripe compost, T_2=50·2 Q/ha. of reinforced compost, T_3=T_1+ 31·40 Kg/ha. of Super and T_4=502 Q/ha. of ripe compost mixed with 31·36 Kg/ha of Super.

3. DESIGN :

(i) R.B.D. (ii) (a) 4. (b) N.A (iii) 6. (iii) (a) 15·09m.×6·71m. (b) 14·48m.×6·10cm. (v) 30cm.×30cm. (vi) Yes.

4. GENERAL:

(i) Good. (ii) Nil. (iii) Yield of grain. (iv) (a) 1965-contd. (b) and (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS

(i) 755 Kg/ha. (ii) 70·5 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
Av. yield :	791	738	772	719

Crop :- Paddy (*Kharif*). **Ref :- U.P. 62(451).**

Site :- Govt. Agri. Farm, Atarra **Type :- 'M.**

Object : —To find out suitable doses of N, P and K on the yield of Paddy.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Kabar. (iii) 10.8.62. (iv) (a) 2-3 ploughings by *Bakhar* plough. (b) Transplanting. (c) — (d) 23cm.×15cm. (e) 2 to 3 (v) Nil. (vi) N.A. (vii) Irrigated. (viii) Nil. (ix) N.A. (x) 19.12.62.

2. TREATMENTS :

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

(1) 3 levels of N :-N_0=0, N_1=44·8 and N_2=89·6 K/ha.

(2) 3 levels of P_2O_5 :-P_0=0, P_1=22·4 and P_2=44·8 Kg/ha.

(3) 3 levels of K_2O :-K_0=0, K_1=22·4 and K_2=44·8 Kg/ha.

3. DESIGN :

(i) 3^3 confd. (ii) (a) 9 plots/block; 3 blocks/replication. (b) N.A. (iii) 2. (iv) (a) and (b) 7 62m.×6·63m. (v) Nil. (vi) Yes.

4. GENERAL :

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

5. RESULTS :

(i) 2519 Kg/ha. (ii) 497·9 Kg/ha. (iii) Main effect of N alone 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	2144	2435	2220	2138	2168	2494	2267
N_1	2540	2662	2525	2811	2494	2422	2576
N_2	2587	2669	2893	2613	3015	2521	2716
Mean	2424	2589	2546	2521	2559	2479	2520
K_0	2217	2573	2772				
K_1	2639	2521	2517				
K_2	2415	2672	2349				

C.D. for N marginal means=344·3 Kg/ha.

Crop :- Paddy (*Kharif*). **Ref. :- U.P. 64(555).**

Site : Govt. Agri. Farm, Atarra. **Type :- 'M'.**

Object :- To study the effect of trac-elements on the growth and yield of Paddy.

1. BASAL CONDITIONS :

(ii) (a) Nil. (b) Wheat. (iii) Light parwa soil. (iii) 22.7.64. (iv) (a) 3 ploughings by watts plough, 2 applications of pata by Desi pata. (b) Transplanting. (c) — (d) 23cm.×15cm. (e) 1. (vi) A/S+Super (Doses:N.A.) (vi) N22(Early) (vii) Irrigated. (viii) 2 weeding by han and khurpi (ix) 50·9 cm. (x) 12.10.64.

2. TREATMENTS :

All combinations of (1), (2), (3) and (4)+an extra treatment in each block

(1) 3levels of Mn :-M_0=0, M_1=16·8, M_2=33·6 Kg/ha. of $MnSo_4$

(2) 3 levels of Zn.: Z_0=0, Z_1=16·8, Z_2=33·6 Kg/ha. of Zn So_4

(3) 3 levels of B. : B_0=0, B_1=11·2, B_2=22·4 Kg/ha. of Borax

(4) 3 levels of Cu : C_0=0, C_1=11·2 and C_2=22·4 Kg/ha. of $CaSO_4$

Extra treatment : E_1=168·1 *Kg/ha. of Spartin.*

Treatments applied as soil applicaion on 18.8.64.

3. DESIGN:

(i) Confd. (ii) (a) 9 block/replication and 10 plots/block (b) 24·38m.×18·29m. (iii) 1. (iv) (a)4·27m.×7·77m. (b) 3·35m.×6·86m. (v) 46cm.×46cm. (vi) Yes.

4. GENERAL :

(i) Good. (ii) No. (iii) Yield of grain. (iv) (a) 1964-contd. (continued in modified form) (b) No. (c) Nil. (v) Tissuli (Mirzapur) (vi) and (vii) Nil.

5 RESULTS :

(i) 2139 Kg/ha. (ii) 423 Kg/ha. (iii) None of the effect is significant. (iv) Av. yield of grain in Kg/ha.

E_1=2136 Kg/ha.

	Z_0	Z_1	Z_2	B_0	B_1	B_2	C_0	C_1	C_2	Mean
M_0	1952	2293	2141	2000	2167	2218	2104	2174	2107	2128
M_1	2286	2228	2073	2194	2237	2155	2228	2184	2174	2195
M_2	2276	1969	2034	2100	2097	2083	2174	1976	2129	2093
Mean	2171	2163	2083	2098	2167	2152	2169	2112	2137	2139
C_0	2092	2201	2208	2160	2085	2261				
C_1	2116	2131	2087	2112	2319	1904				
C_2	2305	2153	1952	2022	2097	2290				
B_0	2160	2172	1962							
B_1	2131	2022	2348							
B_2	2223	2295	1938							

Crop :- Paddy (*Kharif*). **Ref :- U.P. 65(386).**

Site :- Govt. Agri. Farm, Atarra. **Type : 'M'.**

Object :—To study the response of Paddy to application of trace-elements.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) and (c) N.A, (ii) Light parwa soil. (iii) (a) 9.8.65. (iv) 3 ploughings by watts plough, 2 application of *Deshi* patta. (b) Transplanting. (c) — (d) 23cm.×15cm. (e) 1. (v) 25 Kg/ha. of N as A/S +60 Kg/ha. of P_2O_5 as Super. (vi) N-22 (early). (vii) Irrigated. (viii) 2 weedings by Khurpi, (ix) N.A. (x) 4.11.65.

2. TREATMENTS :

All combinations of (1), (2), (3) and (4)+Spartin at 168·1 Kg/ha.

(1) 2 levels of B : B_0=0, B_1=11·2 Kg/ha. of Borax.

(2) 2 levels of Cu. : C_0=0, C_1=11·2 Kg/ha. of $CuSO_4$.

(3) 2 levels of Mn. : M_0=0, M_1=16·8 Kg/ha. of $MnSO_4$.

(4) 2 levels of Zn. : Z_0=0, Z_1=16·8 Kg/ha. of $ZnSO_4$.

Trace-elements applied on 9.8.65.

3. DESIGN :

(i) 2^4 fact.+1 extra treatmeut in R.B.D. (ii) (a) 17. (b) 12·0m.×72·8m. (iii)4. (iv) (a) and (b) 4·00 m.×12·00m. (v) Nil. (vi) Yes.

4. GENERAL :

(i) Satisfactory. (ii) N.A. (iii) Yield of grain. (iv) (a) 1964-contd. (modified from 65). (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS:

(i) 1682 Kg/ha. (ii) 371·0 Kg/ha. (iii) C×Z interaction alone is highly significant. (iv) Mean differential response table of grain yield in Kg/ha.

Spartin=1802 Kg/ha.

G.M. for response table=1674 Kg/ha.

	Mean response	Differential response							
		B		C		M		Z	
		−	+	−	+	−	+	−	+
B	153·0	—	—	74·2	231·8	210·9	95·1	65·1	240·9
C	68·3	−10·4	147·1	—	—	132·8	3·9	341·1	−204·4
M	−52·7	5·2	−110·7	11·7	−117·2	—	—	5·2	−100·3
Z	−11·1	−98·9	76·8	261·6	−283·8	36·4	−58·6	—	—

C.D. for differential response=263·9 Kg/ha.

Crop :- Paddy (*Kharif*). **Ref- U.P. 63(493), 64(606), 65(459).**

Site :- State Usar Reclamation Farm, Dhakauni. **Type :-'M'.**

Object :—To determine the response of different types of N carriers on Saiine-alkali soils.

1. BASAL CONDITIONS:

(i) (a) Wheat-Paddy. (b) Wheat. (c) 44·8 Kg/ha. of N as Urea/A/S. (ii) Clay loam (p.H.=8·75). (iii)19.7.63; 20.8.64; 29.8.65. (iv)(a) 2ploughings by disc harrow by tractor and 2ploughings by mould-board plough. (b) Transplanting. (c) — (d) 23 cm.×15 cm. (e) 2 to 3. (v) 22·4 Kg/ha. of P_2O_5 as Super. before Transplanting, (vi) T-9 (late). (vii) Irrigated. (viii) 1 weeding. (ix) 45·8cm.; 56·69 cm.; 55·20 cm. (x)12.12.63; 14.12.64; 24.12.65.

2. TREATMENTS

All combinations of (1) and (2)+Control.

(1) 5 forms of N : F_1=A/S, F_2=C/A/N, F_3=A/S/N, F_4=Urea and F_5=A/C.

(2) 2 levels of N : N_1=22·4 and N_2=44·8 Kg/ha. of N.

Fertilizer top dressed about one mouth after transplanting at the time of weeding.

3. DESIGN:

(i) 5×2 fact.+control in R.B.D. (ii) (a) 11. (b) 9·45m.×83·09m. (iii) 6. (iv) (a) and (b) 7·14m.×9·45m. (v) Nil. (vi) Yes.

4. GENERAL:

(i) Lodging in 63, crop good in all years. (ii) In 63 rats damaged the crops when lodged; Nil for other years. (iii) Yield of grain. (iv) (a) 1963-65. (b) Yes. (c) Results of combined analysis have been presented under 5. Results. (v) and (vi) Nil. (vii) Error variances are heterogeneous and Treatments×Years interaction is present.

5. RESULTS:

Pooled results:

(i) 1971 Kg/ha. (ii) 512·1 Kg/ha. (based on 20 d.f. made up of Treatments×Years interaction.) (iii) Main effect of F is significant and that of N is highly significant. (iv) Av. yield of grain in Kg/ha.

Control=1873 Kg/ha.

	F_1	F_2	F_3	F_4	F_5	Mean
N_1	2040	1665	1635	1818	2053	1842
N_2	2229	1964	1968	2157	2279	2119
Mean	2135	1815	1801	1987	2166	1981

C.D. for F marginal means=251·8 Kg/ha.

C.D for N marginal means=159·2 Kg/ha.

Individual resuits

Treatment	N_1	N_2	Sig.	F_1	F_2	F_3	F_4	F_5	Sig.	Control	Sig.
Year 1963	1728	2032	N.S.	2074	1788	1699	1931	1908	N.S.	2157	N.S.
1964	1977	2303	**	2368	1789	1844	2049	2648	**	1757	**
1965	1822	2023	**	1961	1867	1862	1983	1942	N.S.	1705	**
Pooled	1842	2119	**	2135	1815	1801	1987	2166	*	1873	N.S.

G.M.	S.E./plot
1905	589·2
2105	215·1
1903	182·7
1971	512·1

Crop :- Paddy (*Kharif*). **Ref :- U.P. 65(107).**

Site :- Govt, Agri. Farm, Dhanauri. **Type :- 'M'.**

Oject :—To study the effect of orgainc and inorganic manures on Paddy.

1. BASAL CONDITIONS :

(i) N.A. (ii) Wheat. (c) N.A. (ii) Sandy to sandy loam. (iii) 25/26.7.65. (iv) 1 ploughing by S.T.P., ploughings by *Desi* plough. (b) Transplanting. (c) — (d) 23cm.×12cm. (e) 2. (v) Nil. (vi) T_3. (vii) Irrigated. (2) weedings. (ix) N.A. (x) 11/12.11.65.

2. TREATMENTS:

21 manurial treatments :-T_0=0, T_1=28 Kg/ha. of N as C/A/N T_2=28 Kg/ha. of N as F,Y.M., T_3=14 Kg/ha. of N as C/A/N. T_4=56 Kg/ha. of N as C/A/N, T_5=56 Kg/ha. of N as F,Y.M., T_6=28 Kg/ha. of C/A/N +28 Kg/ha. of F.Y.M., T_7=44·8 Kg/ha. of $_2O_5$, $T_8=T_1+T_7$, $T_9=T_2+T_7$, $T_{10}=T_3+T_7$, $T_{11}=T_4+T_7$, $T_{12}=T_5+T_7$, $T_{13}=T_6+T_7$, T_{14}=44·8Kg/ha. of K_2O. $T_{15}=T_1+T_7+T_{14}$, $T_{16}=T_2+T_7+T_{14}$, $T_{17}=T_3+T_7+T_{14}$, $T_{18}=T_6+T_7+T_{14}$, $T_{19}=T_4+T_7+T_{14}$ and $T_{20}=T_5+T_7+T_{14}$.

K_2O applied as Pot. Sul. and P_2O_5 as Super on 25/26.7.65 Top dresing on 22.8.65.

3. DESIGN :

(i) R.B.D. (ii) (a) 21. (b) 20.42m×56·69m. (iii) 3. (iv) (a) 7·32m.×6·40m. (b) 6·71m.×5·49. (v) 30cm.×45cm. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Nil. (iii) yield of grain. (iv) (a) 1965-only. (b) and (c) Nil. (v) No. (vi) Nil. (vii) Residual effect tested on Barley crop.

5. RESULTS :

(i) 1461 Kg/ha. (ii) 149·7 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	T_5	T_6	T_7	T_8	T_9
Av. yield	1042	1314	1359	1341	1431	1178	1178	942	1250	1658

T_{10}	T_{11}	T_{12}	T_{13}	T_{14}	T_{15}	T_{16}	T_{17}	T_{18}	T_{19}	T_{20}
1658	1495	1495	1631	1178	1658	1513	1585	1767	2075	1930

C.D.=246·9 Kg/ha.

Crop :- Paddy (*Kharif*). **Ref :- U.P. 65(108).**

Site : Govt. Agri. Farm, Dhanauri. **Type : 'M'.**

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

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Gram. (c) Nil. (ii) Sandy to Sandy loam. (iii) 27/28.7.65. (iv) (a) One ploughing by soil turning plough and 4 ploughing by *Desi* plough, 3 planking by *Desi Pata*. (b) Transplanting (c) — (d) 23cm.×14cm (e) 2. (v) Nil. (vi) T_3. (vii) Irrigated. (viii) Weedings. (ix) N.A. (x) 30/31.10.65.

2. TREATMENTS :

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

(1) 3 levels of N as C/A/N :-N_0=0, N_1=44·8 and N_2=89·6 Kg/ha.

(2) 3 levels of P_2O_5 as Super :- P_0=0, P_1=22·4 and N_2=44·8 Kg/ha.

(3) 3 levels of K_2O as Pot. Sul. : K_0=0, K_1=22·4 as K_2=44·8 Kg/ha. of K_2O.

½ N and full K_2O and P_2O_5 applied on 27.7.65, ½ N applied on 1.9.65.

3. DESIGN:

(i) 3^3 contd. (ii) (a) 3 blocks/replication and 9plots/block. (b) 46·02m.×17·37m. (iii) 2. (iv) (a) 17·37m. ×4·57m. (b) 16·76m.×3·66m. (v) 30cm.×45cm. (vi) Yes.

4. GENERAL:

(i) Poor. (ii) Nil. (iii) Yield of grain. (iv) (a) 1965-only. (b) and (c) Nil. (v) N.A. (vi) Nil. (vii) Low yields because of poor soil. Residual effect tested on Barley crop.

5. RESULTS :

(i) 391 Kg/ha. (ii) 48·9 Kg/ha. (iii) Main effects of N and P are highly significant and that 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	269	283	304	283	312	288	294
N_1	351	378	408	351	378	408	379
N_2	438	500	563	478	459	563	500
Mean	362	387	425	371	383	419	391
K_0	337	364	410				
K_1	372	375	402				
K_2	375	421	462				

C.D. for N or K marginal means=33·8 Kg/ha.

Crop :- Paddy (*Kharif*). **Ref :- U.P. 61(305).**

Site :- Govt. Agri. Flood Res. Stn., Gogaghat. **Type :- 'M'.**

Object :—To see the effect of A/S and compost in conjunction with Super, on the yield of Paddy.

1. BASAL CONDITIONS:

(i) (a) Nil. (b) and (c) N.A. (ii) Sandy loam. (iv) (a) 2 ploughing by S.T.P., 1 ploughing by *Desi* plough and 3 plankings by Singh and *Desi* patas. (b) Transplanting. (c) — (d) 23cm.×15cm. (e) 2 to 3 (v) N.A. (vi) N. A. (vii) Unirrigated. (iii) Nil. (ix) 86·3cm. (x) N.A.

2. TREATMENTS:

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

(1) 3 levels of P_2O_5 as Super : P_0=0, P_1=22·4 and P_2=44·8 Kg/ha.

(2) 2 levels of compost : C_1=184·5 and C_2=386.9 Q/ha,

Extra treatments : E_0=0, E_1=22·4 and E_2=44·8 Kg/ha. of P_2O_5 as Super.

3. DESIGN:

(i) Fact+3extra treatments in R.B.D. (ii) (a) 15. (b) 26·52m.×24·69m. (iii) 4. (iv) (a) and (b) 7·62m.×4·57m. (v) Nil. (vi) Yes.

4. GENERAL:

(i) N.A. (ii) Nil. (iii) Yield of grain. (iv) (a) 1961-62(Data N.A. for 1962). (b) Nil. (c) No. (v) No. (vi) Nil. (vii) No observation except yield could be taken as the field was submeged in water

5. RESULTS:

(i) 605 Kg/ha. (ii) 239·7 Kg/ha. (iii) 'Extra vs others' and 'Between extras' are significant. (iv) Av, yield of grain in Kg/ha.

Extra treatments :-E_0=406, E_1=567 and E_2=674 Kg/ha.

	P_0	P_1	P_2	Mean
C_1	571	718	610	633
C_2	969	644	616	743
Mean	770	681	613	688

C.D. for 'Extra Vs others'=127·1 Kg/ha.

C.D. between extras=197·0 Kg/ha.

Crop :- Paddy. (*Kharif*). **Ref :- U.P. 63(368), 64(395).**

Site :- Govt. Agri. Flood Res. Stn., Gogragbat. **Type :- 'M'.**

Object :—To find out the optimum doses of fertilizer for Paddy under dry sowing in flood affected area.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) N.A.; Lentil+Linseed. (c) N.A. (ii) Clay soil. (iii) 5 to 7.8.63; 29.6.64. (iv) (a) 3 ploughings and 3 plan kings. (b) Transplanting ; sowing behind Desi plough. (c) 86·5 Kg/ha. (d) 23cm. ×15cm.; Rows 23cm. aprt. (e) 1 to 2; Nil. (v) Nil. (vi) Chakia 59(late) (vii) Unirrigated. (viii) Nil. (ix) 50·8cm.; 94·3cm. (x) N.A.; 25.11.64.

2. TREATMENTS :

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

(i) 3 levels of N as A/S :-N_0=0, N_1=44·8 and N_2=89·6 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 of pot. :-K_0=0, K_1=22·4 and K_2=44·8 Kg/ha.

Fertilizer appliedas basal before transplanting in '63 Half dose of N and full doses of P_2O_5 and K_2O applied at sowing and ½ dose of N brodcasted after one month of sowing in' 64.

3. DESIGN :

(i) 3^3 confd. (ii) 9 plots/block and 3 block/replication: (b) N.A. (iii) 3;2. (iv) (a) and (b) 8.84m,×4·57m. (v) Nil. (vi) Yes.

4. GENERAL :

(i) Satisfactory; Heavy lodging, growth good. (ii) N.A. (iii) Yield of grain. (iv) (a) 1962-contd [Data for 1962 N.A. and expt. failed in 1965] (b) No. (c) Nil. (v) N.A. (vi) Nil. (vii) As the experiment is continued beyond' 65 results of individual years are presented under 5. Results.

5. RESULTS :

63(368)

(i) 788 Kg/ha. (ii) 326·4 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	598	638	780	677	645	694	672
N_1	836	877	822	961	744	330	845
N_2	816	936	789	981	835	675	847
Mean	750	817	797	873	758	733	788
K_0	838	962	819				
K_1	760	728	786				
K_2	652	761	786				

64(395)

(i) 1665 Kg/ha. (ii) 423·7 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	1676	1750	1992	1738	1982	1698	1806
N_1	1835	1505	1673	1565	1635	1813	1671
N_2	1577	1455	1522	1509	1717	1328	1518
Mean	1696	1570	1729	1604	1778	1613	1665
K_0	1606	1356	1850				
K_1	1852	1775	1707				
K_2	1630	1579	1630				

Crop :- Paddy (*Kharif*). **Ref :- U.P. 64(397).**

Site :- Govt. Agri. Flood Res. Stn., Gograghat. **Type :- 'M'.**

Object :—To determine the suitable depth for sowing the seed which could resist the fast current after germinatin,

1. BASAL CONDITIONS:

(i) (a) Paddy-Wheat. (b) Wheat. (c) N.A. (ii) Sandy loam. (iii) 5/6.6.64. (iv) (a) 2 ploughings by S.T. P. and one ploughig by *Desi* plough and 3 plonkings by Singh and *Desi Pata*. (b) Behind the plough. (c) 86·5 Kg/ha. (d) Rows 23cm. apart. (e) — (v) Nil. (vi) Chakia-59(late). (vii) Unirrigated. (viii)Weeding. (ix) 94·4cm. (x) 24.11.64.

2. TREATMENTS:

All combinations of (1) and (2)

(1) 3 depth of sowing :-D_1=7·6cm., D_2=10·2cm. and D_3=12·7cm.

(2) 3 levels of P_2O_5 :-P_0=0, P_1=11·2 and P_2=22·4 Kg/ha.

P_2O_5 as Super drilled in furrows at sowing time.

3. DESIGN :

(i) Fact. in R.B.D. (ii) (a) 9. (b) 14·94m.×27·74m. (iii) 4. (iv) (a) and (b) 4·57m.×8·84m. (v) Nil. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Mild attack of Gundhi bug-Dusting with 5% B.H.C. (iii) Yield of grain. (iv) (a) 1964-67 (Expt. failed in 65) (b) No. (c) Nil. (v) No. (vi) and (vii) Nil.

5. RESULTS :

(i) 1004 Kg/ha. (ii) 317·0Kg/ha. (iii) None of the effects is significant. (iv) Av. yield of grain in Kg/ha.

	P_0	P_1	P_2	Mean
D_1	1135	728	888	917
D_2	995	1146	961	1034
D_3	1086	951	1135	1057
Mean	1072	942	995.	1003

Crop :- Paddy (*Kharif*). **Ref :- U.P. 60(68).**

Site :- Govt. Agri. Reg. Res. Stn., Hardoi. **Type :- 'M'.**

Object :—To study the comparative efficiency of organic and inorganic nitrogenous fertilizers with and without Super on the yield of Paddy.

1. BASAL CONDITIONS :

(i) (a) PaddyBarseem. (b) Barseem. (c) 24·7 Kg/ha. (ii) Sandy loam. (iii) 10 and 12.8.60. (iv) (a) 1 ploughing by victory plough, 2,3 ploughings by *Triphali* followed by Singh *Pata* and ordinary *Pata*. (b) Transplanting. (c) — (d) 23cm.×15cm. (e) 2 to 3. (v) Nil. (vi) T-9 (late). (vii) Irrigated. (viii) Weeding by Paddy weeder. (ix) 75cm. (x) 29.11.60.

2. TREATMENTS :

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

(1) 4 sources of N at 56 Kg/ha. :-S_0=Control (NoN),S_1=A/S , S_2=F.Y.M. and S_3=½as A/S+½ as F.Y.M.

(2) 2 levels of P_2O_5 as Super :-P_0=0 and P_1=44·8 Kg/ha.

Extra treatments :-E_1=28 Kg/ha. of N as A/S and E_2=28 Kg/ha. of N as F.Y,M. manures applied on 3 and 10.8.1963.

3. DESIGN :

(i) R.B.D. (ii) (a) 10. (b) 64.01m.×9·88m. (iii) 4. (iv) (a) and (b) 9·88m.×5·99m. (v) Nil. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of grain and straw. (iv) (a) 1690-only. (b) No. (c) Nil. (v) Meerut. (vi)and (vii) Nil.

5. RESULTS :

(i) 3041 Kg/ha. (ii) 329 0 Kg/ha. (iii) Main effects of S and P are highly significant and 'E vs others' is significant. (iv) Av. yield of grain in Kg/ha,

E_1=2809 and E_2=2745Kg/ha.

	S_0	S_1	S_2	S_3	Mean
P_0	2609	3003	2947	2976	2884
P_1	2742	3569	3473	3535	3330
Mean	2676	3286	3210	3256	3107

C.D. for S marginal means=337·5 Kg/ha.

C.D. for P marginal means=238·5 Kg/ha.

C.D. for 'Extra Vs. others'=266·8 Kg/ha.

Crop : Paddy (*Kharif*).. **Ref : - U.P. 61(73), 62(108), 63(114), 64(113), 65(5).**

Site :- Govt. Reg. Agri. Res. Stn., Hardoi. **Type : 'M.'.**

Object :—To test the comparative efficiency of organic and inorganic nitrogenous fertilizer with and with out P on the yield of Paddy.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Sandy loam. (iii) 10/12.8.61; 24/28.8.62; 17/22.8.63; 11/14.8.64; 11/14.8.65. (iv) (a) N.A. (b) Transplanting. (c) — (d) 15cm.×15cm. for 61 and 62; 23cm.×15cm. for others. (e) 2 to 3 (v) Nil. (vi) T-9(late). (vii) Irrigated. (vii) N.A. (ix) N.A.; 53cm.; 39cm.;22cm.;20cm. (x) N.A.; 13.12. 62; 2.12.63; 27.11.64; N.A.

2. TREATMENTS :

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

(1) 2 levels of P_2O_5 as Super :-P_0=0, and P_1=44·8 Kg/ha.

(2) 2 levels of N :-N_1=28 and N_2=56 Kg/ha.

(3) 3 sources of N : S_1=A/S, S_2=Compost S_3=$\frac{1}{2}$A/S+$\frac{1}{2}$ compost.

Extra treatments E_0=Control and E_1=44·8 Kg/ha. of P_2O_5 as Super.

F.Y.M, was used in place of compost. in 61(73).

3. DESIGN :

(i) 2×2X3 Fact.+2 extra tratments in R.B.D. (ii) (a) 14. (b) N.A. (iii) 4. (iv) (a) and (b) 9·91m.×4·27 m. for 61,62 and 63; 8·46m.×5·49m. for others. (v) Nil. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Nil. (iii) Yield of grain. (iv) (a) 1961-68. (b) No. (c) Nil. (v) Nawabganj varanasi and Meerut. (vi) Nil. (vii) As the experimcnt is continued beyond 65 results of individual year are presented under,5. Results.

5. R ESULTS:

61(73)

(i) 2480 Kg/ha. (ii) 240·1 Kg/ha. (iii) None of the effects is significant. (iv) Av. yield of grain in Kg/ha.

E_0=2348 and E_1=2466 Kg/ha.

	S_1	S_2	S_3	N_1	N_2	Mean
P_0	2430	2422	2510	2456	2452	2454
P_1	2634	2502	2452	2563	2496	2529
Mean	2532	2462	2481	2509	2474	2492
N_1	2624	2520	2384			
N_2	2440	2404	2578			

62(108)

(i) 2067Kg/ha. (ii) 192·9Kg/ha. (iii) Main effects of N, P and interactions P×S, N×S and N×P are highly significant and extra VS. others is significant. (iv) Av. yield of grain in Kg/ha.

E_0=1490 and E_1=2017 Kg/ha.

	S_1	S_2	S_3	N_1	N_2	Mean
P_0	2062	2058	1972	1953	2109	2031
P_1	2244	2254	2126	2145	2271	2208
Mean	2153	2156	2049	2049	2190	2119
N_1	2032	2064	2050			
N_2	2274	2248	2048			

C.D. for N or P marginal means=112·5 Kg/ha.
C.D. for body of P×S or N×Stable=194·8 Kg/ha.
C.D. for body of N×P table=159·1 Kg/ha.
C.D. for 'extra VS others=148·6 Kg/ha.

63(114)

(i) 616 Kg/ha. (ii) 95·4 Kg ha. (iii) Main effects of N, S, P and interaction N×P and S×P are highly significant. (iv) Av. yield of grain in Kg/ha.

E_0=237 and E_1=419.1 Kg ha.

	S_1	S_2	S_3	N_1	N_2	Mean
P_0	692	485	532	575	565	570
P_1	739	651	888	572	946	759
Mean	715	568	710	573	755	664
N_1	596	473	650			
N_2	835	662	769			

C.D. for S marginal means=68·1 Kg/ha.
C.D. for N or P marginal means=78·7 Kg/ha.
C.D. for boody of S×P or N×P table=96·3 Kg/ha.

64(113)

(i) 1751 Kg/ha. (ii) 528·0 Kg/ha. (iii) Main effects of S and 'between extra' are highly significant and interactions N×P and S×P are significant, (iv) Av. yield of grain in Kg/ha.

E_0=954 and E_1=2004 Kg/ha.

	S_1	S_2	S_3	N_1	N_2	Mean
P_0	1714	2184	1306	1480	1990	1735
P_1	1309	2284	1977	1939	1774	1856
Mean	1512	2234	1642	1709	1882	1796
N_1	1417	2192	1519			
N_2	1606	2276	1764			

C.D. for S marginal means=377·1 Kg/ha.

C.D. for body of N×P table=435·4 Kg/ha.

C.D. for body of S×P table=266·6 Kg/ha.

C.D. for 'Between extras"=754·2 Kg/ha.

65(5)

(i) 2515 Kg/ha. (iii) 344·8 Kg/ha. (iii) Main effect of N alone is hsghly significant. (iv) Av. yield of grain in Kg/ha.

E_0= 2031 and E_1=2107 Kg/ha.

	S_1	S_2	S_3	N_1	N_2	Mean
P_0	2621	2427	2486	2317	2706	2511
P_1	2815	2494	2694	2484	2852	2668
Mean	2718	2461	2590	2400	2779	2590
N_1	2500	2309	2392			
N_2	2936	2613	2788			

C.D. for N marginal means=201·1 Kg/ha.

Crop :- Paddy (*Kharif*). **Ref :- U.P. 65(2).**

Site :- Govt. Reg. Agri. Res. Stn., Hardoi. **Type :- 'M'.**

Object :—To study the effect of reinforced compost as against ordinary compost with and without Super.

1. BASAL CONDITIONS:

(i) (a) to (c) N.A. (ii) Sandy loam. (iii) 14-16.7.65. (iv) (a) N.A. (b) Transplanting. (c) — (d) 15cm.×15cm. (e) 3. (v) N.A. (vi) N-22 (Early). (vii) N.A. (viii) N.A. (ix) 19·4cm. (x) 6and7.9.65.

2. **TREATMENTS :**

All combinations of (1) and (2)

(1) 2 types of manure : C_1=Compost C25·11 Q/ha. and C_2=Re-inforced compost at 25·11 Q/ha.

(2) 2 levels of P_2O_5 :-P_0=0 and P_1=73 Kg/ha.

3. **DESIGN :**

(i) Fact. in R.B.D. (ii) (a) 4. (b) N.A. (iii) 6. (iv) (a) and (b) 9·75m.×10·12m. (v) N.A. (vi) Yes.

4. **GENERAL :**

(i) Good. (ii) Nil. (iii) Yield of grain. (iv) (a) 1965. only. (b) and (c) Nil. (v) Nawabganj. (vi) and (vii) Nil.

5. **RESULTS :**

(i) 1903 Kg/ha. (ii) 316·4 Kg/ha. (iii) None of the effects is significant. (iv) Av. yield of grain in Kg/ha,

	P_0	P_1	Mean
C_1	1879	1929	1904
C_2	2110	1692	1901
Mean	1995	1811	1903

Crop :- Paddy (*Kharif*). **Ref :- U.P. 62(123), 63(130), 64(120), 65(6).**

Site :- Govt. Reg. Agri. Res. Stn., Hardoi. **Type :- 'M'.**

Object :—To study the most suitable combinations of N, P and K for Paddy crop.

1. BASAL CONDITIONS :

(i) (a) Paddy-Bersnen for 64 and Nil for others. (b) Wheat for 62; Barseem for 64: N.A. for others. (c) N.A. (ii) Sandy loam. (iii) 7/8.9.92; 29.8.63; 6-9.8.64; 15-16.8.65. (iv) (a) N.A. (b) Transplanting. (c) — (d) 15 cm.×15 cm.; 23cm.×15cm. for 63 and 64; 23cm.×23cm. (e) — (v) Nil. (vi) T-9 (late). (vii) Irrigated. (viii) Interculturing for 1965 and N,A. for others. (ix) 25cm,×33cm.; 24cm.; 31·7cm. (x) 10.12.62; 25-26..

2. **TREATMENTS :**

Same as in expt. no. .62(451)conducted at Atarra and presented on page no. 3.

3. **DESIGN :**

(i) 3[3] confd. (ii) (a) 9 plots/blocks/3 blocks/replication. (b) N.A. (iii) 3. (iv) (a) 8·23m.×3·35m. (b) 8·23m. ×2·29m. (v) 53cm. on either side. (vi) Yes.

4. **GENERAL :**

(i) Good. (ii) Nil; N.A. (iii) Yield of grain. (iv) (a) 1962-67. (b) No. (c) Nil. (v) N A. (vi) Nil. (vii) As the experiment is continued beyond 1965, results of individual years are presented under 5. Results.

5. RESULTS :

62(123)

(i) 1078 Kg/ha. (ii) 217·7 Kg/ha. (iii) Main effect of N is highly significant. (iv) Av. yield of grain inKg/ha.

	P_0	P_1	P_2	K_0	K_1	K_2	Mean
N_0	870	997	965	934	944	954	944
N_1	1264	1301	1402	1510	1280	1177	1322
N_2	960	1055	891	827	1016	1063	969
Mean	1031	1118	1086	1090	1080	1065	1078
K_0	1026	1166	1079				
K_1	1000	1076	1164				
K_2	1068	1111	1015				

C.D. for N marginal means=150·5 Kg/ha.

63(130)

(i) 1101 Kg/ha. (ii) 45·3 Kg/ha. (iii) Main effects of N, P,K and interactions N×P and N×K are all highly significant. (iv) Av. yield of grain in Kg/ha.

	P_0	P_1	P_2	K_0	K_1	K_2	Mean
N_0	649	928	963	740	865	935	847
N_1	1086	1215	1187	1132	1191	1165	1163
N_2	1264	1247	1370	1252	1275	1354	1294
Mean	1000	1130	1173	1041	1110	1151	1101
K_0	928	1054	1142				
K_1	1018	1149	1165				
K_2	1053	1187	1213				

C.D. for N,P or K marginal means=31·3 Kg/ha.
C.D. for body of N×K or N×P table=54·2 Kg/ha.

64(120)

(i) 1415 Kg/ha. (ii) 132·6 Kg/ha. (iii) Main effect of N is highly significant and interaction P×K is significant. (iv) Av, yield of grain in Kg/ha.

	P_1	P_2	P_3	K_1	K_2	K_3	Mean
N_1	1042	1180	1206	1132	1142	1154	1143
N_2	1441	1433	1418	1505	1423	1364	1431
N_3	1608	1669	1737	1629	1654	1740	1671
Mean	1364	1427	1454	1422	1403	1419	1415
K_1	1349	1388	1529				
K_2	1267	1468	1475				
K_3	1475	1426	1357				

C.D. for N marginal means=91·7 Kg/ha.
C.D. for body of P×K table=158·3 Kg/ha.

65(6)

(i) 3156 Kg/ha. (ii) 197·0 Kg/ha. (iii) Main effect of N and P are highly significant. (iv) Av. yield of grain in Kg/ha.

	P_0	P_1	P_2	K_0	K_1	K_2	Mean
N_0	2493	2609	2733	2526	2621	2648	2612
N_1	2934	3097	3294	3073	3104	3147	3108
N_2	3573	3766	3906	3681	3759	3805	3748
Mean	3000	3157	3311	3107	3161	3200	3156
K_0	2950	3112	3259				
K_1	3000	3170	3314				
K_2	3050	3190	3360				

C.D. for N or P marginal means=136·3 Kg/ha.

— —

Crop :- Paddy (*Kharif*). **Ref :- U.P. 60(145), 61(154).**

Site :- Govt. Reg. Agri. Res. Stn., Hardoi. **Type :- 'M'.**

Object :—To find out suitable form and method of application of nitrogenous manures with and with out Super.

1. BASAL CONDITIONS:

(i) (a) to (c) N.A. (ii) Sandy loam. (iii) 31.7.61 to 6.8.61. (iv) (a) N.A. (b) Transplanting. (c) — (d) 15cm.×15cm. (e) 2 and 3. (v) Nil. (vi) T_9(late). (vii) Irrigated. (viii) N.A. (ix) 145cm.; 128cm. (x) N.A.

2. TREATMENTS :

Main-plot treatments :—

All combinations of (1) and (2)+N_0=Control(3 plots)

(1) 3 sources of 40·4 Kg/ha. of N : S_1=A/S, S_2=Urea and S_3=A/S/N

(2) 3 methods of application of N: M_1=Basal dressing, M_2=Top dressing and M_3=½ as basal dressing+½as top dressing.

Sub-plot treatments :

2 levels of P_2O_5 as Super : P_0=0 and P_1=20.2 Kg/ha.

3. DESIGN :

(i) Split-plot. (ii) (a) 12 main-plots/replication; 2 sub-plots/main-plot. (b) N.A. (iii) 2. (iv) (a) and (b) 5·18m.×8·84m. (v) Nil. (vi) Yes.

4. GENERAL:

(i) Good. (ii) Nil. (iii) Yield of grain. (iv) (a) 1960-61. (b) Yes. (c) Nil (v) and (vi) Nil. (vii) As the sub-plot error variances are heterogeneous, results of individual years are presented under 5. Results.

5. RESULTS :

60(145)

(i) 2203 Kg/ha. (ii) (a) 115·5 Kg/ha. (b) 147·3 Kg/ha. (iii) Main effect of S and P are highly significant. (iv) Av. yield of grain in Kg/ha.

N_0P_0=1673 Kg/ha. and N_0P_1=1807 Kg/ha.

	S_1	S_2	S_3	M_1	M_2	M_3	Mean
P_0	2294	2171	2156	2266	2188	2167	2207
P_1	2634	2471	2416	2562	2463	2496	2507
Mean	2464	2321	2286	2414	2325	2331	2357
M_1	2565	2359	2318				
M_2	2359	2349	2266				
M_3	2467	2254	2273				

C.D. for S marginal means=103·9 Kg/ha.

C.D. for P marginal means=107·0 Kg/ha.

61(154)

(i) 2427 Kg/ha. (ii) (a) 422·0 Kg/ha. (b) 517·2 Kg/ha. (iii) Main effect of M is significant. (iv) Av. yield of grain in Kg/ha.

N_0P_0=2780 Kg/ha. and N_0P_1=2653 Kg/ha.

	S_1	S_2	S_3	M_1	M_2	M_3	Mean
P_0	2358	2282	2482	2525	2045	2551	2374
P_1	2303	2245	3218	2514	1987	2365	2289
Mean	2331	2245	2400	2520	2016	2458	2231
M_1	2211	2282	2482				
M_2	2232	2245	2318				
M_3	2549	2263	2400				

C.D. for M marginal means=379·2 Kg/ha.

Crop :- Paddy *(Kharif)*. **Ref :- U.P. 61(133), 62(111), 63(113).**

Site :- Govt. Reg. Agri. Res. Stn., Hardoi. **Type :- 'M'.**

Object :—To find out proper method of P application in Paddy.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Sandy loam. (iii) 31.8.61 to 3.9.61; 5.9.62; 14/16.8.63. (iv) (a) N.A. (b) Transplanting. (c) — (d) 15cm × 15cm. for 61 and 62;23cm. × 15cm. for 63. (e) 2 to 3. (v) 56 Kg/ha. of N as A/S. (vi) T-9 (late). (vii) Irrigated. (viii) N.A. (ix) 40cm.; 25cm.; 39cm. (x) 18.12.61; 15.12.62; 30.11.63.

2. TREATMENTS :

All combinations of (1) and (2) +One control.

(1) 2 levels of P_2O_5 as Super : P_1=44·8 and P_2=67·2 Kg/ha.

(2) 2 methods of applications of Super : M_1=As pllets and M_2=Broadcast.

3. DESIGN :

(i) R.B.D. (ii) (a) 5. (b) N.A, (iii) 4. (iv) (a) and (b) :7·47m.×6·25m. for 61 and 62; 12·19×3·66m. (v) Nil. (vi) Ycs.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of grain. (iv) (a) 1961 to 63. (b) No. (c) Results of combined analysis have been presented under 5. Results. (v) and (vi) Nil. (vii) Error variances are heterogeneous and Treatment ×Years interaction is present.

5. RESULTS:

Pooled results.

(i) 842 Kg/ha. (ii) 419·6 Kg/ha, (based on 8 d.f. made up of Treatment×Years interaction.) (iii) None of the effects is :ignificant. (iv) Av. yield of grain in Kg/ha.

Control=664 Kg/ha.

	M_1	M_2	Mean
P_1	862	862	862
P_2	952	869	910
Mean	907	865	886

Individual results

Treatments	M_1	M_2	Sig.	P_1	P_2	Sig.	Control	Sig.	G.M.	S.E./plot
Years 1961	1138	1150	N.S	1270	1018	N.S.	1227	N.S.	1161	245·4
1962	1106	1176	N.S.	980	1302	**	654	**	1044	174·6
1963	476	272	**	336	412	N.S.	112	**	322	74·6
Pooled	907	865	N.S.	862	910	N.S.	664	N.S.	842	419·6

Crop :- Paddy (*Kharif*). **Ref :- U.P. 64(45).**

Site :- Govt. Res. Farm, Kanpur. **Type :- 'M'.**

Object :—To study the effectvieness of spraying N on growth, performance and yield of Paddy.

1. PASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Sandy loam. (iii) 27.7.64. (iv) (a) One ploughing and one palewa. (b) Transplanting (c) — (d) 23cm.×15cm. (e) 2. (v) 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 pot. Sul. (vi) N.22(early). (vii) Irrigated. (viii) 2 weedings. (ix) 41cm. (x) 8.10.64.

2. TREATMENTS :

6 manurial treatments :—M_0=Control, M_1=22·4 Kg/ha. of N as A/S applied as soil application, M_2=44·8 Kg/ha. of N asA/S applied as soil application, M_3=11·2 Kg/ha. of N as A/S applied as soil application+0·2%N as Urea solution sprayed 3times to gives in all 11·2 Kg/ha. N M_4=33·6 Kg/ha. of N as A/S applied as soil application+0 2% N as Urea solutions prayed 3 times to give in all 11·2 Kg/ha. of N and M_5=0·2% N as Urea solution sprayed 3 times to give in ail 11·2 Kg/ha. of N

Dates of spraying : 11.8.64, 23.8.64 and 3.9.64, soil application before transplanting.

3. DESIGN:

(i) R.B.D. (ii) (a) 6. (b) N.A. (iii) 4. (iv) (a) 10.36m.×8·32m. (b) 9·45m×7·41m. (v) 46cm.×46cm. (vi) Yes.

4. GENERAL :

(i) Not good. (vii) Nil. (iii) Yield of grain. (iv) (a) 1964-only. (b) and (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 1442 Kg/ha. (ii) 302·4 Kg/ha. (iii) Treatments differences are not significant. (iv) Av. yield of grain in Kg/ha.

Treatment :	M_0	M_1	M_2	M_3	M_4	M_5
Av. yield :	1279	1347	1390	1497	1507	1629

Crop :- Paddy (*Kharif*). **Ref :-P.U 64(46).**

Site :- Govt. Res. Farm, Kanpur. **Type :- 'M'.**

Object :—To study the uptake of nutrients N and P by Paddy plants at different phases of growth.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Berseem. (c) N.A. (ii) Sandy loam. (iii) 11 and 12.7.64. (iv) (a) N.A. (b) Transplanting. (c) — (d) 23cm.×15cm. (e)2. (v) Nil. (vi) N. 22. (vii) and (viii) N.A. (ix) 54·1cm. (x) 6 and 7.10.64.

2. TREATMENTS:

All combinations of (1) and (2)

(1) 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.

(2) 3 levels of P_2O_5 as Super : P_0=0, P_1=22·4, P_2=44·8 Kg/ha.

A/S brodcasted on 11/12.7.64 and Super applied behind the plough on 9.7.64.

3 DESIGN :

(i) Fact. in R.B.D. (ii) (a) 12. (b) 34·75m.×22·25m. (iii) 3. (iv) (a) 7·92m.×7·01m. (b) 7·47m×6·55m (v) 23cm.×23cm. (vi) Yes.

4. GENERAL :

(i) N.A. (ii) Dusting of 5%B.H.C. to check white ants. (iii) Ht. of plants, No. of tillers/plant and yield of grain. (iv) (a) 1964-only. (b) and (c) Nil. (v) to (vii) Nil.

5. RESULTS:

(i) 1547 Kg/ha. (ii) 211·4 Kg/ha. (iii) Main effect of N alone is highly significant. (iv) Av. yield of grain in Kg/ha.

	P_0	P_1	P_2	Mean
N_0	1247	1233	1226	1235
N_1	1315	1451	1505	1424
N_2	1539	1710	1737	1662
N_3	1757	1887	1962	1869
Mean	1464	1570	1608	1547

C.D. for N marginal means=206·8 Kg/ha.

Crop :- Paddy *(Kharif)*, **Ref :- UP. 65(398).**

Site :- Govt. Res. Farm, Kanpur. **Type :- 'M'.**

Object :—To study the effect of spraying vs soil application of Urea on gowth,per formance and yield of Paddy.

1. BASAL CONDITIONS :

(i) (a) Nil (b) Pea, (c) N.A. (ii) Clay loam. (iii) 9.7.65. (iv) (a) Hot weather culivattion by soil turning plough. (b) Transplanting. (c) — (d) 23cm.×15cm. (e) 2 seedlings/hole. (v) 20 Kg/ha. of N as A/Sand 20 Kg/ha. of P_2O_5 as Super, bradcasted. (vi) N. 22, (vii) Irrigated. (viii) N.A. (ix) 52·0cm. (x) 18/19.10.65.

2. TREATMENTS :

9 manurial treatments :-T_0=Control,T_1=15 Kg/ha. of N as Urea as soil application, T_2=15 Kg/ha. of N as A/S as soil application, T_3=15 Kg/ha. of N as 2%solution of Urea in 3 sprayings, T_4=30 Kg/ha. of N as Urea as soil application, T_5=30 Kg/ha. of N as A/S as soil application, T_6=30 Kg/ha. of N as 4%solution of Urea applied in 3 sprayings, T_7=15Kg/ha. of N as Urea. as soil application+15 Kg/ha. of N as 2%solution of Urea applied as spraying and T_8=15 Kg/ha. of N as A/S as soil application+15 Kg/ha. of N as 2%Urea solution applied as spraying.

Sprayings one on 10.8.65, 17.8.65, and 25.8.65.

3. DESIGN :

(i) R.B.D. (ii) (a) 9. (b) 42·90m.×11·50m. (iii) 4. (iv) (a) 11·50m.×4·50m. (b) 10·50m.×5·50m. (v) 50cm,×15cm. (vi) Yes.

4. GENERAL :

(i) Normal. (ii) N.A. (ii) Height of plants, No. of tillers; No. of ears and yield of grain. (iv) (a) 1965-66. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 899 Kg/ha. (ii) 73·9 Kg/ha. (iii) Treatment differences are highly signifieant. (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	T_8
Av. yield	575	918	879	1003	875	976	988	937	940

C.D.=107·8 Kg/ha.

Crop :- Paddy (*Kharif*). **Ref :- U.P. 63(177), 64(161), 65(1000).**

Site :- Usar State Reclamation Farm, Katiyar. **Type :- 'M'.**

Object :—To assess the manurial requirements of saline-alkali soils after reclamation for Paddy crop.

1. BASAL CONDITIONS:

(i) (a) N.A. for 63 and 64; Paddy-Wheat for 65. (b) N.A. for 63 and 64; Wheat for 65. (c) N.A. (ii) Clay loam,salinesalkali soil. (iii) 21.7.63; N.A.; 18.7.65. (iv) N.A. for 63 and 64; 2 ploughings by mould-bared plough for 65. (b) Transplantings. (c) — (d) 23cm.×15cm. (e) 2 to 3' (v) N.A. (vi) N. 22 for 65; N A. for others. (vii) Irrigated. (viii) Weeding for 65; N.A. for others. (x) 65·9cm.; 51·0cm.; 62·7cm. (x) N.A. for 63 and 64; 4 to 10.11.65.

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 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. of Pot. : K_0=0, K_1=22·4 and K_2=44·8 Kg/ha.

3. DESIGN :

(i) Fact. in R.B.D. (ii) (a) 27. (b) N.A. (iii) 2 for 63 and 64; 4 for 65. (iv) (a) and (b) 5·49m.×4·12m. (v) N.A. (vi) Yes.

4. GENERAL:

(i) Satisfactory. (ii) Nil. (iii) Yield of grain. (iv) (a) 1963-65. (b) Yes. (c) Nil. (v) and (vi) Nil. (vii) As the expt. is continued beyond 65, results of individual years are presented under 5. Results.

5. RESULTS :

63(177)

(i) 663 Kg/ha. (ii) 196·5 Kg/ha. (iii) Main effects of N and P are highly significant. (iv) Av. yield of grain in Kg/ha.

	P_0	P_1	P_2	K_0	K_1	K_2	Mean
N_0	470	439	609	382	583	454	506
N_1	470	650	838	517	760	681	653
N_2	593	802	1099	842	667	985	831
Mean	511	630	849	580	670	740	663
K_0	478	646	616				
K_1	541	565	904				
K_2	514	679	1026				

C.D. for N or P marginal means=134·7 Kg/ha.

64(161)

(i) 674 Kg/ha. (ii) 219·8 Kg/ha. (iii) Main effect of N and P are highly significant, and interactions N×K is singhificant. (iv) Av. yield of grain in Kg/ha.

	P_0	P_1	P_2	K_0	K_1	K_2	Mean
N_0	564	455	524	406	592	545	514
N_1	513	553	971	825	555	656	679
N_2	651	782	1053	797	613	1076	829
Mean	576	597	849	676	587	759	674
K_0	441	679	908				
K_1	595	492	673				
K_2	691	619	967				

C.D. for N or P marginal means=150·7 Kg/ha.

C.D. for body of N×K table=261·0 Kg/ha.

65(1000)

(i) 692 Kg/ha. (ii) 387·9 Kg/ha. (iii) Main effect of N and interaction P×K are significant. (iv) Av. yield of grain in Kg/ha.

	P_0	P_1	P_2	K_0	K_1	K_2	Mean
N_0	572	644	515	598	530	603	577
N_1	808	738	945	1093	675	723	830
N_2	792	580	635	659	598	749	669
Mean	724	654	698	783	601	692	692
K_0	618	834	897				
K_1	744	415	644				
K_2	810	712	554				

C.D. for N marginal means=182·3 Kg/ha.

C.D. for body of P×K table=312·2 Kg/ha.

Crop :- Paddy (*Kharif*). **Ref :- U.P. 65(697).**

Site :- State Usar Reclamation. Farm, Katiyar. **Type :- 'M'.**

Object :—To test the efficiency of leaf powder as manure and reclaiming agent for saline and alkali soils with and with out leeching.

1. BASAL CONDITIONS:

(i) (a) Fallow-Paddy. (b) Fallow. (c) Nil. (ii) Clay loam.; Saliue-alkli soil; p.H=9·70 to 9·85. (iii) 17.8.65. (iv) (a) Plots prepared by the help of spade. (b) Transplanting. (c) — (d) 23cm.×15cm. (e) 2 to 3. (v) 30 Kg/ha. of N as A/S. (vi) T—9. (vii) Irrigated. (viii) 1 weeding. (ix) 45·15cm. (x) 28.11.65.

2. TREATMENTS :

Main-plot treatments :

2 leachings : L_0=No leaching and L_1=Leaching with water.

Sub-plot treatments :

3 doses of leaf powder : P_0=0. P_1=50 and P_2=100 Q/ha. of leaf powder.

Leaf powder applied on 16.6.65 water filled during April-June.

3. DESIGN:

(i) Split-plot. (ii) (a) 2 main plots/replication. 3 sub-plots/main plots. (b) 13·0m. × 29·0m. (iii) 6. (iv)(a) and (b) 9·00m. × 5·50m. (v) Nil. (vi) Yes.

4. GENERAL:

(i) Good, No. lodging. (ii) Nil. (iii) Yield of grain. (iv) (a) 1965-contd. (b) Yes. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 647 Kg/ha. (ii) (a) 372·4 Kg/ha. (b) 238·8 Kg/ha. (iii) Main effect of P is highly significant and that of L and interaction P × L is significant. (iv) Av. yield of grain in Kg/ha.

	P_0	P_1	P_2	Mean
L_1	209	452	677	446
L_2	351	1158	1035	848
Mean	280	805	856	647

C.D. for L marginal means=31·91 Kg/ha.
C.D. for P marginal means=203·3 Kg/ha.
C.D. for P means at the same level of L=28·76 Kg/ha.
C.D. for L means at the same level of P=510·4 Kg/ha.

Crop :- Paddy (*Kharif*). **Ref :- U.P. 60(455).**

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

Object :—To find out the most suitable mothod and econonical dose of application of 'A/S on' Paddy under transplanted conditions.

1. BASAL CONDITIONS:

(i) (a) Paddy-pea. (b) Pea. (c) Nil. (ii) Mediun loam. (iii) 20.5.60 and 18 to 20.6.60. (iv) (a) One ploughing by soil tarning plough two to three ploughings by *Desi* plough. (b) Transplanting. (c) — .(d) 23cm. × 15cm. (e) 2 to 3. (v) Nil. (vi) T-136(early). (vii) Irrigated. (viii) Weeding. (ix) 98·1 cm. (x) Last week of Sept., 60

2. TREATMENTS

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

(1) 4 methods application of N : M_1=Pillow system, M_2=At last pata before transplantin g, M_3=Top dressing in two instalment follwed by Japanese weeder and M_4=Full dose at flowesing by Japanese weeder.

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

3. DESIGN:

(i) 4 × 2 Fact. +one control in R.B.D. (ii) (a) 9. (b) 8·84m. × 53·19m. (iii) 4. (iv) (a) and (b) 8·84m. × 5·54m. (v) Nil. (vi) Yes.

4. GENERAL:

(i) Good. (ii) Attack of gundhi bugs, dusting with gamaxine at 5·6 Kg/ha. (iii) Yield of grain. (iv) 1960-only. (b) and (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS

(i) 2148 Kg/ha. (ii) 326·1 Kg/ha. (iii) Main effects of N and 'control vs. others' are significant. (iv) Av. yield of grain in Kg/ha.

Control=1802 Kg/ha.

	M_1	M_2	M_3	M_4	Mean
N_1	1942	2176	2176	1942	2059
N_2	2622	2434	1966	2270	2323
Mean	2282	2305	2071	2106	2191

C.D. for N marignal means=237·9 Kg/ha.

C.D. for 'control vs others.'=357·0 Kg/ha.

Crop :- Paddy (*Kharif*). **Ref :- U.P. 64(688).**

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

Object :—To find out the optinum dose of N,P and K for rainfed Paddy crop.

1. BASAL CONDITIONS:

(i) (a) to (c) N.A. (ii) Medium loam. (iii) 2/3.7.64. (iv) (a) N.A. (b) Transplantign. (c) — (d) 22 rows/plot. (e) 2 to 3. (v) Nil. (vi) N.A. (vii) Unirrigated. (viii) N.A. (ix) 149·0 cm. (x) 16.10.64.

2. TREATMENTS:

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

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

(2) 3 levels of P_2O_5: P_0=0, P_1=11·2 and P_2=22·4 Kg/ha.

(3) 3 levels of K_2O : K_0=0, K_1=11·2 and K_2=22·4 Kg/ha.

3. DESIGN:

(i) 3^3 partially confd. (ii) (a) 9 plots/block. 3 blocks/replication. (b) 51·82m.×17·07m. (iii) 2. (iv) (a) and(b) 5·49m.×5·18m.(v) Nil. (vi) Yes.

4. GENERAL:

(i) Germination good. loding 15 to 30% (ii) Incidence of Gundhi bug in most of the plots, (iii) Yield of grain. (iv) (a) 1964-only. (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5 RESULTS :

(i) 1509 Kg/ha. (ii) 315·5 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	1659	1173	1489	1501	1442	1378	1440
N_1	1314	1641	1530	1671	1278	1536	1495
N_2	1559	1612	1607	1577	1683	1518	1593
Mean	1511	1475	1542	1583	1468	1477	1509
K_0	1753	1471	1524				
K_1	1436	1430	1537				
K_2	1343	1524	1565				

Crop :- Paddy (*Kharif*). **Ref :- U.P. 65(571).**

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

Object :—To find out the minimum dose of N and P for rainfed Paddy crop.

1. BASAL CONDITIONS:

(i) (a) to (c) N.A. (ii) Medium loam. (iii) 7.7.65. (iv) (a) N.A. (b) Soun in line behind the plough. (c) 25 Kg/ha. (d) Rows 23cm. apart. (e) — (v) Nil. (vi) N-22. (vii) Nil. (viii) N.A. (ix) 95·2 cm. (x) 30.9.65.

2. TREATMENTS :

All combinations of (1) and (2)

(1) 4 levels of N : N_0=0, N_1=11·2, N_2=22·4 and N_3=33·6 Kg/ha.

(2) 3 levels of P_2O_5: P_0=0, P_1=11·2 and P_2=22·4 Kg/ha.

Full quantity of P_2O_5 and $\frac{1}{2}$ dose of N were given as basal dressing at the time of sowing, $\frac{1}{2}$ and $\frac{1}{4}$ doses of N were given as top dressing after 3 and 6 weeks of sowing respectively.

3. DESIGN :

(i) Fact. in R.B.D. (ii) (a) 12. (b) N.A. (iii) 4. (iv) (a) and (b) 8·0m.×4·0m. (v) Nil. (vi) Yes.

4. GENERAL :

(i) Germination 90-95% in Rep. I, 60-75% in Rep. II, 45-55% in Rep. III, 30-45% in Rep. IV. (ii) N.A. (iii) Yield of dry grain. (iv) (a) 1965-only. (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 1494 Kg/ha. (ii) 335·8 Kg/ha. (iii) Main effect of N alone is highly significant. (iv) Av. yield of grain in Kg/ha.

	N_0	N_1	N_2	N_3	mean
P_0	1134	1206	1683	1949	1493
P_1	1106	1748	1441	1630	1490
P_2	1111	1781	1658	1442	1498
mean	1117	1590	1594	1674	1494

C.D. for N marginal means=279·0 Kg/ha.

Crop :- Paddy (*Kharif*). **Ref :- U.P. 60(46).**

Site :- Instt. of Crop Physiology, Dilkusha, Lucknow. **Type :- 'M'.**

Object :—To study the relative efficiency of organic and inorganic nitrogenous manures singly and in combination with P on growth and yield of Paddy.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Sandy loam to loam. (iii) to (v) N.A. (vi) T-9. (vii) and (viii) N.A. (ix) 102·3cm. (x) N.A.

2. TREATMENTS:

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

(1) 3 sources of N at 67·2 Kg/ha. : S_1=F.Y.M., S_2=A/S and $S_3=\frac{1}{2}$ F.Y.M.+$\frac{1}{2}$ A/S

(2) 2 levels of P_2O_5 Super : P_0=0 and P_1=56 Kg/ha.

2 extra treatments : E_1=Control and E_2=56 Kg/ha. of P_2O_5 as Super.

3. DESIGN :

(i) 3×2 fact.+2 extra treatments in R.B.D. (ii) (a) 9. (b) 12·34m.×31·70m. (iii) 3. (iv) (a) 7·62m.×5·64m. (b) 6·71m.×4·72m. (v) 46cm.×46cm. (vi) Yes.

4. GENERAL:

(i) Poor. (ii) N.A. (iii) Yield of grain. (iv) (a) 1959-60. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 556 Kg/ha. (ii) 175·8 Kg/ha. (iii) Only interaction S×P is significant. (iv) Av. yield of grain in Kg/ha.

E_1=515 and E_2=571 Kg/ha.

	S_1	S_2	S_3	Mean
P_0	491	736	436	554
P_1	577	393	736	569
Mean	534	565	586	561

C. D. for body of S×P table=307·9 Kgha.

Crop :- Paddy (*Kharif*). **Ref :- U.P. 60(56).**

Site :- Instt. of Crop Physiology Dilkusha, Lucknow. **Type :- 'M'.**

Object :—To study the effect of Urea applied as foliar spray on growth, performance and yield of Paddy.

1. BASAL CONDITIONS:

(i) (a) to (c) N.A. (ii) Sandy loam to loam. (iii) N.A. (iv) (a) N.A. (b) Transplanting. (c) to (e) N.A. (v) to (viii) N.A. (ix) 102·3 cm. (x) N.A.

2. TREATMENTS:

All combinations of (1) and (2)

(1) 3 concentrations of Urea : C_0=Nil (water spray), C_1=0·1% N and C_2=0·2% N.

(2) 3 foliar spraying : S_1=One at 20 days of transplanting, S_2=S_1+one at 30 days of transplanting, S_3=S_2+One at 40 days of transplantin.

Spraying done at 898·7 litres/ha.

3. DESIGN:

(i) Fact. in R.B.D. (ii) (a) 9. (b) N.A. (iii) 3. (iv) (a) and (b) 5·79m.×4·89m. (v) Nil. (vi) Yes.

4. GENERAL :

(i) Good. (ii) N.A. (iii) Yield of grain. (iv) (a) 1960-only. (b) and (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 2098 Kg/ha. (ii) 204·4 Kg/ha. (iii) Main effects of S and C are highly significant and interaction S×C is significant. (iv) Av. yield of grain in Kg/ha.

	C_0	C_1	C_2	mean
S_1	1659	1696	2037	1888
S_2	1597	2265	2379	2200
S_3	1514	2485	1616	2205
mean	1590	2240	2464	2098

C.D. for S or C marginal means=204·2 Kg/ha.

C.D. for the body of table=353·8 Kg/ha.

Crop :- Paddy (*Kharif*). **Ref :- U.P. 61(64),**

Site :- Instt. of Crop Physiology, Dilkusha, Lucknow **Type :- 'M'.**

Object :—To study the effectiveness of sprayingUrea on growth and yield of Paddy.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Sandy loam to loam. (iii) 20 to 22.7.61. (iv) (a) N.A (b) Transplanting. (c) to (e) N.A. (v) N.A. (vi) T. 136. (vii) and (viii) N.A. (ix) 144·4cm. (x) N.A.

2. TREATMENTS :

Main-plot treatments :—

3 levels of N as A/S : N_0=0, N_1=28 and N_2=56 Kg/ha.

Sub-plot treatments:

3 foliar applieation of 0·2% N as Urea : S_0=No sparying, S_1=Sparying at jointing stage and S_2=Spraying at jointing and preflowering stages.

Spraying done 674 litres/ha.

3. DESIGN :

(i) Split-plot. (ii) (a) 3 main-plots/replication 3 sub-plots/main-plot. (b) 17·98m.×153·9m. (iii) 4. (iv) (a) 5·79m.×4·57m. (b) 4·88m.×3·66m. (v) 46 cm.×46cm. (vi) Yes.

4. GENERAL :

(i) Good. (iii) N.A. (iii) Yield of grain. (iv) (a) 1961-62 (modified in 62) (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS:

(I) 1540 K/gha. (ii) (a) 378·6 Kg/ha. (b) 294·1 Kg/ha. (iii) Main effect of N is significant. (iv) Av. yield of grain in Kg/ha

	S_0	S_1	S_2	Mean
N_1	1210	1103	1300	1204
N_2	1618	1455	1463	1512
N_3	1904	1962	1847	1904
Mean	1577	1507	1537	1540

C.D. for N marginal means=378·3 Kg/ha.

Crop :- Paddy (*Kharif*). **Ref :- U.P. 62(65).**

Site :- Instt. of Crop Physiology, Dilkusha, Lucknow. **Type :- 'M'.**

Object:—To study the effectivenes of spraying Urea on the growth and yield of Paddy.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Sandy loam, to loam. (iii) 26 and 27.7.62. (iv) (a) N.A. (b) Trans planting. (c) N.A.. (v) 22·4 Kg/ha. of N +22·4 Kg/ha. of P_2O_5+22·4 Kg/ha. of K_2O. (vi) N-22 (early). (vii) and (viii) N.A. (ix) 72·1cm. (x) 18.10.62.

2. TREATMENTS :

Mainplot treatments :—

3 levels of N as A/S : N_0=0, N_1=22·4 and N_2=44·8 Kg/ha.

Sub-plot treatment :—

4 Foliar applications of 0·2 % N as Urea : S_0=N_0 spraying, S_1=one spraying at jointing stage, S_2=S_1+one spraying at preflowering stage and S_3=S_2+one spraying at heading stage.

3. DESIGN :

3 (i) Split-plot. (ii) (a) 3 main-plots/replication 4 sub-plots/main-plot. (b) 17·98 m.×16·39m. (iii) 2. (iv) (a) and (b) 4·27m.×4·88m. (v) Nil. (vi) Yes.

4. GENERAL:

(i) Good. (ii) N.A. (iii) Yield of grain. (iv) (a) 1961-62 [modified in 1962]. (b) N.A. (c) Nil. (v) to (vii) Nil.

5. RESULTS

(i) 2070 Kg/ha. (ii) (a) 179·1 Kg/ha. (b) 533 0 Kg/ha. (iii) Main effect of N is highly significant. (iv) Av. yield of grain in Kg/ha.

	S_0	S_1	S_2	S_3	Mean
N_0	1081	1442	1153	1153	1207
N_1	2018	2475	1898	2643	2258
N_2	2427	2427	2931	3196	2745
Mean	1842	2115	1994	2331	2070

C.D. for N marginal means=385·5 Kg/ha.

Crop :- Paddy (*Kharif*). **Ref :- U.P. 63(60).**

Site :- Instt. of crop Physiology, Dilkusha, Lucknow. **Type :- 'M'.**

Object :—To study the effectiveness of spraying N on growth, performance and yield of paddy.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Sandy loam to loam. (iii) 12.7.63. (iv) (a) N.A. (b) Transplanting. (c) to (e) N.A. (v) 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 pot. Sul. (vi) N-22·4 (early). (vii) and (viii) N.A. (ix) 51·1cm. (x) 30.9.63.

2. TREATMENTS:

6 manurial treatments : M_0=Control(water spray), M_1=22·4 Kg/ha. of N applied as soil application, M_2=44·8 Kg/ha. of N applied as soil application. M_3=3 sprayings at 11·2 Kg/ha. of N as Urea $M_4=M_3+11·2$ Kg/ha. of N applied as soil application and $M_5=M_3+33·6$ Kg/ha. of N applied as soil application.

3. DESIGN :

(i) R.B.D. (ii) (a) 6. (b) 7·01m.×35·35m. (iii) 4. (iv) (a) and (b) 7·01m×5·64m. (v) Nil. (vi) Yes.

4. GENERAL:

(i) Good. (ii) N.A. (iii) Yield of grain. (iv) (a) 1963-only. (b) No. (c) Nil. (v) Kanpur. (vi) and (vii) Nil.

5. RESULTS:

(i) 2264 Kg/ha. (ii) 320 5 Kg/ha. (iii) Treatment differences are not significant. (iv) Av. yield of grain in Kg/ha.

Treatment	M_0	M_1	M_2	M_3	M_4	M_5
Av. yield	1961	2138	2302	2504	2251	2429

Crop :- Paddy (*Kharif*). **Ref:- U.P. 62(56), 63(47).**

Site :- Instt. of Crop Physiology, Dilkusha, Lucknow. Type :-'M'.

Object :—To study the up-take of nutrients by Paddy at different stages.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Sandy loam to loam. (iii) 16.6.62/24 of 25.7.62; 4.6.63/13 to 15.7.63. (iv) (a) N.A. (b) Transplanting. (c) — (d) 23cm. × 15cm. (e) 2. (v) Nil. (vi) N. 22. (vii) and (viii) N.A. (ix) 101cm.; 65cm. (x) 16.10.62; 3.10.63.

2. TREATMENTS :

All combinations of (I) and (2)
(1) 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.
(2) 3 leves of P_2O_5 as Super :-P_0=0, P_1=22·4 and P_2=44·8 Kg/ha.
Super applied behind the plough and A/S applied as broadcast one day before transplanting.

3. DESIGN:

(i) Fact. in R.B.D. (ii) (a) 12. (b) 19·96m. × 30·18m.; 17·98m. × 33·53m. (iii) 3.(iv) (a) 9·75m. × 4·57m. for 62; 7·62m. × 6·79m. for 63; (b) 8·84m. × 3-66m. for 62; 7·62m. × 5·79m. for 63, (v) 46cm. × 46cm.; Nil. (vi) Yes.

4. GENERAL :

(i) Good. (ii) N.A. (iii) Yield of grain. (iv) (a) 1962-63 (b) No. (c) Nil. (v) and (vi) N.A. (vii) As the error variances are heterogeneous and Treatment × Years interaction is absent, the results of the individaul years have been presented under 5. Results.

5. RESULTS:

62(56)

(i) 1199 Kg/ha. (ii) 490 Kg/ha. (iii) Main effect of N is highly significant. (iv) Av. yield of grain in Kg/ha.

	N_0	N_1	N_2	N_3	Mean
P_0	670	763	1165	1753	1085
P_1	691	866	1392	1794	1186
P_2	691	928	1742	1938	1325
Mean	684	852	1430	1828	1199

C.D. for N marginal means=479·1 Kg/ha.

63(47)

(i) 1451 Kg/ha. (ii) 490 Kg/ha. (iii) Main effects of N and P and interaetion N × P are highly significant. (iv) Av. yield of grain in Kg/ha.

	N_0	N_1	N_2	N_3	Mean
P_0	884	1027	1586	1979	1369
P_1	838	1156	1813	2062	1467
P_2	657	1284	1926	2206	1518
Mean	793	1156	1775	2082	1451

C.D. for N marginal means=98·8 Kg/ha.
C.D. for P marginal means=85·6 Kg/ha.
C.D. for body of table=171·2 Kg/ha.

Crop :- Paddy (*Kharif*). **Ref :- U.P. 61(46).**

Site :- Instt. of Crop Physiology Dilkusha, Lucknow. **Type :- 'M'.**

Oject :—To study the effect of trace-elements applied as foliar spray on growth and yield of Paddy.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Sandy loam. (iii) 6/7.8.61. (iv) (a) N.A. (b) Transplanting. (c) to (e) N.A. (v) 28 Kg/ha. of N as A/S+28 Kg/ha. of P_2O_5 as Super. (vi) T_9. (vii) and (viii) N.A. (ix) 125·1cm. (x) N.A.

2. TREATMENTS :

6 trace-element treatments :-T_0=Control (water spray), T_1=Copper sulphate at 50·0 p p.m., T_2=Boron as Boric acid at 50·0 p.p.m., T_3=Mangnese as mangnese Sul at 100·0 p.p.m., T_4=Magnesium as magnesium Sul. at 100·0 P.P.M. and T_5=Zine as Zine Sul. at 100·0 P.P.M.
Foliar spray applied at tillering stage and just before earing.

3. DESIGN :

(i) R.B.D. (ii) (a) 6. (b) 7·32m.×44·50m. (iii) 4. (lv) (a) 7·32m.×6·40m. (b) 6·40m.×5·59m. (v) 46cm.×46cm. (vi) Yes.

4. GENERAL :

(i) Good. (vii) N.A. (ii) Yield of grain. (iv) (a) 1961-63 [modified every year] (b) and (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 2248 Kh/ha. (ii) 591·1 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
Av. yield of	2474	2209	2350	2350	2313	1794

———

Crop :- Paddy (*Kharif*). **Ref :- U.P. 62(66).**

Site :- Instt. of Crop Physiology, Dilkusha, Lucknow. **Type :- 'M'.**

Object : —To study the effect of trace-elements applied as foliar spray on the growth and yield of Paddy.

1. BASAL CONDITIONS:

(i) (a) N.A. (b) Barley. (c) N.A. (ii) Sandy loam. to loam. (iii) 27 and 28.7.62 (iv) (a) N.A. (b) Transplanting. (c) to (e) N.A. (v) Nil. (vi) N.22. (early). (vii) and (viii) N.A. (xi) 72·1cm. (x) 15.10.62.

2. TREATMENTS :

5 trace-element treatment :-T_0=Control (water spray), T_1=Copper as Copper Sul. at 20 p.p.m., T_2=Boron as Boric Acid at 20 p.p.m., T_3=Manganese as manganese Sul. at 50 p.p.m. and T_4=Zine as Zine Sul. at 50 p.p.m.

Dates of spraying=I8.8.62 and 5.9.62.

3. DESIGN:

(i) R.B.D. (ii) (a) 5. (b) 7·32m.×36·88m. (iii) 4. (iv) (a) 7·32m.×6·40m. (b) 6·40m.× 5·49m. (v) 46cm.×46cm. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of grain. (iv) (a) 1961-63[modified every year]. (b) and (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 763 Kg/ha. (ii) 571·2 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 :	748	648	851	687	883

Crop :- Paddy (*Kharif*). **Ref :- U.P. 63(56).**

Site :- Instt. of Crop Physiology, Dilkusha, Lucknow. **Type :- 'M'.**

Object :—To study the effect of trace-elements, applied as foliar spray on growth and yield of Paddy.

1. BASAL CONDITIONS:

(i) (a) to (c) N.A. (ii) Sandy loam to loam. (iii) N.A. (iv) (a) N.A. (b) Transplanted. (c) — (d) 23×15cm. (e) 2 to 3. (v) 28 Kg/ha. of N as A/S+28 Kg/ha. of P_2O_5 as Super. (vi) N. 22(early). (vii) and (viii) N.A. (ix) 63·2cm. (x) 8.10.63.

2. TREATMENTS :

6 trace-element treatments :-T_0=Control (water spary) T_1=Copper as Copper Sul. 50 p.p.m., T_2=Boron as Boric acid at 50 p.p.m., T_3=Manganese as manganese Sul. at 100 p.p.m., T_4=Zine as Zine Sul. at 100 p.p.m. and T_5=Iron as Iron Sul. at 100 p.p.m.

Foliar spray applied at seedling stage and Just befor earing.

3. DESIGN :

(i) R.B.D. (ii) (a) 6. (b) 7·92m.×44·50m. (iii) 4. (iv) (a) 7·92m.×6·71m. (b) 6·72m.×6·71m. (v) 60cm. at each end. (vi) Yes.

4. GENERAL :

(i) Fair. (ii) N.A. (iii) Yield of grain. (iv) (a) 1961-63 [modified every year] (b) and (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 1056 Kg/ha. (ii) 338·0 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	T_5
Av. yield	862	1273	1223	1012	884	1084

Crop :- Paddy (*Kharif*). **Ref :- U.P. 61(301)**

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

Object :—To study the effect of N, P and K fertilizers singly and in combination at different doses on the yield of Paddy.

1. BASAL CONDITIONS:

(i) (a) to (c) N.A. (ii) Light loam. (iii) 2nd and 3 rd week of Aug.; 61. (iv) (a) 4 to 5 ploughings. (b)Transplanting. (c) — (d) 23cm.×15cm. (e) 2, (v) Nil. (vi) T-100. (vii) Irrigated. (viii) 1 to 2 weedings by *Khurpi*. (ix) 61·1cm. (x) Ist to 3rd week of Dec., 61.

2. TREATMENTS:

All combinatiods 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 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 P_2O_5 as Mur. Pot.:-K_0=0, K_1=22·8 and K_2=44·8 Kg/ha.

3. DESIGN :

(i) 3^3 confd. (ii) (a) 9 plots/block, 3 blocks/replication. (b) N.A. (iii) One, (iv) (a) and (b) 17·83m.× 4·57m. (v) Nil. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Nil. (iii) Tiller count, heights of plants and yield of grain. (iv) (a) 1951-63[modified in 62] (b) No. (c) Nil. (v) Meerut, Varanasi and Nawabganj. (vi) and (vii) Nil.

5. RESULTS:

(i) 1830 Kg/ha. (ii) 431·6 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	1308	1868	1713	1451	1443	1995	1630
N_1	2347	1913	2097	1979	1983	2396	2119
N_2	2097	1287	1836	2106	1819	1295	1740
Mean	1918	1690	1882	1845	1749	1895	1830
K_0	2077	1852	1607				
K_1	1635	1750	1860				
K_2	2040	1467	2179				

Crop :- Paddy (*Kharif*). **Ref :- U.P. 62(325); 63(362).**

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

Object :—To study the effect of N, P and K fertilizers singly and in combination at different doses on the yield of Paddy.

1. BASAL CONDITIONS :

(i) (a) to (c) Nil. (ii) Light loam. (iii) 2nd 3rd week of August. (iv) (a) 4 to 5 ploughings or harrowings (b) Transplanting. (c) — (d) 23cm.×15cm. (e) 2. (v) Nil. (vi) T. 100. (vii) Irrigated. (viii) One to two weedings by *Khurpi*. (ix) 55·6cm.; 54·7cm. (x) Ist to 3rd week of December.

2. TREATMENTS :

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

(1) 3 levels of N as A/S :-N_0=0, N_1=44·8 and N_2=89·6 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.

3. DESIGN :

(i) 3^3 confd. (ii) 9 plots/block, 3 block/replication. (b) N.A. (iii) One. (iv) (a) 18·44m.×5·42m. (b) 17·22m.×5·03m. (v) 61cm.×23cm. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Nil. (iii) Tiller count, height/penicle length and yield of grain. (iv) (a) 1962-63[modified in 1962] (b) No. (c) Results of combined analysis have been presented under 5. Results. (v) Meerut, Varanasi Nawabganj. (vi) Nil. (vii) Error variances are homogeneous and Treatments×years interaction is absent.

5. RESULTS :

pooled results.

(i) 1159 Kg/ha. (ii) 537·5 Kg/ha. [based on 30 d.f. made up of pooled error and Treatment× Years interaction] (iii) Main effect of N alone 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	905	899	750	857	846	851	851
N_1	1638	1015	1197	1219	1108	1523	1283
N_2	1539	1387	1099	1257	1336	1433	1342
Mean	1361	1100	1015	1111	1097	1269	1159
K_0	1407	1080	845				
K_1	1258	1127	905				
K_2	1417	1094	1295				

C.D. for N marginal means=365·9 Kg/ha.

Individual Results

Treatment	N_0	N_1	N_2	Sig.	P_0	P_1	P_2	Sig.	K_0	K_1	K_2	Sig.	G.M.	S.E./ plot.
Years														
1962	539	1275	1488	*	1537	1039	726	N.S.	1030	891	1381	N.S.	1101	576·5
1963	1164	1292	1196	N.S.	1185	1162	1305	N.S.	1192	1303	1157	N.S.	1217	326·4
Pooled	851	1283	1342	*	1361	1100	1015	N.S.	1111	1100	1015	N.S.	1159	537·5

Crop :- Paddy (*Kharif*). **Ref :- U.P. 64(393).**

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

Object :—To study the effect of N, P and K fertilizers singly and in combination at different doses on the yield of Paddy

1. BASAL CONDITIONS

(i) (a) to (c) Nil. (ii) Light loam (iii) 2nd and 3rd week of Aug., 64. (iv) (a) 4 to 5 ploughings. (b) Transplanting. (c) — (d) 23cm.×15cm. (e) 2. (v) Nil. (vi) T-21 and Ch-4. (vii) Irrigated. (viii) 1 to 2 weedings by *Khurpi*. (ix) 45·8cm. (x) Ist to 3rd week of Dec., 64.

2. TREATMENTS:

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

(1) 3 levels of N as A/S : N_0=0, N_1=44·8 and N_2=89·6 Kg/ha.

(2) 3 levels of P_2O_5 as Super : P_0=0, P_1=22.4 and N_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.

3. DESIGN :

(i) 3^3 confd. (ii) (a) 9 plots/block, 3 blocks/replication. (b) N.A. (iii) 2. (iv) (a) 12.75 m.×3·0m. (b) 11·55m×2·53m. (v) 60cm.×23cm. (vi) Yes.

4. GENERAL

(i) Good. (ii) Nil. (iii) Yield of grain. (iv) (a) 1964-only. (b) No. (c) Nil. (v) Meerut, Varanasi and Nawabganj. (vi) Nil. (vii) Separate experiment were conducted for T21 and Ch-4. Varieties.

5. RESULTS:

Results for T-21 variety

(i) 575 Kg/ha. (ii) 221·0 Kg/ha. (iii) Main effect of N alone is highly significant. (iv) Av. yield of grain in Kg/ha.

	P_0	P_1	P_2	K_0	K_1	K_2	Mean
N_0	485	388	448	530	379	411	440
N_1	490	607	546	604	395	644	548
N_2	633	705	870	767	677	764	736
Mean	536	567	621	634	484	606	575
K_0	770	553	579				
K_1	376	446	628				
K_2	462	701	656				

C.D. for N marginal means=152·1 Kg/ha.

Results for Ch-4 variety

(i) 405 Kg/ha. (ii) 198·5 Kg/ha. (iii) Main effect of N alone is highly significant. (iv) Av. yield of grain in Kg/ha.

	P_0	P_1	P_2	K_0	K_1	K_2	Mean
N_0	228	359	256	332	248	263	281
N_1	375	322	373	383	367	319	356
N_2	537	646	547	592	538	601	577
Mean	380	442	392	436	384	394	405
K_0	368	481	458				
K_1	439	377	337				
K_2	333	469	381				

C.D. for N marginal means=136·6 Kg/ha.

Crop :- Paddy (*Kharif*). **Ref :- U.P. 64(392).**

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

Object :—To study the suitable method of applying Urea on the yield of Paddy.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Light loam. (iii) 11.8.64. (iv) (a) 2 ploughings or harrowings. (b) Transplanting. (c) — (d) 23cm.×15cm. (e) 2 to 3. (v) Nil. (vi) T-9. (vii) Irrigated. (viii) One hoeings and weeding. (ix) 44·6cm. (x) 21/31.10.64.

2. TREATMENTS :

5 manurial treatments :—T_0=Control (No manure), T_1=30 Kg/ha. of N as A/S applied in soil at transplanting. T_2=30 Kg/ha. of N as Urea applied in soil at transplanting. T_3=15 Kg/ha. of N as Urea applied as Foliar spray of 2% solution. T_4=30 Kg/ha. of N as Urea applied as foliar spray of 2% solution.

N.B. Foliar spray was given at peak vegetative stage i.e. 4 to 6. weeks after transplanting.

3. DESIGN :

(i) R.B.D. (ii) (a) 5. (b) N.A. (iii) 4. (iv) (a) 3·00m ×3·00m. (b) 2·54m.×2·70 m. (v) 23cm.×15cm. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Nil. (iii) Yield of grain. (iv) (a) 1964-only. (b) and (c) Nil. (v) No. (vi) and (vii) Nil.

5. RESULTS.

(i) 2060 Kg/ha. (ii) 306·6 Kg/ha. (iii) Treatment differences are not significant. (iv) Av. yield ofgrain in Kg/ha.

Treatment	T_0	T_1	T_2	T_3	T_4
Av. yield	2096	1823	2096	2296	1987

Crop :- Paddy (*Kharif*). **Ref :- U.P. 60(242).**

Site :- Govt. Reg. Agri. Res. Stn., Meerut. **Type :- 'M'.**

Object :—To see the effect of departmental mixture Vs. A/S and Super on the yield of Paddy.

1. BASAL CONDITIONS :

(i) (a) Berssem-Paddy. (b) Berseem for fodder. (c) Nil. (ii) Clayey loam. (iii) 14/15.7.60. (iv) (a) One ploughings by soil turning plough and 2 ploughings by *Desi* plough. (b) Transplanting. (c) — (d) 23cm. × 15cm. (e) 2. (v) Nil. (vi) Ch-4. (vii) Irrigated. (viii) 2 weedings. (ix) 76·9cm. (x) 29.10.60.

2. TREATMENTS:

2 types of manure : T_1=Departmental mixture applied at 336 Kg/ha.; which gives 56 Kg/ha. of N+31·4 Kg/ha. of P_2O_5 and T_2=56 Kg/ha. of N as A/S+31·4 Kg/ha. of P_2O_5 as Super.

1/2 dose of N applied at transplanting and 1/2 dose of N as top dressing on 4.8.60.

T_1 and Super drilled in furrows.

3. DESIGN:

(i) R.B.D. (ii) (a) 2. (b) 11·73m. × 10·67m. (iii) 12. (iv) (a) 5·48m. × 10·66m. (b) 4·57m. × 9·75m. (v) 45cm. × 45cm. (vi) Yes.

4. GENERAL:

(i) Good. (ii) Gundhy bug; 5% B.H.C. dusted of 28 Kg/ha. (iii) Tillercount, yield of grain and straw. (iv) (a) 1959-60. (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS

(i) 3021 Kg/ha. (ii) 154·3 Kg/ha. (iii) Treatment differences is not significant. (iv) Av. yield of grain in Kg/ha.

Treatment	T_1	T_2
Av. yield	2998	3043

Crop :- Paddy (*Kharif*). **Ref :- U.P. 60(243).**

Site :- Govt. Reg. Agri. Res. Stn., Meerut. **Type :- 'M'.**

Object : – To see the effect of heavy doses of A/S manuring in Paddy.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Gram. (c) Nil. (ii) Clayey loam. (iii) 19.7.60. (iv) (a) One ploughings by soil turning plough and two ploughing bp *Desi* plough. (b) Transplanting. (c) — (d) 23cm. × 15cm. (e) 2. (v) Nil. (vi) T-21 (late). (vii) Irrigated. (viii) 2 weeding. (ix) 57·6cm. (x) 28.10.60.

2. TREATMENTS :

3 doses of N as A/S : N_1=44·8, N_2=67·2 and N_3=89·6 Kg/ha.

1/2 dose applied as broadcast before sowing and 1/2 dose applied as top dressing on 5.8.60.

3. DESIGN:

(i) R.B.D. (ii) (a) 3. (b) 10·97m. × 12·19m. (iii) 8. (iv) (a) 4·26m. × 12·19m. (b) 3·35m. × 11·28m. (v) 45cm. × 45cm. (vi) Yes.

4. GENERAL :

(i) Lodging in 2nd week. of Oct., Good. (ii) For controlling Gundhi bug, 5% B.H.C. dusted at 28 Kg/ha. (iii) Tiller counts, Yield of grain and straw. (iv) (a) 1959-60. (b) Yes. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 2920 Kg/ha. (ii) 133·8 Kg/ha. (iii) Treatment differences are highly significant. (iv) Av. yield of grain in Kg/ha.

Treatment	N_1	N_2	N_3
Av. yield	2695	2944	3121

C.D.=143·5 Kgha.

Crop :- Paddy (*Kharif*). **Ref :- U.P. 65(106).**

Site :- Govt. Reg. Agri. Res. Stn., Meerut. **Type :- 'M'.**

Object :—To find out the suitable dose of compost with and without Super.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Berseem. (c) Nil, (ii) Loam. (iii) 10/11.7.65. (iv) (a) One ploughing by S.T.P.+2 ploughing by *Desi* plough and 2 plackings with *Desi* pata. (b) Transplanting. (c) — (d) 23cm.×15cm. (e) 2 (v) Nil. (vi) T-21. (vii) Irrigated. (viii) 2 weedings. (ix) 56·0cm. (x) 13/14.10.65.

2. TREATMENTS :

4 manurial treatments : T_1=50·2 Q/ha. of ripe compost, T_2=50·2 Q/ha. of ripe re-inforced compost, T_3=T_1+125·5 Kg/ha. of Super and T_4=50·2 Q/ha. of ripe Compost mixed with 125·5 Rg/ha. of Super.

3. DESIGN:

(i) R.B.D. (ii) (a) 4. (b) 12·80m.×29·82m. (iii) 6. (iv) (a) 12·80m.×6·70m. (b) 11·80m.×5·78m. (v) 50cm.×46cm. (vi) Yes.

4. GENERAL :

(i) Satisfactory. (ii) Nil. (iii) No. of tillers/plant, height of plant, length of ear and yield of grain. (iv) (a) 1965-only. (b) and (c) Nil. (v) Amrukh and Nawasganj. (vi) and (vii) Nil.

5. RESULTS :

(i) 3872 Kg/ha. (ii) 410·3 Kg/ha. (iii) Treatment differences are highly significant. (iv) Av. yield of grain in Kg/ha.

Treatment	T_1	T_2	T_3	T_4
Av. yield	3404	3565	4249	4271

C.D.=504·8 Kg/ha.

Crop :- Paddy (*Kharif*). **Ref :- U.P. 61(233), 62(258), 63(274).**

Site :- Govt Reg. Agri. Res. Stn., Meerut. **Type :- 'M'.**

Object :—To study the effect of direct application of P on legumes (Gram and Pea) and its effect on the sueceding Paddy crop under irrigated conditions.

1. BASAL CONDITIONS :

(i) (a) to (c) As per treatments. (ii) Loam. (iii) 27.7.61: 21,22.7.62; 15.7.63. (iv) (a) 4 ploughings by soil turning plough and *Desi* plough. (b) Transplanting. (c) — (d) 23cm.×23cm. and 23cm.×15cm. (e) 2. (v) Nil. (vi) T21. (vii) Irrigated. (viii) Wcedings and hoeings. (ix) 65·5cm.; 48 7cm. 112.6cm. (x) 23.10.61 5,6.11.62; 19,20.10.63.

2. TREATMENTS :

Main-plot treatments:—

All combinations of (1) and (2)+a fallow plot in Rabi (Co)

(1) 2 previous crops : C_1=Gram; C_2=Pea.

(2) levels of P_2O_5 as Super applied to previous crops : P_0=0, P_1=44·8 and P_2=89·6 Kg/ha.

Sub-plot treatments :-

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

½ dose of N as basal at transplanting and ½ as top dressing after 1 month of transplanting.

3. DESIGN :

(i) Split-plot. (ii) 7 main plots/replication and 3 sub-plots/main-plot. (b) 21·95m.×82·3m. for 61; 21.03m. ×82·3m. for others (iii) 3. (iv) (a) 10·97m.×6·71m. for 61; 10 97m.×6·40m. for others. (b) 10·06m.×5·79m. for 61,10·06m.×5·49 m. for other. (v) 45cm.×45cm. (vi) Yes.

4. GENERAL :

(i) Satis factary. (ii) N.A. for 61 & 63 gundi bug; dusting with 5%B.H.C. for 62. (iii) Yield of grain. (iv) (a) 1961-63. (b) Yes, exept for sligt shift due to difference in plot size in 61. (c) Nil. (v) Nawabganj. (vi) Nil. (vii) As the sub-plot error variances are heterogeneous, the results of the individual years have been presented under 5.Results

5. RESULTS :

61(233)

(i) 2765 Kg/ha. (ii) (a) 484·3 Kg/ha. (b) 285·9 Kg/ha. (iii) Only main effect of N is highly significant. (iv) Av. yield of grain in Kg/ha.

C_0N_0=2655; C_0N_1=2907 and C_0N_2=2930 Kg/ha.

	P_0	P_1	P_2	N_0	N_1	N_2	Mean
C_1	2789	2689	2697	2533	2712	2930	2725
C_2	2842	2 88	2820	2568	2770	3012	2783
Mean	2815	2688	2758	2550	2741	2971	2754
N_0	2640	2352	2658				
N_1	2853	2606	2764				
N_2	2953	3106	2853				

C.D. for N marginal means=195·86 Kg/ha.

62(258)

(i) 1277 Kg/ha. (ii) (a) 212·1 Kg/ha. (b) 149·6 Kg/ha. (iii) Only main effect of N is highly significant, and of C_0 vs other main treatments is significant. (iv) Av. yield of grain in Kg/ha.

C_0 N_0=1027, C_0N_1=1142 and C_0N_2=1117 Kg/ha.

	P_0	P_1	P_2	N_0	N_1	N_2	Mean
C_1	1365	1216	1361	1208	1317	1417	1314
C_2	1268	1301	1333	1183	1365	1353	1300
Mean	1316	1258	1347	1195	1341	1385	1307
N_0	1144	1138	1304				
N_1	1311	1344	1368				
N_2	1495	1292	1368				

C.D. for C_0 vs. others=166·4 Kg/ha.

C.D. for N marginal means=102·1 Kg/ha.

63(274)

(i) 1070·7 Kg/ha. (ii) (a) 300·0 Kg/ha. (b) 187·5 Kg/ha. (iii) Main effect of N and N×P interaction are highly significant. (iv) Av. yield of grain in Kg/ha.

C_0 N_0=918, C_0N_1=1154 and C_0N_2=1099 Kg/ha.

	P_0	P_1	P_2	N_0	N_1	N_2	Mean
C_1	1256	1075	1015	904	1226	1216	1115
C_2	1009	1103	982	944	1023	1127	1031
Mean	1132	1089	998	924	1124	1171	1073
N_0	900	878	993				
N_1	1090	1190	1093				
N_2	1407	1199	909				

C.D. for N marginal means=128·0 Kg/ha,

C.D. for N means at the same level of P=221·7 Kg/ha.

C.D. for P means at the same level of N=188·5 Kg/ha.

Crop :- Paddy (*Kharif*). **Ref:- U.P. 60(282), 61(287).**

Site .- Govt. Reg. Agri. Res, Stn., Meerut. **Type :- 'M'.**

Object :—To test the effect of application of phosphate on legumes(Berseem) vs. effect of N to the suceeding Paddy crop under irrigated conditions.

1. BASAL CONDITIONS :

(i) (a) Paddy-Berseem. (b) Berseem. (c) As per treatments. (ii) Silt loam. (iii) 10.7.60; 15 to 18.7.61. (iv) (a) 3 ploughings. (b) Transplantins. (c) — (d) 23cm.×15cm. (e) 2. (v) Nil. (vi) N. 12(medium);. T. 21. (vii) Irrigated. (viii) 2 weedings. (ix) 88·2cm.; 44·0cm. (x) 31.10.60 and 1.11.60 and 17/18.10.61.

2. TREATMENTS :

Main-plot treatments

3 levels of P_2O_5 as Super aPplied to Berseem in previous season+one fallow plot. (F_0)
3 levels of P_2O_5: P_0=0, P_1=44·8 and P_2=89·6 Kg/ha.

Sub-plot treatments :—

3 levels of N as A/S : N_0=0, N_1=16·8 and N_2=33·6 Kg/ha.
½ dose of N applied at transplanting ½ dose of N top dressed in August

3. DESIGN:

(i) Split-plot. (ii) (a) 4 main-plots/replication,3sub-plots/main-plots. (b) 15·54m.×16.15m.;18.29m.×40·23m. (iii) 4. (iv) (a) 4·57m.×10·97m.; 9·14m.×5·49m. (b) 3·66m.×10·06m.; 8·23m.×4·57m. (v) 46cm.×46cm. (vi) Yes.

4. GENERAL:

(i) Good., Lodging in Oct., 60. (ii) Nil. (iii) Yield of grain. (iv) (a) 1960-62 (Data for 62 N.A.) (b) and (c) Nil. (v) and (vi) Nil. (vii) As main-plot error variances are heterogeneous and Treatments×Years einteraction is absent, results of individual years have been presented under 5. Results.

5. RESULTS:

60(282)

(i) 2774 Kg/ha. (ii) (a) 269·88 Kg/ha. (b) 316·50 Kg/ha. (iii) Main effect of N is highly significant. (iv) Av. yield of grain in Kg/ha.

N_0F_0=2450, N_1F_0=2716 and N_2F_0=2929 Kg/ha.

	P_0	P_1	P_2	Mean
N_0	2179	2808	2291	2426
N_1	2677	2782	3109	2856
N_2	3090	3101	3160	3117
Mean	2649	2897	2853	2800

C.D. for N marginal means=266·7Kg/ha.

61(287)

(i) 3314 Kg/ha. (ii) (a) 613·6 Kg/ha. (b) 409·8 Kg/ha. (iii) N×(PVSF) is hlghly significant. (iv) Av.yield of grain in Kg/ha.

N_0F_0=2864, N_1F_0=3149 and N_2F_0=3475 Kg/ha.

	P_0	P_1	P_2	Mean
N_0	3395	3282	2751	3143
N_1	3495	3555	3668	3572
N_2	3488	3455	3189	3377
Mean	3459	3431	3203	3364

C.D. for N×(PVSF)=488·5 Kg/ha.

Crop :- Paddy (*Kharif*). **Ref :- U.P. 60(61).**

Site :- Govt. Reg. Agri. Res. stn., Meerut. **Type :- 'M'**

Object :—To study the comparative efficiency of organic and inorgainc nitrogenous fertilizers with and without P on the yield of Paddy.

1. BASAL CONDITIONS :

(i) (a) Berseem-Paddy. (b) Berseem. (c) Nil. (ii) Sandy loam. (iii) 16 and 17.7.60. (iv) (a) One ploughing. by soil turning plough and 2 ploughings by *Desi* plough. (b) Transplanting. (c) — (d) 23cm. × 23cm. (e) 2. (v) Nil. (vi) Chu(mediuam) (vii) Irrigated. (viii) 2 weedings. (ix) N.A. (x) 16 and 17.10.60.

2. TREATMENTS :

½ dose of A/S applied as broadcast before transplanting and the other ½ dose ofA/S applied as top dressing on 4.8.60. F.Y.M. applied as broadcast before sowing Super. applied through funnel in bands 7·11cm. deep and other Paddy transplanted

Same as in expt No. 60(68) conducted at Hardoi and presented on page No. —12

3. DESIGN :

(i) 4 × 2 Fact.+2 extra treatments in R.B.D. (il) (a) 10. (b) 11·89m. × 71.93m. (iii) 4. (iv) (a) 11·89m. × 6 10m. (b) 10·97m. × 5·18m. (v) 46cm. × 46cm. (vi) Yes.

4. GENERAL :

(i) Good, Lodging was observed on 12.10.60. (ii) Gundhy bug; 5% B.H.C. dusted e 28 Kg/ha. (iii) No. of tiliers, yield of grain etc. (iv) (a) 1960-only. (b) No. (c) Nil. (v) Hardoi (vi) and (vii) Nil.

5. RESULTS :

(i) 2647 Kg/ha (ii) 351·8 Kg/ha. (iii) Main effects of P and S are highly significant. (iv) Av. yield of grain in Kg/ha.

E_1=2406 and E_2=2508 Kg/ha.

	S_0	S_1	S_2	S_3	Mean
P_0	2333	2358	2356	2759	2452
P_1	2992	3159	2336	3261	2937
Mean	2662	2758	2346	3010	2694

C.D. for P marginal means=255·4 Kg/ha.

C.D. for S marginal means= 361·0 Kg/ha.

Crop :- Paddy (*Kharif*). **Ref :- U.P. 61(72), 62(266), 63(277), 64(297).**

Site :- Govt, Reg. Agri. Res. Stn., Meerut. **Type :- 'M'.**

Object :— To study the efficiency of organic and inorganic nitrogenous manures with and without P on the yield of Paddy.

1. BASAL CONDITIONS :

(i) (a) Berseem-Paddy. (b) Berseem. (c) 92·2 Kg/ha. of A/S/N top dressed for 62 and Nil for others. (ii) Berseem. (iii) 31.7 & 1.8.61; 19.7.62; 6-9.7.62; 15/16.7.64. (iv) (a) 1ploughing by B.T.P. and 3-4 ploughings

by *Desi* plough. (b) Transplanting. (c) — (d) 23cm.×23cm. (e) 2. (v) Nil. (vi) Ch-4 for 61 and 62; T-21 for others. (vii) Irrigated. (viii) N.A, for 61; 1weeding for other. (ix) 58·0cm.; 53·5cm.; 112·6cm. 79·0cm. (x) 29.10.61. 31.10.62, 11.10.63; 22.10.64.

2. TREATMENTS:

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

(1) 3 forms of N : F_1=A/S, F_2=F.Y.M. and $F_3=\frac{1}{2}$A/S+$\frac{1}{2}$(F.Y.M.)

(2) 2 levels of N : N_1=28·0 and N_2=56·0 Kg/ha.

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

Extra treatments : E_1=Control, E_2=44·8 Kg/ha. of P_2O_5 as Super.

3. DESIGN :

(i) 3×2×2 Fact. +2extra treatments in R.B.D. (ii) (a) 14. (b) 11·89m.×71.63m. (iii) 4. (iv) (a) 11·89m.×4·27m. (b) 10·97m×3·35m. (v) 46cm.×46cm. (vi) Yes.

4. GENERAL:

(i) Satisfactory. (ii) Mild attack of blast and gundhi bug. (iii) Yield of grain. (iv) (a) 1961-64. (b) Yes. (c) Results of combined analysis havebeen presented. under. (v) N.A. (vi) Heary rains in 64. (vii) Error variances are heterogeneous and Years×(F×N) interaction is absent.

5. RESULTS :

Pooled results

(i) 1684 Kg/ha. (ii) 308·5 Kg/ha. (based on 21 d.f. mode up of N,P,F, N×P and P×F Treatments×Years interaction) (iii) Main effects of P,N and 'extra vs. others' are highly significant. (iv) Av. yield of grain in Kg/ha.

E_1=1374 and E_2=1569 Kg/ha.

	N_1	N_2	F_1	F_2	F_3	Mean
P_0	1453	1648	1623	1530	1499	1551
P_1	1712	2061	2044	1796	1819	1887
Mean	1583	1855	1834	1663	1659	1719

C.D. for N marginal means=182·8 Kg/ha.

C.D. for 'extra vs others'=241·7 Kg/ha.

Individual results :

Treatment	N_1	N_2	Sig.	P_0	P_1	Sig.
Years						
1961	1391	1593	*	1339	1645	**
1962	1122	1302	*	1074	1350	**
1963	1591	1747	*	1645	1693	N.S.
1964	2227	2777	**	2145	2859	**
Pooled	1583	1855	**	1551	1887	**

F_1	F_2	F_3	Sig.	E_1	E_2	Sig.	G.M.	S.E./plot
1724	1376	1376	**	1033	1264	**	1443	321·3
1249	1277	1110	N.S.	1052	1215	N.S.	1201	313·7
1732	1544	1731	N.S.	1617	1576	N.S.	1659	253·4
2630	2456	2420	N.S.	1794	2222	**	2431	479·5
1834	1463	1659	N.S.	1374	1569	**	1684	308·5

61(72)

	N_1	N_2	Mean
F_1	1495	1953	1724
F_2	1325	1427	1376
F_3	1353	1399	1376
Mean	1391	1593	1492

62(266)

	N_1	N_2	Mean
F_1	1110	1388	1249
F_2	1188	1366	1277
F_3	1068	1152	1110
Mean	1122	1302	1212

63(277)

	N_1	N_2	Mean
F_1	1573	1891	1732
F_2	1488	1600	1544
F_3	1712	1750	1731
Mean	1591	1747	1669

64(297)

	N_1	N_2	Mean
F_1	2307	2953	2630
F_2	2140	2772	2456
F_3	2234	2606	2420
Mean	2227	2777	2502

Crop :- Paddy (*Kharif*). **Ref:-U.P. 61(235), 62(263), 63(276).**

Site :- Govt. Reg. Agri. Res. Stn., Meerut. **Type :- 'M'.**

Object :—To study the effect of placement of Super by different methods on the yield of Paddy.

1. BASAL CONDITIONS:

(i) (a) Nil. (b) Berseem. (c) Nil. (ii) Loam. (iii) 3,5.8.61; 24.7.62; 30,31.7.63; 1.8.63. (iv) (a) 1 ploughing by S.T.P. and 3-4 plankings by *Desi* plough. (b) Transplanting. (c) N.A. (d) 23cm.×15cm. (e) 2. (v) 16·8 Kg/ha. of N as A/S as basal dressing for 61.11·2 of F.Y.M. for others. (vi) T-21. (vii) Irrigated. (viii) 1 weeding and 1 hoeing. (ix) 54·7cm.; 48·6cm.; 110·9cm. (x) 2.11.61; 9.11.62; 29.10.63.

2. TREATMENTS ;

All combinations of (1) and (2)+One control.

(1) 2 levels of P_2O_5 as Super: P_1=44·8 and P_2=67·2 Kg/ha.

(2) 2 methods of application of Super: M_1=By pellets and M_2=As broadcast.

3. DESIGN :

(i) 2×2 Fact. and ond control in R.B.D. (ii) (a) 5. (b) 7·31m.×60·25m. for 61; 3·66m.×106·7m. for others. (iii) 4. (iv) (a) 7·31m.×13·84m. for 61; 3·66m.×20·12m. for others. (b) 6·40m.×12·93m. for 61; 2·74m.×19·2m. for others. (v) 46cm.×46cm. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Nil. (iii) Yield of grain. (iv) (a) 1961-63. (b) Yes in 62 and 63 only. (c) Results of combined analysis have been presented under 5. Results. (v) and (vi) Nil. (vii) Error variances are heterogeneous and Treatments × Years interaction is present.

5. RESULTS:

(i) 1996Kg/ha. (ii) 343·4 Kg/ha. (based on 8 d.f. made up of Treatments × Years interaction). (iii) Control Vs. others is highly significant. (iv) Av. yield of grain in Kg/ha.

Control=1665 Kg/ha.

	M_1	M_2	Mean
P_1	2211	1999	2105
P_2	2175	1933	2054
Mean	2193	1965	2079

C.D. for Control Vs. others=255·6 Kg/ha.

Individual results :

Treatment	M_1	M_2	Sig.	P_1	P_2	Sig.	Control	Sig.	G.M.	S.E./plot
Years										
1961	2242	2114	N.S.	2184	2172	N.S.	1456	**	2034	163·8
1962	2060	1770	N.S.	1915	1915	N.S.	1780	N.S	1888	346·8
1963	2278	2014	N.S.	2217	2075	N.S	1761	**	2068	163·4
Pooled	2193	1966	N.S.	2105	2054	N.S	1666	**	1996	243·4

Crop. :- Paddy (*Kharif*). **Ref :- U.P. 62(254), 63(271), 64(293).**

Site :- Govt. Reg. Agri. Res. Stn., Meerut. **Type :-'M.**

Object :—To find out suitable doses of N, P and K fertilizers for Paddy crop.

1. BASAL CONDITIONS:

(i) (a) Paddy-Pea. (b) Berseem for 62 Pea others. (c) Nil. (ii) Loam. (iii) 25/26.7.62; 1/2.8.63; 1/3.8.64. (iv) (a) 2 ploughings by soil turning plough and 2 ploughings by *Desi* plough. (b) Transplanting. (c)—(d) 23cm.×23cm./23cm.×15cm. (e) 2. (v) Nil. (vi) T-21(medium). (vii) Irrigatgd. (viii) 2 weeding and hoeing in 52; N.A. for 63; 1 weeding by Paddy weeder for 64. (ix) 48.6cm.; 109·1cm.; 60·0cm. (x) 7/8.11.62; 30.10.63; 29.10.64.

2. TREATMENTS:

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

(i) 3 levels of N as C.A.N.: $N_0=0$, $N_1=44{\cdot}8$ and $N_2=89{\cdot}6$ Kg/ha.

(2)3 levels of P_2O_5 as Super : $P_0=0$ $P_1=22{\cdot}4$ and $P_2=44{\cdot}8$Kg/ha.

(3) 3 levels of K_2O as Pot Sul. : $K_0=0$ $K_1=22{\cdot}4$ and $K_2=44{\cdot}8$ Kg/ha.

Full dose of P_2O_5 & K_2O and $\frac{1}{2}$N basally dressed at trans planting and $\frac{1}{2}$ N top dressed 4-6 weeks later.

3. DESIGN:

(i) 3^3 confd. (ii) (a) 9 plots/block and 3 blocks/replication. (b) 53·04m.×17·07m. (iii) 2. (iv) (a) 17·07m.×5·49m. (b) 16·15m.×4·57m. (v) 46cm.×46cm. (vi) Ycs.

4. GENERAL :

(i) Satisfactory. (ii) Very mild attack of Blast for 64 and Nil for other years. (iii) No. of tillers and yield of grain. (iv) (a) 1962-64. (b) Yes. (c) Results of combined analysis havebeen presented under 5. Results. (v) Varanasi, Hardoi and Nawabganj. (vi) Heavy rains in 64. (vii) Error variances are homogeneous and Treatments × Years interaction is absent.

5. RESULTS:

Pooled results :

(i) 1248 Kg/ha. (ii) 223·6 Kg/ha. (based on 102 d.f. made up of Pooled error and Treatments × Years interaction) (iii) Main effect of N alone is highly significant. (iv) Av. yield of grain in Kg/ha.

	P_0	P_1	P_2	K_0	K_1	K_2	Mean
N_0	1092	1037	1049	1004	1044	1130	1060
N_1	1221	1300	1320	1283	1336	1222	1280
N_2	1289	1403	1519	1423	1427	1361	1404
Mean	1201	1247	1296	1237	1269	1238	1248
K_0	1246	1151	1313				
K_1	1206	1302	1298				
K_2	1149	1287	1277				

C.D. for N marginal mans=85·4 Kg/ha.

Individual results :

Treatments	N_0	N_1	N_2	Sig.	P_0	P_1	P_2	Sig.	K_0	K_1	K_2	Sig.
Year												
1962	1138	1239	1321	*	1233	1198	1277	N.S.	1265	1238	1195	N.S.
1963	1003	1386	1584	**	1198	1382	1393	N.S.	1313	1353	1307	N.S.
1964	1038	1215	1306	**	1181	1160	1218	N.S.	1132	1216	1211	N.S.
Pooled	1060	1280	1404	**	1201	1247	1296	N.S.	1237	1269	1238	N.S.

G.M.	S.E./plot
1233	199·2
1324	260·6
1186	218·2
1248	223·6

Crop :- Paddy (*Kharif*). **Ref :- U.P. 60(370),**

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

Object :—To findout the most suitable method and economical dose of A/S on Paddy under transplanted conditions.

1. BASAL CONDITIONS:

(i) (a) to (c) N.A. (ii) Light loam. (iii) 30.7.60. (iv) (a) 3 ploughings. (b) Transplanting. (c) — (d) 23cm.×15cm. (e) 2 to 3. (v) Nil. (vi) N-22. (vii) Irrigated. (viii) Interculturing and weeding. (ix) 37·4cm. (x) 8.11.60.

2. TREATMENTS:

All combinations of (1) and (2)+Control (No manure).

(1) 2 levels of N : N_1=33·6 and N_2=67·2 Kg/ha.

(2) 5 methods of application of N: M_1=By pillow system, M_2=By pillet method, M_3=Application at last *Pata*, M_4=By top dressing in two dose followed by top weeder and M_5=Full dose before flowering followed by top weeder.

3. DESIGN :

(i) 2×5 Fact.+One control in R.B.D. (ii) (a) 11. (b) N.A. (iii) 4. (iv) (a) 8·23m.×3·96m. (b) 7·77m.×3·50m. (v) 23cm.×23cm. (vi) Yes.

4. GENERAL

(i) Good. (ii) Nil. (iii) Yield of grain. (iv) (a) 1958-60. (b) Yes. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 2772 Kg/ha. (ii) 545·6 Kg/ha. (iii) Main effect of N is highly significant. and 'Control Vs. others' is significant. (iv) Av. yield of grain in Kg/ha.

Control=2123 Kg/ha.

	M_1	M_2	M_3	M_4	M_5	Mean
N_1	3001	2486	2626	2576	2135	2565
N_2	3459	2972	3080	3226	2809	3109
Mean	3230	2729	2853	2901	2472	2837

C.D. for N marginal means=352·3 Kg/ha.

C.D for 'Control Vs. others'=584·2 Kg/ha.

Crop :- Paddy (*Kharif*). **Ref :- U.P. 60(160).**

Site :- Govt. Reg. Agri. Res. Stn., Nawabgunj. **Type :- 'M'.**

Object : - To compare the efficiency of blood meal with A/S and F.Y.M.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) and (c) N.A. (ii) Clay loam. (iii) 25.7.60. (iv) (a) Nil. (b) Transplanting. (c) — (d) 23cm. × 23cm. (e) 2. (v) Nil. (vi) T—36 (late). (vii) Irrigated. (viii) weeding. (ix) 145cm. (x) 8-9.12.60.

2. TREATMENTS :

4 Sources of N at 56·0 Kg/ha. : S_0=Control, S_1=Blood meal, S_2=A/S and S_3=F.Y.M.

3. DESIGN :

(i) R.B.D. (ii) (a) 4. (b) N.A, (iii) 6. (iv) (a) 4·57m. × 10·97m. (b) 4·11m. × 10·52m. (v) 23cm. × 23cm. (vi) Yes.

4. GENERAL:

(i) Good. (ii) Nil. (iii) Yield of grain. (iv) (a) 1960-only. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 2962 Kg/ha. (ii) 65·3 Kg/ha. (iii) Treatment differences are highly significant. (iv) Av. yield of grain in Kg/ha.

Treatment	S_0	S_1	S_2	S_3
Av. yield	2684	3180	3204	2779

C.D.=80·5 Kg/ha.

Crop :- Paddy (*Kharif*). **Ref :- U.P. 60(186).**

Site :- Govt. Reg. Agri. Res. Stn., Nawabgunj. **Type :- 'M'**

Object :—To find the effect of sowing *Dhaincha* with Paddy and then turning it after 4 to 5 weeks with weeding on the yield of Paddy.

1. BASAL CONDITIONS :

(i) (a) and (b) Nil. (c) N.A. (ii) Clay loam. (iii) 4.7.60. (iv) (a) N.A. (b) In rows behind plough. (c) N.A. (d) Rows 23cm. apart. (e) — (v) Nil. (vi) Paddy : N-22 (early). *Dhaincha* : *Seabaina Aculate*. (vii) Nil. (viii) Turning in of Dhaincha after 4 to 5 weebs of sowing with weeding. (ix) 144·8cm. (x) 8.10.60.

2. TREATMENTS :

6 manurial treatments : T_0 = Paddy alone, T_1 = 2 rows Paddy + One row *Dhaincha* T_2 = 3 rows Paddy + On *Dhasincha* , T_3 = Paddy alone and *Dhaincha* brought from separate dlot of same size, T_4 = Paddy *Dhaincha* row in same line and T_5 = Paddy + *Dhaincha* sown as broadcast.

3. DESIGN:

(i) R.B.D. (ii) (a) 6. (b) N.A. (iii) 4. (iv) (a) and (b) 12·19m. × 4·11m. (v) Nil. (vi) Yes.

4. GENERAL:

(i) Good. (ii) Nil. (iii) Yield of grain. (iv) (a) 1960-only. (b) and (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 961 Kg/ha. (ii) 150·7 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
Av. yield	935	894	820	1091	966	1060

———

Crop :- Paddy (*Kharif*). **Ref:-U.P. 62(149).**

Site :- Govt. Reg. Agri. Res. Stn., Nawabgunj. **Type :- 'M'.**

Object :— To find out the N and P requirement of Paddy grown under un-irrigated conditions.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Clay loam. (iii) 15.7.62. (iv) (a) N.A. (b) Line sowing behind plough. (c) 92 Kg/ha. (d) Rows 23cm. apart. (e) — (v) Nil. (vi) N-22 (early). (vii) Un-irrigated. (viii) Weedings. (ix) 162·9cm. (x) 17.10.62.

2. TREATMENTS -

All combinations of (1) and (2).

(1) 3 levels of N : N_0 = 0, N_1 = 16·8 and N_2 = 33·62 Kg/ha.

(2) 3 levels of P_2O_5 : P_0 = 0, P_1 = 11·2, and P_2 = 22·4 Kg/ha.

3 DESIGN:

(i) Fact, in R.B.D. (ii) (a) 9. (b) N.A. (iii) 3. (iv) (a) and (b) 4·57m. × 10·97m. (v) N.A. (vi) Yes.

4. GENERAL:

(i) Good. (ii) Nil. (iii) Yield of grain. (iv) (a) 1962-only (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 2148 Kg/ha. (ii) 210·1 Kg/ha. (iii) Main effect of N alone is highly significant. (iv) Av. yield of grain in Kg/ha.

	P_0	P_1	P_2	Mean
N_0	2027	1894	1927	1949
N_1	2226	2226	2159	2204
N_2	2359	2425	2093	2292
Mean	2204	2182	2060	2148

C.D. for N marginal means=209·9Kg/ha.

Crop :- Paddy (*Kharif*). **Ref :- U.P. 63(214).**

Site :- Govt. Reg. Agri. Res. Stn., Nawabgunj. **Type :- 'M'.**

Object :—To find out the suitable method of application of P on the yield of Paddy.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) and (c) N.A. (ii) Clay loam. (iii) 12.8.63. (iv) (a) N.A. (b) Transplanting. (c) — (d) 23cm.×15cm. (e) 2 to 3. (v) N.A. (vi) T-9 (late). (vii) Irrigated. (viii) Weeding by Paddy weeder. (ix) 81·7cm. (x) 7/8.12.63.

2. TREATMENTS:

5 methods of application of P_2O_5 as Super at 44·8 Kg/ha. : M_0=Control (No P_2O_5), M_1=Entire quantity broadcasted at transplanting, M_2=Half broadcasted at transplanting and half brondcasted at flowering stage M_3=Half applied as pellets at transplanting and half as pellets at flowering stage, M_4=Half broadcasted at transplanting and half as pellets at flowering stage and M_5=Half pellets at transplanting and half broadcasted at flowering stage.

3. DESIGN :

(i) R.B.D. (ii) (a) 6. (b) N.A. (iii) 4. (iv) (a) and (b) 4·57m.×8·23m. (v) Nil. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Nil. (iii) Yield of grain. (iv) (a) 1963-only. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 1598 Kg/ha. (ii) 127·9 Kg/ha. (iii) Treatment differences are not significant. (iv) Av. yield of grain in Kg/ha.

Treatment	M_0	M_1	M_2	M_3	M_4	M_5
Av. yield	1472	1765	1573	1559	1581	1637

Crop :- Paddy (*Kharif*). **Ref:- U.P. 64(206).**

Site :- Govt. Reg. Agri. Res. Stn., Nawabgunj. **Type :- 'M'.**

Object :—To study the efficiency of improved Vs. *Desi* plough in green manuring *Daincha* and its effect on Paddy crop.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) *Dhaincha*. (c) N.A. (ii) Clay loam. (iii) 16.8.64. (iv) (a) N.A. (b) Transplanting. (c) and (d) N.A. (e) 2. (v) N.A. (vi) T-9. (vii) Nil. (viii) N.A. (ix) 91·3cm. (x) 20.12.64.

2. TREATMENTS :

All combinations of (1) and (2)

(2) 2 levels of G.M. : F_0=No green manure and F_1=Green manure with Dhaincha.

(3) 2 type of field preperation : P_1=With *Desi* plough and P_2=With soil turning plough.

3. DESIGN :

(i) Fact, in R.B.D. (ii) (a) 4. (b) N.A. (iii) 6. (iv) (a) 9·14m.×21·3m. (b) 8·69m.×20·12m. (v) 23cm.×61cm. (vi) Yes.

4. GENERAL :

(l) Good. (ii) Nil. (iii) Yield of grain. (iv) (a) 1964-only. (b) and (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 2087 Kg/ha. (ii) 265·4 Kg/ha. (iii) None of the effects is significant. (iv) Av. yield of grain in Kg/ha.

	F_0	F_1	Mean
P_1	1988	2019	2004
P_2	2166	2175	2171
Mean	2077	2097	2087

Crop :- Paddy (*Kharif*). **Ref :- U.P. 65(38).**

Site :- Govt. Reg. Agri. Res. Stn. Nawabgunj. Type :- 'M'

Object :—To study the comparative utility of re-infoced compost in crop production against ordinary compost with and with out Super.

1. BASAL CONDITIONS :

(i) (a) Paddy-Wheat. (b) Wheat. (c) 44·8 Kg/ha. of N+22·4 Kg/ha. of P_2O_5. (ii) Clay loam. (iii) 23.7.65. (iv) (a) Mixing compost in soilby digging,pudding and Pata (b) Transplanting. (c) — (d) 23cm.×15cm. (e) 2. (v) Nil. (vi) T21 (meduim). (vii) Irrigated. (vii) One waeding. (ix) N.A. (x) 28.10.65.

2. TREATMENTS :

4 manurial treatments : T_1=50·2 Q/ha. of ripe compost, T_2=50·2 Q/ha. of ripe re-inforced compost applied before sowing. and mixed in soil, T_3=50·2 Q/ha. of ripe compost+1·25 Q/ha. of Super applied separately in usual way and T_4=50·2 Q/ha. of ripe compost+1·25 Q/ha. of Super mixed together and then applied in soil.

3. DESIGN :

(i) R.B.D. (ii) (a) 4. (b) N.A. (iii) 6. (iv) (a) 7·62m×5·49m. (b) 6·71m.×5·03m. (v) 46cm×23cm. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Nil. (iii) Yield of grain. (iv) (a) 1965-only. (b) —. (c) —. (v) to (vii) Nil.

5. RESULTS :

(i) 1779 Kg/ha. (ii) 200·1 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 :	1828	1804	1729	1754

Crop :- Paddy (*Kharif*). **Ref :- U.P. 60(67),**

Site :- Govt. Reg. Agri. Res. Stn., Nawabgunj. **Type :- 'M'.**

Object :—To study the comparative efficiency of organic and inorganic nitrogenous fertilizers with and with out Super on the yield of Paddy.

1. BASAL CONDITIONS:

(i) (a) Nil. (b) *Masoor*. (ii) Clay loam. (iii) 29/30.7.60. (iv) (a) N.A. (b) Transplanting. (c) N.A. (d) 23cm×15cm. (e) 2. (v) N.A. (vi) T9.(late) (vii) to (ix) N.A. (x) 11.12.60.

2. TREATMENTS:

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

(1) 2 levels of P_2O_5 as S.S. per : P_0=0 and P_1=44·8 Kg/ha.

(2) 4 sources of N : S_0=Control, S_1=22·4 Kg/ha. of N as A/S, S_2=22·4 Kg/ha. of N as F.Y.M. and S_3=S_1+S_2.

Extra treatments : E_1=44·8 Kg/ha. of N as A/S and E_2=44·8 Kg/ha. of N as F.Y.M.
Topdressing on 30.8.60 others details N.A.

3. DESIGN :

(i) 2×4 Fact+2extra treatments in R.B.D. (ii) (a) 10. (b) N.A (iii) 4. (iv) 10·97m.×4·57m. (b) 10·06m.×4·11m. (v) 46cm.×23cm. (vi) Yes.

4. GENERAL :

(i) N.A. (ii) *Helminthad sporium oryzae* observed on 15.11.60 verye mild attack of Paddy stem-borer. (iii Yield of grain, No. of tillers plant, Ht of plant, No. of ears/plant, langth of main ear and No. of grain per ear. (iv) (a) 1959-60. (b) N.A. (c) Nil. (v) Varanasi. (vi) and (vii) Nil.

5. RESULTS:

(i) 1945. Kg/ha. (ii) 305·5 Kg/ha (iii) Main effects of S and P are highly significant. (iv) Av. yield of grain in Kg/ha.

E_1=1839 and E_2=1842 Kg/ha.

	S_0	S_1	S_2	S_3	Mean
P_0	1589	1782	1744	1832	1737
P_1	1863	2307	2073	2577	2205
Mean	1726	2044	1908	2204	1971

C.D. for S marginal means=314·5 Kg/ha.

C.D. for P marginal means=222·4 Kg/ha.

Crop - Paddy (*Kharif*). **Ref:-U.P. 61(74), 62(143), 63(226), 64(238), 65(30)**

Site :- Govt. Reg. Agri. Res, Stn., Nawabgunj. **Type :- 'M'.**

Object:—To test the comparative efficiency of organic and inorganic nitrogenous fertilizers with and without Super on the yield of Paddy.

1. BASAL CONDITIONS :

(i) (a) N.A. for 61 ; Paddy-Bereem for others. (b) N.A. for 61 and 62; Berseem for others. (c) N.A. (ii) Clay loam. (iii) 19/20.7.61; 26/27.7.6227/28.7.63; 31.7.64; 4/5.8.65. (iv) (a) N.A. (b) Transplanting. (c) — (d) 23cm. × 15cm. (e) 2 to 3. (v) Nil. (vi) T.9(late). (vii) Irrigated. (viii) N.A. for 61 ; weeding by Paddy weeder for others (ix) N.A.; 162·1cm.; 81·7cm.; 91·3cm. N.A. (x) N.A. 1.12.62;63; 15.12.63; 15/16.12.64. 4.12 65.

2. TREATMENTS :

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

(1) 3 forms of N : F_1=A/S; F_2=F.Y.M and F_3=½ as A/S +½ as F.Y.M.

(2) 2 levels of N : N_1=28·0 and N_2=56·0 Kg/ha. of N.

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

Extra treatments: E_0=Control and E_1=44·8 Kg/ha. of P_2O_5 as Super.
C/A/N applied in place of A/S for 63 to 65.

3. DESIGN :

(i) Fact in R,B,D. (ii) (a) 14, (b) 12·19m×69·49m, for 61; N.A. for others. (iii) 4. (iv) (a) 12·19m×4·11m (b) 12·19m.×4·11·m. for 61; 11·28m.×3·66cm. for others (v) Nil for 61; 46cm.×23cm. for others. (vi) Yes.

4. GENERAL:

(i) Good. (ii) Nil. (iii) Yield of grain. (iv) (a) 1961-65. (b) Yes. (c) Nil. (v) and (vi) N.A. (vii) As error variances are heterogeneous and interactions of (N×F) and (F×P) with years absent the results of the individual years have been presented under 5. Results.

5. RESULTS:

61(74)

(i) 1736 Kg/ha. (ii) 197·3 Kg/ha. (iii) None of the effects is significant. (iv) Av. yield of grain in Kg/ha.

E_0=1615 and E_1=1684 Kg/ha.

	N_1	N_2	F_1	F_2	F_3	Mean
P_0	1635	1761	1739	1714	1640	1698
P_1	1782	1824	1822	1842	1746	1803
Mean	1709	1792	1780	1778	1693	1750
F_1	1802	1759				
F_2	1732	1824				
F_3	1592	1794				

62(143)

(i) 1850 Kg/ha. (ii) 225·3 Kg/ha. (iii) Main effect of N, interaction P×N and extra VS. othes are highly significant. (iv) yield of grain in Kg/ha.

E_0=1339 and E_1=1670Kg/ha.

	N_1	N_2	F_1	E_2	F_3	Mean
P_0	1803	1893	1824	1766	1935	1848
P_1	1726	2210	9124	1971	2009	1968
Mean	1765	2051	1814	1869	1981	1908
F_1	1672	2077				
F_2	1800	1937				
F_3	1822	2140				

C.D. for N marginal means=131·6 Kg/ha.

C.D. for body of P×N table=116·1 Kg/ha.

C.D. for extra treatments means=3·23 Kg/ha.

C.D. for 'Extra vs. others=237·2 Kg/ha.

63(226)

(i) 1270 Kg/ha. (ii) 237·1 Kg/ha. (iii) Main effect of N is significant. and 'Extravs. others' is highly significant. (iv) Av. yield of grain in Kg/ha.

E_0=888 and E_1=1051 Kg/ha.

	N_1	N_2	F_1	F_2	F_3	Mean
P_0	1236	1293	1283	1261	1250	1265
P_1	1261	1488	1573	1212	1333	1375
Mean	1249	1391	1428	1241	1291	1320
F_0	1341	1515				
F_1	1186	1295				
F_2	1219	1364				

C.D. for N marginal means=138·5 Kg/ha

C.D. for 'extra vs others'=249·76Kg/ha.

64(238)

(i) 2262 Kg/ha. (ii) 231·2 Kg/ha. (iii) Only effect of Extra vs. others is significant. (iv) Av. yield of grain in Kg/ha.

E_0=1979 and E_1=2196 Kg/ha.

	N_1	N_2	F_1	F_2	F_4	Mean
P_0	2248	2225	2216	2265	2345	2285
P_1	2327	2286	2309	2279	2304	2297
Mean	2286	2295	2262	2287	2324	2291
F_1	2281	2244				
F_2	2271	2304				
F_3	2307	2341				

C.D. for 'Extra vs. others' =243·4= Kg/ha.

65(30)

(i) 1638 Kg/ha. (ii) 365·0 Kg/ha. (iii) Main effect of P and Extra vs. others are significant. (iv) Av. yield of grain in Kg/ha.

E_0=1278 and E_1=1507 Kg/ha.

	N_1	N_2	F_1	F_2	F_3	Mean
P_0	1454	1671	1449	1657	1582	1563
P_1	1734	1856	1703	1921	1761	1795
Mean	1594	1763	1576	1789	1672	1679
F_1	1562	1590				
F_2	1618	1960				
F_3	1602	1741				

C.D. for P marginal means=213·1 Kg/ha.

C.D. for Extra vs other=384·3 Kg/ha.

Crop :- Paddy (*Kharif*). **Ref :- U.P. 60(158), 61(162), 62(146).**

Site :- Govt. Reg. Agri. Res. Stn., Nawabgunj. **Type :- 'M'.**

Object: —To study the residual effect of phosphate manuring of previous legumenou s crops vs effect of N on Paddy.

1. BASAL CONDITIONS :

(i) (a) Nil (b) to (c) As per treatments. (ii) Clay loam. (iii) 13/14.7.60;14/15.7.61; 16/17.7.62. (iv) (a) 4 ploughings followed by puddling. (b) Transplanting. (c) — (d) 23cm. × 15cm. (e) 2 to 3 (v) Nil. (vi) T.21. (vii) Irrigated. (viii) Weedings. (ix) 144·8cm.; 161·3cms.; 161·9cm. (x) 10/11.10.61; 20.10.61; 20/21.10.62.

2. TREATMENTS :

Main-plot treatments

All combinations of (1) and (2)+One fallow plot in Rabi(Co).

(1) 2 previous crops : L_1=Gram; and L_2=Pea.

(2) levels of P_2O_5 as Super applied to the previous crops ; P_1=0, P_1=44·8 and P_2=89·7 Kg/ha.

Sub-plot treatments :

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

½ N applied as basal and ½ N top dressed.

3. DESIGN :

(i) Split-plot. (ii) (a) 7 Main-plots/rep. and 3 sub-plots/main-plot (b) N.A. (iii) 3. (iv) (a) and (b) 7·32m. × 9·14m. (v) Nil. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Nil. (iii) Yield of grain. (iv) (a) 1960-62. (b) Yes. (c) Nil. (v) Meerut. (vi) Nil. (vi) As the main-plot error variances are heterogeneous and Treatment × Years interaction is absent, results of individual years havebeen presented under 5. Results.

5. RESULTS :

60(158)

(i) 2707 Kg/ha. (ii) (a) 327·7 Kg/ha. (b) 289·6 Kg/ha. (iii) Main effect of N alone is highly significant. (iv) Av. yield of grain in Kg/ha.

C_0N_0=2226 C_0N_1=2432 and C_0N_2=2848 Kg/ha.

	N_0	N_1	N_2	P_0	P_1	P_2	Mean
L_1	2621	2830	2895	2856	2847	2643	2782
L_2	2479	2774	2847	2652	2745	2703	2700
Mean	2550	2802	2871	2754	2796	2673	2741
P_0	2462	2820	2980				
P_1	2739	2753	2896				
P_2	2449	2833	2737				

C.D. for N marginal means=197·6 Kgiha.

61(162)

(i) 2373 Kg/ha. (ii) (a) 576·9 Kg/ha. (b) 274·7 Kg/ha. (iii) Main effect of N alone is highly significant. (iv) Av. yield of grain in Kg/ha.

C_0N_1=2153, C_0N_1=2581 and C_0N_2=2711 Kg/ha.

	N_0	N_1	N_2	P_0	P_1	P_2	Mean
L_1	2165	2271	2608	2315	2486	2243	2348
L_2	2141	2349	2596	2449	2362	2275	2362
Mean	2153	2310	2602	2382	2424	2259	2355
P_0	2128	2372	2646				
P_1	2363	2360	2549				
P_2	1968	2198	2611				

C.D. for marginal means=187·6 Kg/ha.

62(146)

(i) 2402 Kg/ha. (ii) (a) 285·0 Kg/ha. (b) 255·4 Kg/ha. (iii) Main effect of N alone is highly significant. (iv) Av. yield of grain in Kg/ha.

C_0N_0=2014, C_0N_1=2238 and C_0N_2=2547 Kg/ha.

	N_0	N_1	N_2	P_0	P_1	P_2	Mean
L_1	2214	2397	2568	2335	2424	2420	2393
L_2	2188	2549	2634	2523	2406	2442	2457
Mean	2201	2473	2601	2429	2415	2431	2425
P_0	2105	2549	2633				
P_1	2289	2376	2580				
P_2	2209	2494	2590				

C.D. for N marginal means=174·3 Kg/ha.

Crop :- Paddy (*Kharif*). **Ref:-U.P. 61(171), 62(151), 63(215).**

Site :- Govt. Reg. Agri. Res. Stn., Nawabgunj. Type:-'M'.

Objeet:—To study the effect of placement of Super on Paddy.

1. BASAL CONDITIONS :

(i) (a) Nil (b) to (c) N.A. (ii) Clay loam. (iii) 4.8.61; 3Aug; 62; 5.8.63. (iv) (a) 4-5 ploughings. (b) Transplanting(c) — (d) 23cm.×15cm. (e) 2 to 3. (v) 2 top dressings eacn (a) 11·2 Kg/ha. of N as A/C andA/S, 92·2Q/ha. of F.Y.M. and 44·8 Kg/ha. of N as C/A/N. (vi) T26 (late) for 61; T9 (late) for others. (vii) Irrigated. (viii) Weedings. (ix) 164cm.; 162cm.; 81·7cm. (x) 14.12.61; 3.12.62; 9.12.63.

2. TREATMENTS :

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

(1) 2 levels of P_2O_5 as Super : P_1=44·8 and P_2=66·2 Kg/ha.

(2) 2Methods of application of P_2O_5 : M_1=As pelletes after transplanting, and M_2=Broadcasted at the time of transplanting.

3. DESIGN:

(i) 2×2 Fact. +One extra. treatment in R.B.D. (ii) (a) 5. (b) N.A. (iii) 4. (iv) (a) 18·29m.×5·49m. for 61, 5·03m×12·19m. for others. (b) 18·29m.×5·49m. for 61, 4·57m.×11·28m. for others. (v) Nil for 61; 23cm.×46cm. for others. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Nil. (iii) Yield of grain. (iv) (a) 1961-63. (b) Yes for 62 and 63. (c) Results of combined analysis have been presented under 5. Results. (v) and (vi) N.A. (vii) Error varinnces are homogeneous and Treatments×Years interaction is absent.

5. RESULTS

Pooled results. -

(i) 2194 Kg/ha. (ii) 253·8 Kg/ha (based on 44 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.

Control=2092

	M_1	M_2	Mean
P_1	2187	2120	2153
P_2	2304	2264	2284
Mean	2245	2192	2219

Individual results

Treatment	R_1	R_2	Sig.	S_1	S_2	Sig.	Control	Sig.	G.M.	S.E./plot.
Year										
1961	2220	2282	N.S.	2356	2146	*	2083	N.S.	2217	163·7
1962	2486	2740	N.S.	2700	2525	N.S.	2352	N.S.	2561	268·3
1963	1755	1831	N.S.	1680	1905	N.S.	1842	N.S.	1803	263·1
Pooled	2153	2284	N.S.	2245	2192	N.S.	2092	N.S.	2194	253·8

Crop :- Paddy (*Kharif*). **Ref : U.P. 62(148), 63(207), 64(216).**

Site :- Govt. Reg. Agri. Res. Stn., Nawabgunj. Type :- 'M'.

Object :—To determine the factors for maximizing production of wheat and Paddy crops.

1. BASAL CONDITIONS :

(i) (a) Paddy-Wheat. (b) Wheat. (c) As per treatments. (ii) Clay loam. (iii) 19.7.62: 22/23.6.63. 2/3.7.64 (iv) (a) N.A. (b) Transplanting. (c) N.A. (d) 23cm.×15cm. (e) 2 to 3. (v) Nil. (vi) N22(early). (vii) Irrigated. (viii) N.A. for 62; weeding by *khurpi* for others. (ix) 162cm.; 81·7cm.; 91·3cm. (x) Oct.62; 14 to 17.9.63; N.A.

2. TREATMENTS :

3levels of manuring : M_0=No manuri, M_2=22·4 Kg/ha. of N+22·4 Kg/ha. of P_2O_5+22 4 Kg/ha. of K_2O+ 46·11 Q/ha. of F.Y.M,+residual effect of the same amoun of fertilizers and F.Y.M. applied to previovs wheat crop and M_2=44·8 Kg/ha. of N+44·8 Kg/ha. of P_2O_5+ 44·8 Kg/ha. of K_2O+92·22 Q/ha. of F.Y.M.+Residual effect of the same amout of fertilizers and F,Y.M. applied to prevous wheat crop.

Note : Each of above treatments tried on 3 plots corresponding to the 3 irrigational treatments to be applied to the succeeding wheat crop during Rabi

3. DESIGN :

(i) R.B.D. (ii) (a) 9. (b) N.A. (iii) 2. (iv) (a) and (b) (15·54m.+6·40m)× 3 (v) Nil. (vi) Yes.

4. GENERAL:

(i) Good. (ii) Nil. (iii) Yield of grain. (iv) (a) 1962-64. (b) Yes. (c) Results of combined analysis have been presented under 5. Results. (v) and (vi) Nil. (vii) Error variances are heterogenous and Treatments ×Years interaction is present.

5. RESULTS :

C.D.=231·9 Kg/ha.

(i) 1272 Kg/ha. (ii) 311·0 Kg/ha. (based on 4 d.f. made up of Treatments×Years interaction) (iii) Taeatment differences are not signincant. (iv) Av. yield of grain in Kg/ha.

Treatment	M_0	M_1	M_2
Av. yield	1085	1217	1513

Individual results :

Treatment	M_0	M_1	M_2	Sig.	G.M.	S.E./plot
Year 1962–	1329	1685	2064	N.S.	1693	231·8
1963	1099	940	1031	N.S.	1023	108·6
1964	826	1025	1445	**	1099	87·8
Pooled	1085	1217	1513	N.S.	1272	311·0

Crop :- Paddy (*Kharif*). **Ref :- U.P. 62(139), 63(224) 64(234), 65(29).**

Site :- Govt. Reg. Agri. Res. Stn., Nawabgunj. **Type :- 'M'**

Object :— To find out the suitable combinations of N, P and K for Paddy crop.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Maize; N.A.; Oatsfor 64&65 (c) N.A. (ii) Clay loam. (iii) 9-10.8.62;7-9.8.63; 19.8.64;23/24.8.65. (iv) (a) 4 ploughings, one by soil turing and 3 by *Desi* plough, puddling and pata. (b) Transplanting. (c) — (d) 23em. ×15cm (e) 2to 3. (v) Nil. (vi) T9(late). (vii) Irrigated. (viii) Weedings a: d hoeings. (ix) 162·1cm.; 81·69cm.; 91·34cm. N.A. (x) 10/11.12.62; 5.12.63; Dec., 64; 3/4.12.65.

2. TREATMENTS :

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

(1) 3 levels of N as A/S. $N_0=0$, $N_1=44{\cdot}8$ and $N_2=89{\cdot}6$ Kg/ha.

(2) 3 levels of P_2O_5 as Super : $P_0=0$, $P_1=22{\cdot}4$ and $P_2=44{\cdot}8$ Kg/ha.

(3) 3 levels of K_2O as Mur. Pot. : $K_0=0$, $K_1=22{\cdot}4$ and $K_2=44{\cdot}8$ Kg/ha.

½ dose of N at transplanting. and dose top dressed, ½ P_2O_5 and K_2O applied at transplanting.

3. DESIGN :

(i) 3^3 confd. (ii) (a) 9 plots/block, 3 blocks/replication. (b) N.A. (iii) 2, (iv) (a) 7·31m. × 10·69m. (b) 6·86m.X9·76m. (v) 23cm. ×46cm. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Nil. (iii) Yield of grain. (iv) (a) 1962-65. (b) Yes. (c) Nil. (v) N.A. (vi) Nil. (vii) As the error variances are heterogeneous and Treatments × Years interaction is absent, the results of individual years have been presented under 5. Results.

5. RESULTS :

62(139)

(i) 2770 Kg/ha. (ii) 503·7 Kg/ha. (iii) Main effect of N is highly significant. (iv) Av.yield of grain in Kg/ha.

	P_0	P_1	P_2	K_0	K_1	K_2	Mean
N_0	2257	2302	2355	2305	2257	2352	2305
N_1	2890	2803	2546	2579	2758	2903	2747
N_2	3219	3369	3189	3147	3386	3244	3259
Mean	2789	2825	2697	3677	2801	2833	2770
K_0	2855	2878	2297				
K_1	2698	2696	3007				
K_2	2813	2900	2786				

C.D. for N marginal means = 348·2 Kg/ha.

63(224)

(i) 1324 Kg/ha. (ii) 305·4 Kg/ha. (iii) Main effect of N is highly significant. (iv) Av. yield of grain in Kg/ha.

	P_0	P_1	P_2	K_0	K_1	K_2	Mean
N_0	1142	962	1255	1142	1224	998	1121
N_1	1104	1512	1238	1298	1203	1354	1285
N_2	1459	1434	1806	1625	1493	1518	1566
Mean	1235	1304	1433	1355	1307	1311	1324
K_0	1334	1338	1393				
K_1	1363	1073	1249				
K_2	1008	1267	1657				

C.D. for N marginal means=211·1 Kg/ha.

64(234)

(i) 1661 Kg/ha. (ii) 247·9 Kg/ha. (iii) InteractionNXK is highly significant. (iv) Av. yield of grain in Kg/ha.

	P_0	P_1	P_2	K_0	K_1	K_2	Mean
N_0	1437	1771	1733	1565	1766	1601	1647
N_1	1589	1661	1768	1505	1530	1527	1673
N_2	1757	1654	1575	1679	1684	1824	1662
Mean	1594	1695	1692	1668	1663	1651	1661
K_0	1616	1717	1617				
K_1	1267	1500	1763				
K_2	1440	1816	1695				

C.D. for the body of N × K table=296·8 Kg/ha.

65(28)

(i) 1043 Kg/ha. (ii) 190·1 Kg/ha. (iii) Mani effect of N is highly significant. (iv) Av. yield of grain in Kg/ha.

	P_0	P_1	P_2	K_0	K_1	K_2	Mean
N_0	828	941	930	841	948	810	866
N_1	957	1056	1107	1140	1045	936	1040
N_2	1193	1248	1222	1214	1220	1229	1221
Mean	993	1042	1053	1065	1071	992	1043
K_0	971	1077	1146				
K_1	1078	1215	920				
K_2	929	952	1093				

C.D. for N marginal means=113·4 Kg/ha.

Crop :- Paddy (*Kharif*). **Ref :- U.P. 63(213), 64(227).**

Site :- Govt. Reg. Agri. Res. Stn., Nawabgunj. **Type :- 'M'.**

Object :— To compare the effect of different forms of N.

1. BASAL CONDITIONS:

(i) (a) to (c) N.A. (ii) Clay loam. (iii) 5.7.63; 5.8.64. (iv) (a) N.A. (b) Transplanting. (c) and (d) 23cm. × 15cm. (e) 2 to 3. (v) 28 Kg/ha. of P_2O_5 as Super. (vi) T-21 (medium). (vii) Irrigated. (viii) Weeding by Paddy weeder for 63 and Nil for 64. (ix) 81·7cm. × 91·3cm. (x) 12.10.63; 24.10.64.

2. TREATMENTS

½ N at sowing and ½ Ntop dressed.

6 sources of N at 56 Kg/ha.: T_0 = Nil, T_1 = A/S, T_2 = A/S/N, T_3 = A/C, T_4 = Urea and T_5 = A/C/N.

3. DESIGN:

(i) R.B.D. (ii) (a) 6. (b) N.A. (iii) 4. (iv) (a) 9·45m. × 4·11m.; 10·67m. × 3·66m. (b) 8·53m. × 3·66m.; 10·67m. × 3·20m. (v) 46cm × 23cm.; 23cm. on either side along leugth. (vi) Yes.

4. GENERAL:

(i) Good. (ii) Nil. (iii) Yield of grain. (iv) (a) 1963-64. (b) and (c) Nil. (v) and (vi) Nil. (vii) As error variances are heterogeneous and Treatments × Years interaction is absent, the results of the individual years have been presented under 5. Results.

5. RESULTS :

63(213)

(i) 3214 Kg/ha. (ii) 486·2 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	T_5
Av. yield	2918	2976	3703	3398	3216	3072

64(227)

(i) 2537 Kg/ha. (ii) 194·7 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	T_5
Av. yield	2077	2571	2565	2688	2544	2779

C.D. = 293·2 Kg/ha.

Crop :- Paddy (*Kharif*). **Ref :- U.P. 63(228), 64(241).**

Site :- Govt. Reg. Agri. Res. Stn., Nawabgunj. **Type :- 'M'.**

Object :—To see the effect of different times of application of N on the yield of Paddy.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) N.A., Wheat. (c) N.A.; 44·8 Kg/ha. of N + 22·4 Kg/ha. of P_2O_5. (ii) Clay loam. (iii) N.A. 4.8.64. (iv) (a) N.A. (b) Transplanting. (c) N.A. (d) 23cm. × 15cm. (e) 2. (v) Nil. (vi) N-22 (early). (vii) Irrigated, (viii) Nil. (ix) 81·7cm. × 91·3cm. (x) 19.10.63; 15.11.64.

2. TREATMENTS :

10 manurial treatments : T_1=134·4 Kg/ha. of N at transplanting, T_2=67·2 Kg/ha. of N at transplanting+67·2 Kg/ha. of N two weeks after transplanting, T_3=44·8 Kg/ha. of N at transplanting+89·6 Kg/ha. of N two weeks after transplanting, T_4=44·8 Kg/ha. of N at transplanting+44·8 Kg/ha. of N two weeks after transplanting+44·8 Kg/ha, of N six weeks after transplanting, T_5=67·2 Kg/ha. of N at transplanting+67·2 Kg/ha. of N six weeks after transplanting, T_6=67·2 Kg/ha. of N two weeks after transplanting and 67·2 Kg/ha. of N six weeks after transplanting, T_7=67·2 Kg/ha. of N six weeks after transplanting and 67·2 Kg/ha. of N ten weeks after transplanting, T_8=44·8 Kg/ha. of N two weeks after transplanting+44·8 Kg/ha. of N six week after transplanting and 44 8 Kg/ha. of N ten weeks after transplanting, T_9=89·6 Kg/ha. of N two week after transplanting and 44·8Kg/ha. of N six weeks after transplanting and T_{10}=134·4 Kg/ha. of N two weeks after transplanting.

3. DESIGN:

(i) R.B.D. (ii) (a) 10. (b) N.A. (iii) 3. (iv) (a) and (b) 6·10m.×4·11m. (v) Nil. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Nil. (iii) Yield of grain. (iv) (a) 1963-64. (b) Yes. (c) Results of combined analysis have been presented under 5. Results. (v) and (vi) Nil. (vii) Error variances are homogeneousand Treatments × Years interaction is present.

5. RESULTS :

(i) 2987 Kg/ha. (ii) 787·1 Kg/ha. (based on 9 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	T_4	T_5	T_6	T_7	T_8	T_9	T_{10}
Av. yield	3299	3453	3350	3183	2984	2741	2341	2673	3137	2708

Individual results :

Treatment	T_1	T_2	T_3	T_4	T_5	T_6	T_7	T_8	T_9	T_{10}	Sig.	G.M.	S.E/plot
year 1963	3343	3118	3510	3043	2713	2227	2224	2156	3018	1761	*	2711	392·9
1964	3256	3787	3189	3322	3256	3256	2458	3189	3256	3554	*	3262	321·4
Pooled	3299	3453	3350	3183	2984	2741	2341	2673	3137	2708	N.S.	2987	787·1

Crop :- Paddy (*Kharif*). **Ref :- U.P. 63(219), 64(221), 65(29).**

Site :- Govt. Reg. Agri. Res,. Stn, Nawabgunj. **Type :- 'M'.**

Object :—To select suitable levlies of N and P for medium Paddy.

1. BASAL CONDITIONS :

(a) Nil. (b) N.A.; *Dhaincha*; Wheat. (c) N.A. (ii) Clay loam. (iii) 6.7.73; 4.8.64; 23.7.65. (iv) (a) N.A. for 63 and 64; 2 ploughings, puddlings, and Pata for 65. (b) Transplanting. (c)— (d) 23cm.×15cm. (e) 2 to 3. (v) Nil. (vi) T-21 (medium). (vii) Irrigated. (viii) 2 hoeings and weedings by Paddy weeder and Khurpi (ix) 81·7cm.; 91·3cm.; N.A. (x) 13.10.63; 27.10.64; 28.10.65.

2. **TREATMENTS**

6 manurial treatments :

M_1=11·2 Kg/ha. of N+5·6 Kg/ha. of P_2O_5.

M_2=22·4 Kg/ha. of N+11·2 Kg/ha. of P_2O_5.

M_3=33·6 Kg/ha. of N+16·8 Kg/ha. of P_2O_5.

M_4=44·8 Kg/ha. of N+22·4 Kg/ha. of P_2O_5.

M_5=56·0 Kg/ha. of N+28 Kg/ha. of P_2O_5.

M_6=67·2 Kg/ha. of N+33·6 Kg/ha. of P_2O_5.

3. DESIGN :

(i) R.B.D. (ii) (a) 6. (b) N.A. (iii) 3. (iv) (a) and (b) 12·80m.×2·74m. (v) Nil. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Nil. (iii) Yield of grain. (iv) (a) 1963–65. (b) Yes. (c) Results of combined analysis have been presented under 5. Results. (v) and (vi) Nil. (vii) Error variances are heterogeneous and Treatments×Years interaction is absent.

5. RESULTS:

Pooled results.

(i) 2315 Kg/ha. (ii) 272·8Kg/ha. (based on 40 d.f. made up of pooled error & Treatments×Years interaction). (iii) Treatment differences are significant. (iv) Av. yield of grain in Kg/ha.

Treatment	M_1	M_2	M_3	M_4	M_5	M_6
Av. yield	1982	2266	2309	2366	2492	2473

C.D.=259·9 Kg/ha.

Treatment	M_1	M_2	M_3	M_4	M_5	M_6	Sig.	G. Mean	S. E/plot
year 1963	1447	1569	1605	1704	1671	1908	N.S.	1651	264·8
1964	2317	2856	2665	3069	3053	2949	N.S.	2818	295·3
1965	2183	2373	2658	2325	2753	2563	N.S.	2476	255·5
Pooled	1982	2266	2309	2366	2492	2473	*	2315	272·8

Crop :- Paddy (*Kharif*). **Ref :- U.P. 60(188).**

Site :- Govt. Reg. Agri. Res. Stn., Nawabgunj, (Bareilly). **Type :- 'M'.**

Object :—To see the residual effect of different forms and levels of N applied on different date to wheat on the yield of Paddy.

BASAL CONDITIONS :

(i) (a) Wheat-Paddy. (b) Wheat. (c) As per treatments' (ii) Clay loam. (iii) N.A. (iv) (a) N.A. (b) Transplanting. (c) — (d) 23cm.×23cm. (e) 2. (v) N.A. (vi) T-21. (vii) Nil. (viii) N.A. (ix) 144·8cm. (x) 12.10.60.

2. **TREATMENTS :**

All combinations of (1), (2) and (3)+One control plot in each block.

(1) 3 times of application of N : T_1=At sowing, T_2=At first irrigation.

(2) 3 forms of N : F_1=A/S, F_2=A/S/N and F_3=Urea.

(3) 2 levels of N : N_1=22·4 and N_2=44·8 Kg/ha.

Three treatments were applied to previous wheat crop.

3. DESIGN :

(i) Fact confd. (ii) (a) 7 plots/block, 3 block/replication. (b) N.A. (iii) 4. (iv) (a) 6·86m.×7·31m. (b) 5·64m.×6 86m. (v) 61cm.×23cm. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Nil. (iii) Yield of grain. (iv) (a) 1960-only. (b) and (c) Nil. (v) to (vii) Nil.

5. RESULTS ;

(i) 2244 Kg/ha. (ii) 382·7 Kg/ha. (iii) Main effects of F and 'control vs. others' are signifioant. (iv) Av. yield of grain in Kg/ha.

Control=1980 Kg/ha.

	T_1	T_2	T_3	N_1	N_2	Mean
F_1	2446	2467	2379	2402	2460	2431
F_2	2216	2292	2420	2236	2382	2309
F_3	2056	2168	2147	2188	2059	2124
Mean	2239	2309	2315	2275	2300	2188
N_1	2229	2274	2322			
N_2	2249	2344	2308			

C.D. for F marginal means=220·9 Kg/ha.

C.D. for 'control vs. others'=238·7 Kg/ha.

Crop :- Paddy (*Kharif*). **Ref :- U.P. 63(221), 64(236), 65(36).**

Site :- Govt. Reg. Agri. Res. Stn., Nawabgunj. Type :- 'M'.

Object :—To study the residual effect of organic and inorganic nitrogenous manures with and with out. Super applied to previous wheat crop the succeding Paddy crop.

1. BASAL CONDITIONS :

(i) (a) Wheat-Paddy. (b) Wheat. (c) As per treatments. (ii) Clay loam. (iii) 28/29.6.63; 29/30.6.64; 1/2.7.65. (a)N.A. (b) Transplanting. (c) — (d) 23cm×15cm. (e) 2 to 3. (v) 22·4 Kg/ha. of N top dressed for 63; Nil. for others. (vi) N-22(early). (vii) Unirrigated; N.A.; Irrigated. (viii) Weedings by Paddy weeder and *khurpi*. (ix) 81·7cm.; 91·3cm.; N.A. (x) 21.9.63; 1 to 3.10.64; 2/3.10.65.

2. TREATMENTS :

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

(1) 3 forms of N : F_1=C/A/N; F_2=F.Y.M. and F_3=½ C/A/N+½F.Y.M.

(2) 2 levels of N : N_1=28·0 and N_2=56·0 Kg/ha.

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

E_0=Control (nomanure) and E_1=44·8 Kg/ha. of P_2O_5 as Super.

These treatments were applied to the previous wheat crop.

3. DESIGN :

(i) 3×2×2 Fact +2extra treatments in R.B.D. (ii) (a) 14. (b) N.A. (iii) 4. (iv) (a) 12·19m×4·11m. (b) 11·28m.×3·66m. (v) 46cm.×23cm. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Nil. (iii) Yield of grain. (iv) (a) 1963-65. (b) Yes. (c) Nil. (v) and (vi) N.A. (vii) As error variances are heterogenous and Treatments×Years interaction is absent results of individual years have been presented under 5. Results.

5. RESULTS :

63(221)

(i) 1961 Kg/ha. (ii) 213·6 Kg/ha. (iii) Main effect of N is significant. (iv) Av. yield of grain in Kg/ha. E_0=1918 and E_2=2055 Kg/ha.

	N_1	N_2	F_1	F_2	F_3	Mean
P_0	1823	1975	1760	2046	1891	1899
P_1	1964	2067	2042	2007	1997	2015
Mean	1893	2021	1901	2026	1944	1957
F_1	1850	1953				
F_2	1966	2087				
F_3	1864	2024				

C.D. for N marginal means=124·7 Kg/ha.

64(236)

(i) 2407 Kg/ha. (ii) 670·7 Kg/na. (iii) None of the effects is significant. (iv) Av. yield of grain in Kg/ha.

E_0=2253 and E_1=2374 Kg/ha.

	N_1	N_2	F_1	F_2	F_3	Mean
P_0	2482	2645	2634	2655	2402	2564
P_1	2300	2265	2290	2468	2091	2283
Mean	2391	2456	2462	2562	2246	2423
F_1	2415	2509				
F_2	2548	2575				
F_3	2210	2283				

65(36)

(i) 771 Kg/ha. (ii) 316·8 Kg/ha. (iii) None of the effects is significant. (iv) Av. yield of grain in Kg/ha. E_0=854 and E_1=757 Kg/ha.

	N_1	N_2	F_1	F_2	F_3	Mean
P_0	835	844	777	894	846	839
P_1	736	643	668	837	564	690
Mean	785	743	722	865	705	765
F_1	751	694				
F_2	870	862				
F_3	775	675				

Crop :- Paddy (*Kharif*). **Ref :- UP. 62(138), 63(222), 64(232), 65(27).**

Site:- Govt. Reg. Agri. Res. Stn., Nawabgunj. **Type :- 'M.**

Object :—To study the residual effect of N, P and K applied to previous wheat crop during Rabi on the succeding Paddy crop.

1. BASAL CONDITIONS :

(i) (a) Wheat-Paddy. (b) wheat. (c) As per treatments. (ii) Clay loam. (iii) 7 to 9.7.62; 26 to 28.6.63; 24/25.6.64; 28 to 30.6.65. (iv) (a) Oae ploughing by soil turning plough and two ploughing by theri plough (b) Transplanting. (c) — (d) 23cm.×15cm. (e) 2 to 3. (v) 22·4 Kg/ha. of N topdressed for 62 33·6Kg/ha. of N as C/A/N top dressd fcr others. (vi) N-22. (vii) Irrigated. (viii) 2 weedings by Paddy weeder and Khurpi. (ix) 169cm; 81·69cm., 91·34cm.; N.A. (x) N.A. for 62. 21,22.9.63; 27 to 30.9.64; 2 to 4.10.65.

2. TREATMENTS :

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

(1) 3 levels of N : N_0=0, N_1=44·8 and N_2=89·7 Kg/ha.

(2) 3 lelvels of P_2O_5 : P_0=0, P_1=22·4 and P_2=44·8 Kg/ha.

(3) 3 levels of K_2O : K_0=0, K_1=22·4 and K_2=44·8 Kg/ha.

Treatments were applied to the previous wheat crop.

3. DESIGN :

(i) 3^3 confd. (ii) 9 plots/block; 3 block/replication. (b) N.A. (iii) 2. (iv) (a) 7·31m.×13·72m. for 62 and 65; 10.76m.×731m. for 63 and 64. (b) 6·88m.×12·95m. for 62 and 65; 10·67m.×7·31m. for 63 and 64 22cm.×38cm. for 62 and 65; Nil. for others. (vi) Yes.

4. GENERAL:

(i) Good. (ii) Nil. (iii) Yield of grain. (iv) (a) 1962-65. (b) N.A. (c) Nil. (v) and (vi) Nil. (vii) As the variances are heterogenous and Treatments×Years interaction is absent, the results of the individual years have been presented under 5. Results.

5. RESULTS:

62(138)

(i) 1688 Kg/ha. (ii) 259·7 Kg/ha. (iii) Interacations N×P and N×K are significant. (iv) Av. yield of grain in Kg/ha.

	P_0	P_1	P_2	K_0	K_1	K_2	Mean
N_0	1567	1582	1691	1468	1898	1473	1613
N_1	1482	1952	1755	1663	1984	1542	1730
N_2	1678	1537	1944	1733	1573	1853	1720
Mean	1576	1690	1798	1622	1818	1623	1688
K_0	1699	1571	1595				
K_1	1550	1817	2088				
K_2	1487	1683	1707				

C.D. for body of N×P or N×K tables=311·0 Kg/ha.

63(222)

(i) 1664 Kg/ha. (ii) 225·8 Kg/ha. (iii) Interaction N×P is significant and interactions N×K and PXK are highly signifieant (iv) Av. yield of grain in Kg/ha.

	P_0	P_1	P_2	K_0	K_1	K_2	Mean
N_0	1763	1650	1428	1402	1614	1826	1614
N_1	1667	1685	1678	1701	1790	1538	1677
N_2	1470	1943	1694	1841	1505	1761	1702
Mean	1633	1759	1600	1648	1637	1708	1664
K_0	1437	1749	1759				
K_1	1701	1950	1259				
K_2	1762	1579	1783				

C.D. for body of table=270·4 Kg/ha.

64(232)

(i) 3342 Kg/ha. (ii) 643·5 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	3176	3126	3468	3430	3050	3290	3257
N_1	3019	3453	3429	3426	3306	3169	3300
N_2	3178	3632	3600	3293	3299	3818	3470
Mean	3124	3403	3499	3383	3218	3425	3442
K_0	3161	3567	3422				
K_1	3094	3358	3203				
K_2	3118	3286	3872				

65(127)

(i) 1549 Kg/ha. (ii) 367·3 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	1834	1781	1299	1631	1726	1558	1638
N_1	1465	1458	1517	1388	1585	1467	1480
N_2	1487	1655	1450	1670	1460	1461	1531
Mean	1595	1631	1422	1563	1590	1495	1549
K_0	1579	1707	1402				
K_1	1536	1810	1425				
K_2	1670	1377	1439				

Crop :- Paddy (*Kharif*). **Ref :- U.P. 60(362), 61(372).**

Site :- Fertilizer Res. Stn., Pura. **Type :- 'M'**

Object :—To study the effect of nitrogeneous fertilizers on transplanted Paddy.

1. BASAL CONDITIONS:

(i) (a) to (c) N.A. (ii) Sandy loam. (iii) 31.7.60; N.A. (iv) (a) N.A.; 1 H.W.C, Puddling and 1 ploughing for others. (b) Transplanting. (c) — (d) 25cm.×25cm. (e) 2. (v) Nil. (vi) T-9 (late). (vii) N.A. (viii) 1 weeding & earthing. (x) and (ix) N.A.

2. TREATMENTS:

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

(1) 2 levels of N : N_1=22·4 and N_2=44·8 Kg/ha.

(2) 2 sources of N : F_1=A/S and F_2=Urea.

3. DESIGN :

(i) 2×2 Fact.+ One control in R.B.D. (ii) (a) 5. (b) N.A. (iii) 4. (iv) (a) and (b) 7·31m×14·3m. (v) Nil. (vi) Yes.

4. GENERAL:

(i) N.A. (ii) Damage by rats and disease. (iii) Yield of grain. (iv) (a) 1959-61. (b) No. (c) Results of combined analysis have been presented under 5. Results. (v) and (vi) Nil. (vii) Experiment No : 59(388) has also been taken into consideration while pooling the results. Error variances are hetrogeneous and Treatments×Years ihteraction is present.

5. RESULTS :

(i) 2200 Kg/ha. (ii) 946·5 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=1992 Kg/ha.

	F_1	F_2	Mean
N_1	1972	2112	2042
N_2	2351	2572	2462
Mean	2162	2342	2252

Individual results

Treatment	N_1	N_2	Sig.	F_1	F_2	Sig.	Control	Sig.	G.M.	S.E./plot
Year 1960	3473	3170	**	3181	3462	**	2846	**	3227	81·1
1961	1737	3116	**	2278	2575	*	2521	N.S.	2445	250·2
Pooled	2042	2462	N.S.	2162	2342	N.S.	1992	N.S.	2200	946·5

Crop :- Paddy (*Kharif*). **Ref :- U.P. 64(576), 65(422).**

Site :- Fertilizer Res. Stn., Pura. **Type :- 'M'**

Object : —To determine the minimum simple quantity of organic matter necessary for maintaining higher early Paddy production under high inorganic fertilizer application.

1. BASAL CONDITIONS :

(i) (a) Early Paddy-Wheat/Barley. (b) and (c) N.A. (ii) Sandy loam. (iii) 18.6.64; 16.7.65. (iv) (a) 1 H.W.C., 1 *palewa*, 2-3 ploughings and pata application. Sown behind the plough. (c) 100 Kg/ha. (d) Rows 23cm. apart. (e) — (v) Nil. (vi) and (vii) N.A. (viii) 1 weeding and earthing. (ix) N.A. (x) 17.10.64; 6.11.65.

2. TREATMENTS:

All combinations of (1) and (2)

(1) 8 levels of F.Y.M. : M_0=0, M_1=20, M_2=40, M_3=60, M_4=80, M_5=120, M_6=160 and M_7=200 Kg/ha.

(2) 2 levels of inorganic : F_0=0 and F_1=20 Kg/ha. of N+20 Kg/ha. of P_2O_5+10 Kg/ha. of K_2O.

Manuring done before sowing.

3. DESIGN:

(i) Fact. in R.B.D. (ii) (a) 16. (b) N.A. (iii) 4. (iv) (a) and (b) 10·06m.×6·70m.; 12·50m.×4·00m. (v) Nil. (vi) Yes.

4. GENERAL:

(i) Good. (ii) N.A. (iii) Yield of grain. (iv) (a) 1964-66. (b) Yes only in 65 and 66. (c) Nil. (v) and (vi) Nil. (vii) Residual effect tested on Wheat in 1964 only. As the experiment in continued beyond 65, results of individual years have been presented under 5. Results.

5. RESULTS:

64(576)

(i) 2482 Kg/ha. (ii) 238·3 Kg/ha. (iii) All the effects are highly significant. (iv) Av. yield of grain in Kg/ha.

	M_0	M_1	M_2	M_3	M_4	M_5	M_6	M_7	Mean
F_0	1380	2364	2322	2363	2590	2119	2069	2826	2254
F_1	2692	2490	2448	2641	2890	2843	2691	2986	2710
Mean	2036	2427	2385	2502	2740	2481	2380	2906	2482

C.D. for F marginal means=120·3 Kg/ha.

C.D. for M marginal means=240·7 Kg/ha.

C.D. foe the body of table=340·3 Kg/ha.

65(422)

(i) 2259 Kg/ha. (ii) 358·6 Kg/ha. (iii) None of the effects is significant. (iv) Av. yield of grain in Kg/ha.

	M_0	M_1	M_2	M_3	M_4	M_5	M_6	M_7	Mean
F_0	2181	2409	2070	2066	2219	1983	2349	2230	2189
F_1	2319	2343	2135	2653	2031	2499	2387	2270	2330
Mean	2250	2376	2102	2360	2125	2241	2368	2250	2259

Crop :- Paddy (*Kharif*). **Ref :- U.P. 64(573), 65(419).**

Site :- Fertilizer. Res. Stn., Pura. **Type :- 'M'.**

Object:—To study the long-term use of organic and inorganic nitrogenous manures alone or in combinations with P and K on early Paddy.

1. BASAL CONDITIONS :

(i) (a) Nil; Paddy-Pea. (b) N.A. ; Pea. (c) N.A. (ii) Sandy loam. (iii) 20.7.64; 1.7.65. (iv) (a) 1 WHC, 1 *palewa*, 2-3 ploughings and pata application. (b) Sown behind the plough. (c) 100 Kg/ha. (d) Rows. 23cm. apart. (e) — (v) Nil. (vi) N.A. (vii) Irrigated. (viii) 1 weeding and earthing. (ix) N.A. (x) 1/2.10.64; 29.10.65.

2. TREATMENTS :

10 manurial treatments :-T_0=Control (No manure), T_1=40 Kg/ha. of N as A/S, T_2=40 Kg/ha. of N as F.Y.M. T_3=20 Kg/ha. of N as A/S+20 Kg/ha. of N as F.Y.M., T_4=T_1+40 Kg/ha. of P_2O_5 as Super, T_5=T_2+40 Kg/ha. of P_2O_5 as Super, T_6=T_3+40 Kg/ha. of P_2O_5 as Super, T_7=T_1+40 Kg/ha. of P_2O_5 as Super+20 Kg/ha. of K_2O T_8=T_2+40 Kg/ha. of P_2O_5 as Super+20 Kg/ha. of K_2O and T_9=T_3+40 Kg/ha. of P_2O_5 as Super +20 Kg/ha. of K_2O.

Manuring done before sowing.

3. DESIGN :

(i) R.B.D. (ii) (a) 10. (b) N.A. (iii) 4. (iv) (a) and (b) 10·06m.×6·71m. (v) Nil. (vi) Yes.

4. GENERAL :

(i) Good. (ii) N.A. (iii) Yield of grain. (iv) (a) 1964-66. (b) Yes only in 64 and 65. (b)Nil. (v) and (vi) Nil. (vii) Residual effect tested on Pea crop. As the exeperiment is continued beyond 65 results of individual years have been presented under 5. Results.

64(573)

(i) 3104 Kg/ha. (ii) 277·8 Kg/ha. (iii) Treatement 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	T_6	T_7	T_8	T_9
Av. yield	2354	2875	2959	3430	2858	3211	3379	3362	3631	2976

C.D.=403 1 Kg/ha.

65(419)

(i) 1136 Kg/ha. (ii) 378·3 Kg/ha. (iii) Treatment differences are not signifieant. (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	T_8	T_9
Av. yield	964	1297	1038	871	1371	1075	1371	1056	1167	1149

Crop :- Paddy (*Kharif*). **Ref :- U.P. 64(575), 65(421).**

Site :- Fertilizer Res. Stn., Pura. **Type :- 'M'.**

Object :—To study the effect of application of Urea and A/S in singb and split doses on the yield of early Paddy.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Sandy loam. (ii) 21.7.64; 30,6.65. (iv) (a) 1 W.H.C., 1 palewa, 2-3 ploughings and pata applications. (b) Sowe behind the plough. (c) 100 Kg/ha. (d) Raws 23cm. apost. (e) — (v) N.A. 43 Kg/ha. of P_2O_5+34 Kg/ha. of K_2O. (vi) and (vii) N.A. (viii) 1 weeding. and earthing. (ix) N.A. (x) 6.11.64; 31.10.65.

2. TREATMENTS :

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

(1) 3 levels of N : N_1=33·6, N_2=67·2 and N_3=100·3 Kg/ha.

(2) 2 forms of N : F_1=A/S and F_2=Urea.

(3) 2 methods of application of N : M_1=Full dose before sowing and M_2=1/3 rd dose at sowing, 1/3 rd dose at tilering and 1/3 dose before flowering.

3. DESIGN :

(i) Fact+a control in R.B.D. (ii) (a) 13. (b) N.A. (iii) 4. (iv) (a) and (b) 9·75m.×5·18m.; 12·5m.×4·0m. (v) Nil. (vi) Yes.

4. GENERAL :

(i) N.A. (ii) N.A. (iii) Yield of grain. (iv) 1964-65. (b) No. (c) Results of combined analysis heve been presented under 5. Results. (v) and (vi) Nil. (vii) Error variances are homogeneous and Treatments × Years interaction is present.

5. RESULTS :

Pooled results

(i) 2089 Kg/ha. (ii) 640·8 Kg/ha. (based on 10 d.f. made up of Treatments × Years interaction). (iii) None of the effects is significant. (iv) Av. yield of grain in Kg/ha.

Control=1563 Kg/ha.

	M_1	M_2	F_1	F_2	Mean
N_1	2072	1796	1965	1903	1934
N_2	2422	2071	2082	2411	2246
N_3	2304	2136	2281	2159	2220
Mean	2266	2001	2109	2158	2133
F_1	2312	1907			
F_2	2220	2095			

Individual results

Treatment	N_1	N_2	N_3	Sig.	M_1	M_2	Sig.	F_1	F_2	Sig.	Control	Sig.	G.M.	S.E./plot
Year 1964	2417	2699	2546	N.S	2573	2535	N.S.	2580	2528	N.S.	1951	**	2508	378·4
1965	1451	1794	1894	N.S.	1959	1467	**	1639	1787	N.S.	1175	*	1671	419·1
Pooled	1934	2246	2220	N.S.	2266	2001	N.S.	2109	2158	N.S.	1563	N.S.	2089	640·8

Crop :- Paddy (*Kharif*).

Ref :- U.P. 64(577), 65(423).

Site : Fertilizer Res. Stn., Pura.

Type :- 'M'.

Object :—To study the response of micro-nutrients through soil and foliar applications on the yield of early Paddy.

1. BASAL CONDITIONS:

(i) (a) to (c) N.A. (ii) Sandy loam. (iii) 19.6.64.; 10.7.65. (iv) (a) 1 W.H.C., 1 *palewa*, 2-3 ploughings and pata application. (b) Sown behind the plough. (c) 100 Kg/ha. (d) Rows 23cm. apart. (e) — (v) Nil. (vi) and (vii) N.A. (viii) 1 weeding and earthing. (ix) N.A. (x) 12.10.64; 5.11.65.

2. TREATMENTS:

15 manurial treatments : T_0=Control, T_1=33·6 Kg/ha. of N+33·6 Kg/ha. of P_2O_5+33·6 Kg/ha. of K_2O applied to soil, $T_2=T_1$+370 Kg/ha. of Spartion applied to soil, $T_3=T_1$+56 Kg/ha. of Mn., as manganese Sul. applied to soil, $T_4=T_1$+28 Kg/ha. of Zn. as Zinc Soil. applied to soil, $T_5=T_1$+28 Kg/ha. of Cu. as copper Sul, applied to soil, $T_6=T_1$+16·8 Kg/ha. of B as Borax applied to soil., $T_7=T_1$+1·2 Kg/ha. of Mo. as sod. malybdate applied to soil, $T_8=T_1$+mn.+Zn.+Cu+B+M_o (as per their respective doses given above) applied to soil, T_9=11·2 Kg/ha. of Mn. as mangnese Sul. applied as spray, T_{10}=11·2 Kg/ha. of Zn. as Zinc Sul. applied as spray, T_{11}=11·2 Kg/ha. of Cu. as copper Sul. applied as Spray, T_{12}=5·6 Kg/ha. of as Borax applied as spray T_{13}=0·56 Kg/ha. of Mo as Sod. molybdate applied as spray, $T_{14}=T_9+T_{10}+T_{11}+T_{12}+T_{13}$.

N as A/S, P_2O_5 as Super and K_2O as Pot. Sul. applied before sowing; Spraying on 10.8.64. for 64 and on 19·65 & 15.9.65 for 65.

3. DESIGN

(i) R. B. D. (ii) (a) 15. (b) N.A. (iii) 4. (iv) (a) and (b) 12·19m.×4·14m.; 12·50×4·00m. (v) Nil. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of grain. (iv) (a) 19.6.65. (b) Yes but for some shifting of plots. (c) Results of combined analysis have been presented under 5. Results. (v) Nil. (vi) — (vii) Expt conducted by A.C. Error variances are homogeneous and Treatments × Years interaction is absent.

5. RESULTS :

Pooled results.

(i) 1396 Kg/ha. (ii) 269·0 Kg/ha. (based on 98 d.f. made up of pooled error and Treatments × Years interaction). (iii) Treatment differents are significant. (iv) Av. yield of grain in Kg/ha.

Treatments	T_0	T_1	T_2	T_3	T_4	T_5	T_6	T_7	T_8	T_9
Av. yield	1042	1340	1115	1345	1447	1599	1439	1403	1392	1504
	T_{10}	T_{11}	T_{12}	T_{13}	T_{14}					
	1509	1593	1257	1521	1437					

C.D.=267·2 Kg/ha.

Individual results :

Treatment	T_0	T_1	T_2	T_3	T_4	T_5	T_6	T_7	T_8	T_9
Year										
1964	1326	1775	1314	1729	1909	2112	1820	1662	1763	1999
1965	758	905	915	961	984	1086	1058	1144	1021	1009
Pooled	1042	1340	1115	1345	1447	1599	1439	1403	1392	1504

T_{10}	T_{11}	T_{12}	T_{13}	T_{14}	Sig.	G.M.	S.E./plot
1932	2134	1707	1864	1977	*	1801	281·8
1086	1052	808	1177	897	N.S.	991	248·0
1509	1593	1257	1521	1437	*	1396	269·0

Crop :- Paddy *(Kharif)*. **Ref :- U.P. 60(307).**

Site :- Govt. Reg. Agri. Res. Stn., Rudrapur. **Type :- 'M'.**

Object :—To study the effect of organic and in organic nitrogenous manures with and without P on the yield of Paddy and their cumulative effect on soil.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Clay toClay loam. (iii) N.A. (iv) (a) N.A. (b) Transplanting. (c) — (d) 15cm.×23cm. (e) 2, (v) N.A. (vi) T. 21 (medium). (vii) Unirrigated. (viii) and (ix) N.A. (x) 16.11.60.

2. TREATMENTS :

10 manurial treatment : —T_0=Control, T_1 —22·4 Kg/ha. of N as A/S, T_2=44·8 Kg/ha. of N as A/S, T_3=22·4 Kg/ha. of N as A/S+44·8 Kg/ha. of P_2O_5 as Super, T_4=22·4 Kg/ha. of N as F.Y.M., T_5=44·8 Kg/ha. of N as F.Y.M., T_6=22·4 Kg/ha. of N as F.Y.M.+44·8 Kg/ha. of P_2O_5 as Super, T_7=22·4 Kg/ha. of N as A'S+22·4 Kg/ha. of N as F.Y.M., T_8=22·4 Kg/ha. of N as A/S+22·4 Kg/ha. of N as F.Y.M.+44·8 Kg/ha. A'S+22·4 as Super and T_9=44·8 Kg/ha. P_2O_5 as Super.

3. DESIGN :

(i) R.B.D. (ii) (a) 10. (b) 60·96m.×10·97m. (iii) 4. (iv) (a) 10·97m.×4·57m. (b) 9·75m,×4·11m. (v) 61 cm.×23 cm, (vi) Yes.

4. GENERAL :

(i) Good. (ii) Nil. (iii) Yield of grain. (iv) (a) 1959-60. (b) N.A. (c) Nil. (v) to (vii) Nil.

5. RESULTS:

(i) 1532 Kg/ha. (ii) 637·8 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	T_8	T_9
Av. yield.	1074	1918	1497	1590	1526	1738	1526	1533	1402	1519

———

Crop :- Paddy (*Kharif*). **Ref :- U.P. 63(405), 64(442).**

Site :- Govt. Reg. Agri. Res. Stn., Rudrapur. **Type 'M'.**

Object :—To study the efficiencey of orgainc and inorgainc nitrogenous manures with and wlth out P on the yield of paddy and to assess their cumulative effect on soil.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) and (c) N.A. (ii) Clay loam. (iii) 19/20.7.63; 18.7.64. (iv) (a) 1 *palewa* followed by ploughing by victroy plough and puddling. (b) Transplanting. (c) — (d) 23cm.×15cm. (e) 2. (v) Nil. (vi) T-21(medium) (vii) Unirrigated. (viii) Nil. (ix) N.A. (x) 22 to 24.10 63.; N.A.

2. TREATMENTS

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

(1) 3 sources of N : F_1=A/S; F_2=F.Y.M. and F_3=½ A/S+½ F.Y.M.

(2) 2 levels of N : N_1=28 and N_2=56 Kg/ha.

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

Extra treatment : E_0=Control and E_1=44·8 Kg/ha. of P_2O_5

3. DESIGN :

(i) R.B.D. (ii) (a) 14. (b) 24·50m.×31·00m. (iii) 4. (iv) 12·00cm.×4·00cm. (v) Nil. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Attaek of *khaira* disease. (iii) Yield of grain. (iv) (a) 1963-64. (b) Yes. (c) Nil. (v) Meerut, Varanasi Nawabgunj, Amrukh, and Hardoi. (vi) Nil. (vii) Error variances are homogeneous and Treatments×Years interaction is absent.

5. RESULTS :

Pooled results

(i) 2299 Kg/ha. (ii) 440·1 Kg/ha. (based on 89 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.

E_0=1979 and E_1=2229 Kg/ha.

	N_1	N_2	F_1	F_2	F_3	Mean
P_0	2055	2346	2091	2301	2209	2200
P_1	2518	2411	2337	2519	2537	2464
Mean	2287	2378	2214	2410	2373	2332
F_1	2268	2160				
F_2	2410	2410				
F_3	2182	2565				

Individual results :

Treatment	N_1	N_2	Sig.	P_0	P_1	Sig.	F_1	F_2	F_3	Sig.	E_0	E_1	Sig.
Year 1963	2921	3090	N.S.	2752	3259	**	2891	3105	3021	N.S.	2682	2917	N.S.
1964	1654	1667	N.S.	1649	1671	N.S	1539	1715	1726	N.S.	1276	1542	N.S.
Pooled	2287	2378	N.S.	2200	2464	N.S.	2214	2410	2373	N.S.	1979	2229	N.S.

G.M.	S.E./plot
2976	452·7
1625	467·2
2299	440·1

Crop :- Paddy (*Kharif*). **Ref : U.P. 64(448).**

Site :- Govt. Reg. Agri. Res. Stn., Rudrapur. **Type :- 'M'.**

Object :—To study the effect of manuring on yellowing disease of Paddy.

1 BASAL CONDITIONS:

(i) (a) to (c) N.A. (ii) Clay to Clay loam. (iii) 10.8.64. (iv) (a) N.A. (b) Transplanting. (c) — (d) 23cm.×15cm. (e) 2. (v) Nil. (vi) T-21. (vii) Unirrigated. (viii) weeding. by *khurpi*. (ix) N.A. (x) 2.11.64.

2. TREATMENTS :

4 manurial treatments : T_0 = Control, T_1 = 44·8 Kg/ha. of N as F.Y.M., T_2 = 44·8 Kg/ha. of N as A/S/N and T_3 = 44·8 Kg/ha. of N as A/S/N + 44·8 Kg/ha. of P_2O_5.

3. DESIGN :

(i) R.B.D. (ii) (a) 4. (b) N.A. (iii) 4. (iv) 12·00m.×4·00m. (v) Nil. (vi) Yes.

4. GENERAL :

(i) Normal. (ii) Severe infestation of *khaira* disease. (iii) Yield of grain. (iv) (a) 1964-only. (b) and (c) Nil (v) to (vii) Nil.

5. RESULTS :

(i) 985 Kg/ha. (ii) 309·2 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
Av. yield	1312	922	849	859

Crop :- Paddy (*Kharif*). **Ref :- U.P. 65(275).**

Site :- Govt. Reg. Agri. Res. Stn., Rudrapur. **Type :- 'M'.**

Object : –To study the comparative utility of reinforced compost in crop production against ordinary compost with and without Super.

1. BASAL CONDITIONS:

(i) (a) to (c) N.A. (ii) Clay loam. (iii) 12.8.65. (iv) (a) 3ploughings and planking. (b) Transplanting. (c) N.A. (d) 23cm. × 15cm. (e) 2. (v) Nil. (vi) T-21. (vii) Irrigated. (viii) 3 weedings. (ix) N.A. (x) 22.11.65.

2. TREATMENTS :

Same as in expt. No. 65(38) conducted at Nawabgunj and presented on page No. 53.

3. DESIGN :

(i) R.B.D. (ii) (a) 4. (b) 25·60m. × 7·62m. (iii) 6. (iv) (a) 7·62m. × 5·49m. (b) 6·71m. × 5·03m. (iv) 46cm. × 23cm. (vi) Yes.

4. GENERAL:

(i) Poor. (ii) Khaira disease damgged the crop seriously. (iii) Yield of grain. (iv) (a) 1965-contd. (b)N.A. (c) Nil. (v) to (vii) Nil.

5. RESULTS:

(i) 579 Kg/ha. (ii) 168·8 Kg/ha. (iii) Treatment differences are significant. (iv) Av. yield of grain in Kg/ha.

Treatment	T_1	T_2	T_3	T_4
Av. yield	572	746	430	567

C.D.=207·7 Kg/ha.

Crop :- Paddy (*Kharif*).

Site :- Rice. Res. Sub-Stn., Tissuhi

Ref :- U.P. 61(467).

Type :-'M'.

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

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Pea. (c) N.A. (ii) Heavy Clay. (iii)1 10.8.61. (iv) (a) 4 ploughings. (b) Transplanting. (c) — (d) 23cm.×15cm. (e) 2. (v) and (vi) N.A. (vii) Irrigated. (viii) 2 weedings. (ix) N.A. (x) 10 and 17.12 61.

2. TREATMENTS :

Main-plot treatments :

4 levels of N :—N_0=0, N_1=33·6, N_2=67·2, and N_3=100·9 Kg/ha.

Sub-plot treatments :

4 levels of P_2O_5 : —P_0=0, P_1=33·6, P_2=67·2 and P_3=100·9 Kg/ha.

3. DESIGN :

(i) Split-plot. (ii) (a) 4 main-plots/replication; 4 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) 3·05m.× 2·74m. (b) 2·44m.×2·29m.; (v) 30cm.×23cm. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Attadk of Blast and Blight. (iii) Yield of grain. (iv) (a) 1961-only. (b) N.A. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 3080 Kg/ha. (ii) (a) 569·9 Kg/ha. (b) 451·3 Kg/ha. (iii) Main effect of N and P are highly significant. (iv) Av. yield of grain in Kg/ha.

	N_0	N_1	N_2	N_3	Mean
P_0	1074	2371	2595	2684	2181
P_1	1745	2953	4027	4250	3244
P_2	1879	2953	4206	4429	3367
P_3	1969	3445	4183	4519	3529
Mean	1667	2931	3753	3971	3080

C.D. for N marginal means=455·7 Kg/ha.

C.D. for P marginal means=323·8 Kg/ha.

Crop :- Paddy. (*Kharif*).

Site :- Rice. Res. Sub-Stn., Tissuhi.

Ref :- U.P. 62(569), 63(680).

Type :- 'M'.

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

1. BASAL CONDITIONS:

(i) (a) Lin seed-Paddy for 62 and 63; N.A. for 64. (b) Lin seed for 62 and 63; N.A. for 64. (c) Nil. (ii) Heavy clay. (iii) 2.8.62; 3.8.63; 6.8.64. (iv) (a) 4 ploughings. (b) Transplanting. (c) — (d) 25cm.× 15cm. (e) 2-3. (v) Nil. (vi) T-139. (vii) Irrigated. (viii) 2 weedings. (ix) N.A. (x) 15/18.12.62; 18.12.63; Dec., 64.

2. TREATMENTS :

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

(1) 3 levels of N as A/S : N_0=0, N_1=44·8 and N_2=89·6 Kg/ha.

(2) 3 levels of P_2O_5 as Super : P_0=0, P_1=33·4 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.

3. DESIGN :

(i) 3^3 confd. (ii) (a) 9 plots/blocks; 3 blocks/replication. (b) N.A. (iii) One. (iv) (a) N.A. for 62 and 63; 13·00m.×8·00m. for 64 N.A. (b) 11·58m.×7·47m. for 62 and 63; 12·10m.×7·50m. for 64 (v) N.A. for 62 and 63; 45cm.×25cm. for 64. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Nil. (iii) Grain yield. (iv) (a) 1962-64. (b) No. (c) Results of combined analysis have been presented under 5. Results. (v) N.A. (vi) Nil. (vii) Error variances are homogeneous and Treatments×Years interaction is present.

5. RESULTS :

(i) 1761 Kg/ha. (ii) 394·3 Kg/ha. (based on 36 d.f. made up of Treatments×Years interaction). (iii) Main effects of N and P are highly significant. (iv) Av. yield of grain in Kg/ha.

	P_0	P_1	P_2	K_0	K_1	K_2	Mean
N_0	881	1787	1 561	1222	1243	1264	1243
N_1	1595	1713	2106	1681	1782	1951	1805
N_2	2159	2250	2301	2185	2229	2296	2237
Mean	1545	1750	1989	1696	1751	1837	1761
K_0	1540	1702	1846				
K_1	1475	1741	2038				
K_2	1621	1807	2083				

C.D. for N or P marginal mens=218·4 Kg/h.

Individual results

Treatment	N_0	N_1	N_2	Sig.	P_0	P_1	P_2	Sig.	K_0	K_1	K_2	Sig.	G.M.	S.E./plot
Year														
1962	970	1358	3037	**	1206	1453	1706	**	1399	1432	1534	*	1455	83·7
1963	1356	1594	3441	**	1539	1711	2041	**	1708	1744	1839	N.S.	1764	111·1
1964	1503	2462	2332	**	1890	2086	2221	*	1981	2078	2138	N.S.	3066	196·2
Pooled	1243	1805	2237	**	1545	1750	1989	**	1696	1751	1837	N.S.	1761	394·3

Crop :- Paddy (*Kharif*). **Ref:- U.P. 64(556).**

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

Object :—To study the effect of trace-elements on growth and yield of Paddy crop.

1. BASAL CONDITIONS

(i) (a) Nil. (b) and (c) N.A. (ii) Clay loam. (iii) 11.8.64. (iv) (a) N.A. (b) Transplanting. (d) 30cm.× 15cm. (e) 1. (v) 33·6 Kg/ha. of N as A/S + 22·4 Kg/ha. of P_2O_5 as Super. (vi) T-36 (late). (vii) to (ix) N.A. (x) 5/6.12.64.

2. TREATMENTS:

All combinations of (1), (2), (3) and (4) + One extra treatment in each block.

(1) 3 levels of Mn : M_0=0, M_1=16·8 and M_2=33·6 Kg/ha. of $MnSo_4$.

(2) 3 levels of Zn :—Z_0=0, Z_1=16·8 and Z_2=33·6 Kg/ha. of $ZnSo_4$.

(3) 3 levels of B : B_0=0, B_1=11·2 and B_2=22·4 Kg/ha. of Borax.

(4) 3 levels of Cu : C_0=0, C_1=11·2 and C_2=22·4 Kg/ha. of $CSuo_4$.

Extra treatments : 370·6 Kg/ha. of Spartin.

3. DESIGN:

(i) 3^4 confd. + One extra treatment in each block. (ii) (a) 9 block/replication and 10 plots/block. (b) 24·38m. ×18·29m. (iii) One. (iv) (a) 4·27m.×7·77m. (b) 3·35m.×6·86m. (v) 46cm.×46cm. (vi) Yes

4. GENERAL:

(i) Good. (ii) N.A. (iii) Yield of grain. (iv) (a) 1964-contd (N ot conducted 65). (b) and (c) Nil. (v) Atarra (Banda). (vi) to (vii) Nil.

5. RESULTS:

(i) 2849 Kg/ha. (ii) 345·4 Kg/ha. (iii) Interaction M×Z alone is significant. (iv) Av. yield of grain in Kg/ha.

Extra treatment=2750 Kg/ha.

	Z_0	Z_1	Z_2	B_0	B_1	B_2	C_0	C_1	C_2	Mean
M_0	2640	3000	2760	2739	2941	2720	2620	2880	2900	2800
M_1	2880	2930	2809	2920	2729	2970	2850	2890	2879	2873
M_2	2901	2710	3110	2921	2970	2830	2981	2930	2810	2907
Mean	2807	2880	2893	2860	2880	2840	2817	2900	2863	2860
C_0	2770	2840	2850	2710	3010	2730				
C_1	2860	2920	2940	2930	2720	3050				
C_2	2790	2920	2879	2940	2910	2740				
B_0	2840	2880	2860							
B_1	2841	2860	2939							
B_2	2740	2900	2880							

C.D. for body of M×Z table=327·8 Kg/ha.

Crop :- Paddy (*Kharif*). **Ref :-U.P. 60(64).**

Site :- Govt. Reg. Agri. Res. Stn., Varanasi. **Type .-'M'.**

Object :—To study the comparative effieiency of organic and inorganic nitrogenous fertilizer without Super. on the yield of Paddy.

1. BASAL CONDITIONS:

(i) (a) to (c) N.A. (ii) Clayey loam. (iii) 4.8..60 (iv) (a) N.A. (b) Transplanting. (c) to (e) N.A. (v) N.A. (vi) T-9 (late). (vii) to (ix) N.A. (x) 7.12.60.

2. TREATMENTS:

Same as in expt. No- 60(67) conducted at Nawabgunjand presented on page No.54

3. DESIGN:

(i) 4×2 Fact+2 extra treatments in R.B.D. (ii) 10. (iii) 12·19m,×53 95m. (iv) 4. (iv) 12·19m.×4·57m. (v) Nil. (vi) Yes.

4. GENERAL:

(i) and (ii) N.A. (iii) Yield of grain. (iv) (a) 1959-60. (b) No. (c) Nil. (v) (a) Nawabgunj. (b) Nil. (vi) and (vii) Nil.

5. RESULTS:

(i) 1268 Kg/ha. (ii) 98·8 Kg/ha. (iii) Main effects of S and P and interaction S×P are highly significant. Extra Vs. others is significant. (iv) Av. yield of grain in Kg/ha.

E_1=1381 and E_2=1303 Kg/ha.

	S_0	S_1	S_2	S_3	Mean
P_0	999	1339	1072	1114	1131
P_1	1255	1376	1261	1575	1367
Mean	1127	1358	1166	1344	1249

C.D. for P marginal means=71·7 Kg/ha.

C.D for S marginal means=101·4 Kg/ha.

C.D. for extra vs. others=80·1 Kg/ha.

Crop :- Paddy (*Kharif*). **Ref. :- U.P. 61(71), 62(193), 63(182), 64(173), 65(53).**

Site :- Govt. Reg. Agri. Res. Stn., Varanasi. **Type :- 'M'.**

Object :—To study the efficiency of organic and inorganic nitrogenous manuers with and without Super on the yield of Paddy.

1. BASAL CONDITIONS:

(i) (a) Nil. (b) N.A. for 61; M.P. chari for 64 and Barley for Others. (c) Nil for 64; N.A. for other years. (ii) Clayey loam. (iii) 6/7.8.61; 24.7.62: 20.7.63; 8.8.64; 8.8.65. (iv) (a) 1 Palewa and 2-3 ploughings. (b) Transplanting. (c) — (d) 23cm.×23cm. in 64 and 23cm×15cm. in others. (e) 3-4. (v) Nil. (vi) T-21 in 61; T-9 in others. (vii) Unirrigated in 61 and 62; Irrigated in others. (viii) 1 to 2 weedings. (ix) 97·9 cm.; 96·9cm.; 95·4cm.; 95·3cm.; 36 4cm. (x) 18/19.11.61; 10.12.62; 21/22.12.63; 5.11.64; 5.12.65.

2. TREATMENTS:

Same as in Expts. 63(405) and 64(442) conducted at Rudrapur presented on page No. 75

3. DESIGN:

(i) Fact in R.B.D. (ii) (a) 14. (b) 12·20m×68·0m. for 61; 12·20m.×63·55m. for others. (iii) 4. (iv) (a) 12·20m.×4·57m. for 61; 12·20m.×4·11m. for others. (b) 12·20m.×4·57m.; 12·20m.×4·11m.; 12·20m.×3·66m.; 12·20m.×4·11m.; for 64 and 65. (v) One row on the either side for 63; Nil for others (vi) Yes.

4. GENERAL:

(i) Good. (ii) N.A. for 61; Nil for 62 and 64; Blast disease for 63 and 65. In 65 dusting of Ceresan+Lime (1:6) @ 20-22·4 Kg/ha. (iii) Yield of grain. (iv) (a) 1961-contd. (b) Yes, from 62 and onwards (c) Nil. (v) Amrukh, Nawabgunj, Meerut, Hardoi and Rudrapur. (vi) N.A. (vii) As the experiment is continued beyond 65, results of individual years have been presented under 5. Results.

5. RESULTS:

61(71)

(i) 1528 Kg/ha. (ii) 71·2 Kg/ha. (iii) Main effects of N, P and F and interaction N×F and N×P are highly significant. (iv) Av. yield of grain in Kg/ha.

E_0=1202 and E_1=1386 Kg/ha.

	F_1	F_2	F_3	N_1	N_2	Mean
P_0	1570	1354	1576	1423	1577	1500
P_1	1648	1558	1696	1628	1640	1634
Mean	1609	1456	1635	1525	1609	1567
N_1	1538	1464	1574			
N_2	1680	1448	1698			

C.D. for N or P marginal means=41·4 Kg/ha.

C.D. for F marginal means=50·8 Kg/ha.

C.D. for body of N×F table=72·0 Kg/ha.

C.D. for body of N×F table=53·8 Kg/ha.

62(193)

(i) 2645 Kg/ha. (ii) 96·1 Kg/ha. (iii) Main effect of N, P and F and interaction N×F between extra treatments and 'extra vs. others' are highly significant. (iv) Av. yield of grain in Kg/ha.

E_0=1679 and E_1=2484 Kg/ha.

	F_1	F_2	F_3	N_1	N_2	Mean
P_0	2789	2401	2797	2540	2785	2662
P_1	2973	2636	2944	2691	2944	2817
Mean	2881	2468	2871	2615	2864	2740
N_1	2059	2452	2734			
N_2	3102	2484	3007			

C·D. for N or P marginal means=56·0 Kg/ha.

C.D. for F marginal means=68·6 Kg/ha.

C.D. for body of N×F table=97·0 Kg/ha.

C.D. for 'Extra vs. others=74·1 Kg/ha.

63(182)

(i) 1510 Kg/ha. (ii) 417·4 Kg/ha. (iii) Main effect of F alone is significant. (iv) Av. yield of grain in Kg/ha.

E_0=1771 and E_1=15 .7 Kg/ha.

	F_1	F_2	F_3	N_1	N_2	Mean
P_0	1207	1667	1653	1562	1457	1509
P_1	1236	1607	1543	1447	1477	1462
Mean	1222	1637	1598	1504	1467	1486
N_1	1288	1610	1616			
N_2	1156	1665	1580			

C.D. for F marginal means=298·1 Kg/ha.

64(173)

(i) 1203 Kg/ha. (ii) 199·3 Kg/ha. (iii) None of the effects is significant. (iv) Av. yield of grain in Kg/ha.

E_0=1182 and E_1=1134 Kg/ha.

	F_1	F_2	F_3	N_1	N_2	Mean
P_0	1198	1180	1206	1231	1158	1195
P_1	1177	1185	1314	1204	1247	1225
Mean	1187	1183	1260	1218	1202	1210
N_1	1265	1101	1287			
N_2	1110	1264	1232			

65(53)

(i) 1517 Kg/ha. (ii) 250·9 Kg/ha. (iii) Main effects of N, interaction P×F and N×F are significant (iv) Av. yield of grain in Kg/ha.

E_0=1356 and E_1=1373 Kg/ha.

	F_1	F_2	F_3	N_1	N_2	Mean
P_0	1577	1373	1584	1432	1590	1511
P_1	1749	1479	1487	1457	1686	1572
Mean	1663	1426	1536	1445	1638	1542
N_1	1537	1346	1451			
N_2	1788	1506	1621			

C.D. for N marginal means=146·3 Kg/ha.

C.D. for body of P×F or N×F table=253·4 Kg/ha.

Crop :- Paddy (*Kharif*). **Ref :- U.P. 60(182).**

Site :- Govt. Reg. Agri. Res. Stn. Varanasi. **Type :- 'M'.**

Object : - To study the efficiency of departmental mixture against A/S+Super.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Clayey loam. (iii) 5.8.60. (iv) (a) N.A. (b) Transplanting. (c) — (d) N.A. (v) N.A. (vi) T-9. (vii) and (viii) N.A. (ix) 100·1cm. (x) 7.12.60.

2. TREATMENTS :

T_1=53·8 Kg/ha. of N+30·2 Kg/ha. of P_2O_5 as departmental mixture (N 16% and P_2O_5=9%) and T_2=53·8 Kg/ha. of N as A/S+30·2 Kg/ha. of P_2O_5 as Super.

Departmental mixture broadcasted. Super. Applied behind the plough through a seed drill, placed about 15cm. deep. 1/2 dose of N applied at sowing and 1/2 dose of N top dressed.

3. DESIGN:

(i) R.B.D. (ii) (a) 2, (b) 12·19m.×5·26m. (iii) 12. (iv) (a) N.A. (b) 12·19m.×2·43m. (v) N.A. (vi) Yes.

4. GENERAL:

(i) and (ii) N.A. (iii) Ht. of plant, No. of tillers, No. of leaves and yield of grain. (iv) (a) 1959-60. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS:

(i) 923 Kg/ha. (ii) 85·1 Kg/ha. (iii) Treatment difference not significant. (iv) Av. yield of grain in Kg/ha.

Treatment	N_1	N_2
Av. yield.	896	951

———

Crop :- Paddy (*Kharif*). **Ref :- U.P. 60(57), 61(76).**

Site :- Govt. Reg. Agri. Res. Stn., Varanasi. **Type :- 'M'.**

Object : - To study the effect of growing *dhaincha* mixed with early Paddy either broadcast or line rowu and turned under at the time of first weeding on the yield of paddy.

1. BASAL CONDITIONS.

(i) (a) to (c) N.A. (ii) Clayey loam. (iii) 25.6.60; 20.7.61. (iv) (a) N.A. (b) As per treatments. (c) N.A.; Paddy-69 Kg/ha. and *dhaincha* 23 Kg/ha. (d) and (e) N.A. (v) N.A. (vi) N.A.; T-21 (early). (vii) N.A. (viii) Weeding and hoeing. (ix) N.A. (x) 14.10.60; 3.11.61.

2. TREATMENTS :

4 G.M. treatments : G_1=Paddy alone, G_2=Dhaincha and Paddy broadcast, Dhaincha uprooted and puddted at first weeding, G_3=Dhaincha sown in between two rows of paddy and turned under at the time of first weeding and G_4=Paddy alone in which Dhaincha from out side of similarage and plot-size is puddled at the first weeding.

Dhaincha turned in on : 19.8.60; 24.8.61.

3. DESIGN:

(i) R.B.D. (ii) (a) 4. (b) N.A. (iii) 4. (iv) (a) and (b) 12·19m.×4·57m. (v) Nil. (vi) Yes.

4. GENERAL:

(i) and (ii) N.A. (iii) Yield of grain. (iv) (a) 1959-61 (b) Nil. (c) Nil. (v) and (vi) Nil. (vii) Expt. No. 59 (91) has been taken into consideration while combing results. As the error variances are heterogeneous and Treatments × Years interaction is absent; the results of individual years have been presented under 5 Results.

5. RESULTS:

60(57)

(i) 1417 Kg/ha. (ii) 41·9 Kg/ha. (iii) Treatment differences are highly significant. (iv) Av. yield of grain in Kg/ha.

Treatment	G_1	G_2	G_3	G_4
Av. yield	1224	1365	1446	1632

C D. = 67·0 Ng/ha.

61(76)

(i) 930 Kg/ha. (ii) 130·5 Kg/ha. (iii) Treatment differences are not significant. (iv) Av. yield of grain in Kg/ha.

Treatment	G_1	G_2	G_3	G_4
Av. yield	830	955	875	1058

Crop :- Paddy (*Kharif*). **Ref :- U.P. 61(66), 62(187), 63(186).**

Site :- Govt. Reg. Agri. Res. Stn. Varanasi. **Type :- 'M'.**

Object : —To study the effect of different levels and methods of application of P on Paddy.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Clay loam. (iii) 20.7.61; 24/25.7.62; 21.7.63. (iv) (a) N.A. (b) Transplanting. (c) — (d) 23cm. × 15cm, (e) 2 to 4 (v) N.A. for 61; 33 6 Kg/ha. of N for others. (vi) T-9. (vii) Irrigated. (vii) Weeding and hoeing for 61 and 62; N.A. for 63 (ix) N.A.; 96·9cm; 96·4cm. (x) 3/4.12.61; 4/5.12.62; 11.12.63

2. TREATMENTS:

All combinations of (1) and (2) +aControl

(1) 2 levels of P_2O_5 as Super : P_1=44·8 and P_2=67·2 Kg/ha.

(2) 2 methods of application : M_1=Pellet method and M_2=Broadcast.

Super appliation on : 24·8.61; 30.8.62. N.A. for 63.

3. DESIGN:

(i) 2×2 Fact. + a control in R.B.D. (ii) (a) 5. (b) 41·45m. × 12·80m. for 61 and 62; N.A. for 63. (iii) 4. (iv) (a) 12·80m × 7 92m. for 61 and 62; 12·19m. × 7·92m. for63 (b) 12·80m. × 7·92m for 61. and 62,11·58m-× 7·47m. for 63. (v) Nil. for 61 and 62 30cm. × 23cm. for 63. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Nil. (iii) Yield of grain. (iv) (a) 1961-63. (b) No. (c) Results of combined analysis have been presented under 5. Results. (v) and (vi) N.A. (vii) Error variances are heterogeneous and Treatments × Years interaction is present.

5. RESULTS :

Pooled results

(i) 2011 Kg/ha. (ii) 446·0 Kg/ha. (based on 8d.f. made up of Treatment × Years interaction). (iii) None of the effects is significant. (iv) Av. yield of grain in Kg/ha.

Control=1895 Kg/ha.

	P_1	P_2	Mean
M_1	2257	2048	2152
M_2	2055	1801	1928
Mean	2156	1924	2040

Individual results :

Treatment	M_1	M_2	Sig.	P_1	P_2	Sig.	Control	Sig.	G.M.	S.E /plot
Year 1961	2585	2188	**	2399	2374	N S.	1915	**	2292	113·5
1962	2372	2099	**	2510	1961	**	2290	N.S.	2247	78·5
1963	1500	1496	N.S.	1558	1438	N.S.	1480	N.S.	1494	167·8
Pooled	2152	1928	N.S.	2156	1924	N.S.	1895	N.S.	2011	446·0

Crop :- Paddy (*Kharif*). **Ref :-U P. 65(51),**

Site :- Govt. Reg. Agri. Res. Stn., Varanasi, **Type :-'M'.**

Object :—To evaluate the comparative merit of re-inforced compost compost mixed with Super and compost and Super applied seperately.

1. BASAL CONDITIONS :

(i) (a) Barley-Paddy. (b) Barley. (c) N.A. (ii) loam. (iii) 6.8.65. (iv) (a) One ploughing by soil turning plough and 2-3 ploughs by *Desi* plough and puddling. (b) Transplanting. (c) — (d) 22cm. × 15cm. (e) 2 to 3. (v) Nil. (vi) N-22(early) (vii) Irrigated. (vii) One weeding by *Khurpi*. (ix) 48cm. (x) 28.1065.

2. TREATMENTS

4 manurial treatments: T_1=Ripe compost at 50 Q/ha. T_2=Ripe phosphate re-inforced compost at 50 Q/ha. T_3=Ripe compost at 50/ha.+22·4 Kg/ha. Super and T_4=Ripe compost at 50 Q/ha. mixed with 22·4 Kg/ha. Super.

3. DESIGN :

(i) R.B.D. (ii) (a) 4. (b) 28·65m, × 9·14m. (iii) 6. (iv) (a) 9·14m. × 6·4m. (b) 9·14m. × 6·4m. (v) Nil. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Nil. (iii) Yield of grain. (iv) (a) 1965-contd. (b) Yes. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 1092 Kg/ha. (ii) 158·3 Kg/ha. (iii) Treatment differences are not significant. (iv) Av. yield of grain in Kg/ha.

Treatments	T_1	T_2	T_3	T_4
Av. yield	1196	1041	1038	1091

Crop :- Paddy (*Kharif*). **Ref :-U.P. 62(184), 63(191), 64(197), 65(52).**

Site :- Govt. Reg. Agri. Res. Stn., Varanasi. **Type :- 'M'.**

Object :—To find out the suitable combination of N,P and K for Paddy.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Barley for 62 and 63, wheat, N.A. (c) N.A. (ii) Clayey loam. (iii) 27/28.7.62; 31.7.63 to 2.8.63; 29/30.7.64; 11/14.8.65. (iv) (a) 1 *Palewa* and 2 ploughing. (b) Transplanting (c)— (d) 23cm.× 15cm. (e) 2-4. (v) Nil. (vi) T-36 (late). (vii) 1 hoeing; 1 weeding; 3 weeding; 1weeding. (ix) 96·9cm.; 95·4cm; 95 3cm.; 28·2cm. (x) 18/20.12.62; 13/18.12.63; 26.11.64; 6.12.65.

2. TREATMENTS :

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

(1) 3 levels of N as A/S : N_0=0, N_1=44 8 and N_2=89·6 Kg/ha.

(2) 3 levels of P_2O_5 as Super : P_0=0,P_1=22·4 and N_2=44·8 the P_2O_5/ha.

(3) levels of K_2O: K_0=0, K_1=22·4 and K_2=44·8 the/ha.

K_2O applied as Pot. Sul. in 62 and as Mur. Pot. in others.

3. DESIGN:

(i) 3^3 confd. (ii) (a) 9 plots/block 3 blocks/replication. (b) 13·72m.×70·71m. for 62 and 63; 8·20m.×53·0m. for others. (iii) 2. (iv) (a) 13·71m.×7·3m. for 62 and 63 12·3m.×7·77m. for others. (b) 13·41m.×6 9m.; 12·3m.×77·7m. for 64 ann 65. (v) 15cm.×23cm. Nil. for 64 and 65. (vi) Yes.

4. GENERAL :

(i) Satisfactry. Attack of *Aelianthus* Sporium dlsease for 63 N.A. for others. (iii) Yield of grain Ht of plant, No. of tillers and length of ears. (iv) (a) 1962-contd. (b)Yes for 62 and 63 and for 64 onwords(field changed in 64) (c) Nil. (v) Meerut, Hardoi, Nawabgunj and Amrukh. (vi) Nil. (vii) As the experiment is continued beyond 65, results of individual years have been presented under 5. Results.

5. RESULTS :

62 (184)

(i) 2100 Kg/ha. (ii) 365·5 Kg/ha. (iii) Main effect of K alone 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	1837	2271	1808	1796	2006	2115	1972
N_1	1948	2256	2371	2108	2089	2377	2192
N_2	2144	2019	2243	1890	2153	2363	2135
Mean	1976	2182	2141	1931	2083	2285	2100
K_0	1866	2057	1870				
K_1	1928	2133	2187				
K_2	2135	2356	2365				

C. D. for K marginal means=252·7 Kg/ha.

63(191)

(i) 1860 Kg/ha. (ii) 368·5 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	1752	1758	1709	1981	1344	1894	1740
N_1	2180	1870	2024	1883	1966	2225	2025
N_2	1903	1754	1790	1874	1825	1749	1816
Mean	1945	1794	1814	1912	1721	1956	1860
K_0	2229	1767	1740				
K_1	1729	1631	1776				
K_2	1877	1982	2008				

64(197)

(i) 2122 Kg/ha. (ii) 348·8 Kg/ha. (iii) Main effect of N is highly significant. (iv) Av. yield of grain in Kg/ha.

	P_0	P_1	P_2	K_0	K_1	K_2	Mean
N_0	1624	1853	2067	1892	1769	1883	1848
N_1	2497	2170	2432	2225	2249	2626	2367
N_2	2002	2265	2187	2197	1926	2330	2151
Mean	2041	2096	2229	2105	1981	2280	2122
K_0	2016	1916	2383				
K_1	1902	2072	1970				
K_2	2205	2301	2333				

C.D. for N marginal means=241·0Kg/ha.

65(52)

(i) 3005 Kg/ha. (ii) 576·3 Kg/ha. (iii) Main effect of P alone is highly significant. (iv) Av. yield of grain in Kg/ha.

	P_0	P_1	P_2	K_0	K_1	K_2	Mean
N_0	2538	2707	3300	2822	3065	2659	2848
N_1	2770	3055	2996	3012	2759	3051	2941
N_2	2607	3494	3579	3505	3257	3219	3227
Mean	2638	3086	2392	3013	3027	2976	3005
K_0	2470	2896	3673				
K_1	2733	3002	3346				
K_2	2712	3359	2857				

C D. for P marginal means =398·3 Q/ha.

Crop :- Paddy (*Kharif*). **Ref :- U.P. 65(442).**

Site :- Govt. Reg. Agri. Res. Stn., Varanasi. **Type 'M'.**

Object :—To see residual effect of N,P and K applied to previous wheat crop on the yield of Paddy.

1. BASAL CONDITIONS :

(i) (a) Paddy-Wheat. (b) Wheat. (c) As per treatments. (ii) Loam. (iii) 25/26.7.65 (iv) (a) N.A. (b) Transplanting. (c) — (d) 23cm. × 15cm. (e) 4 (v) 22·4 Kg/ha. of N as A/S top dressed 1 month after Transplanting. (vi) N-22. (vii) and (viii) N.A. (ix) 36·2 cm. (x) 15.10.65.

2. TREATMENTS:

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

(1) 3 levels of N as A/S : N_0=0, N_1=44·8 and N_2=89·7 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 K_0=0, K_1=22·4 and K_2=44·8 Kg/ha.

Treatments were applied to the previous wheat crop.

3. DESIGN:

(i) 3^3 confd. (ii) (a) 3 block/replication and 9 plots/block. (b) 53·2m. × 11·2m. (iii) 2 (iv) (a) 11·2m. × 5·6m. (b) 10·3m. × 5·0m. (v) 45cm. × 30cm. (vi) Yes.

4. GENERAL:

(i) N.A. (ii) Nil. (iii) Yield of sheaf and grain. (iv) (a) 1965-contd. (b) Yes. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 1935 Kg/ha. (ii) 359·4 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	1702	1998	1886	1754	1815	2017	1862
N_1	2074	1842	1979	1879	1788	2227	1965
N_2	1931	2114	1886	2103	1860	1969	1977
Mean	1902	1985	1917	1912	1821	2071	1935
K_0	1842	1943	1950				
K_1	1895	1852	1716				
K_2	1970	2158	2085				

Crop :- Paddy (*Kharif*). **Ref :-U.P 64,65(M.A.E.).**

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

Object Type V (a) :—To study the effect of mathods of application of N on Paddy.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Alluvial. (iii) 21.8.64; N.A. (iv) (a) N A. (b) Transplanting. (c) to (e) N.A. (v) 33·6 Kg/ha. of P_2O_5 as Super. (vi) T-100. (vii) Irrigated. (viii) and (ix) N.A. (x) 2.11.64; N.A.

2. TREATMENTS :

All combinations of (1) and (2)+aControl.

(1) 3 levels of N : N_1=33 6, N_2=50·4 and N_3=67·2 Kg/ha.

(2) 4 methods of application : M_1=Broodcast just before last puddling and incorporated in the soil (sub-surface application), M_2=Brodcast at planting, M_3=Brodcast-$\frac{1}{2}$ at planting and $\frac{1}{2}$ about a month after. planting and M_4=Application in the form of pillets about 3 weeks after planting.

3. DESIGN :

(i) R B.D. (ii) (a) 13. (b) N.A. (iii) 4. (iv) (a) 1/198 ha. (b) 1/247 ha. (v) N.A. (vi) Yes.

4. GENERAL

(i) and (ii) N.A. (iii) Yield of grain. (iv) (a) 1964-66. (b) N.A. (c) Nil. (v) Nil. (vi) N.A. (vii) Nil.

5. RESULTS :

64(M.A.E.)

(i) 2043 Kg/ha. (ii) N.A. (iii) Main effect of N is significant. (iv) Av. yield of grain in Kg/ha.

Control=1304 Kg/ha.

Treatments	M_1	M_2	M_3	M_4	N_1	N_2	N_3
Av. yield	2102	2229	2082	2005	1852	2179	2282

C.D. for N means=271 Kg/ha.

65(M.A.E.)

(i) 3585 Kg/ha. (ii) N.A. (iii) Main effect of M is significant. (iv) Av. yield of grain in Kg/ha.

Control=2361 Kg/ha.

Treatment	M_1	M_2	M_3	M_4	N_1	N_2	N_3
Av. yield	3921	3600	3701	3525	3515	3770	3776

C.D. for M means=322 Kg/ha.

———

Crop :- Paddy *(Kharif)*. **Ref :- U.P. 64,65(M.A.E.).**

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

Object Type xi :—To determine the response of micro-nutrients application and to study their relative merits.

1. BASAL CONDITIONS:

(i) (a) to (c) N.A. (ii) Loam. (iii) 18.8.64; N.A. (iv) (a) to (e) N.A. (v) N.A. (vi) T-9. (vii) Irrigated. (viii) and (ix) N.A. (x) 29.11.64; N.A.

2. TREATMENTS:

15 micronutrient treatments :-T_0=Control (no fertilizer), T_1=N,P and K applied to soil only, T_2=T_1+Spartin at 395 Kg/ha. by soil application, T_3=T_1+Mn. as $Mnso_4$ at 60 Kg/ha. T_4=T_1+Zn. as $ZnSo_4$ at 30 Kg/ha. T_5=T_1+Cu. as Cu so_4 at 30 Kg/ha. T_6=T_1+Boron as Borax at 17·5 Kg/ha., T_7=T_1+Molybednum as soil molybedate at 1·75Kg/ha. T_8=T_1+Mn+Zn+Cu+B+Mo as per their doses in T_3 to T_7, T_9=T_1+Mn. as $Mnso_4$ at 17·5 Kg/ha., T_{10}=—T_1+Zn, as $Znso_4$ at 12·5 Kg/ha. T_{11}=T_1+Cu as Cu so_4 at 12·5 Kg/ha., T_{12}=T_1+Boran as Borax at 6·2 Kg/ha.. T_{13}=T_1+Molybedenum as sod. Molybedate at 0·62 Kg/ha. and T_{14}=T_1+Mn+Zn+Cu+B+Mo as per their dose in T_3 to T_{13}. Treatments T_3 to T_8 by soil application and T_9 to T_{14} by foliar spray T_1=33·6 Kg/ha. of N+33·6 Kg/ha. of P_2O_5+33·6 Kg/ha. of K_2O for 64 and 35 Kg/ha. of N+35 Kg/ha. of P_2O_5+35 Kg/ha. of K_2O for 65

3. DESIGN :

(i) R.B.D. (ii) (a) 15. (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) 1964-66. (b) N.A. (c) Nil. (v) Nil. (vi) N.A. (vii) Nil.

5. RESULTS :

64(m A,E.)

(i) 1385 Rg/ha. (ii) 268·2. (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	T_8	T_9
Av. yield	1184	1415	1412	1350	1505	1530	1511	1406	1418	1331
	T_{10}	T_{11}	T_{12}	T_{13}	T_{14}					
	1455	1281	1294	1486	1190					

65 (m.A.E.)

(i) 1584 Kg/ha. (ii) and (iii) N-A. (iv) Av. yield of grain in Kg/ha.

Treatement	T_0	T_1	T_2	T_3	T_4	T_5	T_6	T_7
Av. yield	896	1667	1542	1596	1599	1643	1424	1471
	T_8	T_9	T_{10}	T_{11}	T_{12}	T_{13}	T_{14}	
	1707	1667	1624	1810	1611	1751	1745	

Crop :- Paddy (*Kharif*). **Ref :- U.P. 64,65(M.A.E).**

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

Object : Type XII :—To study the effect of different fertilizer treatments and their methods of application on the yield of Paddy.

1. BASAL CONDITIONS :

(i) (a) to (c) N A. (ii) Alluvial. (iii) to (x) N.A.

2. TREATMENTS :

Main-plot treatments :

4 fertilizer treatments : F_1=44 8 Kg/ha. of N as A/S, F_2=22·4 Kg/ha. of P_2O_5 as Super, $F_3=F_1+F_2$ and $F_4=F_3+22·4$ Kg/ha of K_2O.

Sub-plot treatments :

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

(1) 3 methods of application :-M_1=Soil application, M_2=Foliar application and M_3= Soil application and Foliar application.

(2) 2 levels of fertilizers :-$L_1=\frac{1}{2}$ dose and L_2=Full dose.

Extra treatments :-C_1=Water spray and C_2=28 Absolute control

3. DESIGN :

(i) Split-plot. (ii) (a) 4 main-plots/bloek; 8 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) 1/200 ha. (b) 1/250 ha. (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) Nil. (vi) N.A (vii) Nil.

5. RESULTS :

1964

(i) 870 Kg/ha. (ii) (a) and (b) N.A. (iii) N.A. (iv) Av. yield of grain in Kg/ha.

C_1=721 and C_2=721 Kg/ha.

	L_1M_1	L_2M_1	L_1M_2	L_2M_2	L_1M_3	L_2M_3	Mean
F_1	924	1072	865	889	947	1027	954
F_2	848	907	764	760	842	846	829
F_3	971	1154	852	866	892	966	950
F_4	997	1141	806	856	887	976	944
Mean	935	1069	825	844	892	954	919

(i) 1486 Kg/ha. (ii) (a) and (b) N.A. (iii) N'A. (iv) Av, yield of grain in Kg/ha.

C_1=1223 and C_2=1285 Kg/ha

	L_1M_1	L_2M_1	L_1M_2	L_2M_2	L_1M_3	L_2M_3	Mean
F_1	1596	1648	1300	1637	1618	1862	1610
F_2	1307	1330	1191	1258	1225	1416	1288
F_3	1701	1998	1300	1633	1663	1723	1620
F_4	1746	1948	1262	1644	1656	1869	1688
Mean	1587	1731	1263	1543	1540	1717	1564

Crop :- Paddy (*Kharif*). **Ref :- U.P. 62(M.A.E.).**

Site :- M.A.E. Centte, Pura. **Type :- 'M'.**

Object : Type IX :— (Residual) To compare Nitro-Phosphate by O.D.D.A. and P.E C. processes at different levels and different methods of application.

1. BASAL CONDITIONS :

(i) to (x) N.A.

2. TREATMENTS:

All combinations of (1), (2) and (3)+2 additional treatments

(1) 3 sources of fertilizers: P_1=Super, P_2=Nitro-Phos—O.D.D.A. and P_3=Nitro-Phos—P.E C.

(2) 3 levels of fertilizers: L_1=13·4 Kg/ha. of N+11·8 Kg/ha. of P_2O_5. L_2=2, and L_3=42.

(3) 3 methods of placement : M_1=Broadcast at pudding time, M_2=Dipping lhe seedling in mud slush mixed with fertilizer before transplanting and M_3=In the form of pellets to be placed near the roots.

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

3. DESIGN

(i) Confd. (ii) (a) 13 plots/block, 3 blocks/replication. (b) N.A. (iii) 2. (iv) (a) 1/198 ha. (b) 1/247 ha. (v) N.A. (vi) Yes.

4. GENERAL:

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

5. RESULTS:

(i) 2540 Kg/ha. (ii) 313·7 Kg/ha. (iii) None of the effects is significant. (iv) Av. yield of grain in Kg/ha.

N_0=2273, N_1=2558. N_2=2625 and N_3=2603 Kg/ha

	P_1	P_2	P_3	L_1	L_2	L_3	Mean
M_1	2444	2598	2623	2520	2382	2764	2555
M_2	2652	2369	2520	2410	2555	2576	2514
M_3	2678	2558	2521	2481	2591	2683	2585
Mean	2591	2508	2555	2470	2509	2674	2551
L_1	2492	2338	2580				
L_2	2487	2598	2443				
L_3	2793	2589	2641				

Crop :- Paddy (*Kharif*). **Ref :- U.P. 60(S F.T.) for Muzaffarnagar; 60,61(S.F.T.) for others.**

(District:) :- Pilibhit, Lakhimpur kheri, Lucknow, Kanpur, Allahabad, Fatehpur, Rae-Bareli, Varanasi, Jaunpur, Gorakhpur, Daoria, Muzaffarnagar, Moradabad and Rampur. **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) Alluvial for plain and Tarai and sub-mountain. (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=33·6 Kg/ha. of P_2O_5+22·4 Kg/ha. of $K_2O$and

NPK=22·4 Kg/ha. of N+22·4 Kg/ha. of P_2O_5+22·4 Kg/ha. of K_2O.

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 with in 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 4 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) 1/98·8ha. (b) 1/197·7ha. (iv) Yes.

4. GENERAL:

(i) and (ii) N.A. (iii) Yield of .grain (iv) (a) 1960 for Muzaffarnagar and 1960-61 for others. (b) & (c) N.A. (v) to (vii) N.A.

5. RESULTS :

60(S.F.T)

District	No. of trials	Control yield in Kg/ha.	Av. response in Kg/ha. N	P	K	S.E.	NP	NK	PK	NPK	S.E.
Pilibhit	12	1680	320	170	60	30·0	—10	10	30	10	21·0
Lakhimpurkehri	16	1130	350	210	110	21·0	40	20	40	0	12·0
Lucknow	24	1300	150	150	10	31·0	—30	—40	—60	340	34·0
Kanpur	12	1750	360	150	10	30·0	10	0	30	0	19·0
Allahabad	20	1920	440	180	90	21·0	0	0	40	20	12·0
Fatehpur	18	1360	330	150	80	21·0	60	50	30	50	10·0
Rae-Bareli	18	1650	260	250	180	20·0	90	80	90	80	25·0
Varansi	16	1990	400	310	180	29·0	60	0	30	0	19·0
Jaunpur	14	1230	320	150	40	23·0	40	0	0	40	16·0
Gorakhpur	18	1600	423	240	120	32·0	80	40	40	50	19·0
Deoria	15	1460	480	210	170	16·0	310	40	40	—220	50·0

Muzaffarnagar	8	1400	370	300	240	30·0	50	30	40	40	29·0
Moradabad	16	1490	330	120	40	18·0	—40	—50	60	60	15·0
Rampur	16	1710	440	280	180	21·0	—20	10	30	0	27·0
61(S.F.T.)											
Pilibhit	12		1660	330	180	80	16·0	20	10	20	40	18·0
Lakhimpur kheri	14		1370	470	220	70	16·0	0	0	20	—10	15·0
Lucknow	22		1750	290	220	180	18·0	70	10	50	10	12·0
Kanpur	18		1780	340	220	120	24·0	40	20	70	80	20·0
Allahabad	22		2020	440	180	100	30·0	—20	20	0	60	24·0
Fatehpur	18		1360	340	140	100	24·0	10	—40	10	60	12·0
Rae.Bareli	24		1740	220	200	240	11·0	—10	20	20	20	9·0
Varanasi	20		1720	330	190	80	27·0	30	20	20	40	19·0
Jaunpur	16		450	160	70	30	9·0	10	0	10	10	6·0
Gorakhpur	17		1390	440	200	140	17·0	80	20	40	50	14·0
Deoria	16		1270	310	130	90	22·0	10	0	0	30	10·0
Moradabad	16		1340	310	110	100	14·0	—20	—60	0	20	11·0
Rampur	15		1670	440	150	170	31·0	20	30	10	—10	19·0

Crop :- Paddy (*Kharif*). **Ref :- U.P. 60,61(S.F.T.) for Kanpur, Muzaffarnagar, Moradabad and Rampur; 60,61(S.F.T.) for others.**

: District :- Pilibhit, Lakhimpur kheri, Lucknow, Kanpur, Fatehpur, Allahabad, Varanasi, Rae-Bareli, Jaunpur, Gorakhpur, Deoria, Muzaffarnagar, Moradabad and Rampur. **Type :- 'M'.**

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

1. BASAL CONDITIONS :

(i) N.A. (ii) Alluvial, (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. and

N_2''=44·8 Kg/ha. of N as A/S/N.

3. DESIGN :

Same as in type A conducted on Paddy crop and presented on page No.95

4. GENERAL

(i) and (ii) N.A. (iii) Yield of grain. (iv) (a) 1960 for Kanpur, Muzaffarnagar, Moradabad and Rampur and 1960-61 for others. (iv) to (vii) N.A.

5. RESULTS :

60(S.F.T)

Av. response of grain in Kg/ha.

District	No. of trials	Control yield in Kg/ha.	N_1	N_2	N_1'	N_2'	N_1''	N_2''	S.E.
Pilibhit	12	1710	410	560	460	640	480	700	47·0
Lakhimpur kheri	16	1130	300	560	280	570	420	700	27·0
Lucknow	24	1330	220	570	200	460	250	590	38·0
Kanpur	12	1950	160	320	220	330	380	510	19·0
Fatehpuri	18	1500	240	410	290	420	300	490	49·0
Allahabad	22	1840	420	700	430	660	560	810	17·0
Varanasi	16	1940	420	990	340	650	350	720	77·0
Rae-Bareli	22	1710	210	450	380	640	320	520	42·0
Jaunpur	16	1270	370	790	280	720	370	660	45·0
Gorakhpur	18	1560	330	870	340	850	350	820	40·0
Deoria	16	1600	350	770	390	860	520	950	29·0
Muzaffarnagar	8	1250	340	690	360	730	400	750	54·0
Moradabad	18	1500	220	500	320	650	410	630	34·0
Rampur	16	1680	440	860	470	770	440	840	37·0

61(S.F.T.)

Pilibhit	12	1750	430	610	360	570	390	640	61·0
Lakhimpur Kheri	14	1330	390	580	340	580	410	590	34·0
Lucknow	24	1840	310	640	360	740	380	720	34·0
Fatehpur	18	1340	290	470	270	450	360	550	28·0
Allahabad	22	1900	340	550	380	630	450	692	32·0
Varanasi	20	1660	310	650	340	600	280	620	63·0
Rai-Bareli	19	1730	240	410	330	470	430	620	32·0
Jaunpur	16	490	150	310	130	270	140	250	17·0
Gorakhpur	18	1130	250	500	230	460	240	470	30·0
Deoria	16	1480	270	600	280	580	320	610	50·0

Crop :- Paddy (*Kharif*). **Ref :- U.P. 61(S.F.T.) for Moradabad, Rampur and Kanpur.**

District :- Moradabad, Rampur and Kanpur. **Type :- 'M'.**

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

1. BASAL CONDITIONS:

(i) (a) to (c) N.A. (ii) Alluvial and tarai and sub-mountain. (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 C/A/N and

N_2''—44·8 Kg/ha. of N as C/A/N.

3. DESIGN :

Same as in type A conducted on Paddy crop and presented on page. No. 95.

4. GENERAL :

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

5. RESULTS :

61 (S.F.T)

District.	No. of trials	Control yield in Kg/ha.	Av. response in Kg/ha. N_1	N_2	N_1'	N_2'	N_1''	N_2''	S.E.
Moradabad	16	1580	190	480	370	540	280	460	51·0
Rampur	12	1750	340	610	300	500	310	620	43·0
Kanpur	18	1750	380	530	330	480	500	690	36·0

Crop :- Paddy (*Kharif*).

District :- Ghazipur, Gonda, Varanasi, Banda, Barabanki, Fatehpur, Kanpur, Lucknow, Unnao, Bareilly, Moradabad, Mainpuri, Shahjahanpur, Allahabad, Bahraich, Saharanpur and Rae-Bareli.

Ref :- U.P. 63,65(S.F.T.) for Ghazipur; 63(S.F.T.) for Gonda; 63,65(S.F.T.) for Varanasi; 63,65(S.F.T.)for Banda; 63,65(S.F.T.) for Barabanki; 63,65(S.F.T.) for Fatehpur; 63,65(S.F.T.)for Kanpur; 63,(S.F.T.)for Lucknow; 63,65(S.F.T.) for Unnao and Bareilly: 63,65(S.F.T.) for Moradabad; 63(S.F.T.) for Mainpuri and Shahjahanpur; 64,65(S.F.T.) for Allahabad and 65(S.F.T.) for Bahraich, Bijnor, Saharanpur and Rae-Bareli.

Type :- 'M'.

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

1. BASAL CONDITIONS :

(i) to (vi) N.A. (vii) Irrigated. (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 and

$N_2P_2K_1$=70 Kg/ha. of N+70 Kg/ha. of P_2O_5+35 Kg/ha. of K_2O.

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 oil seed crop. All the three type-C experiments are conducted on a legume crop and 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 these experiments, the 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 grain. (iv) (a) 1962-66 (Expts. conducted from 1962-65 as given under results, Expts. not conducted in Mainpuri and Bahraich,in 1666). (b) N.A. (c) Nil. (v) to (vii) Nil.

5. RESULTS:

Ghazipur

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.	355	533	197	410	632	711	810	57·7

Control yield=1116 Kg/ha.; No. of trials=2

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.	259	452	35	284	500	617	644	45·7

Control yield=1001 Kg/ha.; No. of trials=11

Gonda

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.	200	478	65	260	572	826	802	78·6

Control yield=1267 Kg/ha.; No. of trials=8

Vnranasi

63(S.F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of grain in Kg/ha.	313	515	118	404	600	670	704	41·9

Control yield=1073 Kg/ha.; No. of trials=8

65(S.F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of grain in Kg/ha.	130	253	14	205	323	366	379	27·4

Control yield=687 Kg/ha.; No. of trials=9

Banda

63 (S.F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_1P_1K_1$	S.E.
Av. response of grain in Kg/ha.	439	585	353	760	998	1193	1340	58·5

Control yield=1379 Kg/ha.; No. of trials=11

64 (S.F.T.)

Treatment	N_1	P_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.	140	257	68	343	534	881	935	39·8

Control yield=1343 Kg/ha.; No. of trials=15

65(S.F.T.)

Tretment	N_1	N_2	P_1	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of grain in Kg/ha.	164	208	53	273	356	497	512	29·0

Control yield=918 Kg/ha., No. of trials=20

Barabanki

63(S.F.T.)

Tretment	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.	257	468	48	315	695	841	961	25·6

Control yield=1476 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 grain in Kg/ha.	269	381	109	310	448	576	654	34·3

Control yield=1364 Kg/ha., No. of trials=19

Fatehpur

63 (S.F.T.)

Tretment	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.	693	1032	216	874	1103	1279	1374	56·8

Control yield=2608 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	$N_2P_2K_1$	S.E.
Av. response of grain in Kg/ha.	458	786	189	593	902	1068	1116	58·0

Control yield=1491 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.	333	485	124	490	621	736	771	33·8

Control yield=180 Kg/ha., No. of trials=15

Kanpur

63 (S.F.T.)

Ludhiana

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.	384	602	200	494	726	924	1035	34·0

Control yield=1801 Kg/ha., Na. of trials=17

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.	316	525	116	410	644	824	899	21·3

Control yield=1598 Kg/ha, ; No. of trials=24

Lucknow

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.	109	308	11	175	392	503	570	48·4

Control yield=1144 Kg/ha., No. of trials=5

Unnao

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.	363	580	109	499	613	740	806	41·2

Control yield=2009 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 grain in Kg/ha.	239	372	102	351	497	605	701	22·6

Control yield=2344 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.	294	387	148	358	478	520	710	29·1

Control yield=2355 Kg/ha., No. of trials=14

Bareilly

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.	303	482	123	413	657	963	1072	52·2

Control yield=2085 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.	410	674	174	460	811	994	1151	63·5

Control yield=2048 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.	258	531	102	353	597	703	817	20·9

Control yield=1569 Kg/ha., No. of trials=15

Moradabad

63(S.F.T.)

Trentment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.S.
Av. response of grain in Kg/ha.	420	600	215	493	697	796	873	58·9

Control yield=1929 Kg/ha., No. of trials=8

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.	197	397	121	358	521	610	669	34·4

Control yield=1262 Kg/h., No. of trials=16

Mainpuri

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.	373	445	142	365	425	708	864	85·8

Control yield=1996 Kg/ha., No. of trials=13

Shahjahanpur

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.	471	897	77	566	1038	1147	1204	74·6

Control yield=2225 Kg/ha., No. of trials=10

Allahabad

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.	390	809	194	555	810	1013	870	182·0

Controt yield=1419 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.	397	483	160	497	650	830	840	154·6

Control yield=1737 Kg/ha., No. of trials=8

Bahraich

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.	704	891	175	844	1004	1184	1189	37·4

Control yield=1737 Kg/ha., No. os trials=10

Bijnor

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.	327	499	160	433	637	776	952	46·9

Control yield=1512 Kg/ha., No. of trials=15

Saharanpur

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.	303	481	158	398	551	632	643	27·1

Control yield=1160 Kg/ha., No. of trials=17

Rae-Bareli

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.	269	542	133	380	640	752	840	33·8

Control yield=1570 Kg/ha., No. of trials=18

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Crop :-Paddy (*Kharif*). **Ref :- U.P. 63 to 65(S.F,T.) for Deoria, 63,64(S.F.T.)**
Site :- District :- as meutioned in Reference. **Gazipur; 63 to 65 (S.F.T.) for Gonda and Gorakhpur 63(S.F.T.) for Jaunpur, 63, 64(S.F.T.) for Varansi, 63 to 65 (S.F.T.) for Azamgarh and Basti; 63 (S.F.T.) for Allahabad, 63, 64 (S.F.T.) for Barabanki; 63 (S.F.T.) for Fatehpur, 63 to 65 (S.F.T.) for Faizabad and Hardoi; 63, 64 (S.F.T.) for Kanpur, 64 (S.F.T.) for Bijnor and Bahraich, 63 to 65 (S.F.T.) for Saharanpur, 63 (S.F.T.) for Hamirpur, 63,64(S.F,T.) for Pilibhit, 63 to 65 for Rampur 63(S.F.T.) for Banda, 63,64 (S.F.T.)for Lakhimpur kheri and Moradabad;63 to 65(S.F.T.)for Sitapur and Sultanpur 63(S.F.T.) for Unnao, 63 to 65 (S.F.T.) for Lucknow and Pratapgarh and 63, 64 (S.F.T.) for Rae-Bareli.**

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

1. BASAL CONDITIONS :

(i) to (vi) N.A. (vii) Un-irrigated. (viii) to (x) N.A.

2. TREATMENTS: and 3. DESIGN ;

Same as in the type A_1 Conducted on Paddy crop under irrigated condition and presented on page No. 98

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of grain. (iv) (a) 1962-66 (Expts conducted (from 1962 to 65 as given under, results. Expti not condueted in Jaunpur, Varanasi, Azamgarh, Allahabad Fatehpur, Bijnor, Bahraich Hamirpur, Rampur, Lakhimpur kheri Unnao and Rae-Bareii in 1966) (b) N.A. (c) Nil (v) to (vii) N.A.

5. RESULTS :

Deoria

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.	404	780	135	386	752	990	1159	68·2

Control yield=1456 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.	293	642	1485	431	809	891	995	69·9

Control yield=1320 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	$N_2P_2K_1$	S.E.
Av. response of grain in Kg/ha.	344	525	130	413	625	751	908	39·1

Control yield=1161 Kg/ha.; No. of trials=12

Ghazipur

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.	306	638	112	462	782	896	1063	69·5

Contuol yield=1336 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.	342	556	102	416	642	786	858	28·8

Control yield=1247 Kg/ha.; No. of trials=20

Gonda.

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.	243	123	315	436	457	464	745	97·6

Control yield=1309 Kg/ha.; No. of trials=4

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.	329	672	161	437	753	918	1003	52·8

Control yield=1309 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	$N_2P_2K_1$	S.E.
Av. response of grain inKg/ha.	394	626	136	434	704	852	975	29·6

Control yield=1328 Kg/ha.; No. of trials=12

Gorakhpur

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.	356	596	101	421	656	785	796	46·5

Control yield=1473 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. respouse of grain in Kg/ha.	311	594	100	396	675	848	884	44·0

Control yield=1881 Kg/ha.; No. of trials=13

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. sesponse of grain in Kg/ha.	232	376	75	257	480	578	640	24·8

Control yiield=1520 Kg/haNo.; o ftrials =13 .

Jaunpur

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	424	22	361	451	616	682	78·8

Control yield=1325 Kg/ha. No. of trials=4

Varanasi

63(S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_1P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. response of grain in Kg/ha,	499	811	156	626	1050	1179	1295	77·7

Control yield=1724 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 grain in Kg/ha.	370	585	129	414	638	779	830	49·0

Control yield=1293 Kg/ha.; No. of trials=15

Azamgarh

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. rrsponse of grain in Kg/ha.	357	596	122	476	678	763	827	31·6

Control yield=1532 Kg/ha. No. of trials=16

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 Rg/ha.	395	628	100	518	732	834	894	27·3

Control yield=1627 Kg/ha. No., of trials=20

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.	212	382	65	297	422	475	530	18·4

Control yield=1096 Kg/ha. No., of trials=15

Basti

63(S.E.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.	349	669	141	376	860	885	926	29·3

Control yield=1356 Kg/ha. No., of trials=15

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.	435	823	193	513	965	1100	1182	46·8

Control yield=1727 Kg/ha. No., of trials=17

65(S.F.T.)

Treatments	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.	423	734	197	529	824	925	993	22·0

Control yield=1401 Kg/ha. No., of trials=18

Allahabad

63(S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_1	$N_2P_2K_1$	S.E.
Av. response of grain in Kg/ha.	421	817	135	554	726	833	850	53·9

Coatrol yield=1584 Kg/ha. No., of trials=18

Barabanki

63(S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_1	$N_2P_1K_1$	S.E.
Av. response of grain in Kg/ha.	262	608	155	353	718	880	1053	27·7

Control yield=1490 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.	314	572	123	451	745	918	1034	18·3

Control yield=1487 Kg/ha., No. of trials=21

Fatehpur

63(S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_1	$N_2P_2K_1$	S.E.
Av. response of grain in Kg/ha.	704	1133	495	885	1305	1663	1619	136·8

Control yield=2208 Kg/ha., No. of trials=7

Faizabad

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.	322	507	197	472	705	840	908	78·5

Control yield=1337 Kg/ha., No. of trials=14

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.	378	786	135	503	868	1052	1071	44·3

Control yield=1336 Kg/ha., No. of trials=17

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.	381	633	189	455	684	844	894	59·1

Control yield=1176 Kg/ha., No. of trials—15

Hardoi

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.	402	532	168	440	615	665	824	45·8

Control yield=1401 Kg/ha., No. of trials=17

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. sesponse of grain in Kg/ha.	234	462	78	390	594	734	849	42·0

Control yield=1575 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	$N_2P_2K_2$	S.E.
Av. response of grain in Rg/ha.	378	556	79	498	695	841	739	80·3

Control yield=1387 Kg/ha.' No of trials=5

Kanpur

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.	204	461	636	385	547	690	754	25·3

Control yield=1467 Kg/ha., No. of trials=4

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.	301	558	170	405	715	887	952	23·2

Control yield=1607 Kg/ha., No of trials=18

Bijnor

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.	324	548	194	516	647	872	990	45·4

Control yie/d=1546 Kg/ha., No. of trials=16

Bahraich

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.	626	895	159	707	923	1031	1131	59·0

Control yield=1715 Kg/ha., No. of trials=5

Sharanpur

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.	489	755	155	618	969	1238	1283	63·1

Conlrol yield=1974 Kg/ha.. No of trials=6

64(S.F.T.)

Trectment	N_1	N_2	P_1	N_1P_1	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. respohse of grain in Kg/ha.	358	604	35	421	686	738	822	26 5

Control yield=1938 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.	198	338	65	303	461	630	677	42·5

Control yield=1278 Kg/ga., No. of trials=13

Hamirpur

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. regponse of	135	267	34	197	246	377	386	54·5

Control yield=1749 Kg/ha., No. trials=8

Pilibhit

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.	337	471	234	442	617	727	835	49·4

Control yield=1304 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.	138	185	16	155	207	223	249	29·4

Control yield=1259 Kg/ha., No. of trials=12

Rampur

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.	296	593	281	481	743	906	1116	77·3

Control yield=2215 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.	699	1161	343	816	1412	1644	1837	85·2

Control yield=2187 Kg/ha., No. of trials=8

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.	670	910	224	798	1068	1215	1256	74·0

Control yield=1802 Kg/ha., No of trials=7

Banda

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.respons of grain in Kg/ha.	355	677	153	558	746	1027	1111	73·6

Control yield=1052 Kg/ha., No. trials=4

Lakhimpur Kheri

63(S.F.T)

Treatment	N_1	N_2	P_1	N_1P_1	N_1P_1	N_2P_1	$N_2P_2K_1$	S.E.
Av. response of grain in Kg/ha.	440	643	215	473	736	807	861	62·6

Control yield=1228 Kg/ha., No. of trials=9

64(S.F.T.)

Treatments	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.	379	660	106	451	717	859	970	89·9

Control yield=1428 Kg/ha. No. of trials=8

Moradabad

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.	174	329	178	349	482	520	607	47·2

Control yield=1347 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_3	S.E.
Av. response of grain in Kg/ha.	383	666	98	461	792	856	907	37·5

Controi yield=1642 Kg/ha., No. of trials=12

Sitapur

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.	361	545	215	497	713	892	1029	36·9

Control yield=1345 Kg/ha., No. of trials=16

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.	562	896	234	679	934	1213	1330	47·0

Control yield=1504 Kg/ha., No. of trials=16

65(S.F.T.)

Treatment	N_1	N_2	P_1	N_1P_2	N_2P_1	N_2P_2	$N_2P_2K_1$	S.E.
Av. reponse of grain in Mg/ha.	301	539	169	415	626	724	807	40·8

Control yield=962 Kg/ha., No. of trials=16

Sultanpur

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.	310	569	289	439	744	945	961	53·9

Control yield=1306 Kg/ha., of trials=17

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. reponse of grain in Kg/ha.	181	361	128	366	541	735	845	37·9

Control yield=1440 Kg/ha., No. of trials=14

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.	211	322	57	368	502	719	845	31·1

Control yield=1226Kg/ha., No. of trials=15

Unnao

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 grain in Kg/ha.	147	379	49	245	458	550	602	85·7

Control yield=1419 Kg/ha., No. of trials=5

Lucknou

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.	349	673	106	500	745	894	941	92·4

Control yield=1527 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 grain in Kg/ha.	251	443	118	308	511	642	682	20·0

Control yield=1281 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.	149	345	58	202	383	551	613	41·2

Control yield=1319 Kg/ha., No. of trials=12

Partapgarh

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.	336	485	193	428	587	681	778	24·4

Control yield=1484 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 grain in Kg/ha.	373	553	224	448	654	731	856	51·0

Control yield=1532 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 grain in Kg/ha.	368	557	253	518	734	835	919	35·2

Control yield=1201 Kg/ha., No. of trials=17

Rae-Bareli

63(155)

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.	240	499	209	460	625	785	924	41·4

Control yield=1816 Kg/ha., No. of trials=15

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.	252	522	183	432	668	834	1015	34·5

Control yield=1515 Kg/ha., No. of trials=20

Crop :- Paddy (*Kharif*).

Site : District :- Bahraich, Ghazipur, Rae-Bareli, Bijnor, Kanpur, Lucknow, Unnao, Allahabad, Saharanpur, Mainpuri, Pilibhit, Rampur, Banda, Basti, Varanasi, Bareilly, Moradabad, Shahjahanpur, Barabanki, Fatehpur and Hardoi.

Ref. :- 65(S.F.T.) for Bahraich, Ghazipur, Rae-Bareli, Bijnor, Kanpur, and Lucknow; 64, 65(S.F.T.) for Unnao, Allahabad and Saharanpur; 64(S.F.T.) for Mainpuri; 64,65 (S.F.T.) for Pilibhit and Rampur 63 to 65(S.F.T.) for Banda 63(S.F.T.) for Basti; 63,65(S.F.T.) for Varanasi; 63 to 65 (S.F.T.) for Bareilly and Moradabad; 63,64(S.F.T.) for Shahjahanpur; 63,64(S.F.T.) for Barabanki; 63 to 65(S.F.T.) for Fatehpur and 63(S.F.T.) for Hardoi.

Type :- 'M'

Object : Type A_2 :-To study the response curves of important cereals, cash and oil seed crops to phasphorous applied singly and in combination with other nutrients.

1. BASAL CONDITIONS

(i) to (vi) N.A. (vii) Irrigated. (viii) to (x) N.A.

2. TREATMENTS:

8 manurial treatments :

O=Control (no manure),

N_1=35 Kg/ha. of N,

N_2=35 Kg/ha. of N,

P_1=70 Kg/ha. of P_2O_5,

N_1P_1=35 Kg/ha. of N+35 Kg/ha. of P_2O_5,

N_2P_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 PO_5 and

$N_2P_2K_2$=70 Kg/ha. of N+70 Kg/ha of P_2O_5+70 Kg/ha. of K_2O.

3. DESIGN:

(i) and (ii) A selected district is divided into four agriculturally homogeneous zones based on climate, soil and 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_2 and 3 are of type C. The eleven experiments each under type A_1,A_2 and A_2 are distributed as 3 on a Kharif cereal, 3 on a Rabi cereal, 3 on a Cash crop and 2 on an Oilseed crop. All the three type-C experiments are conducted on legume crop. For the purpose of conducting the A_1, A_2 and A_2 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_2 are laid out. For conducting these experiments, three villages are randomly selectedin each block (iii) (a) 1/100 ha. (b) 1/200 ha. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of grain (iv) (a) 1962 to 66 (Expts. from 1962 to 65 are given under results. Expts. not conducted in Bahraich. and Mainpuri in 1966). (b N.A. (c) Nil. (v) to (vii) N.A.

5. RESULTS :

Bahraich

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.	722	186	456	830	908	1002	1108	34.3

Control yield=088 Kg/ha., No of trials=10

Ghazipur

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.	261	40	59	294	308	479	507	27·8

Control yield=988 Kg/ha., No os trials=11

Rae-Bareli

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.	322	129	245	482	546	786	939	29·2

Control yield=1449 Kg/ha., No of trials=16

Bijnor

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.	352	105	196	491	597	813	961	34·1

Control yield=1476 Kg/ha., No of trials=15

Kanpur

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.	341	117	168	430	542	841	940	27·2

Control yield=1575 Kg/ha., No of trials=22

Luknow

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.	146	0	59	229	280	585	646	37·3

Control yield=1127 Kg/ha., No of trials=15

Unnao

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.	302	108	177	399	522	624	757	25·4

Control yield=2329 Kg/ha., No. of trials=15

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.	320	104	176	379	434	570	710	17·1

Control yield=2191 Kg/ha., No of trials=12

Allahabad

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.	415	152	153	630	585	942	955	1008

Control yield=1502 Kg/ha., No. of trials=15

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. respose of grain in Kg/ha.	322	115	193	387	474	659	711	79·9

Control yield=1577 Kg/ha. No. of trials=9

Saharanpur

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.	384	151	274	502	589	812	863	39·7

Contro lyield=1611 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 grain in Kg/ha.	324	129	202	431	477	613	663	28·7

Control yield=1244 Kg/ha., No of trials=16

Manipur

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.	323	126	270	309	409	419	815	50 9

Control yield=1811 Kg/ha., No of trials=20

Pilibhit

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.	175	46	47	191	205	262	279	30·1

Control yield=1273 Kg/ha., No of trials=12

65(S.F.T.)

Treatmeant	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.	94	15	25	113	119	232	285	15·0

Control yield=817 Kg/ha., No of trials=10

Rompur

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.	692	212	350	929	1114	1424	1696	72·7

Control yield=2034 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.	526	188	271	674	735	962	1038	51·3

Control yield=1848 Kg/ha. No of trials=12

Bauda

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.	364	274	492	704	880	1165	1393	45·6

Control yield=1418 Kg/ha., No of trials=12

64(S.F.f.)

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.	206	213	254	523	585	872	1024	52·0

Control yield=1272 Kg/ha., No of trials=16

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.	233	115	105	310	375	509	532	33·9

Control yield=807 Kg/ha. No of trials=20

Basti

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.	526	56	281	677	576	1380	1496	126·5

Control yield1=025 Kg/ha., No of trials=4

Varanusi

63(S.F.T)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_1	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of grain in Kg/ha.	371	120	242	524	618	918	968	56·0

Control yield=1445 Kg/ha., No of trials=8

65(S.F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_1	N_2P_1	$N_2P_2K_2$	S.E.
Av. response of grain in Kg/ha.	108	10	51	147	192	298	333	28·5

Control yield=653 Kg/ha. No. of trials=8

Bareilly

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 grrin in Kg/ha.	361	186	275	459	559	878	849	31·4

Control yield=2036 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.	495	156	280	506	639	1082	1189	81·7

Control yield=2208 Kg/ha., No of triale=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.	286	96	180	364	460	615	821	31·1

Control yield=1532 Kg/ha., No of trials=16

Moradabad

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.	416	209	314	521	576	812	970	67·0

Control yield=2026 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 grain in Kg/ha.	377	119	182	520	593	859	979	64·5

Control yield=1624 Kg/ha., No of trials=12

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.	220	82	153	260	317	422	513	27·2

Control yield=1214 Kg/ha. No of trials=16

Shahabjanpur

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.	572	117	221	574	669	1211	1275	70·7

Control yield=2278 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 grain in Kg/ha.	400	88	127	454	493	768	861	22 6

Control yield=1682 Kg/ha. No. of trials=12

Barabanki

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.	391	56	131	441	515	91S	1071	30·1

Control yield=1375 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 grain in Kg/ha.	195	58	177	339	362	553	661	30·9

Control yield=1358 Kg/ha. No of trials=16

Fatehpur

63(S·F.T.)

Treatement	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.	701	223	411	861	1014	1312	1344	55·8

Control yield=2546 Kg/ha. No of trials=10

64(S.F.T.)

Treatments	N_1	P_{12}	P_2	N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. respynse of grain in Kg/ha.	537	152	263	624	694	996	1096	69 7

Control yield=1481 Kg/ha. No of trials=15

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.	329	126	215	463	538	757	814	36·6

Control yield=1700 Kg/ha. No of trials=15

Hardoi

63(S.F.T.)

Treatments	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,	251	69	95	300	391	505	667	49·5

Control yield=1362 Kg/ha. No. of trials=4

Crop :- Paddy (*Kharif*).

Site : (District) : Bahraich, Deoria, Jaunpur, Varanasi Ghazipur, Gonda, Gorakhpur, Shahjahanpur, Azamgarh, Basti, Moradabad, Mainpuri, Pilibhit, Banda, Bijnor, Lakhimpur kheri, Sitapur, Sultanpur, Unnao, Lucknow, Pratapgarh, Rae-Bareli, Faizabad, Hardoi, Kanpur, Allahabad, Barabanki and Fatehpur.

Ref. :- U.P. 64(S.F.T.) for Bahraich; 64, 65 (S.F.T) Deoaia; 63(S.F.T.) for Jaunpur; 63,64(S.F.T.)for Varanasi and Ghazipnr; 63 to 65(S.F.T.) for Gonda and Gorakhpur; 63, 65(S.F.T) for Shahjahanpur; 63, 65(S.F.T.) for Azamgarh and Basti, 63(S.F.T.) for Moradabad, Mainpuri; Pilibhit and Banda; 63,64,65(S.F.T.) for Biznor and Lakhimpur kheri; 63, 65 (S F.T.) for Sitapur and Sultanpur: 63(S.F.T) for Unnao; 63,64(S.F T.) for Lucknow; 63 to 65(S.F.T.) for Partapgarh; 63,64(S.F.T) for Rae-Bareli; 63 to 65(S.F.T.) faizabad and Hardoi; 63,64 (S.F.T.) for Kanpur; 63(S.F.T.) for Allahabad; 63.64(S.F.T.) for Barabanki and 63(S.F.T.) for Fatehpur.

Type :- 'M'

Object : Type :– To study the response curves of important cereals cash and oil seed crops to phosphorous applied singly and in combination with others nutrients.

1. BASAL CONDITIONS :

(i) to (vi) N.A. (vii) Irrigated. (viii) to (x) N.A.

2. TREATMENTS:

2. Treatments and 3. Design : - Same as in type A_2 conducted on Paddy crop under irrigated conditions and presented on page No. 115

4. GENERAL:

(i) and (ii) N.A. (iii) Yield of grain. (iv) (a) 1962-66 (Expts. from 1962 to 65 as given uuder results. Expts. not conducted in Bahraich, Deoria, Jaunpur, Mainpuri, Lakhimpur kheri, Unnao, Barabanki and Fatehpur in 1966). (b) N.A. (c) Nil. (v) to (vii) N.A.

Bahraich

64(S.F.T)

Treatment	N_1	P_1	P_2	N_1P_1	N_1P_2	N_2P_2	$N_1P_2K_2$	S.E.
Av. response of grain in Kg/ha.	655	90	538	727	785	864	986	98·9

Control yield=1901 Kg/ha., No of trials=5

Deoria

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.	326	93	193	472	553	878	948	48·8

Control yield=1221 Kg/ha., No. of trials=12

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.	406	169	225	504	622	1002	1102	51·4

Control yield=1287 Kg/ha., No of trila=12

Jaunpur

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.	316	10	46	352	421	520	589	70·0

Control yield=1195 Kg/ha., No of trials=4

Varanasi

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.	324	135	244	467	584	862	946	100·4

Control yield=1323 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.	287	68	128	396	480	790	915	47·0

Control yield=1368 Kg/ha., No of trials=15

Ghazipur

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.	376	141	134	527	652	865	920	63·0

Control yield=1350 Kg/ha., No of trials=13

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.	356	86	178	451	538	747	837	25·3

Control yield=1284 Kg/ha., No of trials=20

Gonda

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. reponse of grain in Kg/ha.	431	145	378	586	633	963	1108	93·6

Control yield=1062 Kg/ha. No of trials=6

64(S.F.T)

Treatement	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.	376	216	254	471	594	846	913	45·7

Control yield=1312 Kg/ha., No of trials=16

65(S.F.T.)

Trratment	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 K8/ha.	483	177	236	519	604	813	1000	36·9

Control yield=1310 Kg/ha. No of trials=12

Gorakhpur

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.	382	157	206	480	567	858	867	50·7

Control yield=1399 Kg/ha., No of trials=12

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.	310	96	173	356	427	828	867	54·3

Control yield=1710 Kg/ha. No of trials=13

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.	212	96	149	296	361	590	660	30·7

Control yield=1342 Kg/ha., No of trials=13

Shahjahanpur

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.	276	212	227	444	588	810	1032	119·1

Control yield=1680 Kg/ha. No of trials=4

65(S.F.T.)

Treatment	N_1	P_1		N_1P_1	N_1P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of grain in Kg/ha.	270	117		352	412	636	752	62·0

Control yield=1364 Kg/ha., No of trials=12

Azamgarh

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.	339	130	202	469	529	755	864	25·2

Control yield=1504 Kg/ha., No trials=16

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.	376	124	195	483	561	815	907	25·6

Control yield=1620 Kg/ha., No of trials=20

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.	224	66	131	324	385	514	586	15·7

Control yield=1168 Kg/ha. No of trials=15

Basti

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.	362	137	248	479	583	836	909	24·2

Control yield=1590 Kg/ha., No of trials=12

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.	431	159	304	592	667	1016	1066	35·1

Control yield=1710 Kg/ha., No of trials=17

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.	427	179	283	587	716	980	1038	31·5

Control yield=1385 Kg/ha., No of trials=17

Moradabad

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.	227	92	168	335	374	545	612	30·7

Control yield=1306 Kg/ha., No of trials=8

Mainpur

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.	127	—16	106	191	228	200	483	64·3

Control yield=1821 Kg/ha., No of trials=7

Pilibhit

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.	350	139	291	510	620	720	854	61·0

Control yield=1456 Kg/ha., No of trials=12

Bonda

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. respose of grain in Kg/ha.	266	192	187	578	711	924	1032	123·3

Control yield=1250 Kg/ha., No of trials=4

Bijnor

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.	412	206	317	593	748	1091	1233	45·6

Control yield=1667 Kg/ha., No trials=15

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.	361	206	314	555	666	841	1028	26·2

Control yield=1486 Kg/ha., No. of trials=16

Lakhimpur (kheri)

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.	444	205	346	561	741	986	1127	79·3

Control yield=1266 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.	342	89	123	392	530	808	888	101·1

Control yield=1199 Kg/ha., No of trials=6

Sitapur

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.	363	232	351	575	735	945	1100	42·9

Control yield=1317 Kg/ha., No of trials=16

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.	612	217	284	797	782	1149	1278	58·0

Control yield=1405 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.	330	132	221	434	551	738	903	38·3

Control yield=926 Kg/ha., No of trials=16

Sultanpur

63(S.F.T.)

Treatments	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.	424	303	450	536	669	1116	1196	56·0

Control yield=1297 Kg/ha., No of trials=17

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.	245	156	237	404	415	631	771	40·2

Control yield=1434 Kg/ha. No of trials=13

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.	245	102	251	400	586	755	884	28·8

Control yield=1338 Kg/ha. No of trials=15

Unnao

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.	171	119	137	297	285	346	408	55·9

Control yield=1351 Kg/ha. No of trials=5

Luaknow

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.	313	241	308	441	566	824	982	71·2

Control yield=1672 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 grain in Kg/ha.	286	145	220	386	429	646	693	23·7

Control yield=1273 Kg/ha., No of trials=15

Pratapgarh

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.	227	92	153	394	452	633	754	38·5

Control yield=1477 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 grain in Kg/ha.	263	101	127	350	419	628	694	41·5

Control yield=1604 Kg/ha. No of trials=10

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.	271	168	197	363	465	582	738	43·6

Control yield=1204 Kg/ha. No of trials=18

Rai-Bareli

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.	310	221	307	467	562	768	987	34·1

Control yield=1734 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.	262	132	274	425	505	819	943	43·4

Control yield=1549 Kg/ha. No of trials=20

Faizabad

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.	332	192	331	439	604	963	1083	64·0

Control yield=1400 Kg/ha. No. of trials=13

64(S.F.T.)

Treament	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.	405	139	239	510	1523	951	1050	360·7

Control yield=1273 Kg/ha. No of trials=16

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.	386	87	140	402	514	756	832	50·6

Control yield=1128 Kg/ha. No of trials=12

Hardoi

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.	374	187	218	427	520	690	861	46 9

Control yield=1407 Kg/ha. No of trials=13

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.	294	85	160	385	483	743	904	27·0

Control yield=821 Kg/ha. No of trials=12

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.	821	591	668	985	1034	1306	1458	68·2

Control yield=821 Kg/ha., No of trials=3

Kanpur

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. reeponse of grain in Kg/ha.	217	93	184	317	490	622	734	99·1

Control yield=1597 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 grain in Kg/ha.	305	105	177	403	524	766	884	23·6

Control yield=1621 Kg/ha., No. of trials=19

Allahabad

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.	393	111	191	544	570	795	806	55·2

Control yield=1567 Kg/ha., No. of trials=19

Barabanki

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.	307	127	184	397	461	748	1035	71·6

Control yield=1531 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.	314	122	203	452	570	872	1127	36·7

Control yield=1476 Kg/ha., N6o. of trials=19

Fatehpur

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.	794	340	434	940	822	1186	1162	116·0

Control yield=2328 Kg/ha., No. of trials=5

Crop :-Paddy (*Kharif*).

Site :- District :- Bahraich, Allahabad, Rae-Bareilly, Bijnor, Pilibhit, Saharanpur, Shahjahanpur, Bareilly, Azamgarh, Banda, Moradabad, Mainpuri, Kanpur, Lucknow, Unnao, Basti, and Barabanki, Fatehpur, Ghazipur, Gonda, Varanasi.

Ref :- U.P. 65(S.F.T.) for Bahraich, Allahabad, Rae-Bareilly, Bijnor Pilibhit, and Saharanpur, 63 to 64 (S.F.T.) for Shahjahanpur, 63 to 65 (S.F.T.) for Bareilly; 64, 65(S.F.T.) for Azamgarh; 63 to 65 (S.F.T.) for Banda and Moradabad, 63 to 65 (S.F.T.) for Mainpuri; 63, 65 (S.F.T.) for Kanpur, Lucknow and Unnao; 63, 64 (S F.T.) for Basti and Barabanki, 63 to 65 (S.F.T.) for Fatehpur; 63,65 (S.F.T.) for Ghazipur; 63(S.F.T.) for Gonda; 63 to 65 (S.F.T.) for Varanasi.

Type :- 'M'.

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

1. BASAL CONDITIONS :

(i) to (vi) N.A. (vii) Irrigated. (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 N,

K_2=70 Kg/ha. of P_2O_5,

N_1K_1=35 Kg/ha. of N+35 Kg/ha. of P_2O_5,

N_2K_1=35 Kg/ha. of N+70 Kg/ha. of P_2O_5,

N_2K_2=70 Kg/ha. of N+70 Kg/ha. of P_2O_5 and

$N_2P_1K_1$=35 Kg/ha. of N+35 Kg/ha. of P_2O_5+35 Kg/ha. of K_2O.

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 oil seed crop. All the three type-C experiments are conducted on a legume crop and 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 these experiments, the 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 grain. (iv) (a) 1962-66 (Expts from 1962 to 65 are given under, results. Expt not condueted in Bahraich, Pilibhit, Mainpuri and Gonda in 1966). (b) N.A. (c) Nil (v) to (vii) N.A.

5. RESULTS :

Bahraich

65(S.F.T.)

Treatment	N_1	N_2	K_1	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of grain in Kg/ha.	690	137	272	764	841	1020	952	44·2

Control yield=1643 Kg/ha.; No of trials=10

Allahabad

65(S.F.T.)

Treatment	N_1	N_2	K_1	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of grain in Kg/ha.	425	140	129	511	533	913	570	103·7

Control yield=1497 Kg/ha.; No of trials=9

Rae-Bareli

65(S.F.T.)

Treatment	N_1	N_2	K_1	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of grain in Kg/ha.	268	144	263	397	462	781	599	32·5

Control yield=1449 Kg/ha.; No. of trials=16

Bijnor

65(S F.T.)

Treatment	N_1	N_2	K_1	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of grain in Kg/ha.	364	74	166	457	534	717	724	46·3

Control yield=1435 Kg/ha.; No. of trials=15

Pilibhit

65(S.F.T.)

Treatment	N_1	N_2	K_1	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of grain in Kg/ha.	89	13	20	103	134	210	136	8·5

Control yield =742 Kg/ha.; No. of trials=10

Saharanpur

65(S.F.T.)

Treatment	N_1	N_2	K_1	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of grain in Kg/ha,	352	52	78	396	426	589	494	20·9

Control yield=1265 Kg/ha.;No. of trials=16

Shahjahanpur

63(S.F.T.)

Treatment	N_1	N_2	K_1	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of grain in Kg/ha.	516	54	81	491	504	989	642	61·7

Control yield=1954 Kg/ha.; No. of trials=10

46(S.F.T.)

Treatment	N_1	N_2	K_1	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. rrsponse of grain in Kg/ha.	222	17	75	253	265	531	344	33·6

Control yield=1278 Kg/ha. No. of trials=12

Bereilly

63(S.F.T.)

Treatment	N_1	N_2	K_1	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of grain in Kg/ha.	316	74	144	216	451	812	706	74·1

Control yield=1875 Kg/ha. No., of trials=12

64(S.F T)

Treatment	N_1	N_2	K_1	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of grain in Kg/ha.	311	154	259	448	572	902	723	32·9

Control yield=1024 Kg/ha. No , of trials=15

65(S E.T.)

Treatment	N_1	N_2	K_1	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of grain in Kg/ha.	249	88	139	356	414	676	564	21·6

Control yield=1424 Kg/ha. No., of trials=15

Azamgarh

64(S F.T.)

Treatment	N_1	N_2	K_1	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of grain in Kg/ha.	342	76	143	392	447	684	533	24·5

Control yield=1479 Kg/ha. No., of trials=20

Banda

63(S.F.T.)

Treatments	N_1	N_2	K_1	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of grain in Kg/ha.	463	293	556	751	952	1206	1136	48·3

Control yield=1268 Kg/ha. No., of trials=11

64(S F.T.)

Treatment	N_1	N_2	K_1	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of grain in Kg/ha.	223	72	254	483	597	891	691	84·5

Control yield=1271 Kg/ha. No., of trials=16

65(S.F.T.)

Treatment	N_1	N_2	K_1	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of grain in Kg/ha.	173	51	111	282	360	472	514	32·2

Control yield=886 Kg/ha., No. of trials=20

Moradabad

63(S.F.T.)

Treatment	N_1	N_2	K_1	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of grain in Kg/ha.	436	149	254	534	496	740	636	52·7

Control yield=1824 Kg/ha., No. of trials=8

64(S.F.T.)

Treatment	N_1	N_2	K_1	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of grain in Kg/ha	419	92	173	517	590	9.0	676	89·4

Control yield=1506 Kg/ha., No. of trials=12

65(S.F.T.)

Treatment	N_1	N_2	K_1	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of grain in Kg/ha.	207	69	154	266	303	479	419	22·9

Control yield=1204 Kg/ha. No. of trials=15

Mainpuri

63(S.F.T.)

Treatment	N_1	N_2	K_1	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of grain in Kg/ha	476	333	350	431	575	724	685	110·2

Control yie/d=1937 Kg/ha., No. of trials=8

64(S.F.T.)

Treatment	N_1	N_2	K_1	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of grain in Kg/ha.	302	118	259	271	454	676	605	41·4

Control yield=1688 Kg/ha., No. of trials=19

Kanpur

63(S.F.T.)

Treatment	N_1	N_2	K_1	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response f grain in Kg/ha.	393	63	150	470	527	818	738	30·4

Conlrol yield=1736 Kg/ha.. No of trials=12

65(S.F.T.)

Treatment	N_1	N_2	K_1	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of grain in Kg/ha.	545	172	257	661	707	1148	988	37·2

Control yield=1768 Kg/ha., No of trials=8

Lucknow

63(S.F.T.)

Treatment	N_1	N_2	K_1	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of grain in Kg/ha.	122	9	80	172	213	400	285	15·0

Control yield=698 Kg/ha., No. of trials=5

65(S.F.T.)

Treatment	N_1	N_2	K_1	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of	221	47	108	217	277	573	394	37·3

Control yield=1312 Kg/ha , No. of trials=11

Unnao

63(S.F.T.)

Treatment	N_1	N_2	K_1	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of grain in Kg/ha.	475	162	256	561	664	659	702	81·0

Control yield=1842 Kg/ha., No. of trials=10

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.	335	109	195	399	500	608	523	21·5

Control yield=278 Kg/ha.; No. of trials=11

Basti

63 (S.F.T.)

Treatment	N_1	K_2	K_1	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of grain in Kg/ha.	722	199	180	715	420	1198	691	183 0

Control yield=919 Kg/ha.; No. of trials=11

64(S.F.T.)

Treatment	N_1	N_2	K_1	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of grain in Kg/ha.	405	110	183	491	538	880	601	32·4

Control yield=1620 Kg/ha., No. of trials=18

Barabanki

63(S.F.T.)

Treatment	N_1	N_2	K_1	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of grain in Kg/ha.	154	40	50	262	381	622	466	42·6

Control yield=1509 Kg/ha., No. of trials=5

64 (S.F.T.)

Treatment	N_1	N_2	K_1	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of grain in Kg/ha.	302	144	186	347	420	572	447	29·9

Control yield=1341 Kg/ha., No. of trials=19

Fatehpur

63 (S.F.T.)

Treatment	N_1	N_2	K_1	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of grain in Kg/ha.	730	83	218	720	795	1256	1114	47·6

Control yield=2193 Kg/ha., No. of trials=8

64 (S.F.T.)

Treatment	N_1	N_2	K_1	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of grain in Kg/ha.	496	147	212	515	565	913	770	61·8

Control yield=1392 Kg/ha., No. of trials=15

65(S.F.T.)

Treatment	N_1	N_2	K_1	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of grain in Kg/ha.	294	103	147	300	398	619	559	30·0

Control yield=1459 Kg/ha., No. of trials=16

Ghazipur

63(S.F.T.)

Treatment	N_1	N_2	K_1	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of grain in Kg/ha.	355	67	205	458	573	798	929	38·0

Control yield=1340 Kg/ha., No. of trials=5

65(S.F.T.)

Treatment	N_1	N_2	K_1	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of grain in Kg/ha.	296	22	32	316	337	510	443	20·9

Control yield=846 Kg/ha., No. of trials=10

Gonda

63(S.F.T.)

Treatment	N_1	N_2	K_1	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of grain in Kg/ha.	171	19	35	226	271	540	389	49·4

Control yield=1655 Kg/ha., No. of trials=4

Varanasi

63(S.F.T.)

Treatment	N_1	N_2	K_1	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of grain in Kg/ha.	325	62	126	380	427	706	567	54·3

Control yield=1292 Kg/h., No. of trials=10

64(S.F.T.)

Treatment	N_1	N_2	K_1	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of grain in Kg/ha.	280	42	76	342	375	632	499	33·2

Control yield=1176 Kg/ha., No. of trials=15

65(S F.T.)

Treatment	N_1	N_2	K_1	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of grain in Kg/ha.	134	21	40	148	138	334	231	25 8

Control yield=648 Kg/ha., No. of trials=6

Crop :- Paddy (*Kharif*).

Saharanpur, Bahraich, Bijnor, Pilibhit, Rampur, Shahjahanpur, Lakhimpur Kheri, Moradabad, Mainpuri, Sultanpur, Unnao, Banda, Partapgarh, Bareilly, Sitapur, Hardoi, Kanpur, Lucknow, Barabanki, Fatehpur, Faizabad, Deoria, Ghazipur, Gonda, Azamgarh, Basti, Allahabad, Gorakhpur, Varanasi.

Ref :- U.P. 64 (S.F.T) for Saharanpur; Bahraich, 63(S.F.T.) for Bijnor, Pilibhit Rampur, Shahjahanpur & Lakhimpur Kheri; 63(S.F.T.) for Moradabad and Mainpuri; 63 to 65(S.F.T.)for Sultanpur; 63,64(S.F.T.) for Unnao; 63,65(S F.T.)for Banda; 63 to 65 (S.F.T.) Pratapgarh, 63,64(S.F.T.)for Bareilly: 63 to 65(S.F.T.) for Sitapur and Hardoi, 63,64(S.F.T.) for Kanpur, Lucknow, Barabanki;63(S.F.T.) for Fatehpur, 63 to 65(S.F.T.)for Faizabad and Deoria; 63,64 (S.F.T.) for Ghazipur; 63 to 65(S.F.T.) for Gonda; 63 to 65 (S.F.T.) for Azamsaah and Basti; 63 64 (S.F.T.) for Allahabad, 63 to 65 (S.F.T.) for Gorakhpur and 63 (S.F.T.) for Varanasi.

Type :- 'M'.

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

1. BASAL CONDITIONS :

(i) to (vi) N.A. (vii) UnIrrigated. (vii) and (x) N.A.

2. TREATMENTS : and 3. DESIGN :

Same as in type A_s conducted on Paddy crop under irrigated conditions and presented on page No. 95.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of grain. (iv) (a) 1962-66 (Expts. conducted from 1962 to 65 as given under results Expts. not conducted in Saharanpur, Bahraich, Bijnor Lakhimpur Kheri, Moradabad. Mainpuri, Unnao, Bareilly, Fatehpur, Azamgarh, and Allahabad in 1966). (b) No. (c) Nil .(iv) to (vii) N.A.

5. RESULTS :

Saharanpur

64(S.F.T.)

Treatment	N_1	N_2	K_1	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of grain in Kg/ha.	340	42	86	386	437	705	563	31·4

Control yield=1701 Kg/ha., No. of trials=8

Bahraich

64(S.F.T.)

Treatment	N_1	N_2	K_1	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of grain in Kg/ha.	515	113	348	629	750	993	757	65·0

Control yield=1706 Kg/ha., No. of trials=5

Bijnor

63(S.F.T.)

Treatment	N_1	N_2	K_1	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of grain in Kg/ha.	335	105	171	456	541	773	729	33·1

Control yield=1555 Kg/ha., No. of trials=16

64(S.F.T.)

Treatment	N_1	N_2	K_1	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of grain in Kg/ha.	331	94	188	383	455	671	640	48·2

Control yield=1406 Kg/ha., No. of trials=16

Pilibhit

63(S.F.T.)

Treatment	N_1	N_2	K_1	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of grain in Kg/ha.	364	227	308	442	534	759	814	61·3

Control yield=1280 Kg/ha , No. of trials=12

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.	105	10	18	118	127	218	154	14·7

Control yield=1286 Kg/ha.; No. of trials=12

Rampur

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.	273	103	215	457	528	650	692	43·8

Control yield=1910 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.	661	230	383	803	988	1268	1275	51·9

Control yield=1802 Kg/ha.; No. of trials=7

Shahjahanpur

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 inKg/ha.	442	61	99	472	511	395	657	36·8

Control yield=1873 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.	383	72	113	453	482	770	503	38·0

Control yield=1688 Kg/ha.; No of trials=12

Lakhimpur kheri

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.	315	106	166	425	494	835	639	46·9

Control yield=1349 Kg/ha.; No. of trials=10

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.	319	37	143	367	375	774	548	48·2

Control yield=1021 Kg/haNo.; o ftrials8 =

Moradabad

63 (S.F.T.)

Ludhiana

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.	244	96	136	274	368	404	464	40·7

Control yield=1413 Kg/ha., No. of trials=8

Mainpuri

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.	161	79	58	168	204	371	325	36·1

Control yield=1678 Kg/ha, ; No. of trials=8

Sultanpur

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.	401	106	179	531	700	1091	942	64·9

Control yield=1469 Kg/ha., No. of trials=17

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.	236	99	194	368	439	624	627	38·1

Control yield=1481 Kg/ha., No. of trials=12

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.	214	46	90	250	384	594	652	34·5

Control yield=1100 Kg/ha., No. of trials=15

Unnao

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.	149	91	158	242	279	403	356	35·7

Control yield=1418 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.	270	98	174	385	459	561	519	30·8

Control yield=2390 Kg/ha., No. of trials=15

Banda

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.	484	59	98	474	540	1034	909	40·6

Control yield=889 Kg/ha., No. of trials=3

Pratapgarh

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.	251	53	116	278	401	569	565	27·0

Control yield=1494 Kg/ha., No. of trials—10

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.	225	51	128	312	438	622	571	32·0

Control yield=1486 Kg/ha., No. of trials=10

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.	198	103	165	295	356	524	583	32·2

Control yield=1190 Kg/ha., No. of trials=18

Bareilly

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.	294	175	293	366	474	700	497	40 2

Control yield=1890 Kg/ha., No of trials=15

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.	271	143	319	393	505	836	596	32·2

Control yield=1588 Kg/ha., No. of trials=20

Sitapur

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.	425	143	237	540	607	877	721	41·8

Control yield=1351 Kg/ha., No of trials=16

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.	393	64	133	521	642	1064	769	45·0

Control yield=1435 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.	314	87	176	402	478	725	552	33·4

Control yield=943 Kg/ha., No. of trials=16

Hardoi

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.	451	155	185	451	542	782	680	50·1

Control yield=1430 Kg/ha., No. of trials=17

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.	324	11	82	417	336	749	604	29·2

Control yield=1500 Kg/ha., No. of trials=12

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.	311	41	87	282	470	770	550	27·4

Control yield=1417 Kg/ha., No. of trials=5

Kanpur

63(155)

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.	240	92	177	318	401	745	677	66·2

Control yield=1418 Kg/ha., No. of trials=3

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.	319	91	145	391	454	768	683	22·6

Control yield=1521 Kg/ha., No. of trials=16

Lucknow

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.	392	146	193	411	476	677	609	39·6

Control yield=1282 Kg/ha , No. of trials=10

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.	279	102	146	282	318	547	450	18·9

Control yield=1151 Kg/ha., No. of trials=14

Barabanki

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.	284	132	2·1	443	544	901	629	26·2

Control yield=1494 Kg/ha., No. of trials=12

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.	246	0·84	183	442	538	857	644	17·5

Control yield=1480 Kg/ha., No of trials=20

Fatehpur

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.	9·07	209	285	816	889	1259	1278	110·8

Control yield=1967 Kg/ha., No. trials=7

Faizabad

63(S.F.T)

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_1	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of grain in Kg/ha.	484	100	155	456	579	414	698	66·8

Control yield=1391 Kg/ha , No. of trials=14

64(S.F.T.)

Treatments	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.	538	157	243	520	525	1101	790	82·2

Control yield=1311 Kg/ha. No. of trials=17

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.	427	60	138	474	545	854	691	71·

Control yield=1228 Kg/ha., No. of trials=12

Deoria

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.	360	27	115	439	479	721	627	51·9

Control yield=1418 Kg/ha.; No. of trials=12

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.	296	46	77	365	481	751	456	47·2

Control yield=1313 Kg/ha.; No. of trials=12

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.	363	87	126	423	532	770	563	42·2

Control yield=1188 Kg/ha. ; No. of trials=12

Ghazipur

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.	419	72	146	454	489	839	574	28·8

Control yield=1239 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 grain in Kg/ha.	314	59	116	348	401	675	499	23·8

Control yield=1200 Kg/ha. No of trials=19

Gonda

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.	470	166	218	433	532	795	592	57·6

Control yield=1061 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 grain in Kg/ha.	330	158	205	440	489	814	572	44·1

Control yield=1178 Kg/ha., No. of trials=12

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.	439	120	216	514	593	856	743	35·7

Control yield=1305 Kg/ha., No. of trials=12

Azamgarh

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.	317	75	127	389	433	526	483	30·9

Control yield=1258 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. reponse of grain in Kg/ha.	223	38	107	274	336	461	339	44·2

Control yield=112 Kg/ha., No. of trials=15

Basti

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.	380	124	227	501	584	850	801	30·0

Control yield=1398 Kg/ha., of trials=12

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. reponse of grain in Kg/ha.	475	138	232	549	610	846	760	34·5

Control yield=1365 Kg/ha., No. of trials=17

Allahabad

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.	423	82	60	479	508	778	609	49·3

Control yield=1406 Kg/ha., No. of trials=19

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.	607	87	136	762	705	1086	759	78·9

Control yield=1489 Kg/ha., No. of trials=15

Gorakhpur

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.	247	7	58	332	349	620	461	40·7

Control yield=1340 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.	323	44	60	310	342	711	602	37·0

Control yield=1727 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.	192	60	102	256	311	501	424	28·4

Control yield=1343 Kg/ha., No. of trials=13

Varanasi

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.	357	54	19	339	461	726	469	97·1

Control yield=1996 Kg/ha., No. of trials=3

Crop :- Paddy (*Kharif*). **Ref:-U.P. 65(4).**

Site :- Govt. Reg. Agri. Res. Stn., Hardoi. **Type :- 'MV'.**

Object :—To study the effect of high and low fertility levels on the yield of different varieties of Paddy.

1. BASAL CONDITIONS:

(i) (a) Nil. (b) Berseem. (c) N.A. (ii) Sandy loam. (iii) 22 to 30.7.65, (iv) (a) N.A. (b) Transplanting. (c) — (d) 23cm. × 15cm. (e) 2 to 3. (v) 92·2 Q/ha. of F.Y.M. (vi) As per treatments. (vii) and (viii) N.A. (ix) 44·0cm. (x) N.A.

2. TREATMENTS :

Main-plot treatments :

2 levels of N as A/C : N_1=45 and N_2=68 Kg/ha.

Sub-plot treatments :

10 varieties : V_1=AC 517, V_2=AC 3760, V_3=N.S. 185, V_4=N.S. 187, V_5=N.S. 191, V_6=N.S. 192, V_7=N.S.J. 196, V_8=T_8, V_9=T_{21} and V_{10}=W 351.

3. DESIGN :

(i) Split-plot. (ii) (a) 2 main-plots/replication and 10 sub-plots/main-plot. (b) 33·7m. × 18·3m. (iii) 4. (iv) (a) and (b) 6·00m. × 3·90m. (v) Nil. (vi) Yes.

4. GENERAL:

(i) Good. (ii) Nil. (iii) Yield of grain. (iv) (a) 1965-only. (b) and (c) Nil. (v) to (vii) Nil.

5. RESULTS:

(i) 2463 Kg/ha. (ii) (a) 384·1 Kg/ha. (b) 619 6 Kg/ha. (iii) Main effect of F alone is highly significant. (iv) Av. yield of grain in Kg/ha.

	V_1	V_2	V_3	V_4	V_5	V_6	V_7	V_8	V_9	V_{10}	Mean
N_1	2393	2810	1966	2350	2479	2463	1870	1838	1934	2318	2242
N_2	3055	3333	2543	2425	2618	2949	2532	2628	2094	2671	2585
Mean	2724	3072	2254	2388	2548	2706	2201	2233	2014	2495	2463

C.D. for N marginal means=273·3 Kg/ha.

Crop :- Paddy (*Kharif*). **Ref :- U.P. 64(687).**

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

Object:—To study the effect of different varieties early Paddy under high and low fertility levels.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Medium loam (iii) 31.7.64. (iv) (a) N.A. (b) Transplanting. (c) — (d) 25cm. × 14cm. (e) 2 to 3. (v) 92·2 Q/ha. of Compost. (vi) As per treatments. (vii) and (viii) N.A. (ix) 65·4cm. (x) 21.10 to 1.11.64.

2. TREATMENTS ;

Main-plot treatments :

2 levels of fertilizers : F_1=90 Kg/ha. of N+44·8 Kg/ha. of P_2O_5+44·8 Kg/ha. of K_2O and F_2=44·8 Kg/ha. of N+22·6 Kg/ha. of P_2O_5+22·6 Kg/ha. of K_2O.

Sub-plot treatments :

12 varieties : V_1=Norin 1, V_2=Norin 6, V_3=Norin 17, V_4=Norin 18, V_5=Norin 20, V_6=Asahi, V_7=Sinchu-2. V_8=B.M,-5, V_9=Rikku-132, V_{10}=N-22, V_{11}=Ch-4 and V_{12}=Sudha.

3. DESIGN :

(i) Split-plot. (ii) (a) 2 main-plots/replication and 12 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) and (b) 8·50m.×1·60m. (v) Nil. (vi) Yes.

4. GENERAL:

(i) N.A. (ii) Some plots attack by gundhi bug. (iii) Yield of grain. (iv) (a) 1964-only. (b) and (c Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS:

(i) 476 Kg/ha. (ii) (a) 639 4 Kg/ha. (b) 235·9 Kg/ha. (iii) Main effect of V alone is highly significant. (iv) Av. yield of grain in Kg/ha.

	V_1	V_2	V_3	V_4	V_5	V_6	V_7	V_8	V_9	V_{10}	V_{11}	V_{12}	Mean
R_1	223	435	635	1149	698	611	482	381	447	349	658	562	553
R	185	378	342	832	518	571	206	307	206	495	558	198	400
Mean	204	406	488	990	608	591	344	344	326	422	608	380	476

C.D. for V marginal means=231·2 Q/ha.

Crop :- Paddy (*Kharif*). **Ref :- U.P. 64(689), 65(570).**

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

Object :—To study the effect of different doses of manures on the yield of different varieties of early Paddy.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Medium loam. (iii) 21 to 23.7.64; 4.8.65. (iv) (a) N.A. (b) Transplanting. (c) — (d) 23cm.×15cm. (e) 2 to 3. (v) 92·2 Q/ha. of village Compost; Nil. (vi) As per treatments. (vii) and (viii) N.A. (ix) 149cm; 65·6cm. (x) 30.9 to 30.10.64; Oct., 65.

2. TREATMENTS :

Mainplot treatments :—

2 levels of fertilizers : F_1=89·6 Kg/ha. of N+44·8 Kg/ha. of P_2O_5+44·8Kg/ha. of K_2O and F_2=44·8 Kg/ha. of N+22·4 Kg/ha. of P_2O_5+22·4 Kg/ha. of K_2O.

Sub-plot treatment :—

16 varieties : V_1=N.S. 180, V_2=N.S. 181, V_3=N.S. 182, V_4=N.S. 183, V_5=N.S.J. 159, V_6=N.S.J. 160, V_7=N.S.J. 163, V_8=N.S.J. 198. V_9=N.S.J. 199, V_{10}=N.S.J. 200, V_{11}=AC 49, V_{12}=AC 65, V_{13}=W-99, V_{14}=N-22, V_{15}=Sudha and V_{16}=Saraya local.

3. DESIGN :

(i) Split-plot. (ii) (a) 2 main-plots/replication, 16 sub-plots/main-plot. (b) 17·53m. × 46·02m. (iii) 4,3. (iv) (a) and (b) 8·53m × 2·59m. (v) Nil. (vi) Yes.

4 GENERAL :

(i) N.A. (iii) Incidence of Gundhi bug in some plots; incidence of blight and gundhi bug in the whole expt., damaged by birds. (iii) Yield of grain. (iv) (a) 1964-contd. (b) and (c) Nil. (v) N.A. (vi) Nil. (vii) As the experiment is continued beyond 65, results of individual years have been presented under 5. Results

5. RESULTS

64(689)

(i) 1580 K/gha. (ii) (a) 446·6 Kg/ha. (b) 440·6 Kg/ha. (iii) Main effects of V and F are highly significant. (iv) Av yield of grain in Kg/ha

	V_1	V_2	V_3	V_4	V_5	V_6	V_7	V_8	V_9	V_{10}
F_1	1847	1107	1477	882	1644	1896	2362	2385	2093	1735
F_2	1256	1160	949	765	1066	1075	1662	1597	1707	1270
Mean	1552	1133	1213	823	1355	1485	2012	1991	1900	1502

V_{11}	V_{12}	V_{13}	V_{14}	V_{15}	V_{16}	Mean
2453	2513	2256	2278	2169	1131	1889
1143	1549	1584	1254	1485	818	1271
1798	2031	1919	1766	1827	975	1580

C.D. for F marginal means=251·2 Kg/ha.

C.D. for V marginal means=431·7 Kg/ha.

65(570)

(i) 668 Kg/ha. (ii) (a) 328·8 Kg/ha. (b) 247·5 Kg/ha. (iii) Main effect of V alone is significant. (iv) Av. yield of grain in Kg/ha.

	V_1	V_2	V_3	V_4	V_5	V_6	V_7	V_8	V_9
F_1	634	657	694	679	649	785	997	830	1064
F_2	407	453	596	490	596	536	615	664	905
Mean	520	555	645	585	622	660	806	747	984

V_{10}	V_{11}	V_{12}	V_{13}	V_{14}	V_{15}	V_{16}	Mean
1124	483	581	883	920	686	452	757
664	558	543	981	626	422	220	580
894	570	562	932	773	554	336	668

C.D. for V marginal means=285·8 Kg/ha.

Crop :- Paddy (*Kharif*). **Ref :- U.P. 64(388).**

Site :- Central Rice. Res. Stn. Masodha. **Type : 'MV'.**

Object :—To seed Paddy varieties suitable for growing under transplanting conditions.

1. BASAL CONDITIONS:

(i) (a) Paddy Berseem (b) Berseem. (c) Nil. (ii) Light loam. (iii) 22.6.64. (iv) (a) 3 plou hings (b) Transplanting. (c) — (d) 23cm. × 15cm. (e) 2 to 3. (v) Nil. (vi) As per treatments. (vii) Irrigated. (viii) 2 weeding. (ix) 83·2cm. (x) 6.9.64 to 17.10.64.

2. TREATMENTS :

Main-plot treatments :

2 levels of fertilizers : M_1=89·6Kg/ha. of N ($\frac{1}{2}$ A/S+$\frac{1}{2}$ G.N.C.) +44·8Kg/ha. of P_2O_5 as Super+44 8Kg/ha. of K_2O as Mur. Pot. and M_2—44·8 Kg/ha. of N as G.M.C.

Sbb-plot treatments :

15 varieties : V_1=Norin 1, V_2=Norin 6, V_3=Norin 17, V_4=Norin 18, V_5=Norin 20, V_6=Asehi, V_7=Sinch 42, V_8=B.M.S., V_9=Rikh 132, V_{10}=MTU 9, V_{11}=MTU 20, V_{12}=N 22, V_{13}=R.D.R. 2, V_{14}=Ch. I and V_{15}=Sudha.

3. DESIGN :

(i) Split-plot. (ii) (a) 3 main-plots/replication: 15 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) 5·40m. × 1·15m. (b) 4·80m. × 1·15m. (v) 30 cm. on either ends. (vi) Yes.

4. GENERAL:

(i) Good. (ii) Gundi bug. 5% B.H.C. dusting, @ 24·7 Kg/ha. (iii) Tiller, lenght of Penicle and yield of grain. (iv) (a) 1964-only. (b) N.A. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS:

(i) 3040 Kg/ha. (ii) (a) 704·1 Kg/ha. (b) 598·6 Kg/ha. (iii) Main effect of M and V are highly significant. (iv) Av. yield of grain in Kg/ha.

	V_1	V_2	V_3	V_4	V_5	V_6	V_7	V_8
M_1	2486	3211	4112	3542	3075	3012	2432	4393
M_2	1703	2400	3197	3129	2292	2482	1744	3261
Mean	2095	2806	3655	3336	2683	2747	2088	3827

V_9	V_{10}	V_{11}	V_{12}	V_{13}	V_{14}	V_{15}	Mean
3062	2572	4121	4004	2921	2971	4121	3336
2514	2717	3460	3469	2423	2699	3673	2744
2788	2645	3791	3736	2672	2835	3897	3040

C.D. for M marginal mens=409·0 Kg/ha.

C.D. for V marginal means=596·2 Kg/ha.

Crop :- Paddy (*Kharif*). **Ref :- U.P. 64(391).**

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

Object :—To pick out promising early varieties under transplanting conditions.

1. BASAL CONDITIONS:

(i) (a) Paddy Berseem. (b) Berseem (c) Nil. (ii) Light loam. (iii) 25 to 27.6.64. (iv) (a) 3 ploughings. (b) Transplanting. (c) — (d) 23cm.×15cm. (e) 2 to 3. (v) Nil. (vi) As per treatments. (vii) Irrigated. (viii) 2 weedings. (ix) 83·2cm. (x) 12.9.64 to 25.9.64.

2. TREATMENTS :

Main-plot treatments :—

2 levels of fertilizers : M_1=89·6Kg/ha. of N ($\frac{1}{2}$ as A/S+$\frac{1}{2}$ G.N.C.)+44·8Kg/ha. of P_2O_5 Super+44·8Kg/ha. of K_2O as Mur. Pot. and M_2=44·8 Kg/ha. of N as G.N.C.

Sub-plot treatments :

12 varieties : V_1=N.S. 180, V_2=N.S. 181, V_3=N.S.J. 198, V_4=N.S.J. 199. V_5=N.S.J. 200, V_6=AC. 49, V_7=AC. 65, V_8=W. 99, V_9=N.22, V_{10}=Ch. 10, V_{11}=Sudha and V_{12}=Black Bagri.

3. DESIGN :

(i) Split-plot. (ii) (a) 2 main-plots/replication; 12 sub-plots/main-plot. (b) N.A. (iii) 3. (iv) (a) 10·80m. ×3·45m. (b) 0·60m.×2·99m. (v) 60cm.×23cm. (vi) Yes.

4. GENERAL:

(i) Good. (ii) Gundi bug, 5% BHC dusting at 27·4 Kg/ha. (iii) Tiller, penicle length and yield of grain. (iv) (a) 1964-only. (b) and (c) Nil (v) Tissuli. (vi) and (vii) Nil.

5. RESULTS:

(i) 2762 Kg/ha. (ii) (a) 514·6 Kg/ha. (b) 298·1 Kg/ha. (iii) Main effect of V alone is Highly significant. (iv) Av. yield of grain in Kg/ha.

	V_1	V_2	V_3	V_4	V_5	V_6	V_7	V_8	V_9
N_1	2230	2073	2675	2810	3159	2896	3072	2181	2775
N_2	2663	2225	3161	3379	3368	2822	3128	2986	2938
Mean	2446	2149	2918	3095	3263	2859	3100	2583	2857

V_{10}	V_{11}	V_{12}	Mean
2522	2793	2382	2631
2843	3262	1939	2893
2683	3027	2161	2762

C.D. for V marginal means=347·4 Kg/ha.

— ——

Crop :- Paddy (*Kharif*). **Ref :- U P.65(194).**

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

Object :—To find out suitable manurial doses for different varieties of early Paddy.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Gram. (c) N A. (ii) Light loam . (iii) 21.6.65. (iv) (a) 2 ploughings. (b) Transplanting. (c) — (d) 23cm. × 15cm. (e) 2. (v) Nil. (vi) As per treatments. (vii) Irrigated. (viii) Hoeing and weeding. (ix) 62·3cm. (x) 13 to 20.9.65.

2. TREATMENTS

Main-plot treatments :

4 levels of Manures : M_1=33·6 Kg/ha. of N+16·8 Kg/ha. of P_2O_5, M_2=67·2 Kg/ha. of N+33·6 Kg/ha. of P_2O_5, M_3=100·8 Kg/ha. of N+50·4 Kg/ha. of P_2O_5 and M_4=134·4 Kg/ha. of N+67·2 Kg/ha. of P_2O_5.

Sub-plot treatments

10 varieties : V_1=AC. 49, V_2=AC. 65, V_3=N.S.J. 198, V_4=N.S.J. 199, V_5=N.S.J. 200, V_6=Hsincha-50, V_7=W-99, V_8=Sudha, V_9=Ch-10 and V_{10}=N-22.

N applied as A/S anb P_2O_5 as Super.

3. DESIGN :

(i) Split-plot. (ii) (a) 4 main-plots/replication 10 sub-plots/main-plot. (b) N.A. (iii) 2. (iv) (a) 4·65m. × 3·00m. (b) 4·00m. × 2·50m. (v) 32cm. × 25cm. (vi) Yes.

4. GENERAL:

(i) Good. (ii) Nil. (iii) Yield of grain. (iv) (a) 1965-contd. (b) and (c) Nil. (v) No. (vi) and (vii) Nil.

5. RESULTS:

(i) 2826 Kg/ha. (ii) (a) 369 6 Kg/ha. (b) 441·1 Kg/ha. (iii) Main effect of M is highly significant and that of V is significant. (iv) Av. yield of grain in Kg/ha.

	V_1	V_2	V_3	V_4	V_5	V_6	V_7	V_8	V_9	V_{10}	Mean
M_1	2265	2315	2505	2620	2345	1730	2405	2550	2395	2330	2346
M_2	2395	2290	2960	2750	2990	2415	2790	2810	2270	3085	2675
M_3	2900	2490	2855	3130	3160	2495	2930	3730	2445	3325	2946
M_4	3250	3050	3745	3135	3625	2775	2985	4110	2965	3725	3337
Mean	2702	2536	3016	2909	3030	2354	2778	3300	2519	3116	2826

C.D. for M marginal means=371·9 Kg/ha.

C D. for V marginal means=447·5 Kg/ha.

Crop :- Paddy (*Kharif*). **Ref:- U.P. 64(390).**

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

Object :- To select Paddy varieties suitable for growing in lines under transplanting conditions.

1. BASAL CONDITIONS:

(i) (a) Early Paddy-Wheat. (b) Wheat. (c) N.A. (ii) Light loam. (iii) 2/3.7.64. (iv) (a) 3 ploughings. (b) Transplanting. (c) — (d) 23cm × 15cm. (e) 2 to 3. (v) Ni . (vi) As per treatment. (vii) Irrigated. (viii) 2 weedings. (ix) 83·2cm. (x) 30.9.64 to 20.11.64.

2. TREATMENTS:

Main-plot treatments :

2 levels of fertilisers : M_1=89·6 Kg/ha. of N ($\frac{1}{2}$ A/S+$\frac{1}{2}$G.N.C.)+44·8 Kg/ha. of P_2O_5 as Super+44·8Kg/ha. of K_2O as Mur. Pot. and M_2=44·8 Kg/ha. of N as G.N.C.

Sub-plot treatment :

24 varieties : V_1=N.S. 190, V_2=N.S J.196, V_3=N.S.J.201, V_4=N.S.J. 202, V_5=N.S.J.203, V_6=N.S.J.204 V_7=N S.J. 205, V_8=No. 1-1, V_9=No.4-2, V_{10}=No. 34-32, V_{11}=No. 16-19, V_{12}=No. 10-9, V_{13}=Hyb. 25, V_{14}=Hyb 89, V_{15}=Hyb. 275, V_{16}=Hyb. 9-79, V_{17}=Slo 19, V_{18}=M.T.U. 15, V_{19}=M.T.U. 17, V_{20}=H.R. 21, V_{21}=Ch. 4, V_{22}=N. 12, V_{23}=T. 21 and T_{24}=Local.

3. DESIGN:

(i) Split-plot. (ii) (a) 2 main-plots/replication, 24 sub-plots/main-plot. (b) N.A. (iii) 3 (iv) (a) 5·40m. × 1·15m. (b) 4·80m × 1·15m. (v) 30cm. at both ends. (vi) Yes.

4. GENERAL:

(i) Good. (ii) Gundhi bug. 5%B.H.C. dusting. (iii) Tiller, panicle and yield of grain. (iv) (a) No. (b) and (c) Nil. (v) Nagina. (vi) and (vii) Nil.

5. RESULTS

(i) 1628 Kg/ha. (ii) (a) 1656·2 Kg/ha. (b) 440·2 Kg/ha. (iii) Main effect of V alone is highly significant. (iv) Av. yield of grain in Kg/ha.

	V_1	V_2	V_3	V_4	V_5	V_6	V_7	V_8	V_9	V_{10}	V_{11}	V_{12}	V_{13}
M_1	1226	1437	1504	1588	942	1377	2264	1751	1981	2536	1546	2446	2095
M_2	1033	1437	1419	1600	1504	1153	1498	1552	1902	2144	1226	2047	2132
Mean	1129	1437	1461	1594	1223	1265	1881	1652	1941	2331	1386	2246	2114

V_{14}	V_{15}	V_{16}	V_{17}	V_{18}	V_{19}	V_{20}	V_{21}	V_{22}	V_{23}	V_{24}	Mean
1492	2240	1866	851	1812	803	1039	1950	1359	1727	2403	1676
1721	2331	2246	1051	2011	368	1328	1902	1304	1504	1479	1579
1606	2286	2056	951	1911	586	1184	1926	1332	1615	1948	1628

C.D. for V marginal means=505·7 Kg/ha.

Crop :- Paddy (*Kharif*). **Ref :- U.P. 64 389).**

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

Object :- To find out suitable Paddy varieties of medium duration under transplanted conditions.

1. BASAL CONDITIONS :

(i) Nil. (b) Wheat. (c) N.A (ii) Light loam. (iii) 21 to 26.7.64. (iv) (a) 5 ploughings. (b) Transplanting. (c) — (d) 23cm. × 15cm. (e) 2. (v) Nil. (vi) As per treatments (vii) Irrigated. (viii) 2 weedings (ix) 83·2 cm. (x) 25.10 64 to 6.11 64.

2. TREATMENTS :

Main-plots treatments :

2 levels of fertilisers : M_1=89·6 Kg/ha. of N (½ as G. N. + ½ as A/S)+44·8 *Kg*/ha. of P_2O_5 as Super+44·8 Kg/ha. of K_2O as Mur. pot. and M_2=44·8 Kg/ha. of N as G.N C.

Sub-plots treatment :

18 varieties : V_1= N.S. 185, V_2=N.S. 187, V_3=N.S.189, V_4=N.S. 190, V_5=N.S.191, V_6=N.S.-192, V_7= N.S. 207, V_8=N.S.J 195, V_9= =N.S.J. 197, V_{10}=N.S.J. 206, V_{12}=AC5 17, V_{13}=AC 3760, V_{14}=W.351, V_{15}=Ch. 4, V_{16}=T. 21, V_{17}=N.R. and V_{18}=Local.

3. DESIGN

(i) Split-plot. (ii) (a) 2 main-plots/replication and 18 sub-plots/main-plot. (b) N.A. (iii) 3. (iv) (a) 10·20m. × 4.37m. (b) 9·00m. × 3·90m (v) 60cm. × 23cm. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Gunbhi bug, 5%B.H.C. a 11·2 Kg/ha. (iii) Tiller, panicle and yield of grain. (iv) (a) 1964 only. (b) and (c) Nil. (v) Nagina. (vi) and (vii) Nil.

5. RESULTS :

(i) 1134 Kg/ha. (ii) (a) 587·3 Kg/ha. (b) 338·2 Kg/ha. (iii) Main effect of V alone is highly significant. (iv) Av. yield of grain in Kg/ha.

	V_1	V_2	V_3	V_4	V_5	V_6	V_7	V_8	V_9	V_{10}	V_{11}	V_{12}	V_{13}
M_1	576	728	741	1358	693	472	1121	1125	1562	1154	1106	1429	1448
M_2	479	733	1173	1462	632	461	1709	1329	1557	1121	1406	1096	1372
Mean	528	731	957	1410	662	466	1415	1227	1559	1137	1256	1263	1410

V_{14}	V_{15}	V_{16}	V_{17}	V_{18}	Mean
1038	1368	1407	869	1413	1089
1610	1430	1151	1239	1252	1178
1324	1399	1279	1054	1332	1134

C.D. for V marginal means=389·9 Kg/ha.

Crop :- Paddy (*Kharif*). **Ref :- U.P. 64(386).**

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

Object :—To find out suitable Paddy varieties of late duration under transplanting conditions.

1. BASAL CONDITIONS:

(i) (a) Paddy-Pea. (b) Pea. (c) N.A. (ii) Light loam. (iii) 3 to 6.8.64. (iv) (a) 4 ploughings. (b) Transplanting. (c) — (d) 23cm × 15cm. (e) 2 (v) Nil. (vi) As per treatments. (vii) Irrigated. (viii) 2 weedings. (ix) 45 8 cm. (x) 24.11.64 to 9.12.94.

2. TREATMENTS:

Main-plot treatments :

2 levels of fertilisers ; M_1=89·6 Kg/ha. of N ($\frac{1}{2}$ as G.N.C.+$\frac{1}{2}$as A/S)+ 44 8 Kg/ha. of P_2O_5 as Super+44·8 Kg/ha. K_2O as Mur. pot. and M_2=44·8 Kg/ha. of N as G.N.C.

Seb-plot treatments :

14 varieties : V_1= C.R. 5, V_2=C.R. 6, V_3=Hyb60, V_4=99, Hyb, V_5=B.K. 88, V_6=Cul 2, V_7=Cul 7, V_8= Cul11, V_9=W. 449, NV_{10}=P.T.B. 13, V_{11}=B A.M9×Rikhu 132, V_{12}=Norin 6×Cr E.B 24, V_{13}=T.9 and V_{14}=T-100.

3. DESIGN

(i) Split-plot. (ii) (a) 2 main-plots/replication, 14 sub-plots/main-plot. (b) N.A. (iii) 3. (iv) (a) 9·70m. ×4·60m. (b) 7·50m.×4·14m. (v) 110cm.×23cm. (vi) Yes

4. GENERAL :

(i) Good. (ii) Blast and blight diseases. Dusting of 5%B.H.C. (iii) Total tiller, penicle and yield of grain. (iv) (a) 1964-only. (b) and (c) Nil. (v) Nil. (vi) Damage due to lodging in some varieties. (vii) Nil.

5. RESULTS :

(i) 1555 Kg/ha. (ii)) (a) 228·5 Kg/ha. (b) 293·2 Kg/ha. (iii) Main effect of V alone is highly significant. (iv) Av. yield of grain in Kg/ha.

	V_1	V_2	V_3	V_4	V_5	V_6	V_7	V_8	V_9	V_{10}	V_{11}	V_{12}	V_{13}	V_{14}	Mean
M_1	698	1143	1283	857	918	1950	2088	936	1659	2614	1457	1081	1192	2754	1473
M_2	934	1095	1417	1492	1642	2332	2209	686	1798	2498	1542	1244	1122	2915	1638
Mean	816	1119	1350	1174	1280	2124	2149	811	1728	2556	1499	1163	1157	2834	1555

C.D. for marginal means=340·0 Kg/ha.

Crop :- Paddy (*Kharif*). **Ref :- U.P. 64(594).**

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

Object :- To selekt the promising high yielding and disease resistant Paddy varieties under high and low fertility levels.

1. BASAL CONDITIONS:

(i) (a) to (c) N.A. (ii) Light loam. (iii) July, 64. (iv) (a) 4 ploughings. (b) Transplanting. (c) N.A. (d) 23cm. × 15cm. (e) N.A. (v) Nil. (vi) As per trearments. (vii) Irrigated. (viii) One hoeing. and weeding (ix) 106·9cm. (x) Nov., 64.

2. TREATMENTS :

Main-plot treatments :

2 levels of fertilizers : F_1=89·6 Kg/ha. of N (44·8 Kg/ha. of N as F.Y.M. and 22·4 Kg/ha. of N as A/S at Transplanting+22·4Kg/ha. of N as A/S at tillering)+44·8 Kg/ha. of P_2O_5 as Super+44·8 Kg/ha of K_2O as Mur. pot. at transplanting and F_2=44·8 Kg/ha. of N as F.Y.M. at transplanting.

Sub-plot treatments :

12 varieties : V_1=N.S. 181, V_2=N.S. 182, V_3=N.S. 182, V_4=N.S.183, V_5=N.S.J. 198, V_6=N S.J. 199, V_7=N S.J. 200, V_8=AC 42, V_9=AC-65, V_{10}=W-99, V_{11}=N. 22. and V_{12}=Ch-10.

3. DESIGN :

(i) Split-plot. (ii) (a) 2 main-plots/replication; 12 sub-plots/main-plot. (b) N.A. (iii) 3. (iv) (a) N A. (b) 1/1829 ha. (v) N.A. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Nil. (iii) Yield of grain. (iv) (a) 1964-only. (b) and (c) Nil. (v) to (vii) Nil.

5. RESULTS

(i) 2716 Kg/ha. (iii) (a) 720·1 Kg/ha. (b) 424·4 Kg/ha. (iii) Main effect of V alone is highly significant. (iv) Av. yield of grain in Kg/ha.

	V_1	V_2	V_3	V_4	V_5	V_6	V_7	V_8	V_9	V_{10}	V_{11}	V_{12}	Mean
F_1	2500	2134	2683	2317	2926	3658	2683	3292	3597	2926	2865	3109	2891
F_2	1890	2073	2439	2256	2439	2804	2378	2804	2865	2865	2804	2865	2540
Mean	2195	2103	2561	2286	2683	3231	2530	3048	3231	2896	2835	2987	2716

C.D. for V marginal means=494·2 Kg/ha.

Crop :- Paddy (*Kharif*). **Ref :- U.P. 65(565).**

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

Object—To select the promisiug high yielding and disease resistant Paddy varieties.

1. BASAL CONDITIONS

(i) (a) to (c) N.A. (ii) Light loam. (iii) 6/7.7.65. (iv) (a) N.A. (b) Transplanting. (c) — (d) 15cm.× 15cm. (e) 2. (v) N.A. (vi) As per treatments. (vii) Irrigated. (viii) 2 weedings. (ix) 88·0cm. (x) N.A.

2. TREATMENTS :

Main-plots treatments :

2 levels of fertilizers: F_1=89·6 Kg/ha. of N+44·8 Kg/ha. of P_2O_5+44·8 Kg/ha. of K_2O and F_2=44·8 Kg/ha. of N

Sources of fertilizer N A.

Sub-plot treatment

12 varieties :—V_1=N.S.J. 199 V_2=Ch-10, V_3=N. 22 V_4=AC—65, V_5=N.S.J.-198 V_6=Koshi, V_7=W-99, V_8=N.S J. -200, V_9=AC—49, V_{10}=H. Suichu-50, V_{11}=N.S.-55 and V_{12}=N.S.—50

3 DESIGN :

(i) Split-plot. (ii) (a) 2 main-plots/replication, 12 sub-plots/main-plot. (b) N.A. (iii) 3. (iv) (a) 3·35m. ×10·36m. (b) 2·74m.×9·75m. (v) 30cm.×30cm. (vi) Yes.

4. GENERAL :

(i) Normal. (ii) N.A. (iii) Yield of grain. (iv) (a) 1965-contd. (b) N.A. (c) Nil. (v) and (vi) N.A. (vii) Nil.

5. RESULTS:

(i) 3672 Kg/ha. (ii) (a) 1857 Kg/ha. (b) 562·5Kg/ha. (iii) Main effect of V alone is highly significant. (iv) Av. yield of grain in Kg/ha.

	V_1	V_2	V_3	V_4	V_5	V_6	V_7	V_8	V_9	V_{10}	V_{11}	V_{12}	Mean
F_1	4360	3040	3463	4510	4572	4111	3725	4421	3701	4385	4061	4360	4059
F_2	3376	2342	2915	3638	3712	3849	3301	3253	3148	2940	3351	3588	3284
Mean	3868	2691	3189	4074	4142	3980	3513	3837	3425	3663	3706	3974	3672

C.D. for V marginal means=654·9 Kg/ha.

Crop :- Paddy (*Kharif*). **Ref. :- U.P. 64(593).**

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

Object :—To select the promising high yielding and disease resistant Paddy varieties under high and low fertility levels.

1. BASAL CONDITIONS :

(i) (a) Paddy-Berseem. (b) Berseem. (c) Nil. (ii) Light loam. (iii) July, 64. (iv) (a) 4 ploughings. (b) Transplanting. (c) — (d) 15cm.×15cm. (e) 2 to 3. (v) Nil. (vi) As per treatments. (vii) Irrigated. (viii) One weeding. (ix) 106·9cm. (x) 12.10.64.

2. TREATMENTS :

Main-plot treatments :

2 levels of fertilizers F_1=89·6 Kg/ha. of N (44·8Kg/ha. of N as F.Y.M. and 22·4Kg/ha. of N as A/S at trans planting and 22·4 Kg/ha of N as A/S at tillering)+44·8 Kg/ha. of P_2O_5 as Super.+44·8 Kg/ha. of K_2O as mur. pot. at transplanting and F_2=44·8 Kg/ha. of N at transplanting.

Sub-plot treatments :

10 varieties V_1=Kassi, V_2=N.S.5.0, V_3=N.S. 50, V_4=N.S.J. 198, V_5=N.S.J 199, V_6=N.S.J. 200 V_7=W-99 V_8=N-22, V_9=T. 136 and V_{10}=Local (Sathi).

3. DESIGN:

(i) Split-plot. (ii) (a) 2 main-plots/replication, 10 sub-plots/main-plot. (b) N.A. (iii) 4- (iv) (a) 3·35m.× 12·19m (b) 1/259·45ha. (v) N.A. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Nil. (iii) Yield of grain. (b) and (c) Nil. (v) to (vii) Nil.

5. RESULTS:

(i) 1992 Kg/ha. (ii) (a) 399·5 Kg/ha. (b) 306·2 Kg/ha. (iii) Main effect of V is highly significant and that of F is significant. (iv) Av. yield of grain in Kg/ha.

	V_1	V_2	V_3	V_4	V_5	V_6	V_7	V_8	V_9	V_{10}	Mean
F_1	2348	2679	2380	2484	2238	2286	2497	2108	1991	1083	2209
F_2	2037	2141	2050	1939	1752	1485	2147	1686	1817	695	1775
Mean	2192	2410	2215	2212	1995	1886	2322	1897	1904	889	1992

C.D. for F marginal means=284·2 Kg/ha.

C.D. for V marginal means=307·2 Kg/ha.

Crop :- Paddy (*Kharif*). **Ref :- U.P. 64(595).**

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

Object :—To select the promising high yielding and disease resistant Paddy varieties under high and low fertility levels.

1. BASAL CONDITIONS:

(i) (a) to (c) N A. (ii) Light loam. (iii) July, 64. (iv) (a) 4 ploughings. (b) Transplanting. (c) — (d) 23cm. × 23cm. (e)2 (v)Nil. (vi) As per treatments. (vii) Irrigated. (viii) 1 hoeing and weeding. (ix) 108·8cm. (x) Dec., 64.

2. TREATMENTS:

Main-plot treatments:

2 levels of fertilizers: F_1= 89 6 Kg/ha. of N($\frac{1}{2}$ as F.YM.+$\frac{1}{2}$ as A/S at Transplanting +44·8 Kg/ha. of P_2O_5 as Super+44·8 Kg/ha. of K_2O as Mur. of pot.) and F_2=44·8 Kg/ha. of N as F.Y.M. applied before planting.

Sub-plot treatments:

21 varieties: V_1=L.S.I. Dergwa, V_2=L.S. 2. Dahiya V_3=L.S.3. Kaurger, V_4=L.S.4. Jagirwa, V_5=L.S.5. Jalosha, V_6=L.S.6 Dhaina, V_7=L.S.7. Bombi, V_8=L.S.9 Didai, V_9=L.S.10 Mirche, V_{10}=L.S.11. Gajraj, V_{11}=L.S. 12 Karnji, V_{12}=L.S.13 Dumyapat V_{13}=L.S. 14 Samheri, V_{14}=L.S 15 Jobi Bengal. V_{15}=L.S. 16 Didwa, V_{16}=L.S.17 Jaloea V_{17}=L.S.18 Kasturi, V_{18}=L.S. 19 Dehradun, V_{19}=L.S20. Tulsi Ram, V_{20}=T-100 and V_{21}=T-9.

3. DESIGN:

(i) Split-plot. (ii) (a) 2 main-plots/replicatiou, 21 sub-plots/main-plot. (b) N.A (iii) 3. (iv) (a) 1 37m. × 8 23m. (b) 0 91m. × 7·77m. (v) 23cm. × 23cm. (vi) Yes.

4. GENERAL:

(i) Lodging in some plots up to 95% (ii) Blast ranging from 5 to 10% (iii) Yield of grain. (iv) (a) 1964-only. (b) and (c) Nil. (v) to (vii) Nil.

5. RESULTS:

(i) 2673 Kg/ha. (ii) (a) 198 1 Kg/ha. (b) 549·4 Kg/ha. (iii) Main effect of F is significant. and that of V is highly significant. (iv) Av. yield of grain in Kg/ha.

	V_1	V_2	V_3	V_4	V_5	V_6	V_7	V_8	V_9	V_{10}	V_{11}	V_{12}
F_1	1697	3349	3017	2263	2310	1367	3111	3206	1679	3536	2451	2310
F_2	2499	4101	I980	2734	2169	2027	2357	2876	2121	4479	3159	3111
Mean	2098	3724	2499	2499	2239	1697	2734	3041	1909	4007	2805	2711

V_{13}	V_{14}	V_{15}	V_{16}	V_{17}	V_{18}	V_{19}	V_{20}	V_{21}	Mean
2451	2169	3206	3441	330	2829	2121	3394	3206	2546
2923	2357	3253	3489	519	3159	2121	4007	3347	2799
2687	2263	3229	3465	424	2994	2121	3701	3276	2673

C.D. for F marginal means=151·9 Kg/ha.

C.D. for V marginal means=632·2 Kg/ha.

Crop :- Paddy (*Kharif*). **Ref :- U.P. 65(561).**

Site :- Rice. Res Stn. Nagina. **Type :- 'MV'.**

Object :—To select the promising high yield and disease resistant Paddy varieties amongest *Aghani* varieties

1. BASAL CONDITIONS

(i) (a) Wheat-Dhaincha-Paddy. (b) Dhaincha. (c) Nil. (ii) Light loam. (iii) 29.7.65. (iv) (a) N.A. (b) Transplanting. (c) — (e) 2. (v) Dhaincha G.M (vi) As per treatments. (vii) Irrigated. (viii) 2 weedings. (ix) 44·6cm. (x) 26/27 11.65.

2. TREATMENTS :

Main-plot treatments : —

2 levels of fetilizes : F_1=89 6 Kg/ha of N+44·8 Kg/ha of P_2O_5+44·8 Kg/ha. of K_2O and F_2=44·8 Kg/ha. of N.

Sub-plot treatments :

16 varieties: V_1=T9 V_2=T100, V_3=Dumijapat, V_4=Jalhore, V_5=T9, V_6=Julesea, V_7=Korangi, V_8=Dargwa V_9=Jobibengal, V_{10}=Kaurger, V_{11}=Gajraj, V_{12}=Samheri, V_{13}=Bombi, V_{14}=Didwa, V_{15}=Jogajowa and V_{16}=Didai

3. DESIGN :

(i) Split-plot. (ii) (a) 2 main-plots/replication, 16 sub-plots/main plot (b) N.A. (iii) 3. (iv) (a) 8·23m.× 1·60m. (b) 7·31m.×1·14m (v) 46cm ×23cm. (vi) Yes.

4. GENERAL :

(i) Good (ii) N A. (iii) Yield of grain (iv) (a) 1964-67 (modified in 1965). (b) and (c) Nil (v) and (vi) N.A.

5. RESULTS :

(i) 3877 Kg/ha. (ii) (a) 1219·7 Kg/ha. (b) 588·2 Kg/ha. (iii) Main effect of V alone is highly significant. (iv) Av. yield of grain in Kg/ha.

	V_1	V_2	V_3	V_4	V_5	V_6	V_7	V_8	V_9	V_{10}
F_1	2392	4545	4864	3468	3349	4784	4066	3428	2791	4186
F_2	2830	4864	4505	1794	4066	4744	4585	3548	3907	3389
Mean	2611	4704	4684	2631	3707	4764	4325	3488	3349	3787

V_{11}	V_{12}	V_{13}	V_{14}	V_{15}	V_{16}	Mean
4545	3827	3468	4664	3508	4266	3884
4784	4305	2870	4624	3389	3708	3869
4664	4066	3169	4644	3448	3987	3877

C.D. for V marginal means=679·2 Kg/ha.

Crop :- Paddy (*Kharif*). **Ref :- U.P. 64(596).**

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

Object : - To select the promising high yielding and diseese resistant Paddy varieties under high and low fertility levels.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Light loam (iii) July,64 (iv) (a) 4 ploughings. (b) Transplanting, (c) — (d) 23cm. × 15cm. (e) 2 to 3 (v) Nil, (vi) As per treatments. (vii) Irrigated. (viii) One hoeing and weeding (ix) 106·8cm. (x) Nov. 64.

2. TREATMENTS :

Main-plot treatment :

2 levels of fertilisers : F_1=89·6 Kg/ha. of N ($\frac{1}{2}$ as F.Y.M., $\frac{1}{2}$ as A/S at transplanting and $\frac{1}{2}$ as A/S at tillering) and F_2=44·8 Kg/ha. of N as F.Y.M. before transplanting.

Sub-plot treatment :

12 varieties : V_1=N.S.J 93, V_2=N.S J 98, V_3=N.S.J. 162, V_4=N.S.J 195, N_5=N.S.J 196, V_6=N.S.J. 197, V_7=N.S J 201, V_8=N.S.J 205, V_9=W 351, V_{10}=Ch-4, V_{11}=T-21 and V_{12}=Local.

3. DESIGN:

(i) Split-plot. (ii) (a) 2 Main plots/replication, 12 sub-plots/main-plot. (b) N.A (iii) 4 (iv) (a) 2·74m. × 11·73m. (b) 1/392·3 ha (v) N A (vi) Yes

4. GENERAL:

(i) Good (ii) Nil (iii) Yield of grain (iv) (a) 1964-only (b) and (c) Nil (v) to (vii) Nil

5. RESULTS :

(!) 2303 Kg/ha (ii) (a) 1611·3 Kg/ha (b) 248·9 Kg/ha (iii) Main effect of V alone is highly sinificant. (iv) Av yield of grain in Kg/ha

	V_1	V_2	V_3	V_4	V_5	V_6	V_7	V_8
F_1	2949	3375	2772	2320	2742	2516	2202	2005
F_2	1917	ε615	1887	1691	1877	1789	1691	1887
Mean	2433	7993	4330	3005	3310	1153	1946	1946

V_9	V_{10}	V_{11}	V_{12}	mean
3372	2969	2231	2349	2650
2448	2507	1543	1622	1957
2910	2738	1887	1986	2303

C D for V marginal means=248 7 Kg/ha

Crop :- Paddy (*Kharij*). **Ref :- U.P. 65(562).**

Site :- Rice Res. stn., Nagina. **Type :- 'MV'**

Object :—To select the promising high yielding and disease resistant varieties amongst katikwa varieties.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Light loam. (iii) 20.7.65. (iv) (a) N.A. (b) Transplanting. (c) — (d) Rows 23cm. apart. (e) 2. (v) N.A. (vi) As per treatments. (vii) Irrigated. (viii) 2 weedings. (ix) 88·0cm. (x) N A.

2. TREATMENTS :

Main-plot treatment :

2 levels of fertilizers : F_1=High dose(89·6 Kg/ha. of N+44·8 Kg/ha. of P_2O_5+44·8 Kg/ha. of K_2O) F_2= Low dose (Actual dose N.A.)

Sub-plot treatments :

16 varieties : V_1=N.S.J. 98 V_2=N.S.J.162, V_3=N.S.J. 206, V_4=AC3760, V_5=N.S.J. 93, V_6=N.S.J. 197, V_7=N.S.J. 205, V_8=Ch-4, V_9=W351, V_{10}=N.S J. 195, V_{11}=T21, V_{12}=N.S.J. 204, V_{13}=N.S.J. 201, V_{14}= NS 192, V_{15}=N.S.J. 94 a·d V_{16}=AC 517

3. DESIGN :

(i) Split-plot. (ii) (a) 2 main plots/replication; 16 sub-plots/main-plot. (b) N.A. (iii) 3. (iv) (a) 7·62m. ×1·83m. (b) 7·01m.×1·37m. (v) 31cm.×23cm. (vi) Yes.

4. GENERAL:

(i) Lodging. (ii) 10 to 15% blight and Gundhyi bug. (iii) Yield of grain. (iv) (a) 1965-contd. (b) N.A. (c) Nil. (v) and (vi) N.A. (vii) Nil.

5. RESULTS:

(i) 1906 Kg/ha. (ii) (a) 1789 3 Kg/ha. (b) 395·5 Kg/ha. (iii) Main effect of V alone is highly significant. (iv) Av. yield of grain in Kg/ha.

	V_1	V_2	V_3	V_4	V_5	V_6	V_7	V_8	V_9	V_{10}	V_{11}
F_1	3033	1664	1733	2600	2045	1976	1473	2791	3120	1369	2184
F_2	2392	1335	1855	2236	1473	1362	1099	2323	2981	1075	1543
Mean	2713	1499	1794	2418	1759	1669	1286	2557	3051	1668	1863

V_{12}	V_{13}	V_{14}	V_{15}	V_{16}	Mean
1820	1664	1993	2035	2097	2100
1213	1664	1473	1550	1837	1713
1517	1664	1733	1792	1967	1906

C.D. for V marginal means=456·7 Kg/ha.

Crop :- Paddy (*Kharif*). **Ref :- U.P. 64(597).**

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

Object :—To select the promising high yielding and diseaee resistant Paddy varieties under high and low fertility levels.

1. BASAL CONDITIONS :

(i) (a) Paddy-Barley. (b) Barley. (c) N.A. (ii) Light loam. (iii) July 64. (iv) (a) 4 ploughings. (b) Transplanting. (c) — (d) 23cm.×15cm. (e) 2 to 3. (v) Nil. (vi) As per treatments. (vii) Irrigated. (viii) Nil. (ix) 106·9cm. (x) 12 to 17.11.64.

2. TREATMENTS :

Main-plot treatments :

2 levels of fertilizers : F_1=89·6 Kg/ha. of N (44·8 Kg/ha. of N as A/S at transplanting and 22·4 Kg/ha. of N as A/S at time of tillering)+44·8Kg/ha. of P_2O_5 as super+44·8 Kg/ha. of K_2O as Mur. Pot., F_2=44·8Kg/ha. of N as F.Y.M. at transplating.

Sub-plot tra·tments :

28 varieties : V_1=N.S. 184. V_2=N.S. 185, V_3=N.S. 186, V_4=N.S. 187, V_5=N.S. 188, V_6=N.S. 189, V_7=N.S. 190, V_8=N.S. 191, V_9=N.S 192, V_{10}=193, V_{11}=N.S. 194, V_{12}=N.T.J 207, V_{13}=N.S.J 195, V_{14}=N.S J 196, V_{15}=N.S J 197, V_{16}=N.S.J 201, V_{17}=N.S.J 202 V_{18}=N.S.J 203, V_{19}=N.S.J 204, V_{20}=N.S J 205, V_{21}=N.S.J 206, V_{22}=AC 51/, V_{23}=AC 3760, V_{24}=W-351, V_{25}=T-21, V_{26}=Ch-4, V_{27}=T-3 and V_{28}=N-22.

3. DESIGN

(i) Spiit-plot. (ii) (a) 2 main-plots/replication, 28 sub-plots/main-plot. (b) N.A. (iii) 3. (iv) (a) 1/1367.1ha. (b) 1/2309·9ha. (v) N.A. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Nil. (iii) Yield of grain. (iv) (a) 1964-only. (b) and (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 2449 Kg/ha. (ii) (a) 1215·5 Kg/ha. (b) 472·0 Kg/ha. (iii) Main effect of V alone is highly significant.
(iv) Av. yield of grain in Kg/ha

	V_1	V_2	V_3	V_4	V_5	V_6	V_7	V_8	V_9	V_{10}
N_0	2078	2078	1878	3310	1886	2001	3502	2386	2963	2656
N_1	1478	1694	1386	2348	1540	1771	2386	1308	2425	1809
Mean	1778	1886	1632	2829	1713	1886	2944	1847	2693	2232

V_{11}	V_{12}	V_{13}	V_{14}	V_{15}	V_{16}	V_{17}	V_{18}	V_{19}	V_{20}
2309	2025	2348	3195	2733	2309	3387	2309	3156	2694
1732	3002	2040	2348	1847	2309	2117	1655	1963	1663
2021	2513	2194	2771	2290	2309	2848	2213	2406	2329

V_{21}	V_{22}	V_{23}	V_{24}	V_{25}	V_{26}	V_{27}	V_{28}	Mean
2386	3041	3272	3271	3 41	4003	2925	3272	2729
3002	2309	2694	2 25	2463	3657	2232	2001	2170
2694	2675	2983	3098	2752	3830	2579	2637	2449

C.D. for V marginal means=540·7 Kg/ha.

Crop :- Paddy (*Kharif*). **Ref :- U.P. 65(563).**

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

Object :—To select the promising high yielding and disease resistant Paddy varieties.

1 BASAL CONDITIONS:

(i) (a) to (c) N.A. (ii) Light loam. (iii) 26.6.65. (iv) (a) N.A. (b) Transplanting. (c) — (d) 23cm.× 15cm. (e) 2. (v) N.A. (vi) As per treatments. (vii) Irrigated. (viii) 2 weedings. (ix) 88·0cm. (x) 22 to 28.10.65.

2. TREATMENTS:

Main-plot treatments :

2 levels of fertilizers : F_1=89·6 Kg/ha. of N+44·8 Kg/ha. of P_2O_5+44·8Kg/ha. of K_2O and F_2=44·8 Kg/ha. of N.

Sub-plot treatments :

20 varieties : V_1=T-46, V_2=T-114, V_3= T-121, V_4=T-117, V_5=T-21, V_6=T-48, V_7=N.SJ. 157, V_8=T-24, V_9=T-111, V_{10}=Ch-4, V_{11}=N-12, V_{12}=T-120, V_{13}=N.S. 47, V_{14}=T-3, V_{15}=N.S.J 16/(a), V_{16}=Nch 10, V_{17}=N.S. 31, V_{18}=Nch 6, V_{19}=T-78 and V_{20}=T-3.

3. DESIGN:

(i) Split-plot. (ii) (a) 2 main-plots/replications and 20 sub-plots/main-plot. (b) N.A. (iii) 3. (iv) (a) 4·57m.×1·83m. (b) 4·57m.×1·37m. (v) 23cm. on either side along length. (vi) Yes.

4. GENERAL:

(i) Good (ii) N.A. (iii) Yield of paddy. (iv) (a) 1965-contd. (b) N.A. (c) Nil. (v) and (vi) N.A. (vii) Nil.

5. RESULTS:

(i) 2816 Kg/ha. (ii) (a) 2458·3 Kg/ha. (b) 444·1 Kg/ha (iii) Main effect of V alone is highly significant. (iv) Av. yield of grain in Kg/ha.

	V_1	V_2	V_3	V_4	V_5	V_6	V_7	V_8	V_9	V_{10}
F_1	2179	2711	3216	3003	3003	3402	3030	3960	3189	2977
F_2	2179	2897	2604	2870	2737	2897	3083	3349	3242	2817
Mean	2179	2804	2910	2937	2870	3149	3056	3654	3216	2897

V_{11}	V_{12}	V_{13}	V_{14}	V_{15}	V_{16}	V_{17}	V_{18}	V_{19}	V_{20}	mean
2243	3083	2525	1302	3482	2392	2631	3269	3561	2445	2880
2312	3003	2445	1222	2838	2552	2477	3556	3327	2658	2752
2278	3043	2485	1262	3160	2458	2554	3412	3444	2551	2816

C.D. for V marginal means=511·3 Kg/ha.

Crop :- Paddy (*Kharif*). **Ref :- U.P. 65(564).**

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

Object :—To select the promising high yielding and disease resistant Paddy varieties.

1. BASAL CONDITIONS:

(i) (a) Gram-Paddy. (b) Gram. (c) N.A. (ii) Light loam. (iii) 26.5.65. (iv) (a) N.A. (b) Transplanting. (c) — (d) 23cm. × 15cm. (e) 2. (v) N.A. (vi) As per treatments. (vii) Irrigated. (viii) 2 weedings. (ix) 88·0cm. (x) N.A.

2. TREATMENTS :

Main-plot treatments :

2 levels of fertilizers : F_1=89·6 Kg/ha. of N+44·8 Kg/ha. of P_2O_5 +44·8Kg/ha. of K_2O and F_2=44·8Kg/ha. of N.

Sub-plot treatments :

20 varieties : V_1=T-42, V_2=T-18, V_3=N.S.J-200, V_4=Ch-10, V_5=T-8, V_6=N-22. V_7=T-31, V_8=T-71, V_9=AC-49, V_{10}=T-20, V_{11}=AC-65, V_{12}=W-99, V_{13}=T-29, V_{14}=T-47, V_{15}=T-80, V_{16}=T-27, V_{17}=T-49, V_{18}=T-2, V_{19}=T-73 and V_{20}=Koshi.

3. DESIGN :

(i) Split-plot. (ii) (a) 2 main-plots/replication, 20 sub-plots/main-plot. (b) N.A. (iii) 3. (iv) (a) 4·88m. × 2·06m. (b) 4·27m. × 1·60m. (v) 30cm. × 23cm. (vi) Yes.

4. GENERAL :

(i) Good. (ii) N.A. (iii) Yield of grain. (iv) (a) 1965-contd. (b) N.A. (c) Nil. (v) and (vi) N.A. (vii) Nil.

5. RESULTS :

(i) 2800 Kg/ha. (ii) (a) 1720·5 Kg/ha. (b) 895·9Kg/ha. (iii) None of the effect is significant. (iv) Av. yield of grain in Kg/ha.

	V_1	V_2	V_3	V_4	V_5	V_6	V_7	V_8	V_9	L_{10}	V_{11}
F_1	3417	2660	3173	2685	3222	1904	2197	2099	I684	3563	2245
F_2	3368	2904	2245	1879	2587	3436	2538	2587	2368	3451	1904
Mean	3393	2782	2709	2282	2904	2670	2367	2343	2026	3507	2075

V_{12}	V_{13}	V_{14}	V_{15}	V_{16}	V_{17}	V_{18}	V_{19}	V_{20}	Mean
3466	4149	3124	3515	3124	3149	3075	5077	3612	3057
2538	2831	2343	2685	2831	2001	2099	2392	1855	2542
3002	3490	2734	3100	2978	2575	2587	3734	2734	2800

Crop :- Paddy (*Kharif*). **Ref :- U.P. 64(598), 65(450).**

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

Object :—To find the effect of different doses of N, P and K singly and in combination on different varieties of Paddy.

1. BASAL CONDITIONS :

(i) (a) Paddy-Barley. (b) Barley. (c) Nil. (ii) Light loam. (iii) 10 to 20.8.64, 10.7.65. (iv) (a) 4 ploughings. (b) Transplanting. (c) — (d) 23cm.×15cm. (e) 2. (v) Nil. (vi) As per treatments. (vii) Irrigated. (viii) 3 weedings. (ix) 36·2cm., 83·2cm. (x) 21.11.64; 20.11 to 17.12.65.

2. TREATMENTS :

Main-plot treatments:—

3 varieties : V_1=10-B, V_2=K-22 and V_3=Ch-4.

Sub-plot treatments :-

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

(1) 3 levels of N : N_0=0, N_1=44·8 and N_2=89·6 Kg/ha.
(2) 3 levels of P_2O_5 : P_0=0, P_1=22·4 and P_2=44·8 Kg/ha.
(3) 3 levels of K_2O : K_0=0, K_1=22·4 and K_2=44·8 Kg/ha.

N applied as C/A/N in three equal instalment, at first transplanting, 2nd at Ist irrigation and third at tillering stage. P_2O_5 as Super and K_2O as Mur. Pot. at transplanting.

3. DESIGN :

(i) Split-plot confd. (ii) (a) 3 main-plots/replication, 3 blocks/main-plot 9 sub-plots/block. (b) N.A. (iii) 2. (iv) (a) 5·18m.×4·80m. (b) 4·57m.×4·34m. (v) 30cm.×23cm. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Blight and Blast attack. (iii) Yield of grain. (iv) (a) 1964-66. (b) Yes. (c) Nil. (v) and (vi) Nil. (vii) As the experiment is continued beyond 65, the results of the individual years have been presented under 5. Results.

5. RESULTS :

64(598)

(i) 2230 Kg/ha. (ii) (a) 455·4 Kg/ha. (b) 321·4 Kg/ha. (iii) Main effect of N, V and K are highly significant. and that of interaction V×K is significant. (iv) Av. yield of grain in Kg/ha.

	N_0	N_1	N_2	P_0	P_1	P_2	K_0	K_1	K_2	Mean
V_1	1722	2081	2122	2053	1999	1973	2090	1387	2448	1975
V_2	2083	2269	2381	2266	2141	2325	2323	1869	2540	2244
V_3	2316	2523	2571	2509	2502	2399	2459	1950	3002	2470
Mean	2040	2291	2358	2276	2214	2199	2291	1735	2663	2230
K_0	2101	2406	2365	2260	2363	2249				
K_1	1595	1737	1874	1715	1701	1790				
K_2	2425	2730	2834	2853	2579	2557				
P_0	2077	2319	2432							
P_1	2051	2283	2309							
P_2	1993	2272	2332							

C.D. for V marginal means=195·3 Kg/ha.
C.D. for N or K marginal means=123·1 Kg/ha.
C.D. for K means at the same level of V=213·2 Kg/ha.
C.D. for V means at the same level of K=452·4Kg/ha.

65(450)

(i) 1925 Kg/ha. (ii) (a) 431·5 Kg/ha. (b) 396·2 Kg/ha. (iii) Main effect of V, N and K are highly significant and effects of interaction V×K is significant. (iv) Av. yield of grain in Kg/ha.

	N_0	N_1	N_2	P_0	P_1	P_2	K_0	K_1	K_2	Mean
V_1	1309	1505	1738	1588	1578	1388	1670	915	1968	1518
V_2	1638	1910	2101	1849	1880	1921	2147	1382	2121	1883
V_3	2126	2414	2585	2439	2361	2325	2411	1941	2772	2375
Mean	1691	1943	2141	1959	1940	1878	2076	1413	2287	1925
K_0	1839	2129	2260	2003	2103	2123				
K_1	1125	1402	1712	1545	1360	1334				
K_2	2109	2229	2452	2329	2356	2176				
P_0	1712	1943	2231							
P_1	1676	2073	2070							
P_2	1696	1824	2123							

C.D. for V marginal means=185·0 Kg/ha.

C.D. for N or K marginal means=151·7 Kg/ha.

C.D. for K means at the same level of V=262·9 Kg/ha.

C.D. for V means at the same level of K=503·3 Kg/ha.

Crop. :- Paddy (*Kharif*). **Ref :- U.P. 60(187).**

Site :- Govt. Reg. Agri. Res. Stn., Nawabgunj **Type :-'MV'.**

Object : –To find out suitable combination of varieties, N and P for Paddy.

1. BASAL CONDITIONS:

(i) (a) Nil. (b) and (c) N.A (ii) Clay loam. (iii) 8.8.60. (iv) (a) N.A. (b) Transplanting. (c) — (d) N.A. (e) 2. (v) N.A. (vi) As per treatments. (vii) N.A. (viii) Nil. (ix) 144·8cm. (x) 12.12.60.

2. TREATMENTS:

Main-plot treatmeuts :

4 varieties : V_1=T-9, V_2=T-26 V_3=T-36 and V_4=T-100.

Sub-plot treatments :

3 levels of N as A/S : N_1=22·4, N_2=44·8 and N_3=67·2 Kg/ha.

Sub-Sub-plot treatments :

2 levels of P_2O_5 as Super : P_1=28 and P_2=56 Kg/ha.

3. DESIGN:

(i) Split-plot. (ii) (a) 4 main-plots/replication, 3 sub-plots/main-plot, 2 sub-sub-plots/sub-plot. (b) N.A. (iii) 2. (iv) (a) 9·14m.×3·66m. (b) 8·69m.×2·74m. (v) 23cm.×46cm. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Nil. (iii) Yield of grain. (iv) (a) No. (b) and (c) Nil. (v) to (vii) Nil.

5. RESULTS:

(i) 3108 Kg/ha. (ii) (a) 112·2 Kg/ha. (b) 245·6 Kg/ha. (c) 187·8 Kg/ha. (iii) Main effect of V alone is highly significant. (iv) Av. yield of grain in Kg/ha.

	N_1	N_2	N_3	P_1	P_2	Mean
V_1	2530	2955	3064	2928	2772	2850
V_2	3175	3015	3087	3112	3072	3092
V_3	2886	3014	3083	2935	3054	2994
V_4	3340	3483	3658	3605	3383	3494
Mean	2983	3117	3223	3145	3070	3108
P_1	3050	3059	3327			
P_2	2916	3175	3119			

C.D. for V marginal means=145·7 Kg/ha.

Crop :- Paddy (*Kharif*). **Ref :- U.P. 62(141).**

Site :- Govt. Reg. Agri. Res. Stn., Nawabgunj. **Type :- 'MV'.**

Object :—To find out suitable combinations of N, P and K for Paddy varieties .

1. BASAL CONDITIONS:

(i) (a) Nil. (b) Masoor. (c) N.A. (ii) Clay loam. (iii) 21.7.62. (iv) (a) N.A. (b) Transplantins. (c) — (d) 23cm.×15cm. (e) 3. (v) Nil. (vi) As per treatments. (vii) Irrigated. (viii) 1 weedings. (ix) 161·9cm ; (x) V_1 and V_3 on 21.10.62 and V_2 on 6.11.62.

2. TREATMENTS :

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

(1) 3 varieties : V_1=Kooshisung 22, V_2=T_3 and V_3=T_{21}.

(2) 3 levels of N : N_1=33 6, N_2=67·2 and N_3=100·9 Kg/ha.

(3) 3 levels of P_2O_5 : P_1=16·8, P_2=33·6 and P_3=50·4 Kg/ha.

(4) 3 levels of K_2O : K_1=16·8, K_2=33·6 and K_3=50·4 Kg/ha.

3. DESIGN :

(i) Fact. in R.B.D. (ii) (a) 81. (b) N.A. (iii) 2. (iv) (a) 4·57m.×6·71m. (b) 4·11m.×6·10m. (v) 23cm.×30cm. (vi) Yes.

4. GENERAL:

(i) Good. (ii) Nil. (iii) Yield of grain. (iv) (a) 1962-only. (b) N.A. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 2868 Kg/ha. (ii) 402·6 Kg/ha. (iii) Main effects of V is highly significant. Main effect of N and interaction V×N are significant. (iv) Av. yield of grain in Kg/ha.

	N_1	N_2	N_3	P_1	P_2	P_3	K_1	K_2	K_3	Mean
V_1	2299	2697	2768	2625	2558	2581	2566	2616	2582	2588
V_2	3020	3321	3261	3097	3256	3159	3181	3172	3159	3171
V_3	2892	2738	2903	2762	2971	2799	2904	2959	2670	2844
Mean	2737	2889	2977	2828	2929	2847	2884	2916	2804	2868
K_1	2806	2951	2894	2791	2907	2954				
K_2	2786	2890	3072	2999	2927	2821				
K_3	2619	2828	2967	2695	2951	2765				
P_1	2690	2924	2870							
P_2	2674	2904	3208							
P_3	2848	2857	2854							

C.D. for V or N marginal means=154·2 Kg/ha.

C.D. for body of V×N table=267·0 Kg/ha.

Crop :- Paddy (*Kharif*). **Ref :- U.P 64(204), 65(263).**

Site :- Govt. Reg. Agri. Res. Stn., Nawabgunj. **Type :- 'MV'.**

Object :—To study the effect of levels of fertility on different varieties of Paddy.

1. BASAL CONDITIONS:

(i) (a) N.A.; Wheat-Paddy. (b) N.A.; Wheat. (c) N.A.; 89·7 Kg/ha.of N+44·8 Kg/ha. of P_2O_5. (ii) Clay loam (iii) 13/14 8.64; 25/26.7.65. (iv) (a) 5 ploughings. (b) Transplanting. (c) — (d) 23cm.×15cm. (e) 2. (v) 92·2 Kg/ha of compost. (vi) As per treatments. (vii) Irrigated. (viii) Hoeing and weeding. (ix) 91·3cm ; 38·1cm. (x) 13 to 16.11.64; 28.10.65 to 4.11.65.

2. TREATMENTS:

Main-plot treatments :

2 levels of fertilizers: F_1=67·8 Kg/ha. of N+33·6 Kg/ha. P_2O_5 and F_2=22·4 Kg/ha. of N+11 2 Kg/ha. of P_2O_5.

Sub-plot treatments :

12 varieties: V_1=N.S.J196, V_2=N.S.J 93, V_3=N,S.J 161, V_4=N.S.J 94, V_5=W-351, V_6=N.S. 187, V_7=N.S. 191, V_8=N.S. 192, V_9=N.S. 207, V_{10}=AC• 517, V_{11}=T-21 and V_{12}=China—4.

3. DESIGN

(i) Split-plot. (ii) (a) 2 main-plots/replication; 12 sub-plots/main-plot. (b) 112·95m.×11·64m. (iii) 4. (iv) (a) 9 0m.×5·5m. (b) 7 8 m.×5·1m. (v) 60cm.×20cm. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Nil. (iii) Yield of grain. (iv) (a) 1964-65. (b) Yes. (c) Nil. (v) and (vi) Nil. (vii) As sub plot error variances are heterogeneous the results of individual years have been presented under 5. Results.

5. RESULTS:

64(204)

(i) 1347 Kg/ha. (ii) (a) 168·7 Kg/ha. (b) 295·4 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	V_6	V_7	V_8	V_9	V_{10}	V_{11}	V_{12}	Mean
F_1	1279	1660	1444	1596	1279	1305	1343	1495	1431	975	1305	1355	1372
F_2	1368	1383	1976	1419	1064	1191	1279	1292	1229	1267	1191	1191	1322
Mean	1323	1526	2710	1507	1171	1248	1311	1393	1330	1121	1248	1273	1347

C.D. for V marginal means=296·1 Kg/ha.

65(263)

(i) 2373 Kg/ha. (ii) (a) 165·7 Kg/ha. (b) 629·1 Kg/ha. (iii) Main effect of F and V are highly significant. (iv) Av. yield of grain in Kg/ha.

	V_1	V_2	V_3	V_4	V_5	V_6	V_7	V_8	V_9	V_{10}	V_{11}	V_{12}	Mean
F_1	1783	1950	2625	2144	2850	2537	2144	1967	1908	1932	2100	2819	2213
F_2	2610	2250	2367	2625	3272	2470	2719	2543	1924	1934	2638	3050	2533
Mean	2196	2100	2496	2384	3061	2403	2431	2255	1916	1933	2369	2934	2373

C.D. for F marginal means=107·6 Kg/ha.

C.D. for V marginal means=628·5 Kg/ha.

Crop :- Paddy. (*Kharif*). **Ref :- U.P. 64(210), 65(264).**

Site :- Govt. Reg. Agri. Res. Stn., Nawabgunj. **Type :- 'MV'.**

Object :—To study the effect of levels of fertility on different varieties.

1. BASAL CONDITIONS:

(i) (a) Nil.; Wheat-Paddy. (b) N.A.; Wheat. (c) N.A.; 89·6 Kg/ha. of N+44·8 Kg/ha. of P_2O_5. (ii) Clay loam. (iii) 18/19.7.64; 5/6.7.65. (iv) (a) 4-8 ploughings by soil turning plough. (b) Transplanting (c) — (d) 23cm.×23cm. (e) 2-3. (v) 92·2 Kg/ha. as compost. (vi) As per treatments. (vii) Irrigated. (viii) 3 weedings. (ix) 91·3cm.; 36·3cm. (x) 17/18.10.64, 8 to 12.10.65.

2. TREATMENTS :

Maiu-plot treatments :

2 levels of fertilizers : F_1=67·8 Kg/ha. of N+34 Kg/ha of P_2O_5 as Super and F_2=22·4 Kg/aa. of N+11·2 Kg/ha. of P_2O_5 as super.

Sub-plot treatments :

12 varieties : V_1=N.S. 50, V_2=N.S. 52, V_3=N.S. 55, V_4=N.S.J 198, V_5=N.S J 199, V_6=N.S.J 200, V_7=W-9 G, V_8=AC 49, V_9=AC 65, V_{10}=N 22, V_{11}=CH 10, and V_{12}=T 136.

3. DESIGN :

(i) Split-plot. (ii) (a) 2 main-plots/replication, 12 sub-plots/main-plot. (b) N.A., 18·6cm.×71·6cm. (iii) 4. (iv) (a) 9·00m.×5·52m. (b) 7·80m.×5·06m. (v) 60cm.×20cm.

4. GENERAL :

(i) Good. (ii) Nil. (iii) Yield of grain. (iv) (a) 1964-65. (b) Yes. (c) Nil. (v) and (vi) N.A. (vii) Insufficient rainfall crop was affected with drought conditions As sub-plot error variances are heterogeneous the results of individual years have been presented under 5. Results.

5. RESULTS:

64(210)

(i) 2844 Kg/ha. (ii) (a) 415·8 Kg/ha. (b) 202·5 Kg/ha. (iii) Main effect of V is highly significant. (iv) Av. yield of grain Kg/ha.

	V_1	V_2	V_3	V_4	V_5	V_6	V_7	V_8	V_9	V_{10}	V_{11}	V_{12}	Mean
F_1	3151	3157	2807	3007	3108	3346	2689	2985	2785	2524	2388	2654	2903
F_2	3130	3187	2701	2774	3064	3086	2631	2776	2781	2470	2274	2553	2786
Mean	3160	3272	2754	2891	3086	3216	2660	2880	2783	2497	2331	2603	2844

C.D. for V marginal means=202·3 Kg/ha.

65(264)

(i) 2039 Kg/ha. (ii) (a) 294·2 Kg/ha. (b) 263·8 Kg/ha. (iii) Main effect of F is significant and 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	V_7	V_8	V_9	V_{10}	V_{11}	V_{12}	Mean
F_1	2045	2202	2583	2309	2050	2401	2022	1840	1944	2489	1797	2454	2178
F_2	2012	1848	2301	2084	1929	1822	1651	1878	1584	2041	1423	2226	1900
Mean	2028	2025	2442	2196	1990	2111	1836	1859	1764	2265	1610	2340	2039

C.D. for F marginal means=119·0 Kg/ha.

C.D. for V marginal means=263·5 Kg/ha .

Crop : Paddy (*Kharif*). **Ref :-U.P. 65(262).**

Site :- Govt. Reg. Agri. Res. Stn., Nawabgunj. **Type : 'MV.'.**

Object :—To select the most promising lata varieties for the region under two levels of fertility.

1. BASAL CONDITIONS :

(i) (a) Wheat-Paddy. (b) Wheat. (c) 89·7 Kg/ha. of N+44·8 Kg/ha. of P_2O_5. (ii) Clay loam. (iii) 18/19.8.65. (iv) (a) 3 ploughings by soil turning plough. (b) Transplanting. (c) — (d) 23cm.×15cm. (e)2. (v) Nil. (vi) As per treatments. (vii) Irrigated. (viii) 1 weeding by *khurpi*. (ix) 19·6cm. (x) Last week of Nov., 65.

2. TREATMENTS :

Main-plot treatments:

2 levels of fertilizers : F_1=22·4 Kg/ha. of N+ 11·2 Kg/ha. of P_2O_5 and F_2=67·2 Kg/ha. of N+33·6 Kg/ha. of P_2O_5.

Sub-plot treatments :

14 varieties: V_1=Kanakjeer, V_2=Didai, V_3=Jalesia, V_4=Didwa, V_5=Karanjee, V_6= Darogawa, V_7=Bamki, V_8=Juhi-Bengal, V_9=Jogiawa, V_{10}=Duniapat, V_{11}=Jathore, V_{12}=Samehri, V_{13}=T_9 and V_{14}=T_{26}.

N applied as C/A/N and P_2O_5 as Super; 1/2 dose of N and full dose of P_2O_5 applied as basal. 1/2 dose of N top dresing.

3. DESIGN:

(i) Split-plot. (ii) (a) 2 main-plots/replication, 14 sub-plots/main plot. (b) 77·28m.×18·60m. (iii) 4. (iv) (a) 9·00m.×5·52.m. (b) 7·80m.×5·06m. (v) 60c ×23cm. (vi) Yes.

4. GENERAL :

(i) Poor. (ii) Nil. (iii) Yield of grain. (iv) (a) 1965-contd. (in 1966—15 varieties were tried). (b) N.A. (c) Nil. (v) N.A. (vi) Due to drough conditions the crop badly suffered. (vii) Nil.

5. RESULTS:

(i) 1060 Kg/ha. (ii) (a) 596·7 Kg/ha. (b) 283·5 Kg/ha. (iii) Main effect of V alone is highly significant. (iv) Av. yield of grain in Kg/ha.

	V_1	V_2	V_3	V_4	V_5	V_6	V_7	V_8	V_9	V_{10}	V_{11}	V_{12}	V_{13}	V_{14}	Mean
F_1	1084	812	931	1051	1129	570	567	1152	1088	1891	829	660	872	1406	997
F_2	1268	1206	1238	1200	1492	732	835	958	894	1518	852	659	1149	1727	1123
Mean	1176	1009	1085	1126	1310	651	701	1055	991	1660	841	659	1011	1567	1060

C.D. for V marginal means=282·4 Kg/ha.

Crop :- Paddy (*Kharif*). **Ref :- U.P. 64(784).**

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

Object :—To study the effect of different levels of fertilisers on the yield of different varieties of early Paddy.

1. BASAL CONDITIONS :

(i) (a) Pea-Paddy. (b) Pea. (c) Nil. (ii) Heavy clay. (iii) 28-7.64. (iv) (a) 6 ploughings including 2 summer ploughing. (b) Transplanting. (c) — (d) 25cm. × 15cm. (e) 2 to 3, (v) Nil. (vi)As per treatments. (vii) Irrigated. (vii) One weeding. (ix) N.A. (x) Dec., 64.

2. TREATMENTS :

Main-plot treatments :

2 levels of fertilisers: F_1=89·6 Kg/ha. of N+44·8 Kg/ha. of P_2O_5+44·8 Kg/ha. K_2O and F_2=92·2Q/ha. of F.Y.M.

Sub-plot treatments :

12 varieties : V_1=N.S.180, V_2=N.S. 181, V_3=N.S.J. 198, V_4=N.S.S. 199; V_5=N.S.J. 200, V_6=A.C.49, V_7=A.C. 65, V_8=W99, V_9=N. 22, V_{10}=Ch. 10, V_{11}=Sudha and V_{12}=Local karangi.

3. DESIGN:

(i) Split-plot. (ii) (a) 2 main-plots/replication; 12 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) 11·0m. × 4·0m. (b) 10·1m. × 3·5m. (v) 45cm. × 25cm. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Nil. (iii) Yield of grain. (iv) (a) 1964-67 (modified every year) (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 2018 Kg/ha, (ii) (a) 412·4 Kg/ha. (b) 243·6 Kg/ha. (iii) Main effects of F and V are highly siguificant (iv) Av. yield of grain in Kg/ha.

	V_1	V_2	V_3	V_4	V_5	V_6	V_7	V_8	V_9	V_{10}	V_{11}	V_{12}	Mean
F_1	2242	1909	2489	2624	2426	3063	2340	2355	1909	2419	1938	2561	2356
F_2	1428	1429	1775	1768	1662	2355	1570	2227	1223	1393	1944	1379	1680
Mean	1835	1669	2132	2196	2044	2709	1955	2291	1566	1906	1941	1970	2018

C.D. for F marginal means=26·78 Kg/ha.

C.D. for V marginai means=243·3 Kg/ha.

C.D. for V means at the same level of F=337·6 Kg/ha.

C.D. for F means at the same level of V=530·6 Kg/ha.

Crop :- Paddy (*Kharif*). **Ref :- U.P. 65(677).**

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

Object :- To study the effect of different levels of fertilisers on the yield of difierent varieties of eariy Paddy.

1. BASAL CONDITIONS :

(i) (a) Pra-Paddy. (b) Pea. (c) Nil. (ii) Heavy clay. (iii) 27.7.65. (iv) (a) 6 ploughings, (b) Transplanting. (c) — (d) 20cm.×15cm. (e) 2 to 3. (v) Nil. (vi) As per treatments. (vii) Irrigated. (viii) 1 weeding. (ix) N.A. (x) 1.12.65.

2 TREATMENTS :

Main-plot treatments :

2 levels of fertilisers : F_1=88·9 Kg/ha. of N+44·8 Kg/ha. of P_2O_5+44·8 Kg/ha. of K_2O and F_2=92·2 Q/ha. of F.Y.M.

Sub-plot treatments :

10 varieties : V_1=N.S.-180, V_2=N.S.J. 190, V_3=N·S.J. 199, V_4=N.S.J. 200, V_5=A.C. 49, V_6=A.C.65, V_7=W. 99, V_8=Hsinechu 50, V_2=N. 22 and V_{10}=Local(karangi)

3. DESIGN :

(i) Split-plot. (iii) 2 main-plots/replication, 10 sub-plots/main-piot. (b) N.A. (iii) 4. (iv) (a) 11 0m.× 4·0cm. (b) 10·00m.×3·60m. (v) 50cm.×20cm. (vi) Yes.

4. GENERAL:

(i) Good. (ii) Nil. (iii) Yield of grain. (iv) (a) 1965-only. (b) No. (c) Nil. (v) to (vii) Nil,

RESULTS

(i) 1525 Kg/ha. (ii) (a) 480·7 Kg/ha. (b) 258·3 Kg/ha. (iii) Main effect of V alone is highly significant. (iv) Av. yield of grain in Kg/ha.

	V_1	V_2	V_3	V_4	V_5	V_6	V_7	V_8	V_9	V_{10}	Mean
F_1	1590	1507	1750	2111	1750	1305	930	2451	813	1153	1536
F_2	1174	1507	1660	1903	1382	1701	1340	2153	965	1361	1514
Mean	1382	1507	1705	2007	1566	1503	1135	2302	889	1257	1525

C.D. for V marginal means=259·1 Kg/ha.

Crop :- Paddy (*Kharif*).. **Ref :- U.P. 64(786), 65(679)).**

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

Object :—To find out the effect of fertility levels on different varieties of Paddy.

1. BASAL CONDITIONS :

(i) (a) Linseed-Paddy. (b) Linseed. (c) Nil. (ii) Heavy Clay. (iii) 4.8.64: 23.8.65. (iv) (a) 6 ploughings. (b) Transplanting. (c) — (d) 25cm.×15cm,; 20cm.×15cm. (c) 2-3 (v) Nil. (vi) As per treatments. (vii) Irrigated. (viii) One weeding. and one hoeing. (ix) N.A. (x) Dec., 64; Dec. 65.

2. TREATMENTS :

Main-plot treatments :

2 levels of fertilisers : F_1=89·6 Kg/ha, of N+44·8 Kg/ha. of P_2O_5+44·8 Kg/ha. of K_2O. and F_2=92·2 Q/ha. of F.Y.M.

Sub-plot treatments .

16 varieties : V_1=C.R.5, V_2=C.R.6, V_3=Hy-60, V_3=Hy-99, V_5=B.K. 88. V_6=B.A.H.-9×A.C. 517, V_7=Culture-7, V_8=Culture 11, V_9=Culture 21, V_{10}=W-449, V_{11}=PV. 13 V_{12}=Type 141, V_{13}=B.A.M. 9×Riku 13, V_{14}=Norin-6×G.E.B. 24, V_{15}=Type 9 and V_{16}=Type-100.

3. DESIGN :

(i) Split-plot. (ii) (a) 2 main-plots/replication; 16 sub-plots/main-plots. (b) N.A. (iii) 3. (iv) (a) 8 30m. ×4 20m ; 8·30m.×4·20m. (b) 7·40cm.×3·70m.; 7·40m.×3·80m. (v) 45cm.×25cm.;45cm.×20cm. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Nil. (iii) Grain yield. (iv) (a) 1964-67(modified in 66 and 67) (b) No. (c) Nil. (v) and (vi) Nil. (vii) Variety V_7 failed in 64.

5. RESULTS :

64(786)

(i) 2657 Kg/ha. (ii) (a) 216·4 Kg/ha. (b) 431·5 Kg/ha. (iii) Main effects of F and V are highly significant (iv) Av. yield of grain in Kg/ha.

	V_1	V_2	V_3	V_4	V_5	V_6	V_7	V_8	V_9	V_{10}	V_{11}
F_1	2094	2362	2191	2033	3044	3688	2167	2593	3847	3348	4115
F_2	2082	1984	1801	1509	3141	2958	1692	1863	3105	2970	3713
Mean	2088	2173	1996	1771	3092	3323	1930	2228	3476	3159	3914

V_{12}	V_{13}	V_{14}	V_{15}	V_{16}	Mean
4115	4492	3177	2544	1716	2894
3717	3542	2557	2150	1242	2419
3914	4017	2867	2337	1479	2657

C.D. for F marginal means=196·3 Kg/ha.

C.D. for V marginal means=499·3 Kg/ha.

65(679)

(i) 2129 Kg/ha. (ii) (a) 675·6 Kg/ha. (b) 245·8 Kg/ha. (iii) Main effect of F and V are highly significant. (iv) Av. yield of grain in Kg/ha.

	V_1	V_2	V_3	V_4	V_5	V_6	V_7	V_8	V_9	V_{10}	V_{11}
F_1	1801	2501	1742	2525	3106	2999	2572	1896	1671	3129	2774
F_2	1351	1695	1096	1766	1932	2157	1908	1470	1303	2477	2312
Mean	1576	2098	1419	2146	2519	2578	2240	1683	1487	2803	2543

V_{12}	V_{13}	V_{14}	V_{15}	V_{16}	Mean
3046	2831	2963	1624	2063	2456
2560	2335	2181	1102	1185	1802
2803	2608	2572	1363	1624	2129

C.D. for F marginal means=594·3 Kg/ha.

C.D. for V marginal means=283·9 Kg/ha.

Crop :- Paddy (*Kharif*). **Ref :- U.P. 65(678).**

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

Object :—To study the effect of two levels of fertility on different varieties of Paddy.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Heavy Clay. (iii) Aug., 65 (iv) (a) 4 ploughings. (b) Transplanting. (c) — (d) 15cm. × 20cm. (e) 2 to 3 (v) Nil. (vi) As per treatments. (vii) Irrigated. (viii) 1 weeding and hoeing (ix) N.A. (x) Dec., 65.

2. TREATMENTS :

Main-plot treatments :

2 levels of fertilisers : F_1=80 Kg/ha. of N+40 Kg/ha. of P_2O_5+40 Kg/ha. of K_2O and F_2=92·2 Q/ha. of F.Y.M.

Sub plot treatments :

20 varetilies : V_1=L.S.1, V_2=L.S.2, V_3=L.S.3, V_4=L.S.4, V_5=L.S.5, V_6=L.S.6, V_7=L.S.7, V_8=L S. 10 V_9=L.S.11, V_{10}=L.S. 12, V_{11}=L.S.13, V_{12}=L.S.14, V_{13}=L.S.15, V_{14}=L.S. 16, V_{15}=L.S. 17, V_{16}=L.S.19 V_{17}=L.S.20, V_{18}=T.9, V_{19}=T. 26 and V_{20}=T. 139.

3. DESIGN :

(i) Split plot. (ii) (a) 2 main-plots/replication, 20 sub plots/main plot. (b) N.A, (iii) 4. (iv) (a) 5·40m.× 20·1m. (b) 4·50m×0·80m. (v) 45cm.×20cm. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Nil. (iii) Yield of grain. (iv) (a) 1964—68 (modified every year) (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 1617 Kg/ha. (ii) (a) 159·7 Kg/ha. (b) 330·6 Kg/ha. (iii) Main effect of F is highly significant and that of V is significant. (iv) Av. yield of grain in Kg/ha.

	V_1	V_2	V_3	V_4	V_5	V_6	V_7	V_8	V_9	V_{10}	V_{11}	V_{12}
F_1	2312	1812	1882	2042	2083	2097	2139	2569	1840	2528	1569	2451
F_2	1250	1034	1111	1208	1139	931	931	1041	792	1152	805	1340
Mean	1781	1423	1497	1625	1611	1514	1535	1805	1316	1840	1187	1896

V_{13}	V_{14}	V_{15}	V_{16}	V_{17}	V_{18}	V_{19}	V_{20}	Mean
2347	2493	2111	2292	2299	1493	2395	2000	2138
1145	1215	1208	1166	1305	923	1208	1028	1097
1746	1854	1660	1729	1802	1208	1802	1514	1617

C.D. for F marginal means=80·3 Kg/ha.

C.D for V marginal means=327·6 Kg/ha.

Crop :- Paddy (*Kharif*). **Ref :- U.P. 64(592).**

Site :- Govt. Reg. Agri. Res. Stn., Varanasi. **Type :- 'MV'.**

Object :—To see the effect of different manurial treatments on the yield of early varieties of Paddy.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Heavy loam. (iii) 23.7.64 (iv) (a) Ploughing by care plough and pudding dy *Deshi* plough. (b) Transplanting. (c) — (d) 23cm.×15cm. (e) 4 (v) 33·6 Kg/ha. of P_2O_5 as Super+22·4 Kg/ha of K_2O as Pot. Sul. (vi) As per treatments. (vii) Irrigated. (viii) Weeding. (ix) 50·1cm. (x) 17.10.64.

2 TREATMENTS:

Main-plot treatments :

4 varieties : V_1=N22, V_2=Sudha, V_3=N.S. 42 and V_4=Ch. 10

Sub-plot treatments :

All combinations of (1) and (2)

(1) 2 levels of spartin: S_0=No spartin and S_1=370·6 Kg/ha.

(2) 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.

Spartin applied before transplanting and A/S top dressed on 22.8.64.

3. DESIGN:

(i) Split-plot. (ii) (a) 4 main-plots/replication and 8 sub-plots/main plot. (b) 25·60m.×24·69m. (iii) 2. (iv) (a) 5·49m.×2·29m. (b) 4·11m.×1·37m. (v) 69cm ×46cm (vi) Yes.

4. GENERAL:

(i) and (ii) N.A. (iii) Yield of grain. (iv) (a) 1964-only. (b) and (c) Nil. (v) to (vii) Nil.

5. RESULTS:

(i) 2026 Kg/ha. (ii) (a) 882·0 Kg/ha. (b) 281·5 Kg/ha. (iii) Main effect of N is highly significant and interactions S×N and V×N are significant. (iv) Av. yield of grain in Kg/ha.

	S_0	S_1	N_0	N_1	N_2	N_3	Mean
V_1	2321	2530	1518	2932	2841	2409	2425
V_2	2030	1755	882	2147	2439	2102	1892
V_3	2072	2149	1731	2410	2187	2116	2111
V_4	1740	1609	1183	1662	2062	1791	1675
Mean	2041	2011	1329	2288	2382	2104	2026
N_0	1325	1332					
N_1	2479	2096					
N_2	2273	2491					
N_3	2086	2123					

C.D. for N marginal means=203·8 Kg/ha.

C.D. for body of S×N table=288·3 Kg/ha.

C.D. for V means at the same level of N=1039·1 Kg/ha.

C.D. for N means at the same level of V=407·7 Kg/ha.

Crop :- Paddy (*Kharif*). **Ref :- U.P. 64(189).**

Site :- Govt. Reg. Agri. Res. Stn., Varanasi. **Type :- 'MV'.**

Object :--To study the effect of two levels of fertility on the different varieties of early Paddy.

1. BASAL CONDITIONS:

(i) (a) Nil. (b) and (c) N.A. (ii) Loam. (iii) 18.7.64 (iv) (a) N A. (b) Transplanting. (c) — (d) 23cm.×15cm. (e) 2 to 3. (v) 92·2 Q/ha. (vi) and (vii) N.A. (viii) Nil. (ix) 95·3cm. (x) N.A.

2. TREATMENTS :

Main-plot treatments :

2 levels of fertilisers: F_1=44·8Kg/ha. of N+33·6Kg/ha. of P_2O_5 & F_2=22·4Kg/ha. of N+22·4Kg/ha. of P_2O_5

Sub-plot treatments :—

11 varieties: V_1=N. 22, V_2=N.S.J.52. V_3=N.S.J. 159, V_4=N.S.J. 160, V_5=Sudha, V_6=N. 32, V_7=Ch. 10, V_8=N.S. 50, V_9=N.S. 42, N_{10}=N.S. 41 and V_{11}=Bakki(Local)

3. DESIGN :

(i) Split-plot. (ii) (a) 2main-plots/replication,11sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) 8·23m. ×4·34m. (b) 7·62m.×3·43m.; (v) 30 cm.×46cm. (vi) Yes.

4. GENERAL:

(i) Good., (ii) Nil. (iii) Yield of grain. (iv) (a) 1964-only . (b) and (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 1762 Kg/ha. (ii) (a) 736·4 Kg/ha. (b) 289·8 Kg/ha. (iii) Main effect of V alone is highly significant. (iv) Av. yield of grain in Kg/ha.

	V_1	V_2	V_3	V_4	V_5	V_6	V_7	V_8	V_9	V_{10}	V_{11}	Mean
F_1	2141	2048	1900	2185	2176	1503	1824	2063	1512	1996	1639	1908
F_2	1810	1962	1248	1780	1692	1379	1729	1563	1351	1743	1517	1616
Mean	1976	2005	1574	1982	1934	1441	1776	1813	1431	1870	1578	1762

C.D. for N marginal means=289·8 Kg/ha.

Crop :- Paddy (*Kharif*). **Ref :- U.P. 65(439).**

Site :- Govt. Reg. Agri. Res. Stn., Varanasi. **Type :- 'MV'**

Object :—To find out the suitable early variety for the region under two fertility levels.

1. BASAL CONDITIONS :

(i) (a) Paddy-Wheat. (b) Wheat. (c) N.A. (ii) Loam. (iii) 20.7.65. (iv) (a) N.A. (b) Transplanting. (c) — (d) 23cm.×15cm. (e) 2-3, (v) 92·2 Q/ha. compost -broadcasted before sowing (vi) As per treatments (vii) Irrigated. (viii) Nil. (ix) 36·2cm. (x) 14-19.10.65.

2. TREATMENTS :

Main-plot treatments :

2 levels of fertilisers : F_1=22·4 Kg/ha. of N as A/S+22·4 Kg/ha. of P_2O_5 as Super. F_2=44·8 Kg/ha. of N as A/S +33·6 Kg/ha. of P_2O_5 as Super.

Sub-plot treatments

12 varieties : V_1=AC 49, V_2=AC 65, V_3=Hsinchu 50, V_4=N22, V_5=Kashi, V_6=N.S.J. 55, V_7=NS. 160, V_8=N.S.J. 198, V_9=N.S.J.199, V_{10}=N.S J. 200 and V_{11}=W99.
N as A/S applied top dressed P_2O_5 as Super broadcasted before sowing.

3. DESIGN:

(i) Split-plot, (ii) (a) 2 main-plot/replication and 11 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) and (b) 4·88m.×9·44m. (v) Nil. (vi) Yes.

4. GENERAL :

(i) and (ii) Nil. (iii) Yield of grain. (iv) (a) 1964-contd. (varieties change every year) (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 1926 Kg/ha. (ii) (a) 484·0 Kg/ha. (b) 324·9 Kg/ha. (iii) Main effect of V is highly significant and interaction F×V is significant. (iv) Av. yield of grain in Kg/ha.

	M_1	M_2	M_3	M_4	M_5	M_6	M_7	M_8	M_9	M_{10}	M_{11}	Mean
F_1	2240	1713	2181	1188	1442	1270	2125	1976	1701	2017	1763	1783
F_2	1876	2225	2160	1618	1571	1550	2565	2178	1815	2952	2251	2069
Mean	2058	1969	2171	1403	1507	1410	2345	2077	1758	2484	2007	1926

C.D for V marginl means=324·9 Kg/ha.
C.D. for V means at the same level of F=459 5 Kg/ha.
C.D. for F means at the same level of V=681·6 Kg/ha.

Crop :- Paddy (*Kharif*). **Ref :-U.P. 64(190).**

Site :- Govt. Reg. Agri. Res. Stn., Varanasi. **Type :- 'MV'.**

Object :—To see the effect of two levels of fertilisers on the yield of different medium varieties of Paddy.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) and (c) N.A. (ii) Loam. (iii) 24/25.7.64 (iv) (a) N.A. (b) Transplanting. (c) — (d) 23cm. × 15cm. (e) 2 to 3. (v) 92·2 Q/ha. of compost. (vi) N.A. (vii) Irrigated. (vii) Nii. (ix) 95·3cm. (x) N.A.

2. TREATMENTS:

Main-plot treatments :

2 levels of fertilisers : F_1=44·8 Kg/ha. of N+33·6 Kg/ha. of P_2O_5 and F_2=22·4 Kg/ha. of N+22·4 Kg/ha. of P_2O_5.

Sub-plot treatments :

10 varieties : V_1=CH.4, V_2=N.S.J. 93, V_3=N.S.J. 94, V_4=N.S.J. 97, V_5=N.S.J. 98, V_6=N.S.J.157, V_7=T 21, N_8=T. 136, V_9=T138 and V_{10}=K 22.

3. DESIGN :

(i) Split-plot. (ii) (a) 2 main-plot/replication; 10 sub-plots/Main-plot. (b) N.A. (iii) 4. (iv) (a) 5·79m × 3·66m. (b) 5·18m. × 2·97m. (v) 30cm. × 35cm. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Nil. (iii) Yield of grain. (iv) (a) No. (b) and (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 2730 Kg/ha, (ii) (a) 223·3 Kg/ha. (b) 541·6 Kg/ha. (iii) Main effects of F and V are highly significant. (iv) Av. yield of grain in Kg/ha.

	V_1	V_2	V_3	V_4	V_5	V_6	V_7	V_8	V_9	V_{10}	Mean
F_1	2734	3672	3120	3166	3340	2867	2482	2943	2245	1809	2838
F_2	3020	2947	2950	2697	3400	2929	2268	2323	2182	1513	2623
Mean	2877	3310	3035	2931	3370	2898	2375	2633	2214	1661	2730

C.D. for F marginal means=158·9 Kg/ha.
C.D. for V marginal means=543·5 Kg/ha.

Crop :- Paddy (*Kharif*). **Ref :-U.P. 65(440).**

Site :- Govt. Reg. Agri. Res. Stn., Varanasi. **Type :- 'MV'.**

Object :—To select the suitable medium variety of Paddy for this region under two levels of fertility.

1. BASAL CONDITIONS :

(i) (a) Paddy-Wheat. (b) Wheat. (c) N.A. (ii) Loam. (iii) 20.7.65. (iv) (a) N.A. (b) Transplanted. (c) — (d) 23cm.×15cm. (e) 2-3 (v) 92·2 Q/ha. of compost broadcasted befor sowing. (vi) As per treatments. (vii) Irrigated. (viii) Nil. (ix) 36·2cm. (x) 21-29.10.65.

2. TREATMENTS :

Main-plot treatments :

2 levels of fertility : F_1=22·4 Kg/ha. of N as A/S+22·4 Kg/ha. of P_2O_5 as Super. and F_2=44 8 Kg/ha. of N as A/S+33·6 Kg/ha. of P_2O_5 as Super.

Sub-plot treatments :

10 varieties : V_1=AC.517, V_2=AC. 3760, V_3=N.S. 185, V_4=N.S. 187, V_5=N.S. 191, V_6=N.S.192, V_7=N.S J. 98, V_8=N.S.J. 161, V_9=N.S J. 196 and V_{10}=W351.
N as A/S top dressed P_2O_5 as Super broadcasted before sowing.

3. DESIGN :

(i) Split-plot. (ii) (a) 2 main-plots/replication and sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) 5·49m. ×2·74m. (b) 4·88m.×2 44m. (v) 30cm.×15cm. (vi) Yes.

4. GENERAL :

(i) Satisfactary. (ii) Nil. (iii) Plant height tiller counts and yield of grain. (iv) (a) 1964-contd (varieties changed every year) (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 1584 Kg/ha. (ii) (a) 1710 5 Kg/ha. (b) 474·5 Kg/ha. (iii) Main effect of V alone is highly significant. (iv) Av. yield of grain in Kg/ha.

	V_1	V_2	V_3	V_4	V_5	V_6	V_7	V_8	V_9	V_{10}	Mean
F_1	1418	1877	1717	1419	1113	1198	1858	2240	2323	1468	1663
F_2	1466	2063	1479	1228	657	925	1974	1807	1503	1939	1504
Mean	1442	1970	1598	1323	885	1062	1916	2023	1913	1704	1584

C.D. for V marginal means=476 0 Kg/ha.

Crop :- Paddy (*Kharif*). **Ref :- U.P. 64(193), 65(50).**

Site :- Govt. Reg. Agri. Res. Stn., Varanasi. **Type :-'MV'.**

Object :—To test the suitability of late Paddy varieties under different manurial levels.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Potato; Barly; wheat; Pea (c) N.A. (ii) Heavy loam. (iii) 6/7.8.64; 5./6.8.65 (iv) (a) N.A. (b) Transplanting. (c) — (d) 23cm.×15cm. (e) 3 to 4; 2. (v) Nil. (vi) As per treatments. (vii) Irrigated. (viii) Nil; one weeding by khurpi. (ix) 95·3cm.; N.A. (x) 6 to 9.12.64; 12.12.65

2. TREATMENTS:

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

(1) 3 levels of N as A/S : N_0=0, N_1=44·8; N_2=89·6 Kg/ha.

(2) 3 leves 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. of Pot. K_0=0, K_1=22·4 and K_2=44·8 Kg/ha.

(4) 3 late varieties : V_1=T-100, V_2=T-36 and V_3=T-9

3. DESIGN:

(i) 3^4 confd. (ii) (a) 9 plots/block; replication. (b) N.A. (iii) 2. (iv) (a) 7·31m.×4 88m.; 5·49m.×2·97m. (b) 6·40m.×3·96m.; 5·03m.×3·74m. (v) 46cm.×46cm.; 23cm.×11cm. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Nil. (iii) Yield of grain. (iv) (a) 1964-66 (b) No. (e) Nil. (v) Nawabganj. (vi) Nil. (vii) As the experiment is continued beyond 65,results of the individual years have been presented under 5. Results.

5. RESULTS:

4(193)

(I) 2105 Kg/ha. (ii) 350·3 Kg/ha. (iii) Main effects of N, V and interaction N×V are highly significant. (iv) Av. yield of grain in Kg/ha.

	P_0	P_1	P_2	K_0	K_1	K_2	V_1	V_2	V_3	Mean
N_0	1927	1956	1900	1960	1872	1951	2167	1797	1819	1928
N_1	2067	2121	2305	2112	2140	2242	2214	2·46	1933	2164
N_2	2246	2252	2173	2107	2324	2241	2322	2559	1791	2224
Mean	2080	2110	2126	2060	2112	2144	2234	2234	1847	2105
V_1	2192	2182	2329	2093	2270	2370				
V_2	2174	2310	2217	2204	2354	2145				
V_3	1874	1836	1832	1882	17432	1917				
K_0	2029	1983	2166							
K_1	2004	2265	2066							
K_2	2006	2080	2147							

C.D. for N or V marginal means=231·3 Kg/ha.

C.D. for body of N×V or N×P table=231·3 Kg/ha.

65(50)

(i) 2253 Kg/ha. (ii) 376·4 Kg/ha. (iii) Main effects of N and P are highly significant and interaction P×K and N×P are significant. (iv) Av, yield of grain in Kg/ha.

	P_0	P_1	P_2	K_0	K_1	K_2	V_1	V_2	V_3	Mean
N_0	1534	2277	2761	2120	2315	2137	2228	2174	2171	2191
N_1	2107	2887	3550	2962	2709	2873	2871	2770	2903	2848
N_2	1331	1702	2122	1657	1652	1847	1686	1642	1829	1719
Mean	1658	2289	2811	2247	2225	2286	2261	2195	2301	2253
V_1	1679	2252	2853	2186	2304	2294				
V_2	1514	2309	2763	2177	2198	2210				
V_3	1780	2305	2818	2377	2173	2353				
K_0	1717	2230	2793							
K_1	1539	2320	2817							
K_2	1717	2317	2824							

C.D. for N or P marginal means=142·8 Kg/ha.

C D. for body of N×P or N×K table=247·5 Kg/ha.

Crop :- Paddy (*Kharif*). **Ref :- U.P. 65(441),**

Site :- Govt. Reg. Agri. Res. Stn., Varanasi. **Type :- 'MV'.**

Object :—To select the suitable varieties for the region under two fertility conditions.

1. BASAL CONDITIONS

(i) (a Paddy-Wheat. (b) Wheat. (c) N.A. (ii) Loam. (iii) 18.8.65 (iv)) (a) N.A. (b) Transplanted. (c) — (d) 23cm ×15cm. (e) 2-3 (v) 92·2 Kg/ha. of compost as broadcast before sowing. (v) As per treatments. (vii) Irrigated. (viii) Nil (ix) 36·4cm. (x) 4.12.65.

2. TREATMENTS

Main-plot treatments

2 fertility levels F_1=22·4 Kg/ha of N as A/S+22·4 Kg/ha. of P_2O_5 as Super and F_2=44·8 Kg/ha. of N as A/S+33·6 Kg/ha. of P_2O_5 as Super.

N applied as top dressing and P_2O_5 as broadcasting before sowing.

Sub-plot treatments :

12 varieties : V_1=Adam Chini, V_2=Bamki, V_3=Dehra Dun, V_4=Didai, V_5=Didwa, V_6=Duniapat, V_7=Gajraj, V_8=Jalesia, V_9=Jellhore, V_{10}=Sonehri, V_{11}=T-9 and V_{12}=T-100

3. DESIGN:

(i) Split-plot. (ii) (a) 2 main-plots/replication and 12 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) 5 49m. ×2.74m. (b) 4·88m.×2·14m. (v) 30cm.×30cm. (vi) Yes.

4. GENERAL

(i) Satisfactory. (ii) Slight disease. (iii) Hight of plants, tiller counts and yield of grain. (iv) (a) 1965-only. (b) and (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 2886 Kg/ha. (ii) (a) 142·1 Kg/ha. (b) 318·7 Kg/ha. (iii) Main effects of F and V are highly significant. (iv) Av. yield of grain in Kg/ha.

	V_1	V_2	V_3	V_4	V_5	V_6	V_7	V_8	V_9	V_{10}	V_{11}	V_{12}	Mean
F_1	2740	2897	3484	2693	2610	2762	2796	2878	2886	2853	1730	3103	2786
F_2	2974	3133	3346	3133	2572	3208	3230	3336	2762	3007	1716	3413	2986
Mean	2857	3015	3415	2913	2591	2985	3013	3107	2824	2930	1723	3258	2886

C.D for F marginal means=92·4 Kg/ha.

C.D. for V marginal means=324·3 Kg/ha.

Crop :- Paddy (*Kharif*). **Ref :- U.P. 61(384).**

Site :- State Usar Rechamation Farm Dhakauni. **Type :-'C'.**

Object :—To study the effeet of reclamation of saline-alkali soils by leaching with water alone.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Wheat. (c) N.A. (ii) Saline alkali soil. (iii) 3.8.61. (iv) (a) 4 ploughings. (b) Transplanting. (c) N.A. (d) Plants 15cm. apart. (e) 2 to 3. (v) G.M. by *Dhaincha*, (vi) T-9. (vii) Irrigated. (viii) N.A. (lx) 78·4cm. (x) 17.12.61.

2. TREATMENTS:

2 leaching treatments :

T_0=Control (Untreated) and T_1=Leached with water only.

3. DESIGN:

(i) R.B.D. (ii) (a) 2. (b) N.A. (iii)2. (iv) (a) and (b) Differ plot sizes. (v) N.A. (vi) Yes.

4. GENERAL:

(i) Normal. (ii) Nil. (iii) Yield of grain. (iv) (a) 1961-only. (b) — (c) Nil. (v) N A. (vi) Nil. (vii) This expt. has been conducted since 1951 on wheat crop but in 1961 it was conducted on Paddy.

5. RESULTS:

(i) 1376 Kg/ha. (ii) 121·7 Kg/ha. (iii) Treatment differences are highly significant. (iv) Av. yield of grain in Kg/ha.

Treatment:	T_0	T_1
Av. yield :	642	2110

C. D.=1546·3 Kg/ha.

Crop :- Paddy (*Kharif*). **Ref. :- U.P. 61(383).**

Site :- State Usar Reclamation Farm, Dhakauni. **Type: -'C'.**

Object :—To study the reclamatiod of saline-alkali soil by leaching with water alone.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Wheat. (c) N.A. (ii) Saline-alkali soils. (iii) 3.8.61 (iv) (a) 4 ploughings. (b) Transplanting. (c) — (d) Plants 15cm. apart (e) 2 to 3. (v) N.A. (vi) T-9 (vii) Irrigated. (vii) N.A. (ix) 78·4cm (x) 17.12.61.

2. TREATMENTS:

2 leaching treatments :

T_0=Control (Untreated) and T_1=Leached with water only.

3. DESIGN:

(i) R.B.D. (ii) (a) 2. (b) N.A. (iii) 8. (iv) (a) N.A. (b) 1/4·94 ha. (v) N.A. (vi) Yes.

4 GENERAL:

(i) Normal. (ii) Nil. (iii) Yield of grain. (iv) (a) 1961-only. (b) — (c) Nil. (v) N A. (vi) Nil (vii) This expt. has been conducted since 51 on wheat crop but in 61 it was conducted on Paddy.

5. RESULTS :

(i) 1463 Kg/ha. (ii) 227 2 Kg/ha. (iii) Treatment differences are highly significant. (iv) Av. yield of graiu in Kg/ha.

Treatment :	T_0	T_1
Av. yield	640	2286

C D.=268·6 Kg/ha.

Crop :- Paddy (*Kharif*). **Ref :- U.P. 63(369).**

Site :- Govt. Agri. Flood Res. Stn., Gograghat. **Type :- 'C'.**

Object :—To see the effect of different spacings on the yield of Paddy.

1. BASAL CONDITIONS :

(i) (a) to (c) N A. (ii) Sandy loam. (iii) 19.7.63. (iv) (a) 2 ploughings by S.T.P. and one ploughing by *desi* plough and 3 plankings by singh and *desi* pata. (b) Transplanting. (c) — (d) Rows as per treatments, Plants 15 cm. apart (e) 2. (v) 33·6 Kg/ha. of N+16·8 Kg/ha. of P_2O_5. (vi) Chakia-59 (late). (vii) Unirrigated. (viii) Nil. (ix) 81·3cm. (x) N.A.

2. TREATMENTS

4 row spacings : S_1=15, S_2=23 S_3=30 and S_4=38cm.

3. DESIGN:

(i) R.B.D. (ii) (a) 4. (b) 8·84m.×20·12m, (iii) 4 (iv) (a) and (b) 4·57m.×8·84m. (v) Nil. (vi) Yes.

4. GENERAL :

(i) Satisfactory. (ii) Nil. (iii) Yield of grain. (iv) (a) Yes, 1962-64 (Expt. failed in 64 and data for 62, N.A. (b) No. (c)Nil. (v) No. (vi) and (vii) Nil.

5. RESULTS :

(i) 1655 Kg/ha. (ii) 630·1 Kg/ha. (iii) Treatment differences are not significant. (iv) yield of grain in Kg/ha.

Treatment :	S_1	S_2	S_3	S_4
Av. yield	1805	1487	1540	1787

Crop :- Paddy (*Kharif*). **Ref :-U.P. 64(396).**

Site:- Govt. Agri. Flood Res. Stn., Gogragbat. **Type :- 'C'.**

Object: —To find out suitable seed-rate for Paddy under flooded canditions of eastern U.P.

1. BASAL CONDITIONS :

(i) (a) Paddy-mixed cropping expt. (b) Wheat+Barley+Lentil. (c) N.A. (ii) Sandy loam. (iii) 26.6.64 (iv) (a) 2 ploughings by S.T.P., one ploughing by *desi* Plough and 3 planking by singh and desi pata. (b) Behind plough. (c) As per treatments (d) Rows 23cm. apart (e) — (v) Nil. (vi) Chakia 59(late) (vii) Unirrigated. (viii) Nil. (ix) 94·3cm. (x) N.A.

2. TREATMENTS :

3 seed rates : S_1=22·4, S_2=33·6 and S_3=44·8 Kg/ha.

3. DESIGN :

(i) R.B.D. (ii) (a) 3. (b) 4·57m.×28·35m. (iii) 8. (iv) (a) and (b) 8 84m.×4·57m. (v) Nil. (vi) Yes.

4. GENERAL :

(i) Good, few plants lodged on 5.10.64 (ii) Attack of rates and Hispaormizora, controlled by rat poison betting+5%B.H C. respectively. (iii) Yield of grain. (iv) (a) 1964-contd (Expt. failed in 65) (b) No. (c) Nil. (v) No. (vi) and (vii) Nil.

5. RESULTS :

(i) 587 Kg/ha. (ii) 478·3 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	491	666	605

Crop :- Paddy (*Kharif*). **Ref:-U.P. 60(121).**

Site :- Govt. Reg. Agri. Res, Stn., Hardoi. **Type :- 'C'.**

Object :—To see the effect of different methods of cultivation on Paddy.

1. BASAL CONDITIONS:

(i) (a) Nil. (b) Toria. (c) N.A. (ii) Sandy loam. (iii) N.A. (iv) (a) N.A. (b) As per taeatments. (c) 27·6 Kg/ha. (d) Rows 23 cm. apart. (e) — (v) 22·4 Kg/ha. of P_2O_5 (vi) N 22 (early) (vii) Irrigated (viii) Inter culture operations by khurpi. (ix) 71cm. (x) 3 & 4.11.60.

2. TREATMENTS :

4 methods of sowins : S_1=Broadcasting, S_2=Line sowing behind the plough, S_3=Dibling and S_4=Line sowing in puddled conditions.

3. DESIGN :

(i) R.B.D. (ii) (a) 4. (b) N.A. (iii) 4. (iv) (a) 14·30m.×4·60m. (b) 14·30m.×4·60m. (v) Nil. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Dusting by 5%B.H.C. to avoied gundli bug. (iii) Yield of grain. (iv) (a) 1960-only. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 780 Kg/ha. (ii) 261·6 Kg/ha. (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	891	767	514	948

Crop :- Paddy (*Kharif*). **Ref :- U.P. 60(489).**

Site :- Govt. Reg. Agri. Res. Stn., Majhera. **Type :- 'C'**

Object: - To see the effect of growing Paddy by broadcasting method as against sowing in lines at different spacings.

1. BASAL CONDITIONS:

(i) (a) N.A (b) Pea. (c) N.A. (ii) Sandy loam. (iii) 5/6.4.60. (iv) (a) 6 plouhings by deji plough (b) As per treatments. (c) 66 Kg/ha. (d) As per treatments. (e) — (v) 18·4 Q/ha. of C. cake+148·3 Kg/ha. of C/A/N+49·4 Kg/ha. of Super. (vi) N-22 (vii) Unirrigated. (viii) 4 weedings. (ix) N.A. (x) 16.10.60

2. TREATMENTS :

4 methods of sowing : T_1=Broadcasting, T_2=Line sowing with rows 15em. apart, T_3=Line sowing with rows 23cm. apart and T_4=Line sowing with rows 30cm. apart

3. DESIGN :

(i) R.B.D (ii) (a) 4. (b) 12·04m.×5·64m. (iii) 4. (iv) (a) and (b) 4·88m.×2·44m. (v) Nil. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Nil. (iii) Yield of grain. (iv) (a) 1957-60. (b) N.A. (c) Nil. (v) to (vii) Nil.

5. RESULTS:

(i) 1238 Kg/ha. (ii) 476·5 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
Av. yield	1408	1422	1079	1042

Crop :- Paddy (*Kharif*). **Ref:-U.P. 60(490).**

Site :- Rice. Res. Sub-Stn., Majhera. **Type :- 'C'.**

Object : To find out the optimun time of broadcasting and seed rate in hilly region.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Pea. (c) N.A. (ii) Sandy loam. (iii) As per treatments. (iv) (a) 2 ploughings and puddling. (b) Broadcasting. (c) As per treatments. (d) — (e) — (v) 13·8 Q/ha. of C. Cake+98·8 Kg/ha. of C/A/N.+49·4 Kg/ha. of Super. (vi) N-22. (vii) Unirrigated. (viii) 2weedings. (ix) N.A. (x) 1.10.60.

2. TREATMENTS :

All combinations of (1) and (2)

(1) 3 dates of sowing : D_1=31.3.60, D_2=15.4.60 and D_3=30.4.60

(2) 4 seed-rates : S_1=57·6, S_2=691, S_3=80·7 and S_4=92·2 Kg/ha

3. DESIGN :

(i) Fact. in R.B.D. (ii) (a) 12 (b) 20·12m.×11·62m. (iii) 4. (iv) (a) and (b) 4·42m.×3·35m. (v) Nil. (vi) Yes.

4. GENERAL :

(i) Medium. (ii) Nil. (iii) Yield of grain. (iv) (a) 1958-60 (b) N.A. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 1164 Kg/ha. (ii) 404·1 Kg/ha. (i) None of the effect is significat (iv) Av. yield of grain in Kg/ha.

	S_1	S_2	S_3	S_4	Mean
D_1	905	1167	1052	1084	1043
D_2	895	1411	991	1346	1161
D_3	1265	1195	1287	1406	1288
Mean	1021	1258	1110	1267	1164

Crop :- Paddy (*Kharif*). **Ref :-U.P. 60(240),**

Site :- Govt. Reg. Agri. Res. Stn., Meerut. **Type :-'C'.**

Object :—To study the effect of ratooning in Paddy.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Loam. (iii) 8.6.60. (iv) (a) 3 ploughings by soil turning plough desi plough. (b) to (e) N.A. (v) N.A. (vi) T. 136 (vii) and (viii) N.A. (ix) 91·3cm. (x) 20.9.60.

2. TREATMENTS :

2 cultural treatments: T_1=Ratoon and T_2=Non-ratoon.

3. DESIGN:

(i) R.B.D. (ii) (a) 2. (b) 15·24m. × 5·94m. (iii) 12. (iv) (a) 15·24m. × 2·74m. (b) 1/719·1 ha. (v) N.A. (vi) Yes.

4. GENERAL:

(i) Good. (ii) Nil. (iii) Yield of grain. (iv) (a) 1960-only. (b) and (c) — (v) to (vii) Nil.

5. RESULTS

(i) 3181 Kg/ha. (ii) 474·4 Kg/ha. (iii) Treatment differences are not significant. (iv) Av. yield of grain in Kg/ha.

Treatment	T_1	T_2
Av. yield	2970	3391

Crop :- Paddy (*Kharif*). **Ref :- U.P. 65(455).**

Site :- Rice Res. Stn., Nagina. **Type 'C'.**

Object :—To find out the best sowing date for early Paddy.

1. BASAL CONDITIONS:

(i) (a) N.A. (b) Barley. (c) N.A. (ii) Light loam. (iii) As per treatments. (iv) (a) N.A. (b) Broadcasting. (c) 86·5 Kg/ha. (d) N.A. (e) — (v) 67·2 Kg/ha. of N+33·6 Kg/ha. of P_2O_5. (vi) Kashi (early). (vii) N.A. (viii) 2 weedings (ix) 88·4cm. (x) 17 to 25.9.65.

2. TREATMENTS:

2dates of sowing :

T_1=7.5.65 and T_2=27.5.65

3. DESIGN :

(i) R.B.D. (ii) (a) 2. (b) N.A. (iii) 6. (iv) (a) 2·74m. × 13·72m. (b) 2·29m. × 13·11m. (v) 23cm. × 30cm. (vi) Yes.

4. GENERAL :

(i) Good. (ii) 80% to 100% blights in same plots. (iii) Yield of grain. (Iv) (a) 1965-only. (b) and (c) Nil. (v) to (vii) Nil.

5. RESULTS:

(i) 1965 Kg/ha. (ii) 205·8 Kg/ha. (iii) Treatment differences are not significant. (iv) Av. yield of grain in Kg/ha.

Treatmeut	T_1	T_2
Av. yield	2083	1847

Crop :- Paddy (*Kharif*). **Ref :- U.P. 60(159), 61(165).**

Site :- Govt. Reg Agri. Res. Stn., Nawabgunj. **Type :- 'C'**

Object :—To find out if there is any in crease in yield by transplanting early and lata Paddy in strips.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Berseem; Massor. (c) N.A. (ii) Clay loam. (iii) 28.7.60; 8 and 9.7.61. (iv) (a) N.A. (b) Transplanting. (c) — (d) 23cm×23cm. (e) 2 to 3. (v) 46·6Kg/ha. of N as Urea top dressed. (vi) N-22 (early) and T-9 (late). (vii) Irrigated. (viii) Interculture operation; Roguing. (ix) 144·8cm; 161·3cm. (x) 19.10.60, 13.12.60; 26.9.61, 12.12.61.

2. TREATMENTS :

Transplanting of different combinations of early and late Paddy.

T_1=Early Paddy alone. T_2=Late Paddy alone, T_3=One row of Early Paddy+One row of late Paddy, T_4=One row of Early Paddy+2 row of late Paddy, T_5=One row of Early Paddy+3 row of late Paddy, T_6=2 rows of Early Paddy+4 rows of late Paddy.

3. DESIGN :

(i) R B.D. (ii) (a) 6. (b) N.A. (iii) 4. (iv) (a) and (b) 10·97m.×3·35m.; 12·19m.×3·66m. (v) Nil. (vi) Yes.

4. GENERAL:

(i) Good. (ii) Nil. (iii) Yield of grain. (iv) (a) 1960-61. (b) No. (c) Nil. (v) and (vi) N.A. (vii) As the error variances are heterogeneous and Treatments×Years interaction is absent; the results of the individual years have been presented under 5. Results.

5. RESULTS :

60(159)

(i) 170 Rs/ha. (ii) 82·6 Rs/ha. (iii) Treatment differences are highly significant. (iv) Av. value of produce in Rs/ha.

Treatments	T_1	T_2	T_3	T_4	T_5	T_6
Av. produce	241	923	613	845	848	787

C.D.=124·5 Rs/ha.

61(165)

(i) 198 Rs/ha. (ii) 241 Rs/ha. (iii) Treatment differenees are highly significant. (iv) Av. value of produce in Rs/ha.

Treatment	T_1	T_2	T_3	T_4	T_5	T_6
Av. produce	258	1037	774	917	896	906

C.D.=363·1 Rs/ha.

Crop :- Paddy (*Kharif*). **Ref :- U.P. 62(195).**

Site :- Govt. Reg. Agri. Res. Stn., Nawabgunj. **Type :- 'C'.**

Object :—To study imporved methods of broadcasting Paddy.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) and (c) N.A. (ii) Clay loam. (iii) 1.6.62/2.7.62. (iv) (a) N.A. (b) Transplanting. and Broadcasting. (c) 24·7 Kg/ha. for Broadcasting. (d) 23cm.×15cm. (e) 2. (v) 44·8 Kg/ha. of N as A/S+ 44·8 Kg/ha. of P_2O_5 as Super. (vi) N-32. (vii) Unirrigated. (viii) Hand weeding. (ix) 161·9cm. (x) 6.10.62.

2. TREATMENTS:

5 Cultural treatments :

T_0=Broad cast (control), T_1=Transplanted, T_2=*Bidahain* in *broadcast*, T_3=Improved *Bidohain* in broad cast with Rarthing fimish and T_4=Improved *Bidahain* in *broadcast* with *Dhaincha* (G.M.)

3. DESIGN:

(i) R.B.D. (ii) (a) 5. (b) N.A. (iii) 4. (iv) (a) and (b) 9·14m.×10·97m. (v) Nil. (vi) Yes.

4. GENERAL:

(i) Good. (ii) Nil. (iii) Yield of grain. (iv) (a) 1962-only. (b) and (c) Nil. (v) to (vii) Nil.

5 RESULTS :

(i) 1623 Kg/ha. (ii) 137 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	2319	1591	1462	1636	1169

C.D.=212·0 Kg/ha.

Crop :- Paddy (*Kharif*). **Ref :- U.P. 63(192), 64(205), 65(32).**

Site :- Govt. Reg. Agri. Res. Stn. Nawabgunj. **Type :- 'C'**

Object :—To study the effect of row and plant-spacing on the yield of Paddy.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) *Rai*; Oats; Wheat. (c) N.A (ii) Clay loam. (iii) 28.6.63; 3.7.64; 9 7.65. (iv) (a) 2 ploughing for 63; N.A. for others. (b) Transplanting. (c) — (d) As per treatments. (e) 2. (v) 44·8 Kg/ha. of N+44·8Kg/ha P_2O_5 for 63 and 64; 89·6Kg/ha. of N+44 8Kg/ha. of P_2O_5 for 65. (vi) N-22. (vii) Irrigated. (vii) 2 hand weedings for 65; N.A. for others. (ix) 81·7cm. ; 91·3cm.; N.A. (x) 18.9.63; 6.10.64; 30.9.65.

2. TREATMENTS :

All combinations of (1) and (2)

(1) 3 row-spacings : R_1=23, R_2=15 and R_3=11cm.

(2) 3 plant-spacings : P_1=23, P_2=15 and P_3=11cm.

3 DESIGN :

(i) Fact. in R.B.D. (ii) (a) 9. (b) N.A. (iii) 3. (iv) (a) and (b) 5·49m×3·66m. for 63 and 64, 5·49m.× 3·96m. for 65. (v) Nil. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Nil. (iii) Yield of grain. (iv) (a) 1963-65. (b) Yes for 63 and 64 only. (c) Nil. (v) and (vi) Nil. (vii) As the error varinnces are heterogeneous and Treatments × Years interaction in absent, results of the individual years have been presented under 5. Results.

5. RESULTS:

63(192)

(i) 1742 Kg/ha, (ii) 158·9 Kg/ha (iii) Main effects of P and R are highly significant. (iv) Av. yield of grain in Kg/ha.

	R_1	R_2	R_3	Mean
P_1	1328	1372	1852	1517
P_2	1623	1802	2163	1863
P_3	1759	1887	1892	1846
Mean	1570	1687	1969	1742

C.D. for P or R marginal means=158·7 Kg/ha.

64(205)

(i) 1704Kg/ha. (ii) 286·0Kg/ha. (iii) Main effects of R alone is significant. (iv) Av. yield of grain in Kg/ha.

	R_1	R_2	R_3	Mean
P_1	1379	1424	1799	1534
P_2	1530	1703	2038	17 7
P_3	1615	1811	2034	1820
Mean	1508	1646	1957	1704

C.D. for R marginal means=285·8 Kg/ha.

65(32)

(i) 4259 Kg/ha. (ii) 793·8 Kg/ha. (iii) None of the effect is significant. (iv) Av. yield of grain in Kg/ha.

	R_1	R_2	R_3	Mean
P_1	3450	3450	4293	3731
P_2	3680	4676	5357	4574
P_3	4523	4600	4293	4472
Mean	3884	4242	4651	4259

Crop :- Paddy (*Kharif*). **Ref :- U.P. 62(152), 63(212), 64(224).**

Site :- Govt. Reg. Agri. Res. Stn., Nawabgunj. **Type :- C'.**

Object :—To compare the method followed by Japanese farmers at Saharanpur *V/S* improved method of U.P. rice cultivation.

1. BASAL CONDITIONS:

(i) (a) Nil. (b) Onion for 62; N.A. for others. (c) N.A. (iii) Clay loam. (iii) 25.8.62; 13.7.63; 21.7.64. (iv) Summer ploughing and ploughing by soil turning plough. (b) Transplanting. (c) — (d) 23cm.×15 cm. for 62; for treatment M_1 30cm.×30cm. and for treatment M_2 23cm. for 63 and 64. (e) 2 to 3 (v) Nil. (vi) T-26 (late) (vii) Irr gated. (viii) Weedings by Japanese weeder and Paddy weeder. (ix) 16·2cm.; 81·7cm.; 91·3m. (x) 9.12.62; N.A ; 25.11.64.

2. TREATMENTS:

2 methods of cultivations :

M_1 = Method of Paddy cultivation followed by Japanese farmers at Saharanpur. M_2 = Improved U. P. method of Paddy cultivation.

Note : No other information availebla.

3. DESIGN :

(i) R.B.D. (ii) (a) 2. (b) N.A. (iii) 4. (iv) (a) and (b) 10·97m.×4·57m. (v) Nil. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Nil. (iii) Yield of grain. (iv) (a) 1962-64. (b) Yes. (c) Results of combined analysis have been presented under 5. Results. (v) and (vi) Nil. (viii) Error variances are homogeneous and Treatments × Years interaction is absent.

5. RESULTS :

Pooled results

(i) 2481 Kg/ha. (ii) 321·7 Kg/ha. (based on 11 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	M_1	M_2
Av. yield	2232	2730

C.D.=289·1 Kg/ha.

Individual results :

Treatment	M_1	M_2	Sig.	G.M.	S.E./plot
Year					
1962	1307	1783	*	1545	266·7
1963	2416	3139	N.S.	2778	423·6
1964	2973	3268	N.S.	3120	259·5
Pooled	2232	2730	**	2481	321·7

Crop :- Paddy (*Kharif*). **Ref:- U.P. 61(168).**

Site :- Rice. Res Sub-Stn., Tissuhi. **Type :- 'C'.**

Object :—To see effect of previous crops on the yield of Paddy.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) As per treatments. (c) N.A. (ii) Heavy clay. (iii) 25.8 61 (iv) (a) 4 ploughings. (b) Transplanted. (c) — (d) 2`cm. × 15cm. (e) N.A. (v) 66 Kg/ha. of N as A/N. (vi) T-139. (viii) Irrigated. (viii) 2 weedings. (ix) N.A (x) 26/27.11.61.

2. TREATMENTS :

5 previous crops C_1=Pea, C_2=Chatrimatri, C_3=Mamor, C_4=Berseem and C_5=Fallow.

3. DESIGN :

(i) R.B.D. (ii) (a) 5. (b) N.A. (iii) 4 (iv) (a) 5 48m. × 3 66m. (b) 4·88m × 3·20m. (v) 30cm × 23cm. (vi) Yes.

4. GENERAL :

(i) Normal; Good. (ii) N.A. (iii) Yield. (iv) (a) 1961 only. (b) No. (c) — (v) to (vii) N.A.

5. RESULTS :

61(468)

(i) 4790 Kg/ha. (ii) 659·1 Kg/ha. (iii) Treatment differences are not significant. (iv) Av. yield of grain in Kg/ha.

Treatment	C_1	C_2	C_3	C_4	C_5
Av. yield	5075	4979	4563	4767	4627

Crop :- Paddy (*Kharif*). **Ref : U.P. 62(566), 63(677).**

Site :- Rice. Res. Sub-Stn., Tissuhi. **Type :- 'C'.**

Object :—To find out the effect of different previous crops on the yield of Paddy.

1. BASAL CONDITIONS :

(i) (a) to (b) As per treatments. (c) N.A. (ii) Heavy clay. (iii) 18.8.62; 21.8.63. (iv) (a) 4 ploughings by *desi* plough. (b) Transpladted. (c) — (d) 30cm. × 23cm. (e) 2 to 3 (v) 66 Kg/ha. of N as A/S/N + 44 Kg/ha. of P_2O_5 as Super + 44 Kg/ha. of K_2O as Mur. pot. (vi) T-139. (vii) Irrigated. (viii) 2 weedings 3weedings. (ix) N.A. (x) 16 12.62; 18.12.63;

2. TREATMENTS :

4 previous crops C_1=Pea, C_2=Chatrimatri, C_3=Masoor and C_4=Berseem.

3. DESIGN :

(i) R.B.D. (ii) (a) 4. (b) N.A. (iii) 4. (iv) (a) 6·08m. × 4·12m. (b) 5·48m. × 3·66m. (v) 30cm. × 23cm. (vi) Yes.

4. GENERAL:

(i) Good; N.A. (ii) N.A. (iii) Yield of grain. (iv) (a) 1962-63 (b) No. (c) Nil. (v) and (vii) N.A. (vii) Yield during rabi season were very poor.

5. RESULTS :

62(566)

(i) 5185 Kg/ha. (ii) 431·9 Kg/ha. (iii) Treatment differences are not significant. (iv) Av. yield of grain in Kg/ha.

Treatment	C_1	C_2	C_3	C_4
Av. yield	5412	5051	5250	5026

63(677)

(i) 6358 Kg/ha. (ii) 492·8 Kg/ha. (iii) Treatment differences are not significant. (iv) Av. yield of grain in Kg/ha.

Treatment	C_1	C_2	C_3	C_4
Av. yield	5848	6519	6594	6470

Crop :- Paddy (*Kharif*). **Ref :- U.P. 61(464).**

Site :- Rice. Res. Sub-Stn., Tissuhi. **Type :- 'C'.**

Object To study the effect of double cropping of Paddy varieties and its economics.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Linseed. (c) N A. (ii) Heavy clay. (iii) (Early sowing-6.6.61, Normal sowing-17.6 61. and Transplanting-3.8 61. (iv) (a) 3 ploughings. (b) Early Paddy-Broadcasted, late Paddy-Transplanted (c) 67·2 Kg/ha. (d) 23cm. apart. (e) 2. (v) 44 8 Kg/ha of N+22·4 Kg/ha of P_2O_5. (v) As per treatments (vii) Irrigated. (viii) One weeding to early crop. (ix) N.A. (x) 19 8.61 to 23.9.61.

2 TREATMENTS

9 cropping pettern :

T_1=N-22-Normal sowing, T_2=Ch-10-Normal sowing, T_3=Tipakhia-Normal sowing, T_4=Sudha-Normal sowing, T_5=N-22-early sowing+T-139 Transplanting, T_6=Ch-10 early sowing+T-139 transplanting, T_7=Tipakhia early sowing+T-139 Transplanting, T_8=Sudha early sowing+T-139 trausplanting, T_9=T-139 normal sowing.

3. DESIGN :

(i) R.B.D. (li) (a) 9 (b) N.A. (iii) 4. (iv) (a) 5·49m. × 3·66m. (b) 5·03m. × 3·05m. (v) 23cm. × 30cm. (vi) Yes.

4. GENERAL:

(i) Lodging 20 to 30% (ii) N.A. (iii) Yield of grain. (iv) 1961-only. (b) and (c) — (v) and (c) N.A. (vii) Nil.

5. RESULTS :

(i) 2350 Kg/ha. (ii) 137·3 Kg/ha. (iii) Treatment diff lrences are highly significant. (iv) Av. yield of grain in Kg/ha.

Treatment	T_1	T_2	T_3	T_4	T_5	T_6	T_7	T_8	T_9
Av. yield	1517	1305	1614	1639	2484	2373	3205	3604	3408

C.D.=200·4 Kg/ha.

Crop :- Paddy (*Kharif*). **Ref :- U.P. 61(466).**

Site :- Rice. Res. Sub-Stn., Tissuhi. **Type :- 'C'.**

Object :—To Investigate the optimum seedling-rates for different dates of transplanting.

1. BASAL CONDITIONS:

(i) (a) to (c) N.A. (ii) Clay loam. (iii) As per treatments. (iv) (a) 4 ploughings. (b) Transplanting. (c)—(d) 23cm. × 15cm (e) As per treatments. (v) 67·2 Kg/ha of N as A/N (vi) N.A. (vii) Irrigated. (viii) 3 weedings. (ix) N.A. (x) 16 12.61.

2. TREATMENTS:

Main-plot treatments :

4 dates of transplanting : D_1=30.6.61, D_2=17.7.61, D_3=11.8 61 and D_4=18.8 61

Sub-plot treatments

5 rates of seedlings : S_1= , S_2=2, S_3=4, S_4=6 and S_5=8 scedling/hole.

3 DESIGN :

(i) Split-plot. (ii) (a) 4 main-plots/replication 5 sub-plots/main plot. (b) N.A. (iii) 6. (iv) (a) 4 27m. × 2·29m. (b) 3·66m. × 1·83m. (v) 30cm. × 23cm. (vi) Yes.

4. GENERAL :

(i) Normal. (ii) N.A. (iii) Yield of grain. (iv) (a) 1961-only. (b) and (c) Nil. (v) o (vii) Nil.

5. RESULTS:

(I) 1539 Kg/ha. (ii) (a) 547·3 Kg/ha. (b) 416 5 Kg/ha. (iii) Main effects of D and S are highly significant. (iv) Av. yield of grain in Kg/ha.

	D_1	D_2	D_3	D_4	Mean
S_1	1420	1345	847	400	1003
S_2	2006	1370	998	698	2 8
S_3	2068	1869	1545	797	1570
S_4	2666	1844	1570	1084	1791
S_5	2890	2043	1744	1570	2062
Mean	2210	1694	1341	910	1539

C.D. for D marginal means=301·1 Kg/ha.

C.D. for S marginal means=239·6 Kg/ha.

Crop :- Paddy (*Kharif*). **Ref :- U.P. 61(191).**

Site :- Govt. Reg. Agri. Res. Stn., Varanasi. **Type :- 'C'.**

Object : —To study the effect of mixed croping of early and late Paddy and its economics.

1. BASAL CONDITIONS:

(i) (a) Nil. (b) and (c) N.A. (ii) Loam. (iii) 18.7.61. (iv) (a) N.A. (b) Transplanting. (c) — (d) Rows 23cm. apart. (e) 2 (v) N.A. (vi) Early Paddy : N-22, late Paddy : T-9 (vii) Irrigated. (viii) Nil. (ix) 97·94cm. (x) 3.10.61.

2. TREATMENTS:

T_1=Early Paddy alone, T_2=Late Paddy alone, T_3=One row of early Paddy+One row of late Paddy, T_4=One row of early Paddy+Two rows of late Paddy, T_5=One row of early Paddy+Three rows of late Paddy and T_6=One row of early Paddy+four rows of late Paddy.

3. DESIGN :

(i) R,B.D. (ii) (a) 6. (b) N,A. (iii) 4. (iv) (a) and (b) 12·80m.×4·57m. (v) Nil. (vi) Yes.

4. GENERAL:

(i) Good. (ii) Nil. (iii) Yield of grain. (iv) (a) 1961-only. (b) and (c) Nil. (v) No. (vi) and (vii) Nil.

5. RESULTS:

(i) 1515 Rs./ha. (ii) 134·5 Rs./ha. (iii) Treatment differences are highly significant. (iv) Av. value of produce in Rs./ha.

Treatment	T_1	T_2	T_3	T_4	T_5	T_6
Av. value	657	1793	1546	1731	1605	1758

C.D.=202·7 Rs./ha.

Crop :- Paddy (*Kharif*). **Ref :- U.P. 60(122).**

Site :- Govt. Reg. Agri. Res. Stn., Hardoi. **Type :- 'CV'.**

Object :—To select suitable dates of sowing for early Paddy varieties.

1. BASAL CONDITIONS:

(i) (a) Nil. (b) Gram and Pea. (c) N.A. (ii) Sandy loam. (iii) As per treatments. (iv) (a) N.A. (b) Line sowing. (c) 28 Kg/ha. (d) Rows 23cm. apart. (e) — (v) 33·6 Kg/ha. of P_2O_5 as Super+33·6 Kg/ha. of N as A/S/N top dressed. (vi) As per treatments. (vii) Irrigated. (viii) 2 weedings by *Khurpi*. (ix) 71cm. (x) 23 to 25.9.60.

2. TREATMENTS:

Main-plot treatment :

3 sowing dates : D_1=28.5.60 D_2=8.6.60 and D_3=19.6.60.

Sub-plot treatment :

2 varieties : V_1=N-22 (Early Paddy) and V_2=N-27 (Early Paddy).

3. DESIGN :

(i) Split-plot (ii) (a) 3 main-plots/replication; 2 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) and (b) 4·0m.×17.8m. (v) Nil. (vi) Yes.

4. GENERAL:

(i) Good. (ii) Dusting of 5%B.H.C. to avoid Gundhi bug. (iii) Yield of grain. (iv) (a) 1960-only, (b) and (c) — (v) to (vii) Nil.

5. RESULTS :

(i) 476 Kg/ha. (ii) (a) 181·7 Kg/ha. (b) 75·1 Kg/ha. (iii) None of the effect is significant. (iv) Av. yield of grain in Kg/ha.

	D_1	D_2	D_3	Mean
V_1	528	419	497	481
V_2	605	434	375	471
Mean	566	426	436	476

Crop :- Paddy (*Kharif*). **Ref:- U.P. 65(572).**

Site :- Rice. Res. Sub-Stn., Kunraghat. **Type :- 'CV'.**

Object :—To study the varietal respones of early varieties of Paddy under low and high fertility conditions.

1. BASAL CONDITIONS:

(i) (a) to (c) N.A. (ii) Medium loam. (iii) 31.7.65. (iv) (a) N.A. (b) Transplanting. (c) and (d) — (e) 2 to 3. (v) Nil. (vi) As per treatments. (vii) Unirrigated. (viii) N.A. (ix) 65·6cm. (x) 18.10.65.

2. TREATMENTS

Main-plot treatment :

2 levels of fertility ; F_1=90 Kg/ha. of N +45 Kg/ha. of P_2O_5+45 Kg/ha. of K_2O and F_2=45 Kg/ha. of N+ 22·5 Kg/ha. of P_2O_5+45 Kg/ha. of K_2O

Sub-plot treatment :

12 varieties : V_1=Norin-6, V_2=Norin-18, V_3=Norin-20, V_4=Asali, V_5=Sinchu-2, V_6=B-M. 5, V_7=Rikku-132, V_8=H. Sinchu -50, V_9=N-22, V_{10}=Ch-10, V_{11}=Sudha and V_{12}=Sarya local.

½ dose of N, full doses of P and K were given as basal dressing at transplanting. 1/4dose of N given as top dressing on 26.8.65 and date of application of the remaining 1/4 dose of N N.A.

3. DESIGN :

(i) Split-plot. (ii) (a) 2 main-plots/replication and 12 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 3·00m.×1·61m. (v) Plot border 50cm. (vi) Yes.

4. GENERAL:

(i) N.A. (ii) Incidence of Blast and Gundhi bug. (iii) Yield of grain. (iv) (a) 1965-only. (b) and (c) — (v) N.A. (vi) and (vii) Nil.

5. RESULTS:

(i) 2400 Kg/ha. (ii) (a) 670·6 Kg/ha. (b) 434·6 Kg/ha. (iii) Main effect of V alone is highly significant. (iv) Av. yield of grain in Kg/ha.

	V_1	V_2	V_3	V_4	V_5	V_6	V_7	V_8	V_9	V_{10}	V_{11}	V_{12}	Mean
F_1	1656	2438	1744	2614	2459	1786	2096	3002	3421	2911	3820	2940	2574
F_2	1424	2354	1722	1888	2175	2148	1916	2821	2847	2485	2614	2328	2227
Mean	1540	2396	1733	2251	2317	1967	2006	2911	3134	2698	3217	2634	2400

C. D. for V marginal means=434·2 Kg/ha.

Crop :- Paddy (*Kharif*). **Ref :-U.P. 61(299).**

Site :- Central Rice. Res. Stn. Masodha. **Type :- 'CV'.**

Object :—To test the effect of transplanting dates on the yield of Paddy varieties.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Sandy loam. (iii) As per treatments. (iv) (a) 4 ploughings or harrowings. (b) Transplanting. (c) — (d) 23cm.×15cm. (e) 2 to 3 (v) 67·2 Kg/ha. of N as A/S (vi) As per treatments. (vii) Irrigated. (viii) 1 to 2 weedings by *Khurpi*. (ix) 81·7cm. (x) Ist week of December 61.

2. TREATMENTS :

Main-plot treatment :

8 varieties : V_1=N-22, V_2=Ch. 10 V_3=Sudha, V_4=Tipakhia, V_5=Ch. 4, V_6=T-21, V_7=T. 100 and V_8=Local.

Sub-plot treatment :

D_1=15.3.61, D_2=31.3.61, D_3=15.4.61, D_4=30.4.61, D_5=15.5.61, D_6=30.5.61, D_7=15.6.61, D_8=30.6.61 D_9=15.7.61 and D_{10}=30.7.61.

3. DESIGN:

(i) Split-plot. (ii) (a) 8 main-plots/replication and 10 sub-plots/main-plot. (b) N.A. (iii) 3. (iv) (a) and(b) 4.88m.×0·91m. (v) Nil. (vi) Yes.

4. GENERAL:

(i) Good. (ii) Nil. (iii) Yield of grain. (iv) (a) 1961-only. (b) and (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 778 Kg/ha. (ii) (a) 430·1 Kg/ha. (b) 392·7 Kg/ha. (iii) Main effect of V or D and interaction V×D are highly significant. (iv) Av. yield of grain in Kg/ha.

	D_1	D_2	D_3	D_4	D_5	D_6	D_7	D_8	D_9	D_{10}	Mean
V_1	848	890	699	890	466	753	742	117	254	221	589
V_2	657	1081	721	763	805	615	233	222	266	307	567
V_3	381	424	233	1081	212	1590	869	360	192	148	549
V_4	85	106	148	170	86	127	425	359	381	73	196
V_5	1608	1547	2079	1188	467	659	772	42	166	11	854
V_6	2586	3645	2988	1654	1632	806	487	254	303	95	1445
V_7	1846	1541	1354	1732	582	1316	1038	507	750	828	1155
V_8	805	1270	826	826	1120	1780	1250	307	312	232	871
Mean	1102	1313	1131	1038	669	957	727	271	327	246	778

C.D. for V marginal means=238·2 Kg/ha.

C.D. for D marginal means=222·2 Kg/ha

C.D. for D means at the same level of V=631·6Kg/ha.

C.D. for V means at the same level of D=1269·2 Kg/ha.

Crop :- Paddy (*Kharif*). **Ref :- U.P. 62(328).**

Site :- Central Rice Res. Stn., Masodha. **Type :- 'CV'.**

Object :—To test the effect of transplanting dates on the yield of Paddy varieties.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Fallow. (c) Nil. (ii) Light loam. (iii) As per treatments. (iv) (a) 4 ploughings or harrowings. (b) Transplanting. (c) — (d) 15cm.× 15cm. (e) 2 to 3. (v) 67·2 Kg/ha. of N as A/S+53·6 Kg/ha. of P_2O_5 as Super. (vi) As per treatments. (vii) Irrigated. (vii) 2 to 3 hoeings and weedings by *Khurpi* (ix) 80·7cm. (x) Ist week of December, 62.

2. TREATMENTS:

Main-plot treatment :

10 dates of transplanting : D_1=30.3.62, D_2=15.4.62, D_3=30.4.62, D_4=15.5.62. D_5=30.5.62. D_6=15.6.62, D_7=30.6.62, D_8=15.7.62, D_9=30.7.62 and D_{10}=15.8.62.

Sub-plot treatment :

V_1=N-22, V_2=Ch.10, V_3=Sudha, V_4=Tipakhia, V_5=Ch. 4, V_6=T-21, V_7=T-100, V_8=Black Bagri, V_9=Matmuri and V_{10}=Muthiawa.

3. DESIGN :

(i) Split-plot. (ii) (a) 10 main-plots/replicaiion and 10 sub-plots/main-plot. (b) N.A. (iii) 3. (iv) (a) and (b) 5·49m.×0·91m. (v) Nil. (vi) Yes.

4. GENERAL:

(i) Good. (ii) Nil. (iii) Yield of grain. (iv) (a) 1962-only. (b) No. (c) Nil. (v) No. (vi) and (vii) Nil.

5. RESULTS:

(i) 1184 Kg/ha. (ii) (a) 787·4 Kg/ha. (b) 532·4 Kg/ha. (iii) Main effect of V and D and intraction V×D are highly significant. (iv) Av. yield of grain in Kg/ha.

	V_1	V_2	V_3	V_4	V_5	V_6	V_7	V_8	V_9	V_{10}	Mean
D_1	967	160	881	47	1308	1641	4664	87	434	287	1047
D_2	667	1134	1394	280	1781	3049	3563	347	1541	814	1457
D_3	1334	801	1848	193	1401	2735	3449	40	967	2335	1511
D_4	2409	133	2575	73	1868	2375	4030	407	2308	2195	1837
D_5	1895	400	2088	68	1067	1781	3576	320	1061	2942	1520
D_6	1361	734	1108	434	1027	1141	2702	147	727	2535	1192
D_7	1241	580	1274	394	981	1414	2575	180	921	2482	1204
D_8	220	741	527	287	1061	1274	1948	33	1041	1901	903
D_9	254	694	547	160	794	714	767	534	741	914	612
D_{10}	440	487	854	354	193	347	1268	734	60	827	556
Mean	1079	586	1310	229	1148	1647	2854	283	980	1723	1184

C.D. for D means=427·1 Kg/ha.
C.D. for V means=270·8 Kg/ha.
C.D. for V means at the same level of D=856·3 Kg/ha.
C.D. for D means at the same level of V=917·3 Kg/ha.

Crop :- Paddy (*Kharif*). **Ref :-U.P. 63(361).**

Site :- Central Rice. Res. Stn., Masodha. **Type :-'CV'.**

Object :—To study the effect of transplanting dates on the yield of Paddy varieties.

1. BASAL CONDITIONS:

(i) (a) N.A. (b) Fallow. (c) Nil. (ii) Loam. (iii) As per treatments. (iv) (a) 2 ploughings and harrowings (b) Transplanting. (c) — (d) 23cm.×10cm. (e) 2 to 3 (v) 67·2 Kg/ha. of N as A/S+33·6 Kg/ha. of P_2O_5 as Super before Transplanting. (vi) As per treatments. (vii) Irrigated. (viii) Hoeing and weeding. (ix) 123·8cm. (x) 1st week of December, 63.

2. TREATMENTS:

Main plot treatment :

7 dates of transplanting : D_1=30.3.63, D_2=15.4.63, D_3=30.4.63, D_4=15.5.63, D_5=30.5.63, D_6=15.6.63 and D_7=30.6.63.

Sub-plot treatment :

8 varieties : V_1=N. 22. V_2=Ch. 10, V_3=Sudha, V_4=Ch. 4, V_5=T.21, V_6=T.100, T_7=Mutmuri and V_8=Muthiawa.

3 DESIGN :

(i) Split-plot. (ii) (a) 7 main-plots/replication and 8 sub-plots/main-plot (b) N.A. (iii) 3 (iv) (a) 5·49m×0·91m. (b) 4·88m.×0·91m. (v) 30cm. at each end (vi) Yes,

4. GENERAL :

(i) Good. (ii) Nil. (iii) Yield of grain. (iv) (a) 1963-only. (b) No. (c) Nil. (v) No. (vi) and (vii) Nil.

5. RESULTS:

(i) 1186 Kg/ha. (ii) (a) 951·9 Kg/ha. (b) 467·8 Kg/ha. (iii) Interaction D×V alone is highly significant. (iv) Av. yield of grain in Kg/ha.

	D_1	D_2	D_3	D_4	D_5	D_6	D_7	Mean
V_1	613	1002	613	703	1061	725	1046	823
V_2	523	949	501	1114	448	747	1644	847
V_3	635	613	426	837	912	875	1121	774
V_4	1046	1084	710	822	1345	1345	785	1020
V_5	1480	1196	897	1271	1271	1345	1831	1327
V_6	1682	1390	972	2130	2242	1570	2280	1752
V_7	987	740	673	1046	1570	1046	2093	1165
V_8	1981	2056	1345	2056	1536	2205	1271	1778
Mean	1118	1129	767	1247	1298	1232	1509	1186

C.D. for V means at the same level of D=759·4 Kg/ha.

C.D. for D means at the same level of V=689·0 Kg/ha.

Crop :- Paddy (*Kharif*). **Ref :- U.P. 60(189).**

Site :- Govt. Reg. Agri. Res. Stn., Nawabgunj. **Type :- 'CV'.**

Object :—To find out the performance of different varieties under different spacing conditions.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Moong T-1 turned as G.M. (c) N.A. (ii) Clay loam. (iii) 12.7.60 (iv) (a) N.A. (b) Transplanting. (c) N.A. (d) As per treatments. (e) 2. (v) Blood meal at 2·77 Q/ha.+28 Kg/ha. of N as Urea+12 Kg/ha. of N as A/S. (vi) As per treatments. (vii) Nil. (viii) Weeding and rogueing. (ix) 144·8cm. (x) 23 and 24.9.60 for V_1 and V_2 and 7.10.60 for V_3.

2. TREATMENTS :

Main-plot treatments

3 varieties : of paddy : V_1=N.S.J. 160, V_2=N-22 and V_3=Ch. 10.

Sub-plot treatments

3 spacings : S_1=15cm. × 15cm. S_2=15cm. × 23cm. and S_3=23cm. × 23cm.

3. DESIGN:

(i) Split-plot. (ii) (a) 3 main-plots/resplication; 3 sub-plots/main-plot. (b) N.A. (iii) 3. (iv) (a) and (b) 7·31m.×4·57m. (v) Nil (vi) Yes.

4. GENERAL:

(i) Good. (ii) Nil. (iii) Yield of grain. (iv) (a) 1960-only. (b) and (c) — (v) to (vii) Nil.

5. RESULTS:

(i) 1616 Kg/ha. (ii) (a) 501·1 Kg/ha. (b) 267·5 Kg/ha. (iii) None of the effects is significant. (iv) Av. yield of grain in Kg/ha.

	V_1	V_2	V_3	Mean
S_1	1635	2099	1395	1710
S_2	1667	1812	1511	1663
S_3	1476	1539	1406	1474
Mean	1593	1817	1437	1616

Crop :- Paddy (*Kharif*). **Ref. :- U.P. 65(448).**

Site :-Govt. Reg. Agri. Res. Stn., Varanasi. **Type :- 'CV'.**

Object :—To study the effect of different dates of sowing on the yield of two varieties of Paddy.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (iii) Loam. (iii) As per treatments. (iv) (a) 1 to 3 ploughings by care plough and *deshi* plough, puddling. (b) Transplanting. (c) — (b) 23cm.×15cm. (e) 4. (v) N.A. (vi) As per treatments. (vii) Irrigated (viii) 1 weeding and hoeing. (ix) 50·7cm. (x) N.A.

2. TREATMENTS:

Main-plot treatment :

2 dates of sowing : S_1=7.5.65(transplanted on 5.7.65) and S_2=8.6.65 (transplanted on 8.7.65).

Sub-plot treatment :

2 varietis: V_1=Kashi and V_2=N.S.J.

3. DESIGN :

(1) Split-plot. (ii) 2 main-plots/replication; and 2 sub-plots/main-plot. (b) 13·11m.×8·53m. (iii) 6. (iv) (a) and (b) 6·10m.×3·66m. (v) Nil. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of grain. (iv) (a) 1965-only. (b) and (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 3761 Kg/ha. (ii) (a) 450·7 Kg/ha. (b) 398·3 Kg/ha. (ifi) Main effects of S and V are highly significant. (iv) Av. yield of grain in Kg/ha.

	V_1	V_2	Mean
S_1	3684	4926	4305
S_2	2880	3554	3217
Mean	3282	4240	3761

C.D. for S marginal means=454·6 Kg/ha.

C.D. for V marginal means=362·4 Kg/ha.

Crop :- Paddy (*Kharif*). **Ref :- U.P. 61(425).**

Site :- Govt. Reg. Agri. Res. Stn., Amrukh. **Type :- 'CM'.**

Object :—To find out suitable levels of fertility, dates of sowing and seed-rate on the yield of Paddy.

1. BASAL CONDITIONS

(i) (a) to (c) N.A. (ii) *Kabar* and *Parwa*. (iii) As per treatments. (iv) (a) 2 to 3 ploughings by *Bakhar*. plough and *Pata*. (b) Line sowing behind the plough. (c) As per treatments. (d) Rows 23cm. apart. (e) Nil. (v) Nil. (vi) N.A. (vii) Irrigated. (viii) and (ix) N.A. (x) 3.11.61.

2. TREATMENTS:

Main-plot-treatments :

All combinations of (1) and (2)

(1) 2 fertility levels : F_1=56 Kg/ha of N+56 Kg/ha. P_2O_5 and F_2=28 Kg/ha. of N+28 Kg/ha. of P_2O_5.

(2) 3 dates of sowing : D_1=26.6.61, D_2=8.7.61 and D_3=23.7.61.

Sub-plot treatments :

(3) 3 seed-rates : S_1=23, S_2=46 and S_3=69 Kg/ha.

3. DESIGN :

(i) Split-plot. (ii) (a) 6 main-plots/replication, 3 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) and (b) 7·31m.×5·49m. (v) Nil. (vi) Yes.

4. GENERAL

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

5. RESULTS:

(i) 914 Kg/ha. (ii) (a) 512·6 Kg/ha. (b) 243·3 Kg/ha. (iii) Interaction D×S alone is significant. (iv) Av. yield of grain in Kg/ha.

	D_1	D_2	D_3	S_1	S_2	S_3	Mean
F_1	1121	819	942	897	999	1027	974
F_2	889	912	758	805	885	870	853
Mean	1005	866	870	851	942	948	914
S_1	749	976	827				
S_2	1178	817	831				
S_3	1090	804	951				

C.D. for D means at the same level of S=374·1 Kg/ha.

C.D. for S means at the same level of T=246·8 Kg/ha.

Crop :- Paddy (*Kharif*). **Ref :- U.P. 65(609).**

Site :- Govt. Reg. Agri. Res. Stn. Amrukh. **Type :- 'CM'.**

Object :—To find out suitable levels of N and spacings for paddy.

1. BASAL CONDITIONS:

(i) (a) to (c) N.A. (ii) *Kabar* and *Parwa*. (iii) 21,23.8.65. (iv) (a) 2 to 3 ploughings by soil turning plough and *Pata*. (b) Transplanting. (c) — (d) As per traatments. (e) 2 to 3. (v) Nil. (vi) China-4. (vii) Irrigated. (viii) Hoeing and Rogiging. (ix) 82·4cm. (x) 21.11.65.

2. TREATMENTS :

Main-plot treatments :

3 levels of N as A/S : N_1=44·8, N_2=89·6 and N_3=134·4 Kg/ha.

Sub-plot treatments :

3 spacings : S_1=7·6cm.×7·6cm. S_2=7·6cm.×11·4cm. and S_3=7·6cm.×15·2cm.

3. DESIGN:

(i) Split-plot. (ii) (a) 3 main-plots/replication, 3 sub-plots/main-plot. (b) N.A. (iii) 3. (iv) (a) and (b) 5·03m.×6·71m. (v) Nil. (vi) Yes.

4. GENERAL:

(i) Good. (ii) Nil. (iii) Yield of grain. (iv) (a) 1965-only. (b) and (c) Nil. (v) to (vii) Nil.

5. RESULTS:

(i) 2141 Kg/ha. (ii) (a) 752·7 Kg/ha. (b) 342·5 Kg/ha. (iii) None of the effects is significant. (iv) Av. yield of grain in Kg/ha.

	N_1	N_2	N_3	Mean
S_1	2124	2243	2175	2181
S_2	1927	2253	2569	2250
S_3	2115	2224	2540	2293
Mean	2055	2240	2428	2241

Crop :- Paddy (*Kharif*). **Ref :- U.P. 64(326)**

Site :- R.B.S. College, Bichpuri **Type :- 'CM'.**

Object :—To study the effect of spacings, number of seedlings per hill and levels of nitrogen on the yield of Paddy.

1. BASAL CONDITIONS

(i) (a) Nil. (b) Pea. (c) N.A. (ii) Sandy loam. (iii) 4 to 6.8.64. (iv) (a) Two harrowings. (b) Transplanting. (c) — (d) and (e) As per treatments. (v) 45 Kg/ha. of P_2O_5 as Super. (vi) N.P.-130 (early). (vii) Irrigated. (viii) Weeding and hoeing by Paddy weeder. (ix) 68·5cm. (x) 25.10.64.

2. TREATMENTS:

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

(1) 3 levels of N as A/S : N_0=0, N_1=35 and N_2=70 Kg/ha.

(2) 3 spacings : S_1=20cm. × 20cm., S_2=25cm. × 25cm. and S_3=30cm. × 30cm.

(3) 3 number of seedlings/hill : H_1=2, H_2=3 and H_3=4 seedlings/hill.

½ A/S was applied before sowing.

3. DESIGN

(i) Fact. in R.B.D. (ii) (a) 27. (b) N.A. (iii) 4. (iv) (a) N.A. (b) 7·00m. × 5·00m. (v) N.A. (vi) Yes.

4. GENERAL:

(i) Good. (ii) Nil. (iii) Yield of grain. (iv) (a) 1964-only. (b) and (c) Nil. (v) and (vi) Nil. (vii) Results as available have been presented under 5. Results.

5. RESULTS :

(i) 2377 Kg/ha. (ii) 340·0 Kg/ha. (iii) Main effect of N alone is highly significant. (iv) Av. yield of grain in Kg/ha.

Treatment	N_0	N_1	N_2	S_1	S_2	S_3	H_1	H_2	H_3
Av. yield.	1714	2643	2773	2396	2311	2423	2359	2324	2447

C.D. for N marginal means=159·7 Kg/ha.

Crop :- Paddy ((*Kharif*)). **Ref :- U.P. 60(372),61(382), 62(410), 63(490), 64(603), 65 (456).**

Site :- State Usar Reclamation Farm, Dhakauni. **Type :- 'CM'.**

Object : —To determine the efficiency of different bulky organic materials in the reclamation of saline-alkali soils without leaching.

1. BASAL CONDITIONS:

(i) (a) *Dhaincha* (G.M.)—Paddy. (b) *Dhaincha* for G.M. (c) As per treatments. (ii) Saline-alkali soil. (iii) N.A. (iv) (a) ploughings and harrowings. (b) Transplanting. (c) — (d) 15cm. × 23cm. (e) 2 to 3 (v) Nil. (vi) T-9. (vii) Irrigated. (viii) Weedings. (ix) 81·4cm. ; 78·4cm. ; 64·6cm. ; 34·8cm. ; 24 3cm. ; 29 0cm. (x) N.A.

2. TREATMENTS:

Main.plot treatmeuts :

2 levels of leaching : A_1=Un leached and A_2=Leached.

Sub-plot treatments :

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

(1) 3 types of organic material:-B_1=Row cow-dung, B_2=Paddy straw and B_3=*Kush* (*Demonstrachy bipnata*)

(2) 2 levels of organic material :-C_1=138 and C_2=277 Q/ha.

(3) 2 periods for which materials were applied :-D_1=1 and D_2=2 years.

3. DESIGN :

(i) Split-plot. (ii) (a) 2 main-plots//replication, 12 sub-plots/main-plot. (b) 122·4m. × 51·1m. (iii) 4 (iv) (a) 48·76m. × 4·27m. (b) 47·55m. × 3·05m. (v) 61cm. × 61cm. (vi) Yes.

4. GENERAL:

(i) Normal. (ii) Nil. (iii) Yield of grain. (iv) (a) 1959-contd. (b) Yes. (c) Nil. (v) N.A. (vi) Nil. (vii) As the experiment is continued beyond 65, results of individual years have beea presented under 5. Results.

5. RESULTS:

60(372)

(i) 921 Kg/ha. (ii) (a) 1280 Kg/ha (b) 454 0 Kg/ha. (iii) Main effect of B is highly significant and interaction A×B is significant. (iv) Av yield of grain in Kg/ha.

	B_1	B_2	B_3	C_1	C_2	D_1	D_2	Mean
A_1	682	941	894	800	878	782	896	839
A_2	922	1381	706	966	1040	978	1028	1003
Mean	802	1161	800	883	959	880	962	921
D_1	695	1188	757	865	895			
D_2	909	1134	843	901	1023			
C_1	765	1050	735					
C_2	839	1172	865					

C.D. for B marginal means=226·8 Kg/ha.

C.D. for B means at the same level of A=320·7 Kg/ha.

61(382)

(i) 1080Kg/ha. (ii) (a) 864·1Kg/ha. (b) 426·3 Kg/ha. (iii) Main effects of B, C and D are highly significant. (iv) Av. yield of grain in Kg/ha.

	B_1	B_2	B_3	C_1	C_2	D_1	D_2	Mean
A_1	580	1035	1091	796	1008	740	1064	902
A_2	1060	1514	1197	1092	1422	964	1550	1257
Mean	820	1275	1144	944	1215	852	1307	1080
D_1	671	931	955	702	1002			
D_2	970	1617	1333	1186	1428			
C_1	747	1009	1076					
C_2	893	1540	1212					

C.D. for B marginal means=213·0 Kg/ha.

C.D. for C or D marginal means=173·8 Kg/ha.

62(410)

(i) 1086 Kg/ha. (ii) (a) 1218 Kg/ha. (b) 473·2 Kg/ha. (iii) Main effect of D is highly significant and that of B and C and interaction A×D are significant. (iv) Av. yield of grain in Kg/ha.

	B_1	B_2	B_3	C_1	C_2	D_1	D_2	Mean
A_1	754	1110	1090	942	1028	884	1086	985
A_2	1084	1414	1066	1006	1370	856	1520	1188
Mean	919	1262	1078	974	1199	870	1303	1086
D_1	837	986	786	788	952			
D_2	1001	1538	1370	1160	1446			
C_1	823	1134	965					
C_2	1015	1390	1191					

C.D. for B marginal means=236·4 Kg/ha.
C.D. for C or D marginal means=193·0 Kg/ha.
C.D. for D means at the same level of A=272·9 Kg/ha.

63(490)

(i) 1779 Kg/ha. (ii) (a) 2008 Kg/ha. (b) 753·7 Kg/ha. (iii) Main effect of D alone is significant. (iv) Av. yield of grain in Kg/ha.

	B_1	B_2	B_3	C_1	C_2	D_1	D_2	Mean
A_1	1390	1785	1493	1563	1549	1454	1658	1556
A_2	2120	2095	1791	1819	2185	1766	2238	2002
Mean	1755	1940	1642	1691	1867	1610	1948	1779
D_1	1622	1678	1530	1512	1708			
D_2	1888	2202	1754	1870	2026			
C_1	1689	1788	1596					
C_2	1821	2092	1688					

C.D. for D marginal means=307·4 Kg/ha.

64(203)

(i) 1814 Kg/ha. (ii) (a) 2022 Kg/ha. (b) 752·5 Kg/ha. (iii) Main effect of D alone is significant. (iv) Av. yield of grain in Kg/ha.

	B_1	B_2	B_3	C_1	C_2	D_1	D_2	Mean
A_1	1421	1815	1536	1594	1588	1503	1679	1591
A_2	2123	2149	1840	1874	2200	1793	2281	2037
Mean	1772	1982	1688	1734	1894	1648	1980	1814
D_1	1615	1723	1606	1574	1722			
D_2	1930	2240	1771	1894	2066			
C_1	1695	1848	1659					
C_2	1849	2115	1717					

C.D for D marginal means=306 9 Kg/ha.

65(456)

(i) 1413 Kg/ha. (ii) (a) 1113 Kg/ha. (b) 401.7 Kg/ha. (iii) Main effect of D and interaction A×C are significant. (iv) Av. yield of grain in Kg/ha.

	B_1	B_2	B_3	C_1	C_2	D_1	D_2	Mean
A_1	1257	1271	1465	1288	1374	1314	1348	1331
A_2	1464	1599	1425	1624	1368	1346	1646	1496
Mean	1360	1435	1445	1456	1371	1330	1497	1413
D_1	1276	1425	1290	1327	1333			
D_2	1445	1446	1600	1585	1409			
C_1	1289	1535	1544					
C_2	1432	1336	1346					

C.D. for D marginal means=163·8 Kg/ha.
C.D for C means at the same level of A=231·7 Kg/ha

Crop :- Paddy (*Kharif*). **Ref :- U.P. 60(124),**

Site :- Govt. Reg. Agri. Res. Stn., Hardoi. **Type :- 'CM'.**

Object:—To see the effect of different levels of N, depths of ploughings and number of seedlings on the yield of Paddy.

1. BASAL CONDITIONS:

(i) (a) Nil (b) and (c) N.A. (ii) Sandy oam. (iii) 30.8.60 to 11.9.60. (iv) (a) As per treatments. (b) Transplanting, (c) and (d) N.A. (e) As per treatments. (v) 67·2 Kg/ha. of N as A/S/N+67·2 Kg/ha. of P_2O_5 as Super. (vi) Gajraj (Local late Paddy). (vii) Irrigated. (viii) N.A. (ix) 71·3cm. (x) N.A.

2. TREATMENTS:

Main-plot treatments:

2 depths ofploughings : D_1=15cm. deep by victory plough, D_2=30cm. deep by spade and D_3=45cm. deep by spade.

Sub-plot treatments :

All combinations of (1) and (2)

(1) 3 number of seedlings per hole : S_1=2, S_2=6 and S_3=12.

(2) 4 doses of N top dressed : N_1=11·2, N_2=14·9 N_3=22·4, and N_4=44·8 Kg/ha.

3. DESIGN:

(i) Split-plot. (ii) (a) 3 main-plots/replication and 12 sub-plots/main-plot. (b) N.A. (iii) 3. (iv) (a) and (b) 4·57m.×3·66m. (v) Nil. (vi) Yes.

4. GENERAL:

(i) Good. (ii) Dusting of 5%B.H.C. to avoid Gundhi bug. (iii) Yield of grain. (iv) (a) 1960-only. (b) No (c) Nil. (v) and (vi) Nil. (vii) Raw data N.A , results were taken from report.

5. RESULTS:

(i) 2517 Kg/ha. (ii) (a) 718·8 Kg/ha. (b) 519·5 Kg/ha. (iii) None of the effects is significant. (iv) Av. yield of grain in Kg/ha.

	S_1	S_2	S_3	Mean
N_1	2532	2691	2611	2611
N_2	2301	2597	2451	2450
N_3	2696	2278	2471	2482
N_4	2415	2649	2508	2524
Mean	2486	2554	2510	2517

Treatment	D_1	D_2	D_3
Av. yield	2468	2363	2720

Crop :- Paddy (*Kharif*). **Ref :- U.P. 60(148), 61(150), 62(134).**

Site :- Govt. Reg. Agri. Res. Stn., Hardoi. **Type :- 'CM'.**

Object :—To study the residual effect of P manuring of legumes (Gram and Pea) in Rabi and the effect of direct application of N on Paddy during Kharif.

1. BASAL CONDITIONS :

(i) (a) Gram and Pea—Paddy. (b) & (c) As per treatments. (ii) Sandy loam. (iii) N.A. 12.7.61; 29.8.62 to 4.9.62. (iv) (a) N.A. (b) N.A; broadcast ; transplanting. (c) N.A. (d) 23cm. × 23cm. (e) 2 to 3. (v) Nil. (vi) N 22(early) for 60 and 61 Type 9 (late) for 62 (vii) Unirrigated. (viii) Weedings. (ix) 145cm. ; 128cm ; 67cm. (x) N.A. ; 14, 15.11.61 ; 28.11.62.

2. TREATMENTS:

Main plot treatments:

All combinations of (1) and (2) +One fallow plot.

(i) 2 legumes crops : L_1=Gram, L_2=Pea.

(2) 3 levels of P_2O_5 as Super : P_0=0, P_1=44.8 and 89·7 Kg/ha.

Sub plot treatments:

3 levels of N : N_0=0, N_1=16·8 and N_2=33·6 Kg/ha.

P_2O_5 applied during Rabi season to legume crops.

3. DESIGN:

(i) Split-plot. (ii) (a) 7 main-plots/rep. and 3 sub-plots/main-plot. (b) N.A. (iii) 3. (iv) (a) and (b) 8.23m. × 7·16m, (v) Nil. (vi) Yes.

4. GENERAL :

(i) Good. (ii) N.A. for 60 and 62 Dusting of 5% B.H.C. to control gundhi bug for 61. (iii) Yield of grain. (iv) (a) 1959 to 62. (b) Yes. (c) Nil. (v) Varanasi. (vi) N.A. (vii) Results for 1960 taken from Report (Row data N.A.) As the sub-plot error variances are heterogeneous, the results of individual years have been presented under 5. Results.

5. RESULTS :

60(148)

(i) 625 Kg/ha. (ii) (a) 177.9 Kg/ha. (b) 127·0 Kg/ha. (iii) None of the effects is significant. (iv) Av. yield of grain in Kg/ha.

$N_0 = 611$, $N_1 = 613$ and $N_2 = 650$

	P_0	P_1	P_2	Fallow	Mean
L_1	167	644	673	—	644
L_2	589	490	691	—	590
Fallow	—	—	—	673	673
Mean	603	567	681	672	625

61(150)

(i) 1214 Kg/ha. (ii) (a) 732·6 Kg/ha. (b) 384·0 Kg/ha. (iii) Main effect of N alone is highly significant. (iv) Av. yield of grain in Kg/ha.

	L_1	L_2	Fallow	N_0	N_1	N_2	Mean
P_0	945	1475	—	912	1289	1430	1210
P_1	1259	1253	—	1029	1326	1413	1256
P_2	1290	1442	—	1189	1416	1495	1366
Fallow	—	—	836	370	1029	1108	836
Mean	1165	1390	836	947	1299	1398	1214
N_0	945	1141	370				
N_1	1285	1402	1029				
N_2	1264	1628	1108				

C.D. for N marginal means = 262·1 Kg/ha.

62(134)

(i) 883 Kg/ha. (ii) (a) 278·7 Kg/ha. (b) 253·2 Kg/ha. (iii) Main effect of N is highly significant. (iv) Av. yield of grain inKg/ha.

	L_1	L_2	Fallow	N_0	N_1	N_2	Mean
P_0	686	831	—	523	950	803	758
P_1	955	1023	—	825	1108	1034	989
P_2	918	904	—	938	893	902	911
Fallow	—		865	548	910	1136	865
Mean	853	920	865	732	973	945	883
N_0	744	780	548				
N_1	957	1010	910				
N_2	857	968	1136				

C.D. for N marginal means=172·8 Kg/ha.

Crop :- Paddy (*Kharif*). **Ref :- U.P. 62(137), 63(139), 64(130).**

Site :- Govt. Reg. Agri. Res,. Stn, Hardoi. **Type :- 'CM'.**

Object :—To find out the best time of transplanting, spacings and number of seedlings under different levels of fertility.

1. BASAL CONDITIONS :

(i) (a) Paddy-Berseem. (b) N.A. (c) Nil. (ii) Sandy loam. (iii) As per treatments. (iv) (a) N.A. (b) Transplanting. (c) N.A. (d) and (e) As per treatments. (v) Nil. (vi) T-9 (late). (vii) Irrigated. (viii) Weeding by Khurpi. (ix) 67·1cm.; 59·6cm; 53.8cm. (x) N.A.; 1 to 10.12.63; 15.12.64.

2. TREATMENTS:

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

(1) 3 fertility levels : F_0=11·2 Kg/ha. of P_2O_5, F_1=44·8 Kg/ha. of N+22·4 Kg/ha. of P_2O_5 and F_2=89·7 Kg/ha. of N+44·8 Kg/ha. of P_2O_5.

(2) 3 rates of seedlings/hole :- R_1=2, R_2=4 and R_3=6.

(3) 3 dates of transplanting : D_1=15th July, D_2=30th July and D_3=14th August.

(4) 3 spacings : 23cm.×23cm.; S_2=23cm.×15cm. and S_3=15cm.×15cm.

3. DESIGN :

(i) 3^4 confd. (ii) (a) 9 plots/block; 9 blocks/replication. (b) N.A. (iii) 2. (iv) (a) and (b) 8·99m.×5·18m. for 62 and 63; 5·03m.×4·27m. for 64. (v) Nil. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Nil. (iii) Yield of grain. (iv) (a) 1962-64. (b) Yes in 62 and 63; Field was changed in 64. (c) Results of combined analysis have been presented under 5. Results. (v) N.A. (vi) Nil. (vii) Error variances are heterogeneous and Treatments×Years interaction is present.

5. **RESULTS :**

Pooled results:

(i) 1398 Kg/ha. (ii) 1241·2 Kg/ha. (based on 64 d.f. made up of Treatments × Years interaction). (iii) Main effects of F and D are highly significant, (iv) Av. Yield of grain in Kg/ha.

	R_1	R_2	R_3	D_1	D_2	D_3	S_1	S_2	S_3	Mean
F_0	908	952	941	924	982	896	912	932	957	934
F_1	1329	1382	1414	1502	1593	1030	1321	1342	1462	1375
F_2	1859	1891	1903	2133	2241	1278	1806	1878	1970	1884
Mean	1365	1408	1419	1520	1605	1068	1346	1384	1463	1398
S_1	1311	1346	1381	1482	1556	1000				
S_2	1328	1414	1410	1545	1565	1043				
S_3	1457	1464	1467	1533	1695	1161				
D_1	1430	1573	1546							
D_2	1550	1624	1641							
D_3	1107	1027	1070							

C.D. for F or D marginal means=275·6 Kg/ha.

Individual results :

Treatments	F_0	F_1	F_2	Sig.	R_1	R_2	R_3	Sig.	D_1	D_2	D_3	Sig
Year												
1962	1381	2192	2652	**	1996	2088	2141	**	2029	2208	1988	**
1963	590	642	748	**	657	662	661	N.S.	656	673	651	N.S.
1964	830	1291	2253	**	1443	1475	1456	N.S.	1874	1935	565	**
Pooled	934	1375	1884	**	1365	1408	1419	N.S.	1520	1605	1068	**

S_1	S_2	S_3	Sig	G.M.	S.E./plot
1973	2048	2204	**	2075	208·2
658	659	663	N.S.	660	100·5
1407	1445	1522	N.S.	1458	304·9
1346	1384	1463	N.S	1398	1241·2

Crop :- Paddy (*Kharif*). **Ref :- U.P. 65(3).**

Site :- Govt, Reg. Agri. Res. Stn., Hardoi. **Type :- 'CM'.**

Object : —To determine the factors for maximizing production of early Paddy after Wheat, Gram and Berseem with different intensities of fertilizer.

1. BASAL CONDITIONS:

(i) (a) Nil. (b) and (c) As per treatments. (ii) Sandy loam. (iii) 18 to 23.7.65. (a) N.A. (b) Transplanting. (c) — (d) 15cm.×15cm. (e) 2 to 3. (v) N.A. (vi) N.22 (early). (vii) Irrigated. (viii) N.A. (ix) 44·0cm. (x) 10.10.65.

2. TREATMENTS:

Main-plot treatments :

Residual effect of all combination of (1) and (2)

(1) 3 previous crops : C_1=Wheat, C_2=Gram and C_3=Berseem.

(2) 3 levels of fertilizers applied to previous crops : To Wheat : F_0= Nil. F_1=22·4 Kg/ha. of N+22·4 Kg/ha. of P_2O_5+22·4 Kg/ha. of K_2O,+46·1 Q/ha. of F.Y.M., F_2=44·8 Kg/ha. of N+44·8 Kg/ha. of P_2O_5+44·8 Kg/ha. of K_2O+92·2 Q/ha. of F.Y.M

To Berseem and Gram : F_0=Nil, F_1=5·6 Kg/ha. of N+28 Kg/ha. of P_2O_5, & F_2=11·2 Kg/ha. of N+56 Kg/ha. of P_2O_5.

Sub-plot treatments :

3 levels of fertilizers applied to present crop.

F_0'=Nil, F_1'=22·4 Kg/ha. of N+22·4 Kg/ha. of P_2O_5+22·4 Kg/ha. of K_2O.+46 Q/ha. F.Y.M. and F'_2= 44·8 Kg/ha. of N+44·8 Kg/ha. of P_2O_5+44·8 Kg/ha. of K_2O+92·2 Q/ha. of F.Y.M.

3. DESIGN :

(i) Split-plot. (ii) (a) 9 main-plots/replication, 3 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) and (b) 5.00m×3.00m. (v) Nil. (vi) Yes.

4. GENERAL

(i) Good. (ii) Nil. (iii) Yield of grain. (iv) (a) 1965-only. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 3355 Kg/ha. (ii) (a) 1569·7 Kg/ha. (b) 498·9 Kg/ha. (iii) Main effect of F' is highly significant and that of C is significant. (iv) Av. yield of grain in Kg/ha.

	F_0	F_1	F_2	F_0'	F_1'	F_2'	Mean
C_1	2861	3267	3000	2705	3133	3289	3042
C_2	2905	2489	3472	2728	3033	3105	2955
C_3	3594	4489	4117	3617	4122	4461	4067
Mean	3120	3415	3530	3017	3430	3618	3355
F_0'	2705	3183	3161				
F_1'	3205	3455	3628				
F_2'	3450	3605	3800				

C.D. for C marginal means=763·6 Kg/ha.

C.D. for F' marginal means=235·9 Kg/ha.

Crop :- Paddy *(Kharif)*, **Ref :- UP. 61(422).**

Site :- Govt. Agri. Farm, Jakhauli. **Type :- 'CM'.**

Object:—To find out suitable level of fertility, dates of transplanting and spacing on the yield of late Paddy.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Mar. soil. (iii) As per treatments. (iv) (a) 2 to 3 ploughings by *Bakhar* plough. (b) Transplanting. (c) — (d) As per treatments. (e) 2 to 3. (v) Nil. (vi) N.A. (vii) Irrigated. (viii) Nil. (ix) and (x) N.A.

2. TREATMENTS:

Main-plot treatments :

All combinations of (1) and (2)

(1) 2 levels of fertility: F_0=No fertilizer applied and F_1=28 Kg/ha. of N+28 Kg/ha. of P_2O_5.

(2) 3 dates of transplanting: T_1=17.7.61, T_2=2/3.8.61 and T_3=21.8.61.

Sub-plot-treatments :

3 different spacing : S_1=23cm.×23cm., S_2=23cm.×15cm. and S_3=15cm.×15cm.

3. DESIGN:

(i) Split-plot. (ii) (a) 6 main-plots/replication; 3 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) and (b) 9·14m.×5·49m. (v) Nil. (vi) Yes.

4. GENERAL:

(i) Good. (ii) Nil. (iii) Yield of grain. (iv) (a) 1961-only. (b) and (c) Nil. (v) to (vi) Nil. (vii) Data for T_3 was not available.

5. RESULTS:

(i) 527 Kg/ha. (ii) (a) 255·8 Kg/ha. (b) 178·6 Kg/ha. (iii) Main effect of F alone is highly significant. (iv) Av. yield of grain in Kg/ha.

	T_1	T_2	S_1	S_2	S_3	Mean
F_0	382	411	363	417	411	397
F_1	574	742	652	631	691	658
Mean	478	577	507	524	551	527
S_1	478	537				
S_2	463	585				
S_3	493	608				

C.D. for F marginal means=167·0 Kg/ha.

Crop :- Paddy (*Kharif*). **Ref :- U.P. 62(485).**

Site :- Rice Res. Sub-Stn., Kunraghat. **Type :- 'CM'.**

Object :--To study the effect of varying doses of N with varying plant population and different dates of transplanting and spacing on the yield of Paddy.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Medium loam. (iii) As per treatments. (iv) (a) N.A. (b) Transplanting. (c) — (d) and (e) As per treatments. (v) 37·3 of F.Y.M. (vi) Ch. 4. (vii) Unirrigated. (viii) N.A. (ix) 51·4cm. (x) 1.10.62 to 15.12.62.

2. TREATMENTS:

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

(1) 3 levels of N : N_0=0, N_1=44·8 and N_2=89·6 Kg/ha.

(2) 3 rates of seedlings : R_1=2, R_2=4 and R_3=6 seedlings/hole.

(3) 3 dates of transplanting : D_1=23.7.62, D_2=7.8.62 and D_3=23.8.62.

(4) 3 spacings : S_1=23cm.×23cm., S_2=23cm.×15cm. and S_3=15cm.×15cm.

3. DESIGN.

(i) 3^4 confd. (ii) (a) 9 blocks/replication, 9plots/block. (b) N.A. (iii) 2. (iv) (a) 7·32m.×2·53m. (b) 7·09m. ×2·29m. (v) 12cm.×12cm. (vi) Yes.

4. GENERAL:

(i) Lodging in 3rd week of Oct. in some plots. (ii) Mild attack of Blast, severe attack of birds in 2nd replication. (iii) Yield of grain. (iv) (a) 1962-63 (Experiment for 63 failed). (b) N.A. (c) Nil. (v) Masodha, Nawabganj; Varanasi and Meerut. (vi) and (vii) Nil.

5. RESULTS:

(i) 1300 Kg/ha. (ii) 664·1 Kg/ha. (iii) Main effect of D is highly significant, Interaction R×S is significant. (iv) Av. yield of grain in Kg/ha.

	D_1	D_2	D_3	S_1	S_2	S_3	N_0	N_1	N_2	Mean
R_1	2315	591	642	1206	1284	1058	1317	1153	1078	1183
R_2	2712	814	421	1619	1119	1210	1216	1374	1358	1316
R_3	2764	749	690	1142	1451	1610	1412	1394	1398	1401
Mean	2597	718	584	1322	1285	1292	1315	1307	1278	1300
N_0	2469	877	599	1200	1414	1330				
N_1	2761	628	532	1351	1089	1480				
N_2	2562	650	622	1416	1351	1067				
S_1	2548	803	616							
S_2	2568	678	608							
S_3	2675	673	529							

C.D. for D marginal means=253·8 Kg/ha,

C.D. for body of R×S table=439·7 Kg/ha.

Crop :- Paddy (*Kharif*). **Ref :- U.P. 61(300).**

Site :- Central Rice Res. Stn., Masodha. **Type :- 'CM'.**

Object :—To study the effect of varying doses of N with varying plant-population on the yield of Paddy.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Light loam. (iii) 18/19.7.61. (iv) (a) 2 ploughing and harrowings. (b) Transplanting. (c) — (d) 23cm. × 15cm. (e) As per treatments. (v) Nil. (vi) T-9. (vii) Irrigated. (viii) 2 hoeings and weeding by K*hurpi*. (ix) 80·4cm. (x) 1st week of Dec., 61.

2. TREATMENTS :

Main-plot treatments :

(1) 4 levels of N as A/S : N_0=0, N_1=33·6, N_2=67·2 and N_3=100·8 Kg/ha.

Sub-plot treatments :

(2) 4 rates of seedlings : S_1=1, S_2=2, S_3=4 and S_4=6 seedlings/hole.

3. DESIGN :

(i) Split-plot. (ii) (a) 4 main-plots/replication, 4 sub-plots/main-plot, (b) N.A. (iii) 6. (iv) (a) and(b) 4·57m. × 3·05m. (v) Nil. (vi) Yes.

4. GENERAL:

(i) Good. (ii) Nil. (iii) Yield of grain. (iv) (a) 1961-only. (b) and (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 1979 Kg/ha. (ii) (a) 568·2 Kg/ha. (b) 289·8 Kg/ha. (iii) Main effect of S alone is highly significant. (iv) Av. yield of grain in Kg/ha,

	N_0	N_1	N_2	N_3	Mean
S_1	1658	1767	1833	2104	1841
S_2	1916	1901	2130	2187	2033
S_3	1752	1916	2029	2098	1949
S_4	1948	1985	2152	2285	2092
Mean	1818	1892	2036	2169	1979

C.D. for S marginal means=167·3 Kg/ha.

Crop :- Paddy (*Kharif*). **Ref :- U.P. 62(326).**

Site :- Central Rice Res. Stn., Masodha. **Type :- 'CM'.**

Object :—To study the effect of varying doses of N with varying plant population and different datesof transplanting and spacing on the yield of Paddy.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Fallow. (c) Nil. (ii) Light loam. (iii) As per treatments. (iv) (a) 3 ploughings and harrowings. (b) Transplanting. (c) — (d) and (e) As per treatments. (v) Nil. (vi) T-9. (vii) Irrigated. (vii) Weedings, (ix) 80·5cm. (x) 12 to 15.12.62.

2. TREATMENTS

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

(1) 3 levels of N as A/S : N_0=0, N_1=44 8 and N_2=89·6 Kg/hole.

(2) 3 rates of seedling : R_1=2, R_2=4 and R_3=6 seedlings/hole.

(3) 3 dates of trans planting : D_1=5.7.62, D_2=20.7.62 and D_3=5.8.62.

(4) 3 spacings : S_1=23cm.×23cm., S_2=23cm.×15cm. and S_3=15cm.×15cm.

3. DESIGN :

(i) 3^4 confd. (ii) (a) 9 plots/block; 9 blocks/replication. (b) N.A. (iii) 2. (iv) (a) and (b) 5·03m.×2·74m. (v) Nil. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Nil. (iii) Yield of grain. (iv) (a) No. (b) and (c) Nil. (v) Kunraghat, Varanasi, Nawabganj and Meerut. (vi) Nil.

5. RESU ⁻S :

(i) 1479 Kg/ha. (ii) 371·2 Kg/ha. (iii) Main effects of R, S and N are highly significant. Interaction D×N is significant, (iv) Av. yield of grain in Kg/ha.

	D_1	D_2	D_3	S_1	S_2	S_3	N_0	N_1	N_2	Mean
R_1	1311	1342	1421	1261	1391	1423	877	1391	1807	1358
R_2	1551	1477	1479	1245	1574	1689	939	1641	1928	1503
R_3	1621	1478	1625	1367	1657	1700	980	1722	2022	1575
Mean	1494	1433	1509	1291	1541	1604	932	1585	1919	1479
N_0	1055	895	846	840	984	972				
N_1	1588	1620	1546	1329	1700	1725				
N_2	1839	1783	2134	1704	1938	2114				
S_1	1346	1192	1334							
S_2	1568	1581	1474							
S_3	1569	1525	1718							

C.D. for R, S or N marginal means=141·4 Kg/ha.

C.D. for body of D×N table=244 9 Kg/ha.

Crop :- Paddy (*Kharif*). **Ref :- U.P. 62(253), 63(270), 64(290).**

Site :- Govt. Reg. Agri. Res. Stn., Meerut. **Type :- 'CM'.**

Object :— To find out suitable manurial dose and cultural practices for Paddy.

1. BASAL CONDITIONS:

(i) (a) N.A. (b) Oat in 62 and 63; Berseem. (c) N.A. (ii) Loam. (iii) As per treatments, (iv) (a) 1 ploughing by soil turning plough and 2 ploughings by *desi* plough (b) Transplanting. (c) — (d) and (e) As per treatments. (v) Nil (vi) CH-4 in 62 and T-21 in other years. (vii) Irrigated. (viii) Weedings and hoeings. (ix) 61·2cm.; 121·3cm.; 103·5cm. (x) 13/17.10.62 and 4.11.62; 3, 7 and 20.10.63; 4,8 and 19.10.64.

2. TREATMENTS:

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

(1) 3 levels of N : N_0=0, N_1=44·8 and N_2=89 6 Kg/ha.

(2) 3 rates of seedlings : R_1=2, R_2=4 and R_3=6 seedlings/hole.

(3) 3 spacings : S_1=23cm.×23cm., S_2=23cm.×15cm. and S_3=15cm.×15cm.

(4) 3 dates of transplanting : D_1=2nd fortnight of June, D_2=1st fortnight of July and D_3=2nd fortnight of July.

3. DESIGN :

(i) 3^4 confd. (ii) (a) 9 plots/block, 9blocks/replication. (b) 10·97m.×26·29m. (iii) 2. (iv) (a) 10·97m.× 2 51m. (b) 10·36m.×1·91m. for 62; 10·06m.×1·60m. for others. (v) 30cm.×30cm. for 62; 45cm.×45cm for 63 and 64. (vi) Yes.

4. GENERAL:

(i) Satisfactory. (ii) Gundhi bug, 5%B.H.C, was dusted for 62 and 63; very mild attack of Blast. (iii) Yield of grain. (iv) (a) 1962-64 (b) Yes. (c) Results of combined analysis have been presented under 5. Results. (v) Nawabganj Kunraghat, Varanasi and Masodha. (vi) Heavy rains in 64, (vii) Error variances are haterogeneous and Treatments×Years interaction is present.

5. RESULTS :

Pooled results

(i) 2182 Kg/ha. (ii) 815·8 Kg/ha. (based on 64 d.f. made up of Treatments×Years interaction). (iii) Main effects of R,D and N are highly significant and that of S is significant. (iv) Av. yield of grain in Kg/ha.

	D_1	D_2	D_3	S_1	S_2	S_3	N_0	N_1	N_2	Mean
R_1	1889	2338	1662	1808	1952	2129	1569	2041	2279	1963
R_2	2079	2643	2110	2088	2276	2468	1755	2430	2647	2277
R_3	2126	2658	2131	2266	2364	2285	1800	2443	2672	2305
Mean	2031	2546	1968	2054	2197	2294	1708	2305	2533	2182
N_0	1691	2064	1369	1492	1718	1914				
N_1	2154	2629	2130	2229	2268	2417				
N_2	2249	2949	2403	2441	2606	2551				
S_1	2011	2383	1768							
S_2	1995	2624	1973							
S_3	2088	2632	2162							

C.D. for any marginal means=180·6 Kg/ha.

Individual results :

Treatment	R_1	R_2	R_3	Sig.	D_1	D_2	D_3	Sig.	S_1	S_2	S_3	Sig.	N_0	N_1	N_2
Years															
1962	1756	1890	1954	**	1716	2123	1761	**	1787	1837	1976	**	1522	1979	2099
1963	1825	2156	2236	**	2141	2543	1533	**	1950	2107	2160	N.S.	1688	2210	2319
1964	2308	2786	2725	**	2237	2973	2609	**	2425	2648	2746	**	1914	2725	3180
Pooled	1963	2277	2305	**	2031	2546	1968	**	2054	2197	2294	*	1708	2305	2533

Sig.	G.M.	S.E./plot
**	1867	242·3
**	2072	453·7
**	2606	427·1
**	2182	815·8

Crop :- Paddy (*Kharif*). **Ref :- U P. 60(244).**

Site :- Govt. Reg. Agri. Res. Stn., Meerut. **Type :- 'CM'.**

Object ;—To see the effect of dates of sowing and seed rates under high and low fertility levels on the yield of Paddy.

1. BASAL CONDITIONS :

(i) (a) Berseem (fodder)—Paddy. (b) Berseem for fodder. (c) Nil. (ii) Clayey loam. (iii) As per treatments. (iv) (a) One ploughing by soil turning plough and 2 ploughings by desi plough. (b) Broadcast. (c) As per treatments (d) and (e) — (v) Nil. (vi) China-4 (medium) (vii) Irrigated. (viii) 5 weedings (ix) 57·6cm. (x) 28.11.60 and 22.12.60.

2. TREATMENTS :

Main-plot treatments :

2 levels of fertility : F_1(High fertility)=56 Kg/ha. of N as A/S+56 Kg/ha. of P_2O_5 as Super. and F_2 (Low feritlity) =28 Kg/ha. of N as A/S +28 Kg/ha. of P_2O_5 as Super.

Sub-plot treatments :

2 dates of sowings : D_1=24.7.60 and D_2=4.8.70.

Sub-sub-plot treatments :

3 seeds rates : S_1=23·0, S_2=46·1 and S_3=69 2 Kg/ha.

Method and dates of manuring. : Super applied in bunds on 7·6.60 at 10cm. deep at planting; ½ A/S top dressed in D_1 on 23.8.60 and D_2 on 29.8 60 Date of IInd application : 3 weeks after Ist application.

3. DESIGN :

(i) Split-plot (ii) (a) 2 main-plots/replication, 2 Sub-plots/main-plot; 3 sub-plots/sub-plot. (b) 52·73m.× 16·76m. (iii) 4. (iv) (a) 12·19m.×5·18m. (b) 11·28m.×4·27m. (v) 46cm.×46cm. (vi) Yes.

4. GENERAL:

(i) Unsatisfactory. (ii) Nil. (iii) Yield of grain, germination count, no. of green leaves and no. of tiller etc. (iv) (a) 1959-60. (b) Yes, (c) Nil. (v) N.A, (vi) and (vii) Nil.

5. RESULTS :

(i) 978 Kg/ha. (iii) (a) 244·6 Kg/ha. (b) 403·0 Kg/ha. (c) 330·3 Kg/ha. (iii) Main effect of D alone is highly significant. (iv) Av. yield of grain in Kg/ha.

	D_1	D_2	S_1	S_2	S_3	Mean
F_1	1848	240	953	927	1252	1044
F_2	1546	278	921	953	862	912
Mean	1697	259	937	940	1057	978
S_1	1748	126				
S_2	1530	350				
S_3	1813	013				

C.D. for D marginal means=284·7 Kg/ha.

Crop :- Paddy (*Kharif*). **Ref :- UP. 61(236).**

Site:- Govt. Reg. Agri. Res. Stn., Meerut. **Type :- 'CM.**

Object :—To study the effect of different spacings, dates of transplanting and levels of fertilizer on the yield of Paddy.

1. BASAL CONDITIONS :

(i) (a) Paddy-Berseem. (b) Berseem. (c) Nil. (ii) Loam. (iii) As per treatments. (iv) (a) 3 ploughings by soil turning plough or *desi* plough. (b) Transplanting. (c) — (d) As per treatments. (e) 2. (v) 46·1 Q/ha. of F.Y.M. (vi) Ch. 4 (medium) (vii) Unirrigated. (viii) Nil. (ix) Nil. (ix) 95 2cm. (x) 5 to 27.10.61; 11.11.61.

2. TREATMENTS

Main-plot treatments:

All combinations of (1) and (2)

(1) 3 dates of transplanting : T_1=5.7.61, T_2=20.7.61 and T_3=5.8.61.

(2) 2 levels of fertility : F_0=No manure and F_1=28 Kg/ha. of N+28 Kg/ha. of P_2O_5.

Sub-plot treatments :

3 spacings : S_1=23cm.×23cm., S_2=23cm×15cm. and S_3=15cm×15cm.

3. DESIGN :

(i) Split plot. (ii) (a) 6 main plots/replication; 3 sub-plots/main-plot. (b) 70·41m.×12·50m. (iii) 4. (iv) (a) and (b) 10·97m.×3·66m. (v) Nil. (vi) Yes.

4. GENERAL :

(i) Satisfactry. (ii) Nil. (iii) No of tiller/plant and yield of grain. (iv) (a) 1961 only. (b) and (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 2402 Kg/ha. (ii) (a) 336·2 Kg/ha. (b) 293·4 Kg/ha. (iii) Main effects of T and F are highly significant. and that of S is significant. (iv) Av. yield of grain in Kg/ha.

	F_0	F_1	S_1	S_2	S_3	Mean
T_1	2484	3534	2770	2965	3292	3009
T_2	1759	2455	1999	2093	2228	2107
T_3	1646	2531	2059	2136	2071	2089
Mean	1963	2840	2276	2398	2530	2402
S_1	1847	2705				
S_2	1904	2892				
S_3	2139	2922				

C.D. for T marginal means=206·8Kg/ha.
C.D. for F marginal meane=168·9 Kg/ha.
C.D. for S marginal means=171·8 Kg/ha.

Crop :- Paddy (*Kharif*). **Ref :- U.P. 60(152).**

Site :- Govt. Reg. Agri. Res. Stn., Nawabgunj. **Type :- 'CM'.**

Object :—To study the effect of different dates of transplanting and spacings for late Paddy under average. and high fertility conditions.

1. BASAL CONDITIONS :

(i) (a) Paddy-Berseem. (b) Berseem. (c) N.A. (ii) Clay loam. (iii) As per treatments. (iv) (a) N.A. (b) Transplanting. (c) — (d) As per treatments. (e) 2 to 3. (v) Nil. (vi) T 26(late). (vii) Irrigated. (viii) Weeding and hoeing. (ix) 144·8cm. (x) 1,3.12.60.

2. TREATMENTS :

Main-plot treatments :

All combinations of (1) and (2)

(1) 2 levels of fertility : L_1=56 Kg/ha. of N+56 Kg/ha. of P_2O_5 and L_2=28 Kg/ha. of N+28 Kg/ha of P_2O_5

(2) 2 dates of transplanting : T_1=20.7.60 (early transplanting. and T_2=5.8.60 (late transplanting).

Sub plot-treatments :

3 spacings : S_1=23cm.×23cm. S_2=23cm.×15cm. and S_3=15cm.×15cm.

3. DESIGN :

(i) Split plot. (ii) (a) 4 main plots/replication; 3 sub plots/main-plot. (b) N.A. (iii) 4. (iv) (a) and (b) 10·97m.×4 57m. (v) Nil. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Nil. (iii) Yield of grain. (iv) (a) (a) 1960-only. (b) No. (c) Nil. (v) Hardoi. (vi) and (vii) Nil.

5. RESULTS:

(i) 2744 Kg/ha. (ii) (a) 472·7 Kg/ha. (b) 326·4 Kg/ha. (iii) Main effect of L alone is highly significant. (iv) Av. yield of grain in Kg/ha.

	L_1	L_2	S_1	S_2	S_3	Mean
T_1	2434	3028	2775	2683	2735	2781
T_2	2591	2925	2577	2855	2842	2758
Mean	2512	2977	2676	2769	2788	2744
S_1	2380	2973				
S_2	2646	2892				
S_3	2511	3066				

C.D. for L marginal means=308·6 Kg/ha.

Crop :- Paddy (*Kharif*). **Ref : U.P. 62(207), 63(196), 64(198).**

Site :- Govt. Reg. Agri. Res. Stn., Nawabgunj. **Type :- 'CM'.**

Object :—To see the effect of levels of N rates of seedling, dates of transplanting and spacings on late yield of Paddy.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) *Moong*; Wheat; *Berseem*. (c) N.A. (iii) Clay loam. (iii) As per treatments. (iv) (a)N.A. (b) Transplanting. (c) — (d) and (e) As per treatments. (v) N.A. (vi) T-26 (vii) Irrigated. (viii)Weedings. (ix) 161·9cm.; 81·7cm.; 91·3cm. (x) N.A.; 7/8.12.63; 30.11 to 1.12.64.

2. TREATMENTS :

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

(1) 3 levels of N : N_0=0, N_1=44·8 and N_2=89 6 Kg/ha.

(2) 3 rates of seedling : R_1=2, R_2=4 and R_3=6 seedlings/hole

(3) 3 dates of transplanting : D_1=Early, D_2=Normal and D_3=Late transplanting.

(4) 3 spacings : S_1=23cm. × 23cm.; S_2=23cm × 15cm. and S_3=15cm. × 15cm.

3. DESIGN :

(i) 3^4 confd. (ii) (a) 9 plots/block; 9 block/replication. (b) N.A. (iii) 2. (iv) (a) and (b) 4·11m. × 7·32m. (v) Nil. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Nil. (iii) Yield of grain. (iv) (a) 1962-64 (b) Yes. (c) Results of combined analysis have been presented under 5. Results. (v) Varanasi, Kunraghat, Masodha and Meerut. (vi) Nil. (vii) Error variances are heterogeneous and Treatment × Years interaction is present.

5. RESULTS :

Pooled results

(i) 1944 Kg/ha. (ii) 1515·0 Kg/ha. (based in 64 d.f. made up of Treatments × Years interaction). (iii) Main effect of D alone is highly significant. (iv) Av. yield of grain in Kg/ha.

	R_1	R_2	R_3	D_1	D_2	D_3	S_1	S_2	S_3	Mean
N_0	1660	1749	1897	1985	2026	1296	1513	1750	2044	1769
N_1	1892	1970	1993	2139	2400	1317	1829	1978	2049	1952
N_2	1998	2151	2180	2296	2518	1516	2031	2075	2224	2110
Mean	1850	1957	2024	2140	2315	1376	1791	1934	2106	1944
S_1	1648	1850	1875	2047	2152	1174				
S_2	1826	1888	2089	2184	2348	1270				
S_3	2077	2133	2107	2188	2445	1684				
D_1	2053	2206	2161							
D_2	2239	2301	2405							
D_3	1259	1364	1505							

C.D. for D marginal means=336·3 Kg/ha.

Individual results :

Treatment	R_1	R_2	R_3	Sig.	D_1	D_2	D_3	Sig.	S_1	S_2	S_3	Sig.	N_0	N_1	N_2
Year 1962	2302	2450	2512	*	2235	2773	2256	**	2211	2451	2602	**	2113	2471	2680
1963	821	904	1000	**	876	898	951	N.S.	869	882	974	N.S.	763	871	1091
1964	2428	2517	2559	N.S.	3309	3274	921	**	2293	2470	2741	**	2431	2514	2559
Pooled	1850	1957	2024	N.S.	2140	2315	1376	**	1791	1934	2106	N.S.	1769	1952	2110

Sig.	G.M.	S.E./plot
**	2421	345·3
**	908	255·7
N.S.	2501	449·9
N.S.	1944	1515·0

Crop :- Paddy. (*Kharif*). **Ref :- U.P. 60(66), 61(75).**

Site :- Govt. Reg. Agri. Res. Stn., Nawabgunj. **Type :- 'CM'.**

Object :—To study whether *Dhaincha* sown mixed with Paddy, and *Dhaincha* turned in after 4-5 weeks with weeding of Paddy, increases the yield of Paddy.

1. BASAL CONDITIONS:

(i) (a) N.A. (b) Masoor; Wheat. (c) N.A. (ii) Clay loam. (iii) 4.7.60; 28.6. 61. (iv) (a) N.A. (b) Broadcast and lines sowing behind the plough as per treatments. (c) Paddy; 69Kg/ha., Dhaincha; 23Kg/ha. (d) Rows 23cm. apart. (e)— (v) Nil; 11·2 Kg/ha. of N as A/S (vi) N32(early); N.A. (vii) N.A. (viii) N.A.; weeding with *khurpi*. (ix) 144·8cm.; N.A. (x) 8.10.60; 5.10.61.

2. TREATMENTS:

6 G.M. treatments : T_1=Paddy alone, T_2=2 rows of Paddy+One row of Dhaincha, T_3=3 rows of Paddy +one row of Dhaincha, T_4=Paddy alone and Dhaincha brought from separate plot of the same size. T_5= Paddy+Dhaincha sown in the same lines and T_6=Paddy+Dhaincha broadcast.

Dhaincha turned on : 12.8.60 and 8/9.8.61.

3. DESIGN :

(i) R.B.D. (ii) (a) 6. (b) 12·19m.×25·91m ; N.A. (iii) 4 (iv) (a) N·A. (b) 12,19m.×4·11m. (v) N.A. (vi) Yes.

4. GENERAL:

(i) Satisfactory. (ii) Slight attack of Helminthos porium or yzal (leaves infested). Dusting by 5% B.H.C. dust against *Gundhy* bug as a preventive measure on 14.9.60; Nil. (iii) Yield of grain. (iv) (a) 1960-61; (b) N.A. (c) Results for combined analysis have been presented under 5. Results. (v) and (vi) Nil. (vii) Error variances are homogeneous and Treatments×Years interaction is absent.

5. RESULTS :

Pooled results

(i) 970 Kg/ha. (ii) 181·8 Kg/ha. (based on 35 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_1	T_2	T_3	T_4	T_5	T_6
Av. yield	922	894	879	1112	956	1056

Individual results :

Treatment	T_1	T_2	T_3	T_4	T_5	T_6	Sig.	G.M.	S.E/plot
year 1960	936	895	821	1093	966	1061	N.S.	962	150·8
1961	908	893	937	1131	947	1052	N.S.	978	228·9
Pooled	922	894	879	1112	956	1056	N.S.	970	181·8

Crop :- Paddy (*Kharif*). **Ref :- U.P. 61(155).**

Site :- Govt. Reg. Agri. Res. Stn., Nawabgunj. **Type :-'CM'.**

Object :—To determine the best seed rate and time of sowing under average and high fertility conditions.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Sugar cane. (c) N.A. (ii) Clay loam. (iii)1 As per treatments. (iv) (a) N.A. (b) Broad cast. (c) As per treatments. (d) — (e) — (v) Nil. (vi) N-22 (early). (vii) Irrigated. (viii) Weeding. (ix) 16·3cm. (x) 28.9.61, 6.10.61 and 22.10.61.

2. TREATMENTS :

Main-plot treatments :

All combinations of (1) and (2)

(1) 2 levels of fertility :—F_1=56·0 Kg/ha. of N+56·0 Kg/ha. of P_2O_5 and F_2=28 Kg/ha. of N+28·0 Kg/ha. of P_2O_5.

(2) 3 sowing dates : D_1=1.7.61. D_2=10.7.61. D_3=20.7.61.

Sub-plot treatments :

3 seed rates : S_1=23, S_2=46 and S_3=69 Kg/ha.

3. DESIGN :

(i) Split-plot. (ii) (a) 6 main-plots/replication; 3 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) and (b) 8·23m.×6·10m.; (v) Nil. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Nil. (iii) Yield of grain. (iv) (a) 1960-61 (modified in 61). (b) No. (c) Nil. (v) Hardoi. (vi) and (vii) Nil.

5. RESULTS :

(i) 737 Kg/ha. (ii) (a) 482·9 Kg/ha. (b) 291·6 Kg/ha. (iii) Main effect of S alone is highly significant. (iv) Av. yield of grain in Kg/ha.

	L_1	L_2	S_1	S_2	S_3	Mean
D_1	713	855	723	840	790	784
D_2	650	708	491	750	795	679
D_3	816	681	477	857	914	748
Mean	726	748	562	816	833	737
S_1	588	536				
S_2	804	827				
S_3	786	880				

C.D. for S marginal means=170·8 Kg/ha.

Crop :- Paddy (*Kharif*). **Ref :- U.P. 61(196).**

Site :- Govt. Reg. Agri. Res. Stn., Nawabgunj. **Type :- 'CM'.**

Object :—To find out the best time of transplanting and spacing of late Paddy under average and high fertility.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) and (c) N.A. (ii) Clay loam. (iii) As per treatments. (iv) (a) N.A. (b) Transplanting. (c) — (d) As per treatments. (e) N.A. (v) N.A. (vi) T-26. (vii) Irrigated. (viii) N.A. (ix) 141·3cm. (x) 10.12.61.

2. TREATMENTS:

Main plot treatments:

(1) 2 fertility levels : F_1=56 Kg/ha. of N+56 Kg/ha. of P_2O_5 and F_2=28 Kg/ha. of N+28 Kg/ha. of P_2O_5.

Sub plot treatments :

(2) 3 times of transplanting : T_1=15.7.61, T_2=30.7.61 and T_3=25.8.61.

Sub-sub-plot treatments :

(2) 3 spacings : S_1=23cm.×23cm., S_2=23cm.×15cm. and S_3=15cm.×15cm.

3. DESIGN :

(i) Split-plot. (ii) (a) 2 main-plots/replication, 3 sub plots/main plot, 3 sub-sub plots/sub plot. (b) N.A. (iii) 4. (iv) (a) and (b) 10·97m.×14·93m. (v) Nil. (vi) Yes.

4. GENERAL :

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

5. RESULTS ;

(i) 516 Kg/ha. (ii) (a) 102·8 Kg/ha. (b) 115·6 Kg/ha. (c) 69.3 Kg/ha. (iii) Main effect of T alone is highly significant. (iv) Av. yield of grain in Kg/ha.

	T_1	T_2	T_3	S_1	S_2	S_3	Mean
F_1	704	470	468	513	575	554	547
F_2	628	455	369	488	463	501	484
Mean	666	463	418	501	519	527	516
S_1	667	442	392				
S_2	679	473	404				
S_3	652	473	458				

C.D. for T marginal means=72·7 Kg/ha.

Crop :- Paddy (*Kharif*). **Ref :- U.P. 62(199), 63(205), 64(211).**

Site :- Govt. Reg. Agri. Res. Stn., Nawabgunj. **Type :- 'CM'.**

Object : —To study the effect of levels of N, number of seedlings, dates of transplanting and spacings on the yield of early Paddy.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) N.A.; *Oat* for 63 and 64. (c) N,A. (ii) Clay loam. (iii) As per treatments. (iv) (a) N.A. (b) Transplanting. (c) — (d) and (e) As per treatments. (v) N.A. (vi) N-22. (vii) Irrigated. (viii) Weedings. (ix) 161·9cm.; 81·7cm.; 91·3cm. (x) 25/26.9.62; 18/28.9.63 and 6.10.63; 22/28.9.64 and 8/9.10.64.

2. TREATMENTS :

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

(1) 3 levels of N : N_0=0, N_1=44·8 and N_2=89·6 Kg/ha.

(2) 3 rates of seedling : R_1=2, R_2=4 and R_3=6 seedlings/hole.

(3) 3 dates of transplanting : D_1=2nd fortnight of June, D_2=Ist fortnight of July and D_3=2nd fortnight of July.

(4) 3 spacings : S_1=23cm.×23cm.; S_2=23cm.×15cm. and S_3=15cm.×15cm.

3. DESIGN :

(i) 3^4 confd. (ii) (a) 9 plots/block; 9 blocks/replication. (b) N.A. (iii) 2. (iv) (a) and (b) 4·57m.×10·06m. for 62 and 63; 4·11m.×7·31m. for 64. (v) Nil. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Nil. (iii) Yield of grain. (iv) (a) 1962—64. (b) Yes. (c) Results of combined analysis have been presented under 5. Results. (v) Varanasi. (vi) Nil. (vii) Error variances are heterogeneous, interaction of R×S with years is absent while other Treatments×Years interactions are present.

5. RESULTS :

Pooled results

(i) 1649 Kg/ha. (ii) 589·8 Kg/ha. (based on 56 d.f. made up of interactions of N, R,D,S,N×R,N×D R×D, and D×S with years). (iii) Main effects of N and S are highly significant. (iv) Av. yield of grain in Kg/ha.

	R_1	R_2	R_3	S_1	S_2	S_3	D_1	D_2	D_3	Mean
N_0	1261	1348	1453	1188	1339	1534	1366	1373	1322	1354
N_1	1592	1708	1756	1493	1705	1858	1601	1814	1640	1685
N_2	1850	1957	1920	1791	1946	1989	1804	2027	1895	1909
Mean	1567	1671	1709	1491	1663	1793	1590	1738	1619	1649
D_1	1516	1638	1617	1437	1564	1771				
D_2	1648	1779	1787	1599	1746	1869				
D_3	1538	1595	1725	1437	1680	1740				

C.D. for N or S marginal means=131·4 Kg/ha.

62(199)

	S_1	S_2	S_3	Mean
R_1	1743	2145	1233	2007
R_2	1755	2165	2251	2057
R_3	2163	2203	2108	2158
Mean	1887	2171	2164	2074

63(205)

	S_1	S_2	S_3	Mean
R_1	771	804	906	827
R_2	742	905	1044	897
R_3	878	952	1056	962
Mean	797	887	1002	895

64(211)

	S_1	S_2	S_3	Mean
R_1	1722	1794	2088	1868
R_2	1877	1973	2324	2058
R_3	1765	2029	2230	2008
Mean	1788	1932	2214	1978

Individual results :

Treatment	N_0	N_1	N_2	Sig.	R_1	R_2	R_3	Sig.	D_1	D_2	D_3	Sig.
Year												
1962	1607	2200	2415	**	2007	2057	2158	N.S.	1810	2245	2167	**
1963	671	913	1102	**	827	897	962	*	1072	946	668	**
1964	1783	1942	2209	**	1868	2058	2008	N.S.	1889	2023	2022	N.S.
Pooled	1354	1685	1909	**	1567	1671	1709	N.S.	1590	1738	1919	N.S.

S_1	S_2	S_3	Sig.	G.M.	S.E./Plot
1887	2171	2164	* *	2074	461.2
797	887	1002	* *	895	230·2
1788	1932	2214	* *	1978	439 9
1491	1663	1793	* *	1649	589·8

Crop :- Paddy (*Kharif*). **Ref :- U.P. 65(33).**

Site :- Govt. Reg. Agri. Res. Stn., Nawabgunj. **Type :- 'CM'**

Object :—To find out the economical mechanical methods e.g. single, double and triple transplanting with top prunning and to see their effect on lodging of early Paddy.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) *Out*. (c) N.A (ii) Clay loam. (iii) 22.6.65, 2.7.65 & 12.7.65. (iv) (a) N.A. (b) As per treatments. (c) — (d) 23cm.×15cm. (e) 2. (v) Nil. (vi) N-22(early). (vii) Irrigated. (viii) 3 hoeings by wheel hove. (ix) N A. (x) 18 to 30. 9 65.

2. TREATMENTS :

All combinations of (1) and (2)

(1) 4 methods of transplanting : T_1=Single transplanting, T_2=Double transplanting, T_3=Triple transplanting and T_4=Single transplanting with top prunning.

(2) 2 levels of fertility : F_1=44 8 Kg/ha. of N+22·4 Kg/ha. of P_2O_5 and F_2=89·6 Kg/ha. of N+44 8 Kg/ha. of P_2O_5

3. DESIGN :

(i) Fact. in R.B.D, (ii) (a) 8. (b) N.A. (iii) 3. (iv) (a) 5·03m.×3·35m. (b) 4·72m.×3·05m. (v) 15cm.×15cm. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Nil. (iii) Yield of grain. (iv) (a) 1965-contd. (b) N.A. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 2004 Kg/ha. (ii) 269.4 Kg/ha. (iii) Main effect of F alone is highly significant. (iv) Av. yield of grain in Kg/ha.

	T_1	T_2	T_3	T_4	Mean
F_1	1826	1949	1576	1984	1834
F_2	1956	2176	2303	2264	2175
Mean	1891	2062	1940	2124	2004

C.D. for F marginal means=235·9 Kg/ha.

Crop :- Paddy (*Kharif*). **Ref :- U.P. 60(397), 61(415).**

Site :- State Usar Reclamation Farm, Rahimabad; **Type : - 'CM'**

Object :—To compare the effectiveness of Gypsum with bulky organic matter like Paddy-straw in reclamation of saline-alkali soils both under leached and unleached conditions.

1. BASAL CONDITIONS:

(i) (a) Fallow-Paddy. (b) Fallow. (c) Nil. (ii) Clay loam. (iii) 2nd fortnight of July. (iv) (a) 2 ploughings by *desi* plough and 2 application of Pata. (b) Transplonting. (c) — (d) 15cm. × 15cm. (e) 2 to 3. (v) Nil; 277 Kg/ha. of N as A/S. (vi) T-9 (late). (vii) Irrigated. (viii) 1 to 2 weedings. (ix) 147·0cm;. 116.2cm. (x) 14/15 12.60; 24 to 26.11.61.

2. TREATMENTS :

Main-plot treatments :

4 manurial treatments: T_0=Control, T_1=251·1 Q/ha. of paddy-straw for 3 years, T_2=125.5 Q/ha. of Gypsum applied once and $T_3=T_1+T_2$

Sub-plot treatments :

2 levels of leaching : L_0=Unleached and L_1=Leached with water.

3. DESIGN :

(i) Split-plot. (ii) (a) 4 main plots/replication, 2 sub plots/main plot. (b) 50·29m. × 86·87m. (iii) 4. (iv) (a) 50·29m. × 10·06m. (b) 49·07m. × 8·84m. (v) 61cm. × 61cm. (vi) Yes.

4. GENERAL :

(i) Satisfactory. (ii) N.A. (iii) Yield of grain. (iv) (a) 1957-61 (b) Yes. (c) Results of combined analysis have been presented under 5. Results. (v) Nil. (vi) N.A. (vii) Expts. For 57 to 59 have also been considered for pooling. Main plot and sub plot error variances are homogeneous and their interactions with years are present.

5 RESULTS :

Pooled results:

(i) 800 Kg/ha. (ii) (a)711·2 Kg/ha. (based on 12 d.f. made up of Treatments × Years intraction). (b) 455·4 Kg/ha. (based on 16 d.f. made up of Treatments × Years interaction.) (iii) Main effects of T and L are highly significant and interaction T × L is significant. (iv) Av. yield of grain in Kg/ha.

	T_0	T_1	T_2	T_3	Mean
L_0	232	833	431	896	598
L_1	244	1493	971	1298	1002
Mean	238	1163	701	1097	800

C.D. for T marginal means =346·5Kg/ha.

C.D. for L marginal means=152·0Kg/ha.

C.D, for T means at the same level of L=408·2 Kg/ha.

C.D. for L means at the same level of T=305.3 Kg/ha.

Individual results

Treatment	T_0	T_1	T_2	T_3	Sig.	L_0	L_1	Sig.	G.M.	S.E./plot (a)	S.E./plot (b)
Year 1960	54	491	270	368	N.S.	188	404	**	296	308·3	166·6
1961	693	1845	1609	1795	**	1226	1745	**	1486	376·4	324·2
Pooled	238	1163	701	1097	**	598	1002	**	800	711·2	455.4

Crop :- Paddy (*Kharif*). **Ref :- U.P. 65(594).**

Site : State Usar Reclamation Farm, Rahimabad. **Type :- 'CM'.**

Object :—To compare the effectiveness of gypsum with bulky organic matter like Paddy straw in reclamation of saline *alkali* soils both under leached and unleached conditions.

1. BASAL CONDITIONS :

(i) (a) Paddy—Wheat. (b) Wheat. (c) Dhaincha G.M., 197·7 Kg/ha. of Super; 74 Kg/ha. of N as A/S. (ii) Clay loam. (iii) 2nd fortnight of July, 65 (iv) 2 ploughings by *deshi* plough and 2 applications of Pata by bullock Karha.; Levelling of plots, Mending of mends and channels. (b) Transplanting. (c) — (d) 15cm. ×15cm. (e) 2 to 3 (v) N A. (vii) N 22 (vii) Irrigated. (viii) 1 to 2 weedings. (ix) 62.9cm. (x) Nov. 65.

2. TREATMENTS :

Main-plot treatments :

4 menurial treatments : T_0=Control, T_1=251·1 Q/ha. of paddy straws for 3 years (1957 to 59)+123·6Q/ha. of paddy straw in Kharif, 65, T_2=125·0Q/ha. of Gypsum applied once in' 57+61.8 Q/ha. of Gypsum in Kharif, 65 and T_3=T_1+T_2.

Sub-plot treatments :

2 levels of leaching : L_0=Unleached and L_1=Leached with water.

Leaching done in 1957 and then 1965.

Method of Application: Gypsum got ground before application. Paddy straw and Gypsum applied uniformly. Immediately after application, the plots got ploughed so as to thoroughly mix the straw or gypsum. After this leaching was started. The principle of leaching is that the plots should never get dry. when the plots tend to get dry. more water is added. Leaching will continue right upto the setting of monsoon. Leaching should start earlier but not later than Ist May.

3. DESIGN :

(i) Split plot. (ii) (a) 4 main plots/replication and 2 sub plots/main plot. (a) 50·29m. × 86.87m. (iii) 4. (iv) (a) 50·29m. × 10·06m. (b) 49·07m. × 8·84m. (v) 61cm. × 61cm (v) N.A.

4. GENERAL :

(i) Satisfactory. (ii) N.A. (iii) Yield of grain. (iv) (a) 1965 contd. (b) Yes. (c) Nil. (v) and (vi) Nil. (vii) In 1960 and 1961 expts conducted on Paddy. In *Rabi*, 1961 expt. conducted on *oats* During 1962—64 the expts conducted on wheat on the same set of plots.

5. RESULTS :

(i) 705 Kg/ha. (ii) (a) 705·9 Kg/ha. (b) 355·5 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
L_0	656	833	675	569	683
L_1	586	1204	717	367	726
Mean	621	1034	696	468	705

Crop :- Paddy (*Kharif*). **Ref :-P U 64(449).**

Site :- Govt. Reg. Agri. Res. Stn., Rudrapur. **Type :- 'CM'.**

Object :—To study the effect of N,P and dates of transplanting on the yield and *Khira* disease of Paddy.

1. BASAL CONDITIONS :

(i) (a) Paddy-Wheat. (b) & (c)N.A. (ii) Clay. (iii) As per treatments. (iv) (a) 1 ploughing by victory plough and 1 ploughing by Julandar plough each followed by planking. (b) Transplanting. (c) — (d) 23cm. × 15cm. (e) 2 (v) Nil. (vi) T. 21 (medium). (vii) Unirrigated. (viii) 2 weedings by *Khurpi*. (ix) N.A (x) 13·9; 26 9 and 2.10.64.

2. TREATMENTS :

Main-plot treatments :

3 dates of transplanting : D_1=2nd Aug., D_2=12th Aug. and D_3=22nd Aug.

Sub-plot treatments :

All combinations of (1) and (2)

(1) 3 levels of N : N_1=28, N_2=56 and N_3=84 Kg/ha.

(2) 3 levels of P_2O_5 : P_0=0, P_1=33·6 and P_2=50·4 Kg/ha.

3. DESIGN :

(i) Split-plot confd. (iii) 3 main-plot treatments/replication 3 blocks, main-plot treatments 3plots/block (iv) (a) 10.00m × 4.00m (b) 9.50m × 3.50m(v) 25cm. × 15cm. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Khaira disease (under study). (iii) Yield of grain. (iv) (a) 1964—only. (b) and (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 1276 Kg/ha. (ii) (a) 710.1 Kg/ha. (b) 406·0 Kh/ha. (iii) Main effect of D alone is highly significnt. (iv) Av. yield of grain in Kg/ha,

	P_0	P_1	P_2	D_1	D_2	D_3	Mean
N_1	1328	1200	1303	2313	1187	331	1277
N_2	1195	1332	1123	2318	1016	317	1217
N_3	1173	1083	1744	2386	1277	336	1333
Mean	1232	1205	1390	2339	1160	328	1276
D_1	2296	2212	2509				
D_2	1116	1053	1311				
D_3	284	350	350				

C.D. for D marginal means=409·7 Kg/ha.

Crop :- Paddy (*Kharif*). **Ref :- U.P. 61(465).**

Site :- Rice. Res. Sub-Stn., Tissuhi. **Type - 'CM'**

Object :—To investigate the optimum seed rate with different doses of N.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Linseed, (c) N.A. (ii) Clay loam. (iii) 7.8.61. (lv) (a) 5 ploughings. (b) Transplanting. (c) — (d) 23cm, × 15cm. (e) As per treatments. (v) N.A. (vi) and (vii) Irrigated. (viii) 2 weedings. (ix) N.A. (x) 8/10.12.61.

2. TREATMENTS :

Main-plot treatments :

4 levels of N : N_0=0, N_1=33·6, N_2=67·2 and N_3=100·8 Kg/ha.

Sub-plot trcatments :

4 seedling-rates : S_1=1, S_2=2, S_3=4, and S_4=6 seeding/hale.
N applied at top dressing.

3. DESIGN :

(i) Split-plot. (ii) 4 main plots/replication; 4 sub-plots/main-plot. (b) N.A. (iii) 3. (iv) (a) 5·49m. × 2·74m. (b) 4.88m. × 2 29m. (v) 30cm.X23cm. (vi) Yes,

4. GENERAL :

(i) Normal. (ii) N.A. (iii) Yield of grain. (iv) (a) 1961-only. (b) N.A. (c) Nil. (v) to (vii) Nil.

5. RESULTS:

(i) 1856 Kg/ha. (ii) (a) 688·5 Kg/ha. (b) 398·7 Kg/ha. (iii) Main effect of N is significant and that of S is highly significant. (iv) Av. yield of grain in Kg/ha.

	N_0	N_1	N_2	N_3	Mean
S_1	688	1345	1555	2123	1428
S_2	1166	1525	1943	2063	1674
S_3	1509	1913	1943	2810	2044
S_4	1674	2152	2451	2840	2279
Mean	1259	1734	1973	2459	1896

C.D. for N marginal means=687·8 Kg/ha.

C.D. for S marginal means=335·9 Kg/ha.

Crop :- Paddy (*Kharif*). **Ref :- U.P. 62(568), 63(679).**

Site :- Rice. Res. Sub-Stn., Tissuhi. **Type : 'CM'.**

Object :—To study the effect of levels of N, number of seedlings, dates of transplanting and spacings on the yield of Paddy.

1. BASAL CONDITIONS:

(i) (a) Wheat-Paddy. (b) Wheat. (c) N.A. (ii) Heavy Clay. (iii) As per treatments. (iv) (a) 4 ploughings by *deshi* plough. (b) Transplanting. (c) — (d) and (e) As per treatments. (v) Nil. (vi) Type-9. (vii) Irrigated. (viii) 2 weedings. (ix) N.A. (x) 25.11.62 to 5.12.62.; 10.12.63.

2. TREATMENTS :

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

(1) 3 levels of: N_0=0, N_1=44.8 and N_2=89.6 kg/ha.

(2) 3 levels of seedling : R_1=2, R_2=4 and R_3=6 seedlings/hole.

(3) 3 dates of transplanting : D_1=Ist week of July, D_2=3rd week of July and D_3=Ist week of August.

(4) 3 spacings : S_1=23cm×23cm ; S_2=23cm.×15cm. and S_3=15cm.×15cm.

3. DESIGN :

(i) 3^4 confd. (ii) (a) 9 plots/block; 9 blocks/replication. (b) N.A. (iii) 2. (iv) (a) N.A. (b) 8·23cm× 3·05m.; 8·23m,×4·27m. (v) N.A. (vi) Yes.

4. GENERAL:

(i) Satisfactory. (ii) Nil. (iii) Yield of grain. (iv) (a) 1962-65 (Data for 1964 and 65 N.A. (b) No. (c) Results of combined analysis have been presented under 5. Results. (v) Varanasi, Nawabgunj Kunraghat. Masodha. and Meerut. (vi) Nil. (vii) Error variances are heterogeneous. Interaction of R×S with years is absent while other Treatments×Years interactions are present.

5. RESULTS:

Pooled results:

(i) 613Kg/ha. (ii) 303·2Kg/ha. (based on 28 d.f. made up of interactions of R, D, S, N, R×D, R×N, N×D, N×S and D×S with years) (iii) Main effects of D and N are highly significant. and that of R is significant. (iv) Av. yield of grain in Kg/ha.

	R_1	R_2	R_3	S_1	S_2	S_3	D_1	D_2	D_3	Mean
N_0	457	562	513	478	517	538	567	568	398	511
N_1	548	668	698	583	627	704	651	712	551	638
N_2	601	678	792	670	654	747	759	707	545	690
Mean	535	636	668	577	599	663	659	682	498	613
D_1	574	669	754	609	692	676				
D_2	614	717	716	646	628	773				
D_3	418	522	554	476	477	541				

C D. for D, N or R marginal means=84·5 Kg/ha.

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	S_1	S_2	S_3	Mean
R_1	278	283	327	296
R_2	323	352	373	350
R_3	360	389	417	389
Mean	320	341	372	345

63(679)

	S_1	S_2	S_3	Mean
R_1	741	739	845	775
R_2	839	941	986	922
R_3	922	891	1028	947
Mean	834	856	953	881

Individual Results :

Treatment	R_1	R_2	R_3	Sig.	D_1	D_2	D_3	Sig.	S_1	S_2	S_3	Sig.
Year												
1962	296	350	389	**	346	405	283	**	320	341	372	**
1963	765	922	947	**	971	960	713	**	834	856	953	**
Pooled	535	606	668	*	659	682	498	**	577	599	663	N S.

N_0	N_1	N_2	Sig.	G.M.	S.E/Plot
154	391	489	**	345	63.0
867	885	892	N.S.	881	239.8
511	638	690	N.S.	613	303.2

Crop:- Paddy (*Kharif*). **Ref:- UP. 60(181).**

Site :- Govt. Reg. Agri. Res. Stn., Varanasi. **Type :- 'CM'.**

Object :—To determine the best seed-rate and time of sowing early Paddy under high and average fertility conditions

1. BASAL CONDITIONS:

( ) (a) to (c) N.A. (ii) Clayey loam. (iii) As per treatments. (iv) (a) N·A. (b) Broodcasting. (c) As per treatments (d) and (e) — (v) Nil. (vi) N 22(early) (vii) and (viii) N.A. (ix) 100·1om. (x) N.A.

2. TREATMENTS:

Main-plot treatments :

2 levels of fertility : F_1(Normal fertility)=28 Kg/ha, of N+28 Kg/ha. of P_2O_5 and F_2 (High fertility) 56 Kg/ha. of N+56 Kg/ha. of P_2O_5.

Sub-plot treatments :
All combinations of (1) and (2)
(1) 2 times of sowing : D_1=Normal date of sowing (4.7.60)and D_2=10 days later sowing date (16.7.60.)
(2) 3 seeds-rates : S_1=23·1, S_1=46·1 and S_3=69·2 Kg/ha.
No. other delails are available.

3. DESIGN

(i) Split-plot. (ii) (a) 2 main-plots/replication and 6 sub-plots/main-plot. (b) 17·37m.×52·73m. (iii) 4. (iv) (a) 9·14m.×9·14m. (b) 8 53m.×8·53m. (v) 30cm. alround the plots discarded. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Height of plant, No of tillers, No. of ear bearing, tillers, wt. of grain/plant and yield of grain. (iv) 1959-60. (b) N.A. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS:

(i) 1104 Kg/ha. (ii) (a) 252·6 Kg/ha. (b) 156·7 Kg/ha. (iii) Main effect of S alone is highly significant. (iv) Av. yield of grain in Kg/ha.

	D_1	D_2	S_1	S_2	S_3	Mean
F_1	1114	1096	913	1068	1333	1105
F_2	1034	1174	904	1106	1302	1104
Mean	1074	1174	908	1087	1318	1104
S_1	931	886				
S_2	1067	1107				
S_3	1224	1411				

C.D. for S marginal means=113·1 Kg/ha.

Crop :- Paddy (*Kharif*). **Ref :- U.P. 61(187), 62(194).**

Site :- Govt. Reg. Agri. Res. Stn., Varanasi. Type :- 'CM'

Object:—To determine the best seed-rate and time of sowing of early *Paddy* under high and average fertility conditions.

1. BASAL CONDITIONS:

(i) (a) to (c) N.A. (ii) Clay loam. (iii) As per treatments. (iv) (a) 2 hot weather cultivations and 2 ploughings. (b) Broadcasting. (d) and (e) — (v) 24·3 Kg/plot of compost, 92·2 Q/ha. of F.Y.M.; N.A. (vi) N 22 (Early). (vii) Irrigated. (viii) 2 weedings. (ix) 97·9cm. 96·9cm. (x) 27.9.61 and 10, 26.10.61; 19,21,29.10.1962.

2. TREATMENTS :

Main-plot treatments :
All combinations of (1) and 2.
(1) 2 levels of fertility : F_1 Normal fertility=28 Kg/ha. of N as A/S+28 Kg/ha. of P_2O_5 as super. and F_2 High fertility 56 Kg/ha. of N as A/S+56 of P_2O_5 as Super.
(2) 3 dates of sowings. D_1=20. 5.61 and Kg/ha 24.6.62; D_2=5.7.61 and 8.7.62 and D_3=20.7.61 and 23.7.62.

Sub plot treatments :

3 seed-rates : —S_1=22 4, S_2=44·8 and S_3=67·2 Kg/ha.

3. DESIGN :

(i) Split plot. (ii) (a) 6 main-plots/replication and 3 sub-plots/main-plot. (b) 12·19m.×72·54m.; N.A. (iii) 4. (iv) (a) and (b) 11·58m.×3 66m. (v) Nil. (vi) Yes.

4. GENERAL :

(i) Good. (ii) N.A. (iii) Yield of grain. (iv) (a) 1961 to 62. (b) Yes. (c) Results of combined analysis have been presented under 5. Results. (v) to (vi) Nil. (vii) Main-plot and sub-plot error variances are homogeneous and Treatments × Years interactions are present.

5. RESULTS :

Pooled results :

i) 1465 Kg/ha. (ii) (a) 1165·8 Kg/ha. (bosed on 5 d.f. made up of Treatments × Years interaction). (b) 347·1 Kg/ha. (bascd on 8 d.f. made up of Treatments × Years interaction). (iii) Main effect of S alone is highly significant. (iv) Av. yield of grain in Kg/ha.

	D_1	D_2	D_3	S_1	S_2	S_3	Mean
F_1	1606	1456	1214	1150	1411	1715	1425
F_2	1632	1554	1328	1276	1507	1731	1509
Mean	1619	1505	1271	1213	1459	1723	1465
S_1	1379	1239	1072				
S_2	1617	1471	1289				
S_3	1862	1804	1503				

C.D. for S marginal means=163·4 Kg/ha.

Individual results :

Treatment	F_1	F_2	Sig.	D_1	D_2	D_3	Sig.	S_1	S_2	S_3	Sig.	G.M.	S.E./plot (a)	(b)
Year 1961	1397	1680	**	1962	1470	1183	**	1229	1520	1866	**	1538	345·6	137·7
1962	1454	1330	N.S.	1277	1539	1369	N.S	1198	1398	1580	**	1392	343·0	111·7
Pooled	1425	1509	N.S.	1619	1505	1271	N.S.	1213	1459	1723	**	1465	1165·8	347·1

Crop :- Paddy (*Kharif*). **Ref :- U.P. 61(184).**

Site :- Govt. Reg. Agri. Res Stn., Varanasi: **Type .- 'CM'**

Object :—To determine the best time of transplanting and spacing of late Paddy under average and high. fertility.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Clayey loam. (iii) As per treatments. (iv) (a) N.A. (b) Transplanting. (c) N.A. (d) As per treatments. (e) 2. (v) Nil. (vi) T-9(Late). (vii) Irrigated. (viii) Weeding on 23.9.61. (ix) 97·9cm. (x) 7.12.61, 8.12.61 and 9.12.61.

2. TREATMENTS :

Main-plot treatments :

All combinations of (1) and (2)

(1) 2 levels of fertility : F_1 (Average fertility)=28 Kg/ha. of N as+28 Kgh/a. of P_2O_5 as Super and F_2(High fertility)=56 Kg/ha. of N as A/S+56 Kg/ha. of P_2O_5as Super .

(2) 3 dates of transplanting : T_1=15.7.61, T_2=22.7.61 and T_3=31.7.61.

Sub-plot treatments :

3 Spacings : S_1=23cm. ×23cm. S_2=23cm. ×15cm. and S_3=15cm. ×15cm.

Note : Super applied on 5.8.61. ½ dose of N applied on 5.8.61 and ½ dose on 22.9.61.

3. DESIGN:

(i) Split-plots. (ii) (a) 6 main plots/replication, 3 sub plots/main plot. (b) 12·19m.×72·54m. (iii) 4. (iv) (a) and (b) 11.58m.×3.66m. (v) Nil. (vi) Yes.

4. GENERAL:

(i) Good. (ii) Damage by rats. (iii) Yield of Paddy. (iv) (a) 1961-only. (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS:

(i) 3211 Kg/ha. (ii) (a) 590.7 Kg/ha. (b) 190.1 Kg/ha. (iii) Main effect of S is highly significant. (iv) Av. yield of grain in Kg/ha.

	T_1	T_2	T_3	S_1	S_2	S_3	Mean
F_1	3403	3330	3063	2952	3275	3568	3265
F_2	3554	2834	3078	2984	3104	3379	3156
Mean	3479	3082	3071	2968	3190	3474	3211
S_1	3263	2862	2779				
S_2	3454	3066	3069				
S_3	3738	3319	3364				

C.D. for T marginal means=363·3 Kg/ha.

C.D. for S marginal means=111·3 Kg/ha.

Crop :- Paddy (*Kharif*). **Ref :-U.P. 62(191).**

Site :. Govt. Reg. Agri. Res. Stn., Varanasi. **Type :-'CM'.**

Object :—To see the effect of different dates of planting, number of seedlings/hole and spacings on the yield of early Paddy at different levels of N.

1. BASAL CONDITIONS:

(i) (a) to (c) N.A. (ii) Loam. (iii) As per treatments. (iv) (a) 2 ploughings. (b) Transplanting. (c) — (d) and (e) As per treatments. (v) Nil. (vi) N. 22 (early). (vii) Nil. (viii) 2 weeding. (ix) 96·9cm. (x) 29/30.10.62.

2. TREATMENTS:

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

(1) 3 levels of N as A/S : N_0=0, N_1=44·8 and N_2=89·6 Kg/ha.

(2) 3 rates of transplanting : R_1=2, R_2=4 and R_3=6 seedlings/hole.

(3) 3 rates of transplanting : D_1=25.6,62, D_2=10.7.62 D_3=25.7.62.

(4) 3 spacing : S_1=23cm.×23cm., S_2=23cm.×15cm. and S_3=15cm.×15cm.

N applied on 21.8.62.

3. DESIGN:

(i) 3^4 confd. (ii) (a) 9 plots/block; 9 blocks/replication. (b) N. A. (iii) 1. (iv) (a) 7·31m.×5·49m. (b) 1/197·68 ha. (v) N.A. (vi) Yes.

4. GENERAL:

(i) Good. (ii) Nil. (iii) Yield of grain. (iv) (a) 1962-64 (Expt for 1963-N.A. Expt. modified in 1964) (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS:

(i) 1371 Kg/ha. (ii) 177·2 Kg/ha (iii) Main effects of N and D are highly significant. Main effect of R and interaction R×S, R×N and D×N are significant. (iv) Av. yield of grain in Kg/ha.

	D_1	D_2	D_3	S_1	S_2	S_3	N_0	N_1	N_2	Mean
R_1	966	1900	1043	1241	1417	1252	1072	1243	1595	1303
R_2	1072	2065	997	1373	1263	1498	1155	1524	1454	1378
R_3	1160	1988	1114	1357	1487	1447	1140	1509	1643	1431
Mean	1066	1984	1052	1324	1386	1399	1122	1425	1564	1371
N_0	905	1645	817	1094	1138	1135				
N_1	1043	2047	1186	1417	1364	1496				
N_2	1250	2260	1182	1461	1665	1566				
S_1	938	1937	1096							
S_2	1103	1994	1070							
S_3	1157	2021	1019							

C.D. for N or D or R marginal means=97.5 Kg/ha.

C.D. for the body of R×S or R×N or D×N tables=168 9 Kg/ha.

Crop :- Paddy *(Kharif)*. **Ref :- U.P. 64(195).**

Site :- Govt. Reg. Agri. Res Stn., Varanasi. **Type :- 'CM'.**

Object :—To see the effect of different cultural treatments and levels of N on the yield of early Paddy.

1. BASAL CONDITIONS :

(i) (a) Pea-Paddy. (b) Pea. (c) N.A. (ii) Heavy Loam. (iii) As per treatments. (iv) (a) One ploughing by senior care plough and two by *desi* plough. (b) Transplanting. (c) — (d) and (e) As per treatments (v) N.A. (vi) N. 22 (early) (vii) Irrigated. (viii) Weedings by *Khurpi* on 19.7.64 and 8 to 12.8 64. (ix) 95·3cm. (x) D_1& D_2 12/13.10.64 D_3=16.10.64.

2. TREATMENTS

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

(1) 3 levels of N: N_0=0, N_1=92·23Q/ha. of compost, and N_2=44·8 Kg/ha. of compost+44.8 Kg/ha. of N as A/S.

(2) 3 rates of seeding ; R_1=2, R_2=4 and R_3=6 seedlings/hole

(3) 3 rates of transplanting : D_1=11.7.64 D_2=21.7.64 and D_3=31.7.64.

(4) 3 spacings : S_1=23cm.×23cm. S_2=23cm.×15cm. and S_3=15cm.×15cm.

3. DESIGN :

(i) 3^4 confd. (ii) 9 plots/block; 9 blocks/replication. (b) N.A. (iii) 2. (iv) (a) 6·40m.×5·03m. (b) 5·64m. ×4·27m. (v) 38cm.×38cm. (vi) Yes.

4. GENERAL:

(i) Good. (ii) Nil. (iii) Yield of grain. (iv) 1962-64 (Experiment for 63 N.A. and modified in 64) (b) No. (c) Nil. (v) Nawabganj(Bareilly). (vi) Lodging after seed formation stage. (vii) Nil.

5. RESULTS:

(i) 1594 Kg/ha. (ii) 284·0 Kg/ha. (iii) Main effects of N, R, D and S are highly significant and interaction N×R is significant. (iv) Av. yield of grain in Kg/ha.

	R_1	R_2	R_3	D_1	D_2	D_3	S_1	S_2	S_3	Mean
N_0	1056	1428	1446	1723	1605	602	1154	1260	1516	1310
N_1	1410	1357	1553	1844	1741	734	1268	1328	1723	1440
N_2	1896	1986	2218	2378	2421	1300	1702	2004	2393	2033
Mean	1454	1590	1739	1982	1923	879	1375	1531	1878	1594
S_1	1284	1418	1422	1738	1736	650				
S_2	1419	1459	1714	1933	1789	871				
S_3	1660	1893	2080	2275	2243	1115				
D_1	1798	2041	2106							
D_2	1778	1942	2048							
D_3	786	787	1063							

C.D. for N,R,D or S marginal means=108·2 Kg/ha.

C.D. for body of N×R table=187·5 Kg/ha.

Crop :- Paddy (*Kharif*). **Ref:-U.P. 62(408).**

Site :- Govt. Re . Agri. Res. Stn., Varanasi. **Type :- 'CM'.**

Object :—To see the effect of different levels of N and cultural practices. on the yield of early Paddy.

1. BASAL CONDITIONS:

(i) (a) to (c) N.A. (ii) Loam. (iii) As per treatments. (iv) (a) 2 ploughings. (b) Transplanting. (c) — (d) and (e) As per treatments. (v) Nil. (vi) N. 22 (early). (vii) Nil. (viii) 2 weedings. (ix) 96·90cm. (x) 28.9.62 and 6.10.62.

2. TREATMENTS:

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

(1) 3 levels of N as A/S : N_0=0, N_1=44·8 and N_2=89·6 Kg/ha.

(2) 3 rates of transplanting : R_1=2, R_2=4 and R_3=6 seedlings/hole.

(3) 3 rates of transplanting : D_1=28.6.62, D_2=13.7.62, D_3=28.7.62.

(4) 3 spacing : S_1=23cm,×23cm. S_2=23cm.×15cm. S_3=15cm.×15cm.

3. DESIGN:

(i) 3^4 confd. (ii) (a) 9 plots/block; 9 blocks/replication. (b) N.A. (iii) 1. (iv) (a) 7.31m.×5·49m. (b) 1/197·68 ha. (v) N.A. (vi) Yes.

4. GENERAL:

(i) Good. (ii) Nil. (iii) Yield of grain. (iv) (a) 1962-only. (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS:

(i) 867 Kg/ha. (ii) 186.1 Kg/ha. (iii) Main effects of N and D are highly significant and interaetions N×R and N×D are significant. (iv) Av. yield of grain in Kg/ha.

	R_1	R_2	R_3	D_1	D_2	D_3	S_1	S_2	S_3	Mean
N_0	516	542	639	556	775	367	512	538	648	566
N_1	863	760	1017	887	1245	507	815	839	986	880
N_2	1162	1230	1034	1041	1614	810	1105	1193	1168	
Mean	847	844	910	828	1212	561	810	857	934	867
S_1	817	714	900	705	1184	542				
S_2	857	804	909	903	1182	485				
S_3	867	1015	920	876	1269	657				
D_1	804	780	900							
D_2	1162	1210	1263							
D_3	575	542	567							

C.D. for N or D marginal means=102·3 Kg/ha.

C.D. for body of N×D table=177·2 Kg/ha.

Crop :- Paddy (*Kharif*). **Ref :- U.P. 62(189).**

Site :- Govt. Reg. Agri. Res. Stn., Varanasi. **Type :- 'CM'.**

Object :—To see the effect of different cultural practices and levels of N on the yield of late Paddy.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Heavy Loam. (iii) As per treatments. (iv) (a) 2 ploughings. (c) — (d) and (e) As per treatments. (v) Nil. (vi) T-9 (late) (vii) Irrigated. (viii) 2 weedings (ix) 96.9 cm. (x) 13/14.12.62.

2. TREATMENTS :

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

(1) 3 levels of N as A/S : N_0=0, N_1=44·8 and N_2=89·6Kg/ha

(2) 3 rates of seedling : R_1=2, R_2=4 and R_3=6 seedlings/hole.

(3) 3 dates of transplanting : D_1=15.7.62, D_2=25.7.62 and D_3=13.8.62.

(4) 3 spacings : S_1=23cm.×23cm., S_2=23cm.×15cm. and S_3=15cm.×15cm.

N applied on 5.9.62.

3. DESIGN :

(i) 3^4 confd. (ii) (a) 9 plots/block; 9 blocks/replication. (b) N.A. (iii) 2. (iv) (a) 7.31m.×5.49m. (b) 5·64m.×4·27m. (v) N.A. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Nil. (iii) Yield of grain. (iv) (a) 1962-64 (Expt. for 63 N.A. Expt. modified in 1964). (b) No. (c) Nil (v) N.A. (vi) and (vii) Nil.

5. RESULTS:

(i) 3301 Kg/ha. (ii) 645·7 Kg/ha. (iii) Main effects of N, R and D are highly significant. (iv) Av. yield of grain in Kg/ha.

	R_1	R_2	R_3	D_1	D_2	D_3	S_1	S_2	S_3	Mean
N_0	2027	2323	2526	2547	2567	1762	2145	2362	2369	2292
N_1	3306	3551	4066	4283	3969	2671	3636	3597	3689	3641
N_2	3659	4022	4232	4405	4484	3025	4126	3890	3897	3971
Mean	2998	3298	3608	3345	3673	2486	3302	3283	3319	3301
S_1	3043	3332	3532	3692	3798	2417				
S_2	2960	3147	3743	3766	3602	2482				
S_3	2990	3417	3549	3777	3620	2558				
D_1	3537	3634	4063							
D_2	3408	3539	4073							
D_3	2048	2722	2687							

C.D. for N, R or D marginal means = 246·0 Kg/ha.

Crop :- Paddy (*Kharif*). **Ref :- U.P. 64(194).**

Site :- Govt. Reg. Agri Res. Stn., Varanasi. **Type :- 'CM'.**

Object :—To see the effect of different cultural practices and levels of N on the yield of late Paddy.

1. BASAL CONDITIONS :

(i) (a) Berseem-Paddy. (b) Berseem. (c) N.A. (ii) Heavy Loam. (iii) As per treatmeets. (iv) (a) One ploughing by senior care plough and 2 ploughing and pudling by *desi* plough. (b) Transplanting. (c) — (d) and (e) As per treatments. (v) N.A. (vi) T.9 (late). (vii) and (viii) N.A. (ix) 95·3cm. (x) N.A.

2. TREATMENTS :

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

(1) 3 levels of N : $N_0=0$, $N_1=44·8$ and $N_2=89·6$ Kg/ha.

(2) 3 levels of seedling : $R_1=2$, $R_2=4$ and $R_3=6$ seedings/hole.

(3) 3 dates of transplanting : $D_1=22.7.64$, $D_2=10.8.64$. and $D_3=21.8.64$,

(4) 3 spacing : $S_1=23cm.\times 23cm$, $S_2=23cm.\times 15cm$, and $S_3=15cm.\times 15cm$.

3. DESIGN

(i) 3^4 confd. (ii)(a) 9 plots/block: 9 blocks/replication. (b) 73·76m.×5·03m. (ii) 2. (iv) (a) 6·40m.×5·03m. (b) 5·64m.×4·27m. (v) 38cm.×38cm. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Late planting was affected by blast of paddy. (iii) Yield of grain. (iv) (a) 1964-only. (b) No (c) Nil. (v) Hardoi and Nawabganj (Bareilly). (vi) and (vii) Nil.

5. RESULTS :

(i) 2185 Kg/ha. (ii) 340.7 Kg/ha. (iii) Main effects of D, S and interaction N×D are highly significant. Interaction N×S is significant. (iv) Av. yield of grain in Kg/ha.

	R_1	R_2	R_3	D_1	D_2	D_3	S_1	S_2	S_3	Mean
N_0	2107	2191	2343	2669	2117	1854	2081	2109	2452	2214
N_1	2110	2227	2207	2578	2197	1769	1960	2148	2435	2181
N_2	2214	2104	2163	2826	1803	1852	2191	2087	2203	2160
Mean	2143	2174	2238	2691	2039	1825	2077	2115	2363	2185
S_1	2000	2036	2197	2524	2008	1700				
S_2	2076	2154	2114	2754	1879	1711				
S_3	2355	2332	2402	2795	2230	2065				
D_1	2710	2595	2768							
D_2	1943	2152	2021							
D_3	1777	1775	1924							

C.D. for D or S marginal means=129 8 Kg/ha.
C.D. for body of N×D or N×S tables=224·8 Kg/ha.

Crop :- Paddy (*Kharif*). **Ref :- U P. 62(409).**

Site :- Govt. Reg. Agri. Res. Stn., Varanasi. **Type :- 'CM'.**

Object :—To see the effect of N, dates of sowing, spacings and number of seedlings on the yield of late Paddy.

1. BASAL CONDITIONS :

(i) (a) to (c) N A. (ii) Loam. (iii) As per treatments. (iv) (a) 2 ploughings. (b) Transplantings. (c) — (d) and (e) As per treatments (v) Nil. (vi) T. 9 (late). (vii) Irrigated. (viii) One weeding. (ix) 96 9cm. (x) 13 12.62.

2. TREATMENTS ;

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

(1) 3 levels of N as A/S : N_0=0, N_1=44·8 and N_2=89·6 Kg/ha.

(2) 3 seedling rates : R_1=2, R_2=4 and R_3=6 seedlings/hole.

(3) 3 dates of transplanting : D_1=15.7.62, D_2=30 7.62 and D_3=16.8.62.

(4) 3 spacings : S_1=23cm.×23cm., S_2=23cm.×15cm. and S_3=15cm.×15cm.

N as A/S applied on 5.9.62.

3. DESIGN:

(i) 3⁴ confd. (ii) (a) 9 plots/block, 9 blocks/replication. (b) N.A. (iii) 1 (iv) (a) 7·31m.×5·49m. (b) 1/197·72 ha. (v) N.A. (vi) Yes.

4. GENERAL:

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

5. RESULTS:

(i) 1622 Kg/ha. (ii) 383·4 Kg/ha. (iii) Main effects of N and D are highly significant. (iv) Av. yield of grain in Kg/ha.

	D_1	D_2	D_0	S_1	S_2	S_3	N_0	N_1	N_2	Mean
R_1	1764	1735	929	1403	1564	1461	1096	1559	1772	1476
R_2	1781	1792	1215	1641	1537	1610	1186	1663	1939	1596
R_3	2027	1964	1395	1748	2023	1614	1316	2071	1999	1795
Mean	1857	1830	1179	1597	1708	1562	1199	1764	1903	1622
N_0	1305	1388	905	1085	1401	1111				
N_1	2106	1928	1258	1783	1784	1726				
N_2	2161	2174	1375	1924	1939	1847				
S_1	1761	1900	1131							
S_2	1977	1915	1232							
S_3	1834	1676	1175							

C.D. for N or D marginal means=210·9 Kg/ha.

Crop :- Paddy (*Kharif*). **Ref :- U.P. 61(190), 62(192).**

Site :- Govt. Reg. Agri. Res. Stn., Varanasi. **Type :- 'CM'.**

Object :—To study the residual effect of P manuring of legumes (gram and Pea) in Rabi and effect of direct application of N on Paddy during Kharif.

1. BASAL CONDITIONS :

(i) (a) Gram., Pea and fallow-Paddy. (b) and (c) As per treatments. (ii) Loam. (iii) N.A.; 22.6.1962 (a) N.A.; 3 ploughings. (b) Transplanting; Behind the plough. (c) —; 69·1 Kg/ha. (d) Rows 23cm.apart (e) N.A. (v) Nil. (vi) T.21. (vii) Irrigated; Nil. (viii) N.A. hoeing and weeding. (ix) 96·9cm, (x) N.A. 1 to 3 Nov., 1962.

2. TREATMENTS :

Main-plot treatments :

All combinations of (1) and (2)+1 fallow plot.

(1) 2 previous legumenous crops : L_1=gram and L_2=Pea.

(2) 2 levels of P_2O_5 applied to previous legumenous crops : P_0=0, P_1=44·8 and P_2=89·6 Kg/ha.

Sub-plot treatments :

3 levels of N : N_0=0, N_1=16·8 and N_2=33·6 Kg/ha.

3. DESIGN:

(i) Split-plot. (ii) (a) 7 main-plots/replication; 3 sub-plots/main-plot. (b) N.A. (iii) 3. (iv) (a) N.A. (b) 1/148·26 ha. (v) Yes.

4. GENERAL :

(i) Good, (ii) Nil. (iii) Yield of grain. (iv) (a) 1961-62. (b) Yes. (c) Nil. (v) and (vi) N.A. (viii) As the sub-plot error variances are heterogeneous, results of individual years, have been presented under 5. Results.

5. RESULTS :

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(i) 2286 Kg/ha. (ii) (a) 263·9 Kg/ha. (b) 263·0 Kg/ha. (iii) Main effect of N alone is highly significant. (iv) Av. yield of grain in Kg/ha.

Fallow : N_0=1994, N_1=2219 and N_2=2525 Kg/ha.

	P_0	P_1	P_2	N_0	N_1	N_2	Mean
L_1	2316	2404	2400	2195	2377	2548	2373
L_2	2499	2387	2422	2198	2525	2585	2436
Mean	2408	2395	2411	2197	2451	2567	2405
N_0	2089	2311	2190				
N_1	2523	2356	2474				
N_2	2611	2519	2568				

C.D. for N marginal means=179 5 Kg/ha.

52(192)

(i) 2112 Kg/ha. (ii) (a) 281·6 Kg/ha. (b) 180·3 Kg/ha. (iii) Main effect of N alone is highly significant. (iv) Av. yield of grain in Kg/ha.

Fallow : N_0=2266, N_1=2213 and N_2=2015 Kg/ha.

	P_0	P_1	P_2	N_0	N_1	N_2	Mean
L_1	2172	2084	2203	1847	2150	2462	2153
L_2	2072	2074	2013	1737	2056	2366	2053
Mean	2122	2079	2108	1792	2103	2414	2103
N_0	1852	1776	1748				
N_1	2114	2103	2092				
N_2	2400	2358	2484				

C.D. for N marginal means=123·1 Kg/ha.

Crop :- Paddy (*Kharif*). **Ref:-U.P. 65(47).**

Site :- Govt. Reg. Agri. Res. Stn., Varanasi. **Type :- 'CM'.**

Object :—To find out smtable spacing and manurial dose for Paddy.

1. BASAL CONDITIONS:

(i) (a) Nil. (b) Barley. (c) N.A. (ii) Loam. (iii) 18.7.65. (iv) (a) 3 ploughings, (b) Transplanting. (c)— (d) As per treatments. (e) 2. (v) 44·8 Kg/ha. of P_2O_5+44·8 Kg/ha. of K_2O. (vi) K-22(medium). (viii) Irrigated. (viii) Weeding by *Khurpi*. (ix) N.A. (x) 12.10.65.

2. TREATMENTS :

Main-plot treatments :

3 spacings : S_1=91cm.×91cm. S_2=137cm.×91cm. and S_3=183cm.×91cm.

Sub-plot traetments :

3 levels of N: N_1=44·8, N_2=89·6 and N_3=134·4 Kg/ha.

3. DESIGN :

(i) Split-plot. (ii) (a) 3 main-plot/replication; 3 sub-plots/main-plot. (b) N.A, (iii) 3. (iv) (a) and (b) 3·35m.×2·74m. (vi) Nil. (vi) Yes.

4. GENERAL:

(i) Good. (ii) Nil (iii) Yield of grain (iv) (a) 1965-only. (b) and (c) Nil. (v) to (vii) Nil.

5. RESULTS:

(i) 4041 Kg/ha. (ii) (a) 585·1 Kg/ha. (b) 391·1 Kg/ha. (iii) Main effect of N alone is highly significant. (iv) Av. yield of grain in Kg/ha.

	S_1	S_2	S_3	Mean
N_1	3900	3418	3341	3553
N_2	4552	4048	3646	4094
N_3	4791	4298	4342	4477
Mean	4414	3933	3776	4041

C.D. for N marginal means=401·6 Kg/ha.

Crop :- Paddy (*Kharif*). **Ref :- U.P. 65(49).**

Site :- Govt. Reg. Agri. Res. Stn., Varanasi. **Type :- 'CM'.**

Object :—To find out the factors contributing towards increased Paddy yield.

1. BASAL CONDITIONS :

(i) (a) to (c) As per treatments. (iii) Loam. (iii) 16.7.65. (iv) (a) One ploughing by seuior care plough and 2 ploughings by *desi* plough (b) Transplanting. (c) — (d) 15cm.×22cm. (e) 2. (v) Nil. (vi) N22(early). (vii) Irrigated. (viii) One weeding by Khurpi. (ix) N.A. (x) 11.10.65.

2. TREATMENTS :

Main-plot treatments :

3 previous crops : C_1=Barley, C_2=Pea and C_3=Berssem.

Sub-plot treatment :

3 levels of fertility : during previous *Rabi* reason : F_0=No manure, F_1=22·4 Kg/ha. of N+22·4 Kg/ha. of N+22.4 Kg/ha P_2O_5+22·4 Kg/ha. of K_2O+46·1 Q/ha. of F.Y.M. in case of Barley crop; otherwise F_1=5·6 Kg/ha. of N+28·0 Kg/ha. of P_2O_5 and F_2=44·8 Kg/ha. of N+44·8 Kg/ha. of P_2O_5+44·8 Kg/ha. of K_2O+92·2 Q/ha. of F.Y.M. in case of Barley crop; otherwise F_2=11·2 Kg/ha. of N+56·0 Kg/ha. of P_2O_5.

Sub-Sub-plots treatment :

3 levels of fertility for present Paddy crop : T_0=No manure, T_1=22·4 Kg/ha. of N+22·4 Kg/ha. of P_2O_5+ +22·4 Kg/ha. of K_2O+46·11 Q/ha. of F.Y.M. and $T_2=2\times T_1$.

3. DESIGN:

(i) Split-plot. (ii) (a) 3 main-plots/replication; 3 sub-plots/main-plot; 3 sub-sub-plots/sub-plots. (b) N.A. (iii) 4. (iv) (a) 7·62m.×3·20m. (b) 7·47m.×2·97m. (v) N.A. (vi) Yes.

4. GENERAL :

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

5. RESULTS :

(i) 2861 Kg/ha. (ii) (a) 361·6 Kg/ha. (b) 211·1 Kg/ha. (c) 181·1 Kg/ha. (iii) Main effects of F and T are highly significant. and that of C is significant. (iv) Av. yield of grain in Kg/ha.

	F_0	F_1	F_2	T_0	T_1	T_2	Mean
C_1	2547	2665	2817	2438	2665	2926	2676
C_2	2817	2896	3042	2619	2930	3197	2918
C_3	2880	2972	3104	2802	2964	3198	2988
Mean	2751	2844	2988	2619	2856	3107	2861
T_0	2520	2636	2702				
T_1	2764	2825	2978				
T_2	2969	3070	3282				

C.D. for C marginal means=208·5 Kg/ha.
C.D. for F marginal means=104·5 Kg/ha.
C.D. for T marginal means=85·7 Kg/ha.

Crop :- Paddy (*Kharif*). **Ref :- U.P. 64(M.A.E.).**

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

Object :—Type VII : To study the effect of manures and cultural practices on Paddy.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Loam. (iii) N.A. (iv) (a) to (e) N.A. (v) N.A. (vi) Ch-4. (vii) Irrigated. (viii) to (x) N.A.

2. TREATMENTS:

Main-plot treatments :

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

(1) 3 dates of planting : D_1=15 days before normal, D_2=Normal and D_3=15 days after normal.

(2) 3 spacings: S_1=15cm.×15cm., S_2=20cm.×20cm. and S_3=25cm.×25cm.

(3) 3 rates of planting : R_1=2, R_2=4 and R_3=6 seedings/hole.

Sub-plot treatments:

All combination of (1) and (2)

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

(2) 2 levels of P_2O_5 : P_0=0 and P_1=44·8 Kg/ha.

3. DESIGN

(i) Split-plot confd. (ii) (a) 4 sub-plots/main-plot, 9 main-plot/block, 3 blocks/replicotion. (b) N.A. (iii) 1 (iv) (a) 1/200 ha. (b) 1/250 ha. (v) N.A. (vi) Yes.

4. GENERAL:

(i) and (ii) N.A. (iii) Yield of grain. (iv) (a) 1964-only. (b) and (c) Nil. (v) N.A.

5. RESULTS :

(i) 2353 Kg/ha. (ii) (a) 767·3 Kg/ha. (b) 207·8 Kg/ha. (iii) Main effects of N and P are highly significant Interaction S×N is significant. (iv) Av. yield of grain in Kg/ha.

	D_1	D_2	D_3	R_1	R_2	R_3	S_1	S_2	S_3	N_0	N_1	Mean
P_0	2555	2472	1589	2004	2183	2428	2260	2295	2060	1788	2623	2205
P_1	2901	2761	1837	2321	2518	2660	2586	2588	2324	2150	2850	2500
Mean	2728	2617	1713	2163	2351	2544	2423	2442	2193	1969	2736	2353
N_0	2321	2219	1366	1753	1989	2164	2108	2071	1727			
N_1	3135	3014	2060	2573	2712	2924	2738	2812	2659			
S_1	2651	2639	1979	2396	2473	2400						
S_2	2743	3101	1482	1986	2477	2862						
S_3	2790	2110	1678	2106	2102	2370						
R_1	2420	2487	1581									
R_2	2601	2626	1826									
R_3	3163	2737	1732									

C.D. for N or P marginal means=80.6 Kg/ha.

C.D. for N means at the same level of S=139·6 Kg/ha.

C.D. for S means at the same level of N=272·3 Kg/ha.

Crop :- Paddy (*Kharif*). **Ref. :- U.P. 62(330), 63(360), 64(384).**

Site :- Deep water Paddy Res. Sub-Stn., Bansdih. **Type :- 'CMV'.**

Object :—To determine the optimum manurial and cultural requirement for Paddy with different levels of spacing and dates of transplanting with basal dressing of N with relected varieties of deep water Paddy.

1. BASAL CONDITIONS:

(i) (a) N.A. (b) Paddy. (c) N.A. (ii) Clay loam. (iii) As per treatments. (iv) (a) 4 ploughings and 2 diggings. (b) Transplanting. (c) — (d) As per treatments between rows and 25cm. between plants. (e) 4 to 5. (v) 16 Kg/ha. of N as A/S before transplanting. (vi) As per treatments. (vii) Irrigated. (viii) 2 to 3 hoeing and weedings. (ix) N.A. for 62 and 63; 155·8 cm. (x) Ist fortnight of Dec.

2. TREATMENTS :

Main-plots treatments :

All combinations of (1) and (2)

(1) 3 dates of transplanting: D_1=May, 31, D_2=June. 15 and D_3=June, 30.

(2) 3 varieties of Paddy : V_1=Gont, V_2=Dudhalchi and V_3=Saingar.

Sbb-plot treatments:

All combinations of (3) ond (4)

(3) 3 row-spacings : S_1=25cm.; S_2=35cm. and S_3=45cm.

(4) 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) Split-plot. (ii) (a) 9 main-plots/replication and 9 sub-plots/main-plot. (b) N.A. (iii) 2. (iv) (a) and (b) 5·49m. ×4 57m. (v) Nil. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Mild attack of stem and root borer, no control measures were taken. (iii) Yield of grain. (iv) (a) 1962—64. (b) Yes. (c) Nil. (v) No. (vi) Nil. (vii) As the sub-plot error variances are heterogeneous results of individual years have been presented under 5. Results.

5. RESULTS

62(330)

(i) 2667 Kg/ha. (ii) (a) 1194 Kg/ha. (b) 130.) Kg/ha. (iii) Main effect of D is highly significant. Interaction V×S is significant. (iv) Av. yield of grain in Kg/ha

	V_1	V_2	V_3	S_1	S_2	S_3	P_0	P_1	P_2	Mean
D_1	3522	3052	3104	3492	3474	2712	3363	3346	2970	3226
D_2	3378	2300	2474	2416	3157	2578	3118	2472	2561	2717
D_3	1586	2196	2395	2075	1952	2149	2370	2039	1768	2059
Mean	2829	2516	2658	2661	2861	2480	2950	2619	2433	2667
P_0	3235	2419	3196	2780	3432	2639				
P_1	2735	2809	2313	2687	2792	2378				
P_2	2515	2319	2464	2517	2359	2422				
S_1	2721	3027	2237							
S_2	2721	2647	3216							
S_3	3045	1874	2520							

C.D. for D marginal means=530·1 Kg/ha.
C.D. for V means at the same level of S=879·3 Kg/ha.
C.D. for S means at the same level of V=862·2 Kg/ha.

63(360)

(i) 2371 Kg/ha. (ii) (a) 1280 Kg/ha. (b) 770.7 Kg/ha. (iii) Main effect of V alone is significant. (iv) Av. yield of grain in Kg/ha.

	V_1	V_2	V_3	S_1	S_2	S_3	P_0	P_1	P_2	Mean
D_1	2935	2889	1936	2960	2533	2266	2771	2485	2503	2586
D_2	2946	2133	1676	2197	2207	2351	2165	2179	2412	2252
D_3	2204	2380	2238	2288	2421	2114	2304	2212	2305	2274
Mean	2695	2467	1950	2482	2387	2244	2413	2292	2407	2371
P_0	2968	2341	1932	2341	2596	2304				
P_1	2407	2439	2031	2428	2190	2259				
P_2	2711	2622	1887	2677	2375	2168				
S_1	3055	2579	1811							
S_2	2515	2542	2104							
S_3	2515	2281	1934							

C.D. for V marginal means=568 1 Kg/ha.

64(384)

(i) 996 Kg/ha. (ii) (a) 383·7 Kg/ha. (b) 398·7 Kg/ha. (iii) Main effects of D and S are highly significant. (iv) Av. yield of grain in Kg/ha.

	V_1	V_2	V_3	S_1	S_2	S_3	P_0	P_1	P_2	Mean
D_1	889	1284	1182	1142	1216	996	1304	1048	1002	1118
D_2	1025	1081	1035	1086	1216	839	1045	991	1106	1047
D_3	820	910	734	816	938	709	751	899	815	821
Mean	911	1092	984	1015	1124	848	1033	979	974	996
P_0	920	1159	1021	1085	1128	887				
P_1	904	1042	993	1050	1098	790				
P_2	910	1075	938	910	1146	867				
S_1	932	1212	902							
S_2	1068	1121	1182							
S_3	734	943	867							

C.D. for D marginal means=170·3 Kg/ha.

C.D. for S marginal means=152·7 Kg/ha.

Crop :- Paddy (*Kharif*). **Ref :- U.P. 64(214), 65(34).**

Site :- Govt. Reg. Agri. Res. Stn., Nawabganj. **Type :- 'CMV'.**

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

1. BASAL CONDITIONS:

(i) Nil; Paddy-wheat. (b) Wheat. (c) N.A. (ii) Clay-loam. (iii) 27/28.7.64; 31.7 and 1.8.65. (iv) (a) Summer ploughing, mixing of fertilizer in soil by *Kudali*; N.A. (b) Transplanting. (c) — (d) As per treatments. (e) 2. (v) Nil. (vi) As per treatments. (vii) Irrigated. (viii) N.A.; weeding by *Khurpi*. (ix) 91·3cm.; N.A. (x) 24·10 and 5.11.64; 28 to 30.10.65 and 12/13.11.65.

2. TREATMENTS:

Main-plotreatments :

All combinations of (1) and (2)

(1) 3 varieties of Paddy : V_1=K-22, V=T_3—3 and V_3=T - 21

(2) 3 spacing : S_1=23cm. × 23cm. S_2=15cm. × 15cm., and S_3=11·5cm. × 11·5cm.

Sub-plot treatments :

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

(1) 3 levels of N : N_1=34·0, N_2=68 0 and N_3=101·8 Kg/ha.

(2) 3 levels of P_2O_5 : P_1=16·8, P_2=34·0 and P_3=50·4 Kg/ha.

(3) 3 levels of K_2O : K_1=16·8, K_2=34·0 and K_3=50·4 Kg/ha.

3. DESING :

(i) Split-plot confd. (ii) (a) 9 main-plots/replication and 3 blocks/main-plot ; 9 sub-plots/main-plot. (b) N.A. (iii) 1, (iv) (a) and (b) 4·57m. × 5·49m. (v) Nil. (vi) Yes.

4. GENERAL:

(i) Good. (ii) Nil. (iii) Yield of grain. (iv) (a) 1964-65. (b) Yes. (c) Results of combined analysis have been presented under 5. Results. (v) and (vi) Nil. (vii) Main-plot and sub-plots error variances are homogeneous and Treatments × Years interactions are absent.

5. RESULTS :

Pooled results

(i) 2008 Kg/ha. (ii) a) 681·4 Kg/ha. (based on 40 d.f. made up of pooled error and Treatments × Years interactian) (b) 262·0 Kg/ha. (based on 348 d. f. made up of Pooled error and Treatments × Years interaction.) (iii) Main effects of V, S and N are highly significant, aud interactions V × N, N × P and N × K are significant. (iv) Av. yield of grain in Kg/ha.

	S_1	S_2	S_3	N_1	N_2	N_3	P_1	P_2	P_3	K_1	K_2	K_3	Mean
V_1	1498	2083	2157	1750	1930	2058	1886	1953	1899	1864	1961	1913	1913
V_2	1570	2007	2073	1671	1928	2050	1877	1863	1909	1887	1869	1894	1883
V_3	1933	2336	2413	1934	2241	2506	2204	2268	2209	2217	2213	2252	2227
Mean	1667	2142	2214	1785	2033	2205	1989	2028	2006	1989	2014	2020	2008
N_1	1606	2115	2247	1764	2065	2138	1999	1968	2001				
N_2	1692	2150	2201	1804	1966	2273	1980	2056	2007				
N_3	1702	2162	2195	1787	2069	2203	1989	2061	2009				
P_1	1631	2098	2239	1737	2003	2228							
P_2	1670	2166	2249	1768	2067	2250							
P_3	1699	2163	2155	1851	2029	2137							
K_1	1446	1880	2030										
K_2	1673	2228	2199										
K_3	1882	2319	2413										

C.D. for V or S marginal means=216·3 Kg/ha.

C.D. for N marginal means=80.7 Kg/ha.

C.D. for body of N×P or N×K table=139.7 Kg/ha.

C.D. for V maans at the same level of N=423·7 Kg/ha.

C.D. for N means at the same level of V=139·7 Kg/ha.

Individual results:

Treatmcnt	V_1	V_2	V_3	Sig.	S_1	S_2	S_3	Sig.	N_1	N_2	N_3	Sig.
Years												
1964	2145	2159	2456	*	1849	2434	2477	**	2008	2295	2457	**
1965	1681	1608	1999	**	1485	1851	1952	**	1563	1772	1953	**
Pooled	1913	1883	2227	**	1667	2142	2214	**	1785	2033	2205	**

P_1	P_2	P_3	Sig.	K_1	K_2	K_3	Sig	G.M.	S.E./plot (a)	(b)
2227	2291	2242	N.S.	2248	2252	2260	N.S.	2253	704·8	257·3
1752	1766	1770	N.S.	1731	1777	1780	N.S.	1763	745·3	269 0
1989	2028	2006	N S.	1989	2014	2020	N.S.	2008	681·4	262·0

Crop :- Paddy (*Kharif*). **Ref :- U.P. 64,65(M.A.E.).**

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

Object : Type XIII :—To study the effect of dates of planting of levels of N, P and K on different varieties of Paddy.

1. BASAL CONDITIONS:

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

2. TREATMENTS :

Main-plot treatments :

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

(1) 3 dates of sowing : D_1=Two weeks before normal date of planting, D_2=Normal date of planting and D_3=Two weeks after date of planting.

(2) 3 varieties : V_1=Local standard, V_2=Indica Jopanica-1 and V_3=Indica Japanica-2

(3) 3 levels of N : N_0=0, N_1=50 and N_2=100 Kg/ha.

Sub-plot treatments :

All combinations of (1) and (2)

(1) 2 levels of P_2O_5 : P_0=0 and P_1=70 Kg/ha.

(2) 2 levels of K_2O : K_0=0 and K_1=50 Kg/ha.

3. DESIGN :

(i) Split-plot confd. (ii) (a) 4 sub-plots/main-plots, 9 main-plots/block, 3 blocks/replication. (b) N.A. (iii) 1. (iv) (a) 1/200 ha. (b) 1/250 ha. (v) N.A. (vi) Yes.

4. GENERAL:

(i) and (ii) N.A. (iii) Yield of grain (iv) (a) 1954-65. (b) N.A. (c) Nil. (v) Nil. (vi) N.A (vii) Nil.

5. RESULTS:

1964

(i) to (iii) N.A. (iv) Av. yield of grain in Kg/ha.

Treatment	V_1	V_2	V_3	D_1	D_2	D_3	N_0	N_1	N_2	P_0	P_1
Mean yield	2656	5588	5040	4565	5144	3575	3760	4849	4671	4472	4384

K_0	K_1
4346	4510

1965

(i) to (iii) N.A. (iv) Av. yield of grain in Kg/ha.

Treatment	V_1	V_2	V_3	D_1	D_2	D_3	N_0	N_1	N_2	P_0	P_1
Mean yield	2813	2463	2443	2396	2949	2374	1831	2396	3472	2331	2815

K_0	K_1
2525	2621

Crop :- Paddy (*Kharif*). **Ref :- U.P. 64/55), 65(390).**

Site :- Central Rice. Res, Stn., Masodha. **Type :- 'I'**

Object :—To study the water requirements of Paddy based on soil moisture regime studies with flooding. and drainage at different stages of growth.

1. BASAL CONDITIONS :

(i) Nil. (b) Fallow; Pea. (c) Nil.; N.A. (ii) Loam to light loam; Sandy loam. (iii) 11.8.64; 6.8.65. (iv) (a) 2 ploughings/harrowings; N.A. (b) Transplanting. (c) — (d) 23cm.×15cm.; 23cm.×11cm. (e) 2 (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) T-9(late) (vii) Irrigated. (viii) Hoeings and weedinge. (ix) 43cm.; 91·4cm. (x) 2 to 4.12.64; 21 to 24.11.65.

2. TREATMENTS :

9 irrigational treatments :- I_0=Control (rainfed), I_1=flooded upto tillering stage and drainage at tillering I_2=flooded upto pre-heading stage and drainage at per heading, I_3=flooded upto pre-heading stage and drainage at tillering and at pre-heading, I_4=flooded upto milky stage and drainage at milky stage, I_5=flooded upto milky stage and drainage at tillering stage only, I_6=flooded upto milky stage and drainage at tillering and pre-heading stage, I_7=flooded upto maturity stage and no drainage and I_8= flooded upto maturity stage and drainage at maturity stage,

3. DESIGN :

(i) R.B.D. (ii) (a) 9. (b) 64·92m.×25·30m.; 67·0m.×12 0m. (iii) 4. (iv) (a) 10·97m.×8·23m.; 12·00m.× 7·00m. (b) 9·75m.×7 01m.; 11·50m.×6·50m. (v) 61cm.×61cm.; 25cm.×25cm. (vi) Yes.

4. GENERAL :

(i) Good. (ii) 5%B.H.C. dusting against Gundhi bug; Nil. (v) and (vi) Nil. (vii) As the experin ent is continued beyond 65 results of individual years have been presented under 5. Results.

5. RESULTS :

64(55)

(i) 2504 Kg/ha. (ii) 205·8 Kg/ha. (iii) Treatment differrnces are not significant. (iv) Av. yield of grain in Kg/ha.

Treatment	I_0	I_1	I_2	I_3	I_4	I_5	I_6	I_7	I_8
Av. yield	2481	2707	2503	2388	2594	2665	2431	2285	2479

65(390)

(i) 2335 Kg/ha. (ii) 322·8 Kg/ha. (iii) Treatment differences are not significant. (iv) Av. yield of grain in Kg/ha.

Treatment	I_0	I_1	I_2	I_3	I_4	I_5	I_6	I_7	I_8
Av. yield	2087	2310	2299	2422	2471	2617	2124	2221	2463

Crop :- Paddy (*Kharif*). **Ref :- U.P. 63(116), 64(132).**

Site :- Govt. Reg. Agri. Res. Stn., Hardoi. **Type :- 'IM'.**

Object : To study the residual effect of different levels of irrigation and fertility applied to previous Wheat crop.

1. BASAL CONDITIONS :

(i) (a) N.A. Early-Paddy-wheat. (b) Wheat. (c) As per treatments. (ii) Sandy loam. (iii) 23 to 26.6.63; 19 to 21.6.64. (iv) (a) N.A. (b) Transplanting. (c) N.A. (d) 23cm.×15cm. (e) 2 to 3. (v) N.A.;44 8 Kg/ha. of N as A/S. (vi) N-22(early). (vii) As per treatments. (viii) Hoeing; weeding by Paddy weeder and *Khurpi*. (ix) 60cm.; 54cm. (x) 23.9.63; 26/27.9.64.

2. TREATMENTS :

All combinations of (1) and (2)

(1) 3 levels of irrigations : I_1=1 irrigation after 3 weeks of sowing, I_2=2 irrigations-one irrigation after 3 weeks and the other after 6 weeks of sowing and I_3=3 irrigations at the intervals of 3, 6 and 9 weeks after sowing.

(2) 3 levels of fertilizers : F_0=Control, F_1=22·4 Kg/ha. of N+22·4 Kg/ha. of P_2O_5+22·4 Kg/ha. of K_2O 23·1 Q/ha. of compost. and F_2=2×F_1.

These treatments were applied to previous wheat crop.

3. DESIGN :

(i) Fact. in R.B.D. (ii) (a) 9. (b) N.A. (iii) 2. (iv) (a) and (b) 8·69m.×7·32m. (v) Nil. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Nil. (iii) Yield of grain. (iv) (a) 1963-64. (b) No. (c) Results of combined analysis have been presented under 5. Results. (v) and (vi) Nil. (vii) Error variances are homogeneous and Treatments×Years interaction is absent.

5. RESULTS :

Pooled results :

(i) 1437 Kg/ha, (ii) 554·0 Kg/ha. (based on 24 d.f. made up of Pooled error and Treatments×Years interaction). (iii) Only main effect of F is highly significant. (iv) Av. yield of grain in Kg/ha.

	F_0	F_1	F_2	Mean
I_1	928	1207	1880	1338
I_2	964	1506	2014	1495
I_3	854	1377	2199	1477
Mean	915	1363	2031	1437

C.D. for F marginal means=466·8 Kg/ha.

Individual resuits

Treatment	I_1	I_2	I_3	Sig.	F_0	F_1	F_2	Sig.	G.M.	S.E./plot
Year										
1963	1287	1574	1755	N.S.	769	1384	2463	*	1539	760·0
1964	1390	1416	1199	N.S.	1062	1343	1600	N.S.	1335	398·5
Pooled	1338	1495	1477	N.S.	915	1363	2031	**	1437	554·0

Crop :- Paddy (*Kharif*). **Ref :- U.P. 63(117), 64(133).**

Site :- Govt. Reg. Agri. Res. Stn., Hardoi. **Type :- 'IM'.**

Object : —To study the residual effect of different levels of irrigation and fertilty applied to Gram crop.

1. BASAL CONDITIONS :

(i) (a) Nil; Early Paddy-gram. (b) Gram. (c) As per treatments. (ii) Sandy loam. (iii) 23 to 26.6.63; 19 to 21.6.64. (iv) (a) N.A. (b) Transplanting. (c) N.A. (d) 23cm, × 15cm. (e) 2 to 3. (v) Nil; 44·8 Kg/ha. (vi) N22(early). (vii) Irrigated. (viii) Hoeing and weeding by Paddy weeder and *Khurpi*. (ix) 60cm; 54cm. (x) 23.9.63; 26/27.9.64.

2. TREATMENTS:

All combination of (1) and (2)

(1) 3 levels of irrigation : I_1=1 irrigation 6 week after sowing, I_2=2 irrigations— Ist after 6 week and 2nd afeter 9 weeks and I_3=3 irrigations at intervals of 3,6 and 9 weeks after sowing

(2) 3 levels of fertilizers : F_0=No fertilizer F_1=5·60 Kg/ha. of N+28·02 Kg/ha. of P_2O_5 and F_2=11·21 Kg/ha of N+56·04 Kg/ha. of P_2O_5.

These treatments applied to previous gram crop.

3. DESIGN :

(i) Fact. in R.B.D. (ii) (a) 9. (b) N.A. (iii) 2. (iv) (a) and (b) 8·69m × 7.31m. (v) Nil. (vi) Yes.

4. GENERAL :

(i) Good. (ii) N.A. (iii) Yield of grain. (iv) (a) 1963-64. (b) No. (c) Results of combined analysis have been presented under 5. Results. (v) and (vi) Nil. (vii) Error variances are homogeneous and Treatments × Years interaction is absent.

5. RESULTS :

Pooled results

(i) 1413 Kg/ha. (ii) 450·5 Kg/ha. (based on 24 d.f. made up of pooled error and Treatments × Years interaction). (iii) Main effect of F alone is highly significant. (iv) Av. yield af grain in Kg/ha.

	F_0	F_1	F_2	Mean
I_1	1066	1330	1868	1421
I_2	858	1341	1857	1352
I_3	842	1243	2313	1466
Mean	922	1305	2013	1413

C.D. for F means=379·6 Kg/ha.

Individual results :

Treatment	I_1	I_2	I_3	Sig.	F_0	F_1	F_2	Sig.	G.M.	S.E/plot
year 1963	1361	1652	1768	N.S.	952	1398	2431	**	1594	564·4
1964	1482	1052	1165	N.S.	892	1212	1595	*	1233	374·5
Pooled	1421	1352	1466	N.S	922	1305	2013	**	1413	450·5

Crop :- Paddy (*Kharif*). **Ref :- U.P. 63(118), 64(134).**

Site :- Govt Reg. Agri. Res. Stn., Hardoi. **Type :- 'IM'.**

Object :—To study the residual effect of different levels of irrigation and fertility applied to previous Pea crop.

1. BASAL CONDITIONS :

(i)(a) Nil; Paddy-Pea. (b) Pea. (c) As per treatments. (ii) Sandy loam. (iii) 23 to 26.6.63, 19 to 21.6.64. (iv) (a) N.A. (b) Transplanting. (c) N.A. (d) 23cm.×15cm. (e) 2 to 3. (v) N.A. (vi) N22 (early). (vii) Irrigted. (viii) Hoeing and weeding by Paddy weeder and by *Khurpi*. (ix) 60cm.×54cm. (x) 23.9.63; 26/27.9.64.

2. TREATMENTS :

All combinations of (1) and (2)

(1) 3 levels of irrigation : I_1=1 irrigation after 3 weeks of sowing, $I_2=I_1$+One irrigation after 6 weeks of sowing and $I_3=I_2$+One irrigation at milky stage.

(2) 3 levels of fertilizers : F_0=Control(no fertilizer) F_1=5·6 Kg/ha. of N+28·6 Kg/ha. of P_2O_5 and F_2=11·2 Kg/ha. of N+56·0 Kg/ha. of P_2O_5.

3. DESIGN :

(i) Fact. in R.B.D. (ii) (a) 9. (b) N.A. (iii) 2, (iv) (a) and (b) 8·69m.×7·32m. (v) Nil. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Nil. (iii) Yield of grain. (iv) (a) 1963-64. (b) N.A. (c) Results of combined analysis have been presented under 5. Results. (v) and (vi) N.A. (vii) Error variances are homogeneous and Treatment ×Years interaction is absent.

5. RESULTS:

Pooled results

(i) 2082 Kg/ha. (ii) 483·7 Kg/ha, (based on 24 d.f. made up of Pooled error and Treatments × Years interaction) (iii) Main effect of F alone is highly significant. (iv) Av. yield of grain in Kg/ha.

	F_0	F_1	F_2	Mean
I_1	1436	1939	2360	1912
I_2	1593	2097	2510	2067
I_3	1743	2325	2734	2267
Mean	1591	2120	2535	2082

C.D. for F marginal means=407·6 Kg/ha.

Individual results :

Treatment	I_1	I_2	I_3	Sig.	F_0	F_1	F_2	Sig.	G.M.	S.E./plot
Year										
1963	2410	2605	2746	N.S.	1818	2618	3326	**	2587	474·8
1964	1414	1529	1789	N.S.	1364	1623	1744	N.S.	1577	594·9
Pooled	1912	2067	2267	N.S.	1591	2120	2535	**	2082	483·7

Crop :- Paddy (*Kharif*). **Ref :-U.P. 64(557), 65(391).**

Site :- Govt. Agri. Res. Farm, Kalianpur. **Type :- 'IM'.**

Object :—To study the water requirement of irrigated Paddy in conjunction with levels of manuring.

1. BASAL CONDITIONS:

(i) (a) Nil. (b) Wheat; N.A. (c) N.A. (ii) Sandy loam.; Loam. (iii) 5.8.64; 10.8.65 (iv) (a) N.A. (b) Translanting. (c) N.A. (d) 23cm. × 15cm.; 23cm. × 11cm. (e) 2. (v) Nil. (vi) T-9(late). (vii) As per treatments. (vii) 2 to 3 weedings and earthings. (ix) 34·1cm.; 28·1cm. (x) 7.12.64; 4 12.65.

2. TREATMENTS:

Main-plot treatments :

3 levels of irrigation : I_0=No irrigation, I_1=1 irrigation 15 days after stoppage of rain and I_2=2 irrigations 15 and 30 days after stoppage of rain.

Seb-plot treatments :

3 levels of P_2O_5 as Super : P_0=0, P_1=22·4 and P_2=44·8 Kg/ha.

Sub-Sub-plot treatments :

5 levels of N as A/S : N_0=0, N_1=22·4, N_2=44·8, N_3=67·2 and N_4=89·6 Kg/ha.
P_2O_5 applied as soil application, ½ N at the time of sowing and ½ dose of N as top dressing.

3. DESIGN :

(i) Split-plot. (ii) (a) 3 main-plots/replication, 3 sub-plots/main-plot and 5 sub-sub-plots/sub-plot. (b) 97·20m × 29·50m.; 56.40m. × 48·80m. (iii) 2. (iv) (a) 9.20m. × 6.20m ; 9·00m. × 6·00m. (b) 8·75m. × 5·60m. 8·50m. × 5.50m. (v) 23cm. × 30cm.; 25cm × 25cm. (vi) Yes.

4. GENERAL :

(i) Satisfactory. (ii) Nil. (iii) Yield of grain. (iv) (a) 1964-contd. (b) No. (c) Nil. (v) and (vi) Nil. (vii) As the experiment is continued beyond 65, results of individual year have been presented under 5. Results.

5. RESULTS :

64(557)

(i) 2388 Kg/ha. (ii) (a) 208·0 Kg/ha. (b) 614·0 Kg/ha. (c) 325·2 Kg/ha. (iii) Main effect of N alone is highly significant. (iv) Av. yield of grain in Kg/ha.

	P_0	P_1	P_2	N_0	N_1	N_2	N_3	N_4	Mean
I_0	2534	2271	2410	1629	1781	2571	2889	3155	2405
I_1	4298	2534	2429	1638	1833	2454	3110	3398	2487
I_2	2249	2225	2346	1401	1847	2180	2935	3003	2273
Mean	2427	2343	2395	1556	1820	2402	2978	3185	2388
N_0	1456	1407	1605						
N_1	2053	1709	1699						
N_2	2413	2425	2367						
N_3	3126	2775	3034						
N_4	3087	3201	3269						

C.D. for N marginal means=219.9 Kg/ha.

65 (391)

(i) 2030 Kg/ha. (ii) (a) 239·5 Kg/ha. (b) 294·1 Kg/ha. (c) 318·0 Kg/ha. (iii) Main effect of N is highly significant and that of interaction I × N is significant. (iv) Av. yield of grain in Kg/ha.

	P_0	P_1	P_2	N_0	N_1	N_2	N_3	N_4	Mean
I_0	1897	2043	2060	1497	1790	1968	2307	2438	2000
I_1	2068	2152	2975	1679	2036	2360	2285	2132	2098
I_2	1946	2019	2013	1273	2057	1740	2342	2553	1993
Mean	1971	2071	2046	1483	1961	2023	2311	2374	2030
N_0	1437	1487	1526						
N_1	2039	1979	1864						
N_2	1922	2274	1872						
N_3	2160	2217	2556						
N_4	2296	2399	2428						

C.D. for N marginal means=215·0 Kg/ha.
C.D. for I means at the same level of N=405·4 Kg/ha.
C.D. for N means at the same level of I=372·4 Kg/ha.

Crop :- Paddy (*Kharif*). **Ref:- U.P. 65(400).**

Site :- Paddy Res. Sub-Stn., Kunraghat **Type :- 'IM'.**

Object :—To study the effect on early Paddy as affected by frequency and depth of irrigation.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Wheat. (c) N A. (ii) Sandy loam. (iii) 26.5.65. (iv) (a) 1 ploughing by victory plough & 3 to 4 ploughings by *deshi* plough. (b) Sown behind the plough. (c) 61·8 Kg/ha. (d) Rows 23cm. apart. (e) — (v) Nil (vi) N22 (early). (vii) As per treatments. (viii) 1 to 2 weedings and hoenigs. (ix) 66·4cm. (x) 3 to 17.9.65.

2. TREATMENTS:

Main-plot treatments :

Ali combinations of (1) and (2)

(1) 3 levels of irrigation : I_1=Irrigation after every 7th day, I_2=Irrigation after every 14th day and I_3=Irrigation after every 21st day.

(2) 3 depths of irrigation : D_1=5·1cm., D_2=7·6cm. and D_3=10·2cm.

Sub-plot treatments :

2 levels of fertility : F_1=28·0 Kg/ha. of N+22·4 Kg/ha. of P_2O_5 and F_2=56·0 Kg/ha, of N+44·8 Kg/ha. of P_2O_5.

N as A/S and P_2O_5 as Super. Super applied behind the plough at sowing time. ½ of N applied at the time of sowing and remaining ½ N applied at the time of tillering.

3. DESIGN:

(i) Split-plot. (ii) (b) 9 main-plots/replication, 2 sub-plots/main-plot. (b) N.A. (iii) 3. (iv) (a) N.A. (b) 7·40m. × 7·50m. (v) N.A. (vi) Yes.

4. GENERAL :

(i) Good. (ii) 5% B.H.C. applied to check *Gundhi* bug cresan line applied against Paddy blast. (iii) Yield of grain. (iv) (a) 1965-contd (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS:

(i) 1563 Kg/ha. (ii) (a) 523·4 Kg/ha. (b) 376·2 Kg/ha, (iii) None of the effects is significant. (iv) Av. yield of grain in Kg/ha.

	D_1	D_2	D_3	F_1	F_2	Mean
I_1	1528	1549	1808	1638	1620	1629
I_2	1670	1564	1649	1581	1674	1628
I_3	1342	1504	1553	1491	1375	1433
Mean	1513	1539	1637	1570	1556	1563
F_1	1571	1634	1505			
F_2	1455	1445	1768			

Crop :- Paddy (*Kharif*). **Ref :- U.P. 64(54).**

Site :- Instt. of Crop Physiology, Dilkusha, Lucknow. **Type :- 'IM'**

Object :—To study the effect of N given as soil application and applied as foliar spray on growth and yield of Paddy under rainfed conditions.

1. BASAL CONDITIONS:

(i) (a) to (c) N.A. (ii) Sandy loam to loam. (iii) to (vi) N.A. (vii) As per treatments. (viii) to (x) N.A.

2. TREATMENTS :

Main-plot treatments :

2 levels of irrigation : I_0=Unirrigated and I_1=Irrigated.

Sub-plot treatments :

6 manurial treatments : M_0=Control (water spraying), M_1=22·4 Kg/ha. of N applied as soil application, M_2=44·8 Kg/ha. of N applied as soil application, M_3=11·2 Kg/ha. of N applied as soil application+3 sprayings of 1% Urea solution to give in all 11·2 Kg/ha. of N, M_4=33·6 Kg/ha. of N applied as soil application+3 sprayings of 1% Urea solution to give in all 11·2 Kg/ha. of N and M_5=3 sprayings of 1% Urea solution to give in all 11·2 Kg/ha. of N.

3. DESIGN :

(i) Split-plot. (ii) (a) 2 main plots/replication; 6 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) 5·79m. ×4·88m. (b) 4·88m.×3·95m. (v) 46cm.×46cm. (vi) Yes.

4. GENERAL:

(i) Normal. (ii) N A. (iii) Yield of grain. (iv) (a) 1964-only. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 1652 Kg/ha. (ii) (a) 533·9 Kg/ha. (b) 314·6 Kg/ha. (iii) Main effect of M alone is highly significant. (iv) Av. yield of grain in Kg/ha.

	M_0	M_1	M_2	M_3	M_4	M_5	Mean
I_0	1122	1562	1774	1656	1562	1339	1502
I_1	1184	1691	2142	1840	2237	1719	1802
Mean	1153	1626	1958	1748	1900	1529	1652

C.D. for M marginal means=321·2 Kg/ha.

Crop :- Paddy (*Kharif*). **Ref :- U.P. 62(156) 63(155).**

Site :- Govt. Reg. Agri. Res. Stn., Nawabgunj. **Type :- 'IM'.**

Object—To determine the effects for maximising the production of Paddy.

1. BASAL CONDITIONS:

(i) (a) Pea-Paddy. (b) Pea. (c) As per treatments. (ii) Clay loam. (iii) 2.7.62; 24 to 26.6.64 (iv) (a) N.A (b) Transplanting. (c) N.A. (b) 23cm. ×15cm. (e) 3. (v) Nil. (vi) N-22 (early). (vii) As per treatments. (viii) 2 weedings. (ix) 161·9cm.; 81·7cm. (x) 28.9.62; 17 to 21.9.63.

2. TREATMENTS :

All combinations of (1) and (2)

(1) 3 levels of irrigations: I_1=One irrigation at transplanting, I_2=Two irrigations—Ist at transplanting and 2nd one month after transplanting and I_3=Three irrigations—Ist and 2nd at transplanting and one month after transplanting respectively and 3rd at milky stage.

(2) 3 levels of fertilizers : F_0=No fertilizer, F_1=22·4 Kg/ha. of N+22·4 Kg/ha. of P_2O_5+22·4 Kg/ha. of K_2O+46·1 Q/ha. of F.Y.M.+Residual effect of 5-6 Kg/ha. of N+28·0 Kg/ha. of P_2O_5 applied to previous Pea crop, F_2=44·8 Kg/ha of N+44·8 Kg/ha. of P_2O_5+44·8 Kg/ha. of K_2O+92·2 Kg/ha. of F.Y.M+Residual effect 11·2 Kg/ha. of N+56·0 Kg/ha. of P_2O_5 applied to previous Pea crop.

3. DESIGN :

(i) Fact. in R.B.D. (ii) (a) 9. (b) N.A. (iii) 2. (iv) (a) 7·31m. × 12·19m. (b) 6·40m. × 11·73m. (v) 46cm. × 23cm. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Nil. (iii) Yield of grain. (iv) (a) 1962 to 63. (b) Yes. (c) Results of combined analysis have been presented under 5. Results. (v) and (vi) Nil. (vii) Error variances are homogeneous and Treatments × Years interaction is absent.

5. RESULTS :

Pooled results :

(i) 1861 Kg/ha. (ii) 349.8 Kg/ha. (based on 24 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.

	F_1	F_2	F_3	Mean
I_1	1168	1840	1986	1831
I_2	1916	1707	2012	1878
I_3	1870	1765	1984	1873
	1818	1770	1994	1861

Individual results

Treatment	I_1	I_2	I_3	Sig.	F_1	F_2	F_3	Sig.	G.M.	S.E./plot.
Years 1962	1738	1674	1732	N.S.	1792	1602	1750	N.S	1715	475·2
1963	1925	2082	2014	N.S.	1844	1939	2238	N.S.	2007	322·3
Pooled	1831	1878	1873	N.S.	1818	1770	1994	N.S.	1861	349·8

Crop :- Paddy (*Kharif*). **Ref :- U.P. 62(157), 63(156).**

Site :- Govt. Reg. Agri. Res. Stn., Nawabgunj. **Type :- 'IM'.**

Object :—To determine the factors for maximizing production of Paddy.

1. BASAL CONDITIONS:

(i) (a) *Berseem*-Paddy. (b) *Berseem*. (c) As per treatments. (ii) Glay loam. (iii) 2 to 5.7.62; 24 to 26.6.63. (iv) (a) N.A. (b) Transplanting. (c) N.A. (d) 23cm.×15cm. (e) 3. (v) Nil. (vi) N-22 (early). (vii) As per treatments. (viii) Weeding by *khurpi*. (ix) 162cm. ; 81·8cm. (x) 28.9.62. ; 17 to 21.6.63.

2. TREATMENTS :

All combinations of (1) and (2)

(1) 3 levels of Irrigation : I_1=One irrigation at transplanting, I_2=Two irrigations—Ist at transplanting and 2nd One month after transplanting, I_3=Three irrigations—Ist and 2nd at transplanting and after one month of transplanting respectively and 3rd at milky stage.

(2) 3 levels of fertilizers : F_0=No ferlitizers, F_1=22·4 Kg/ha. of N+22·4 Kg/ha. of P_2O_5+22·4 Kg/ha. of K_2O+46·1 Q/ha. of F.Y.M.+Residual effect of 5-6 Kg/ha. of N+28·0 Kg/ha. of P_2O_5 applied to previous *Berseem* crop, F_2=44.8 Kg/ha. of N+44·8 Kg/ha. of P_2O_5+44·8 of K_2O+92·28 Kg/ha. of F.Y.M.+Residual effect of 11·2 Kg/ha. of N+56·0 Kg/ha. of P_2O_5 applied to previous *Berseem* crop.

3. DESIGN

(i) Fact. in R.B.D. (ii) (a) 9. (b) N.A. (iii) 2. (iv) (a) 7·31m.×12·19m. (b) 6·40m.×11·73m. (v) 45cm.×23cm. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Nil. (iii) Yield of grain. (iv) (a) 1962-63. (b) and (c) Nil. (v) and (vi) N.A. (vii) As the error variances are heterogeneous and Treatments×Years interaction is absent, the results of the individual years have been presented under 5. Results.

5. RESULTS:

62(157)

(i) 1483 Kg/ha. (ii) 470·9 Kg/ha. (iii) None of the effects is significant. (iv) Av. yield of grain in Kg/ha.

	F_0	F_1	F_2	Mean
I_1	1251	1392	1407	1350
I_2	1464	1600	1382	1482
I_3	1557	1512	1778	1616
Mean	1424	1501	1522	1483

63(156)

(i) 1614Kg/ha. (ii) 160·2Kg/ha. (ii) Main effect of F is highly significant and that of I and interaction I×F are highly significant. (iv) Av. yield of grain in Kg/ha.

	F_0	F_1	F_2	Mean
I_1	1646	1847	1926	1830
I_2	1647	1980	1834	1820
I_3	1576	2049	2651	2092
	1623	1959	2160	1914

C.D. for I marginal means=213·3 Kg/ha.
C.D. for body of table=369·4 Kg/ha.

Crop :- Paddy (*Kharif*). **Ref :- U.P. 62(158), 63(157).**

Site :- Govt. Reg. Agri. Res. Stn., Nawabgunj. Type :- 'IM'.

Object :— To determine the factors for maximizing production of Paddy

1. BASAL CONDITIONS :

(i) (a) Wheat-Paddy. (b) Wheat. (c) As per treatments. (ii) Clay loam. (iii) 2 to 5.7.62, 24 to 26 6.63. (iv) (a) N.A. (b) Transplanting (c) N.A. (d) 23cm.×15cm. (e) 3, (v) Nil. (vi) N-22 (early). (vii) As per treatments. (viii) Weedings. (ix) 162cm.; 81·7cm. (x) 28.9.62; 17 to 21.9.63.

2. TREATMENTS :

All combinations of (1) and (2)

(1) 3 levels of irrigations : I_1=One irrigation at the time of transplanting, I_2=Two irrigations—Firt at transplanting and Second one month after transplanting and I_3=Three irrigations : First at transplanting 2nd at one month after transplanting and third at milky stage.

(2) 3 levels of fertilizers : F_0=No fertilizers, F_1=22·4 Kg/ha. of N+22·4 Kg/ha. of P_2O_5+22·4 Kg/ha. of K_2O+46·11 Kg/ha. of F.Y.M.+Residual effect of the same amount of fertilizers and F.Y.M. applied to previous Wheat crop, F_2=44·8 Kg/ha. of N+44·8 Kg/ha. of P_2O_5+44 8 Kg/ha of K_2O+92·2 Q/ha. of F.Y.M+Residual effect of the same amount of fertilizers and F.Y.M. applied to previous Wheat crop.

3. DESIGN :

(i) Fact. in R.B.D. (ii) (a) 9. (b) N A. (iii) 2. (iv) (a) 7·31m.×12·19m. (b) 6·40m.×11·7·m. (v) 45cm.×23cm. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Nil. (iii) Yield of grain. (iv) (a) 1962-63. (b) Yes. (c) Results of combined analysis have been presented under 5. Results. (v) and (vi) Nil. (vii) Error variances are homogeneous and Treatments×Years interaction is absent.

5. RESULTS :

Pooled results

(i) 1760 Kg/ha. (ii) 320·2 Kg/ha. (based on 24 d. f. made up pooled error and Treatments×Years interaction). (iii) Only main effect of F alone is hihly sinificant. (iv) Av. yield of grain in Kg/ha.

	F_1	F_2	F_3	Mean
I_1	1442	1403	1974	1606
I_2	1391	1905	2137	1811
I_3	1717	1878	1996	1864
Mean	1517	1729	2036	1760

C.D. for F marginal means=269·8 Kg/ha.

Individual results

Treatments	I_1	I_2	I_3	Sig.	F_0	F_1	F_2	Sig.	G.M.	S.E./plot
Year 1962	1564	1592	1930	N.S.	1456	1628	2002	N.S.	1695	334·3
1963	1649	2031	1797	N.S.	1577	1830	2069	N.S.	1825	309·9
Pooled	1606	1811	1864	N.S.	1517	1729	2936	**	1760	322·2

Crop :- Paddy (*Kharif*). **Ref :- U.P. 64(56), 65(392).**

Site :- Govt. Agri. Farm, Rampur. **Type :- 'IM'.**

Object :—To study the water requirements of irrigated Paddy in conjunction with levels of manuring.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Bhat soil; N.A. (iii) 23 to 25.7.64; N.A. (iv) (a) 4 ploughings; N.A. (b) Transplanting. (c) to (e) N.A. (v) N.A.; Nil. (vi) T-9(late) (vii) As per treatments, (viii) Weeding; N.A. (ix) N.A. (x) 22.11.64; N.A.

2 TREATMENTS:

Main-plot treatments :

3 levels of irrigation : I_0=No irrigation, I_1=One irrigation 15 days after stoppage of rains and $I_2=I_1+$ One irrigation 30 days after stoppage of rains.

Sub-plot treatments :

3 levels of P_2O_5 as Super : $P_0=0$, $P_1=22{\cdot}4$, and $P_2=44{\cdot}8$ Kg/ha.

Sub-Sub-plot treatments:

5 levels of N as A/S : $N_0=0$, $N_1=22{\cdot}4$, $N_2=44\ 8$, $N_3=67{\cdot}2$ and $N_4=89{\cdot}6$ Kg/ha.

Super applied before puddling 1/2 of A/S applied before planting and 2 as top dressing.

3 DESIGN:

(i) Split-plot. (ii) (a) 3 main-plots/replication, 3 sub-plots/main-plot and 5 sub-sub-plots/sub-plot. (b) N.A. (iii) 2. (iv) (a) 10·57m.×6·71m.; 9·00m.×6·00m. (b) 9.75m.×579m.; 8·70m.×5·70m. (v) 46cm.×46cm.; 15cm.×15cm. (vi) Yes.

4. GENERAL :

(i) Normal. (ii) N.A. (iii) Yield of grain. (iv) (a) 1964-65. (b) No. (c) Nil. (v) Kalinpur. (vi) Nil. (vii) One replication was spoiled for which no reasons have been given in the records. Hence the experiment connot be analysed. Av. yield of grain based on one replication are therefore given below for the year 64.

5. RESULTS:

64(56)

(i) 1005 Kg/ha. (iv) Av. yield of grain in Kg/ha.

	P_0	P_1	P_2	N_0	N_1	N_2	N_3	N_4	Mean
I_0	876	1115	983	708	915	1106	1106	1106	991
I_1	974	1160	429	826	974	1210	1047	1047	1021
I_2	850	991	1168	797	1033	1033	1180	1003	1003
Mean	900	1089	1027	777	074	1106	1111	1057	1005
N_0	649	885	794						
N_1	870	1077	974						
N_2	1018	1210	1092						
N_3	1003	1136	1195						
N_4	959	1136	1077						

65(392)

(i) 1508 Kg/ha. (ii) (a) 814 9 Kg/ha. (b) 723·8 Kg/ha. (c) 215·1 Kg/ha. (iii) Main effect of N alone is highly significant. (iv) Av. yield of grain in Kg/ha.

	P_0	P_1	P_2	N_0	N_1	N_2	N_3	N_4	Mean
I_0	1744	1235	1235	1084	1353	1462	1664	1546	1422
I_1	1623	1502	1603	1193	1495	1445	1680	2067	1576
I_2	1593	1442	1541	1227	1358	1588	1655	1798	1525
Mean	1653	1393	1476	1170	1402	1498	1666	1804	1508
N_0	1260	1176	1067						
N_1	1479	1269	1459						
N_2	1613	1327	1554						
N_3	1848	1512	1638						
N_4	2067	1680	1664						

C.D. for N marginal means=145·5 Kg/ha.

Crop :- Paddy (*Kharif*). **Ref :- U.P. 61(63).**

Site :- Instt. of Crop Physiology, Dilkusha, Lucknow. **Type :- 'IMV'.**

Object : –To study the uptake of N at different growth phases by three varieties under varying levels of N and Irrigation.

1. BASAL CONDITIONS:

(i) (a) to (c) N.A. (ii) Sandy loam to loam. (iii) 28.7.61. (iv) (a) N.A. (b) Transplanting. (c) to (e) N.A. (v) 22·4 Kg/ha. of P_2O_5 as Super. (vi) and (vii) As per treatments. (viii) N.A.. (ix) 142cm. (x) N.A.

2. TREATMENTS:

Main-plot treatments :

2 levels of irrigation : I_0=No irrigation, I_1=Low irrigation (early 20 days) and I_2=High irriagation (early 10 days).

Sub-plot treatments :

All combinations of (1) and (2)

(1) 3 varieties: V_1=T 136, V_2=T_3 and V_3=T_9.

(2) 3 levels of N as A/S : N_0=0, N_1=28 and N_2=56 Kg/ha.

3. DESIGN

(i) Split-plot. (ii) (a) 3 main-plots/replication; 9 sub-plots/main-plot. (b) 20·42m.×48·46m. (iii) 3. (iv) (a) and (b) 5·79m.×4·57m. (v) Nil. (vi) Yes.

4. GENERAL :

(i) Normal. (ii) N.A. (iii) Yield of grain. (iv) (a) 1961-only. (b) No. (c) Nil. (v) and (vi) Nil. (vii) V_2 falied and has been excluded from the analysis.

5. RESULTS:

(i) 804 Kg/ha. (ii) (a) 255·4 Kg/ha. (b) 219·1 Kg/ha. (iii) Main effect of V and N are highly significant Interaction V × N is significant. (iv) Av. yield of grain in Kg/ha.

	V_1	V_2	N_0	N_1	N_2	Mean
I_0	1106	516	716	848	870	811
I_1	876	656	727	727	844	766
I_2	1048	624	584	808	1116	836
Mean	1010	599	676	794	943	804
N_0	771	580				
N_1	1050	538				
N_2	1209	678				

C.D. for N marginal means=149·1 Kg/ha.

C.D. for V marginal means=121·7 Kg/ha.

C.D. for body of V × N table=210·9 Kg/ha.

Crop :- Paddy (*Kharif*)..

Ref :- U.P. 63(463).

Site :- Central Rice. Res. Stn., Masodha.

Type :- 'IMV'.

Object :—To study the effect of doses of N, levels of irrigation and their interaction on growth, yield and nutrient uptake of 3 varieties of Paddy.

1. BASAL CONDITIONS:

(i) (a) Nil. (b) Pea. (c) Nil. (ii) Light loam (iii) July 63. (iv) (a) 1 ploughings by S.T.P and 3—4 ploughings by *Desi* plough. (b) Transplanting. (c) — (d) 23cm. × 15cm. (e) 2 seedlings/hole. (v) Nil. (vi) and (vii) As per treatments. (viii) N.A. (ix) 92·7cm. (x) Nov., 63.

2. TREATMENTS:

Main-plot treatments:

3 levels of irrigations : I_0 = No irrigation, I_1 = 2 Irrigations—10cm. depth for each irrigation and I_2 = 4 irrigations—10cm depth for each irrigation.

Sub-plot treatments

All combinations (1) and (2)

(1) 3 levels of N as A/S : N_0=0, N_1=44·8 and N_2=89 6 Kg/ha.

(2) 3 varieties : $V_1 = N_{22}$ (early), $V_2 = T_2$ (med.) and $V_3 = T_9$ (late).

3. DESIGN:

(i) Split-plot confd. (ii) (a) 3 main-plots/replication and 9 sub-plots/main-plot. (b) 73·46m. × 51·21m. (iii) 3. (iv) (a) and (b) 5·79m. × 4 88m. (v) Nil. (vi) Yes.

4 GENERAL :

(i) Satisfactory. (ii) N.A. (iii) Ht. of plant, No. of tllers/plant No, of levels/plant and Yield of grain. (iv) (a) 1962-63 (expt. failed in 1962). (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 1772 Kg/ha. (ii) (a) 288·4 Kg/ha. (b) 286·3 Kg/ha. (iii) Main effect of V and N are highly significant. (iv) Av. yield of grain in Kg/ha.

	V_1	V_2	V_3	N_0	N_1	N_2	Mean
I_0	1192	2335	1644	1355	1839	1977	1724
I_1	1192	2508	1866	1502	1988	2075	1855
I_2	1035	2325	1851	1371	1845	1994	1737
Mean	1139	2389	1787	1409	1891	2015	1772
N_0	889	1845	1495				
N_1	1209	2606	1856				
N_2	1302	2716	2010				

C.D. for V or N marginal means=158·0 Kg/ha.

Crop :- Paddy. (*Kharif*). **Ref :- U.P. 63(58).**

Site :- Instt. of Crop Physiology, Dilkusha, Lucknow. **Type :- ,IC'.**

Object :—To study the effect of pre-sowing treatment of Paddy seeds in inducing resistance to drought.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Gram. (c) N.A. (ii) Sandy loam to loam. (iii) 28-7.63. (iv) (a) N.A. (b) Transplanting. (c) N.A. (d) 23cm.×15cm. (e) 2. (v) 44·8 Kg/ha. of N as A/S+22·4 Kg/ha. of P_2O_5 as Super. (vi) T-103. (vii) As per treatments. (viii) N.A. (ix) 43cm. (x) 22.11.63.

2. TREATMENTS :

Main-plot treatments :

2 moisture levels : M_1= Normal water supply (moisture at alternate day) and M_2= Low water supply (moisture at eighth day).

Sub-plot treatments :

4 seed treatments : S_0=Control, S_1=Seeds exposed at 45°c for 6 days, S_2=seeds soaked in water for 2 days in 40—60% of their weight and dried in shade and S_3=Seeds soacked in 0·25% $Cacl_2$ for 24—36 hours.

3. DESIGN:

(i) Split-plot. (ii) (a) 2 main-plots/replication; 4 sub-plots/main-plot. (b) N.A. (iii) 6. (iv) (a) and (b) 2·74m.×2·13m. (v) Nil. (vi) Yes.

4. GENERAL :

(i) Normal. (ii) N.A. (iii) Yield of grain. (iv) (a) 1963 only. (b) No. (c) Nil. (v) and (v) Nil. (vii) Due to great plot-wise differences in yield the error variances is of very high order.

5. RESULTS:

(i) 886·0 Kg/ha. (ii) (a) 903·2 Kg/ha. (b) 414·0 Kg/ha. (iii) Only main effect of M is significant. (iv) Av. yield of grain in Kg/ha.

	S_0	S_1	S_2	S_3	Mean
M_1	1250	1122	1506	1279	1289
M_2	353	484	521	572	483
Mean	802	803	1014	926	886

C.D. for M marginal means=668·2 Kg/ha.

Crop :- Paddy (*Kharif*). **Ref :- U.P. 64(109).**

Site :- Allahabad Agri. Instt., Allahabad. **Type :- 'D'.**

Object :—To study the effect of Tok E-25 and D.P.A. used as herbicides in controlling weeds in Paddy.

1. BASAL CONDITIONS :

(a) to (c) N A. (ii) Clay-loam. (iii) 7.7.64. (iv) (a) N.A. (b) Sown with seed drill in maist soil. (c) 74 Kg/ha. (d) Rows 30cm. apart. (e) — (v) 44·8 Kg/ha. of N. (vi) Zenith. (vii) Irrigated. (viii) As per treatments. (ix) 58cm. (x) 10.10.64.

2. TREATMENTS :

6 weedicidal treatments : T_0=Unweeded control, T_1=Weeded control (weeded with *khurpi* T_2=Toke-25 applied as pre-emergence treatment at 2 2 Kg.a.i/ha., T_3=Toke-25 applied as pre-emergence treatment @4·5 Kg. a i/ha. T_4=D.P.A. applied as post-emergencs treatment at 4·5 Kg a.i /ha. and T_5=D.P. A. applied at post-emergnce treatment at6·7 a.i. Kg/ha.

Treatments T_2 and T_3 applied on 8.7.64 and treatments T_4 and T_5 applied on 29.7.64 and repeated on 30.7.64.

3. DESIGN :

(i) R.B.D. (ii) (a) 6. (b) 12 19m. × 17·53m. (iii) 3. (iv) 12·19m. × 2·29m. (b) 11·58m· × 1·52m. (v) 30cm. × 38cm. (vi) Yes.

4 GENERAL :

(i) Normal. (ii) N.A. (iii) Grain yield. (iv) (a) 1964-only. (b) No. (c) Nil. (v) No. (vi) Because of heavy rains immcdiately following appplication of D.P.A. on 29.7.64, treatment was repeated on 30.7.64.

5 RESULTS :

(i) 1064 Kg/ha. (ii) 221·4 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	T_5
Av. yield	682	969	789	897	1453	1597

C.D.=402·7 Kg/ha.

———

Crop :- Paddy (*Kharif*). **Ref :- U.P. 64(108).**

Site :- Allahabad Agri. Instt., Allahabad. **Type :- 'D'.**

Object :—To study the effect of D P.A. used as herbicide in controlling weeds in Paddy.

1. BASAL CONDITIONS:

(i) (a) to (c) N.A. (ii) Clay loam. (iii) 8.7.64. (iv) (a) N.A. (b) Sown with seed drill in moist soil. (c) 74·0 Kg/ha. (d) Rows 30cm. apart. (e) — (v) 22·4 Kg/ha. of N as A/S. (vi) Local. (vii) N A. (viii) Nil. (ix) 58cm. (x) 6.10.63.

2. TREATMENTS :

3 weedicidal treatments : T_0=Control (no weeding), T_1=D.P.A. applied @3·4 Kg a. i/ha. and T_2=D.P.A. applied @ 6·7 Kg a. i./ha.

D.P.A. (3,4 dichloropropinoanilide) applied as spray.

3. DESIGN :

(i) R.B.D. (ii) (a) 3. (b) 6·10m.×34·14m. (iii) 3. (iv) (a) 10·97m.×6·10m. (b) 10·36m.×5·49m. (v) 30cm.×30cm. (vi) Yes.

4. GENERAL:

(i) Satisfactory. (ii) N.A. (iii) Yield of grain. (iv) (a) No. (b) and (c) Nil. (v) No. (vi) N.A. (vii) Slight injury to rice plants was observed following application of treatments, espacially treatment No T_2.

5. RESULTS:

(i) 1964 Kg/ha. (ii) 175·9 Kg/ha. (iii) Treatment differences are highly significant (iv) Av. yield of grain in Kg/ha.

Treatment	T_0	T_1	T_2
Av. yield	1231	2286	2374

C.D.=398·7 Kg/ha.

———

Crop :- Paddy (*Kharif*). **Ref :- U.P. 64(110).**

Site :- Allahabad Agri. Instt., Allahabad. **Type :- 'D'**

Object :—To study the effect of Tok F-25 and D.P.A. used as herbicides in controlling weeds in Paddy broadcasted.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Clay loam. (iii) 7.7.64. (iv) (a) N.A. (b) Broadcasted in moist soil and mixed by running aspring. (c) 74 Kg/ha. (d) and (e) — (v) 44·8 Kg/ha. of N applied. (vi) Zenith. (viii) Irrigated. (viii) 'As per treatments' (ix) 58cm. (x) 10.10.64.

2. TREATMENTS :

6 weedicidal treatments : T_0=Unweeded Control, T_1=Weeded control (weeded with khurpi on 20.7.64& 30.7.64), T_2=Tok e-25 applied as pre-emergence treatment @ 2·2 Kg a. i/ha., T_3=Tok e-25 applied as pre-emergence treatment @ 4·5 Kg a. i/ha., T_4=D.P.A. applied as post-emergence treatment at 4·5 Kg a. i/ha. and T_5=D.P.A. applied as post- emergence treatment @ 6·7 Kg a. i /ha.

Treatments (2) and (3) applied on 8.7.64 and treatments (4) and (5) applied on 27.7.64.

3. DESIGN :

(i) R.B.D. (ii) (a) 6. (b) 12·19m.×17·53m. (iii) 3. (iv) (a) 12·19m.×2·29m. (b) 11·58m.×1·52m. (v) 30cm.×38cm. (vi) Yes.

4. GENERAL :

(i) Normal. (ii) N.A. (iii) Yield of grain. (iv) (a) 1964-only. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 1158 Kg/ha. (ii) 338·6 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	585	1322	1190	1114	1190	1548

Crop :- Paddy (*Kharif*). **Ref :- U P. 65(534).**

Site :- Allahabad Agri. Instt., Allahabad. **Type :- 'D'**

Object :—To see the effect of different herbicides for the control of weeds on Paddy.

1. BASAL CONDITIONS :

(i) to (c) N.A. (ii) Sandy loam. (iii) 9.7.65. (iv) (a) 2 ploughings and 1 harrowing. (b) Drilling. (c) 86·5 Kg/ha. (d) Rows 23cm. apart. (e) — (v) N.A. (vi) Local. (vii) Unirrigated. (viii) As per treatments. (ix) 14cm. (x) 13.10.65.

2. TREATMENTS :

9 weedicidal treatments : T_0=Unweeded control, T_1=Weeded control, T_2=D.P.A. at 6.84 Kg/ha., T_3=D.P.A. at 3·42 Kg/ha., T_4=D.P.A. at 3·42 Kg/ha.+Spantox at 0·57 Kg/ha., T_5=D.P.A. at 2·28 Kg/ha. +Toke-25 at 0·57 Kg/ha. T_6=D.P.A. at 2·28 Kg/ha.+Spontox at 0·57 Kg/ha., T_7=D P.A. at 1·71 Kg/ha.+Spontox at 0·57 Kg/ha. and T_8=Spontox at 0·57 Kg/ha.

D.P.A. as 3,4-dichloropropinanilide, ToKE-25 as 2,4 dichlorophenyl 4 nitrophenyl ether. and spontox is a mixture of 2,4-D and 2,4,5 trichlorophenoxy acetic acid.

3. DESIGN :

(i) R.B.D. (ii) 9. (b) 15·24m.×26·82m. (iii) 4. (iv) (a) 2·44m.×15·24m. (b) 1·83m.×14·63m, (v) 30cm. ×30cm, (vi) Yes.

4. GENERAL :

(i) Good. (ii) N.A. (iii) Yield of grain. (iv) (a) 1965-only. (b) N.A. (c) Nil. (v) and (vi) N.A. (vii) Nil.

5. RESULTS :

(i) 2282 Kg/ha. (ii) 594·0 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	T_6	T_7	T_8
Av. yield	2574	1387	3252	2509	2493	2373	2228	2228	1490

C.D.= 867·0 Kg/ha.

Crop :- Paddy (*Kharif*). **Ref :- U P. 63(367).**

Site :- Govt. Agri. Flood Res. Stn., Gogragbat. **Type :- 'D'**

Object : —To test the efficincey of different fingicides to control the foot rot of Paddy.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Sandy to sandy loam. (i)i) 7.7.63. (iv) (a) One ploughing by soil turning plough, one plough by desi plough and one by cultivator followed by planking with singh + Desi pata. (b) Behind the plough. (c) 33·6 Kgiha. (d) Rows 23cm. apart. (e) — (v) 44.8 Kg/ha. of N as A/S. (vi) Chakia 59 (late). (vii) Unirrigated. (viii) One hoeing by hand hoe and 1 weeding by *Khurpi*. (ix) 81·9cm. (x) 23.11 63.

2. TREATMENTS :

5 seed treatments : T_0=Control (2 plots), T_1=Seeds treatd with 1·0%formaline for 15minutes, T_2=Seed with dressing, with ceresan at 2.2gm./Kg of seed, T_3=Seed dressing with thiram at 2,2gm./ha. of seed and T_4=Seed dresing with Agrosan G.N. at 2·2 gm /Kg of seed.

3. DESIGN :

(i) R.B.D. (ii) (a) 6. (b) 18·29m.×14·94m· (iii) 4. (iv) (a) and (b) 8·84m.×4·57m. (v) Nil. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Attack of Paddy blast-Dusting by a mixture of ceresan and lime (1:6) @17 Kg/ha. on 6.9.63. (iii) Yield of grain. (iv) (a) 1962-only. (b) N.A. (c) Nil. (v) No. (vi) and (vii) Nil.

5. RESULTS :

(i) 1907 Kg/ha. (ii) 227·7 Kg/ha. (iii) Treatment differences are not significant. (iv) Av. yield of grain in Kg/ha.

Treatmant	T_0	T_1	T_2	T_3	T_4
Av. yield	1868	1840	2134	1799	1934

Crop. :- Paddy (*Kharif*). **Ref :- U.P. 61(27), 62(23), 63(15)64(15), 65(576).**

Site :- Usar Reclamation Farm, Chakeri, Kanpur. **Type :-'D'.**

Object :—To test the relative efficiency of different seed-dressing fungicides for the control of Paddy bliglt.

1. BASAL CONDITIONS :

(i) (a) Fallow-Paddy for 61 to 63 ; N.A. for others. (b) Fallow for 61 and 63 ; N.A. for others. (c) N.A. (ii) Usar from 61 to 64 and Loam for 65. (iii) 25.7.61/6.9.61; 16 6.62/28.7.62; 26.6.63/5.8.63; 7.7.64/21 8.64; 31 8.65. (iv) (a) N.A. (b) Transplanting. (c) N.A. (d) 30cm.×23cm. (e) 1 to 2. (v) N.A. (vi) T.9. (vii) Unirrigated for 65 and irrigated for others. (viii) N.A. (ix) 137cm.; 75cm.; 46cm. ; 66 cm. ; 41.4 cm. (x) 3rd week of Nov. 61; 3.12.62; 9.12.63; 3.12 64; 24.11 65.

2. TREATMENTS :

10 seed treatments : T_0=Control, T_1=New Improved ceresan at 0·07%, T_2=Ceresan at 0 22% T_3=Tillex at 0·20%, T_4=Phygon×L at 0·14%, T_5=Arasan at 0·28%, T_6=Spergan at 0·28%, T_7=Agrosan G. N. at 0·28%, T_8=Flit-406 at 0·22% and T_9=2%Ceresan at 0·22%

Seeds treated according to the dose of various fingicides by weight.

3. DESIGN :

(i) R.B.D. (ii) (a) 10 (b) 8·5m.×7·5m. for 65; N.A. for others (iii) 4. (iv) (a) 3·75m.×1·70m. for 65; N.A. for others (b) 3·05m.×1·22m. (v) 35cm.×24cm. for 65 ; N.A. for others. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Under study. (iii) Yield of grain. (iv) (a) 1961-65. (b) No. (c) Nil. (v) and (vi) Nil. (vii) As the error variances are heterogeneous and Treatment×Years interaction is absent, results of individual years have been presented under 5. Results.

5. RESULTS :

61(27)

(i) 2095 Kg/ha. (ii) 423 3 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	T_8	T_9
Av. yield	1743	2279	1913	2289	2083	1967	1945	2240	2395	2112

62(23)

(i) 8524 Kg/ha. (ii) 1018·2 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	T_5	T_6	T_7	T_8	T_9
Av. yield	7488	7679	7945	8668	8897	9089	8455	8665	9506	8894

63(15)

(i) 2298 Kg/ha. (ii) 506·7 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	T_5	T_6	T_7	T_8	T_9
Av. yield	1803	2220	2711	2126	2276	2846	1507	2355	2523	2620

C.D.=735 2 Kg/ha.

64(15)

(i) 4019 Kg/ha. (ii) 626·7 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	T_8	T_9
Av. yield of	3403	3986	3830	4153	4545	4486	3771	3576	4076	4365

65(576)

(i) 3888 Kg/ha, (ii) 568·7 Kg/ha. (iii) Treatment differences are not significant. (iv) Av. yield of grain in Kg/ha.

Treatment	w_0	T_1	T_2	T_3	T_4	T_5	T_6	T_7	T_8	T_9
Av. yield	3869	4012	3456	3967	3728	3445	4064	4346	3978	4011

Crop :- Paddy (*Kharif*). **Ref :- U.P. 63(68).**

Site :- Govt. Agri. College, Kanpur. **Type : 'D'.**

Object :- To test the efficacy of different seed-dressing fungicides on the germination of Paddy.

BASAL CONDITIONS :

(i) (a) and (b) Nil. (ii) Sandy loam. (iii) to (viii) N.A. (ix) 46·0cm. (x) N.A.

2. TREATMENTS :

6 seed treatments : F_0=Control, F_1=Ceresan, F_2=Hexasan, F_3=Thiram, F_4=Flit 406 and F_5=Agrosan G.N.

3. DESIGN:

(i) R.B.D. (ii) (a) 6. (b) N.A. (iii) 2. (iv) and (v) N.A. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Garmination percentage. (iv) (a) 1963-only. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS:

I Sowing

(i) 58·01 degrees. (ii) 2·39 degrees. (iii) Treatments differences are not significant. (iv) Mean germination in degrees.

Treatment	F_0	F_1	F_2	F_3	F_4	F_5
Mean angle	59·17	55·53	61·64	58·38	54·38	58·96
Transformed values (%)	73·73	67·97	77·43	72·51	68·08	73·41

II Sowing

(i) 46·78 degrees. (ii) 7·96 degrees. (iii) Treatment differences are highly significant. (iv) Mean germination in degrees.

Treatment	F_0	F_1	F_2	F_3	F_4	F_5
Mean angle	48·42	51·38	66·64	34·76	31·61	47·88
			C.D.=20·46 degrees			
Transformed values (%)	55·95	61·05	84·28	32·50	27·47	55·02

Crop :- Paddy (*Kharif*). **Ref :- U.P. 63(546).**

Site :- Student's Instructional Farm, Kanpur **Type :- 'D'.**

Object :—To study the effect of certain Insecticides to control the Paddy Gundhy bug.

1. BASAL CONDITIONS:

(i) (a) to (c) N.A. (ii) N.A. (iii) 20.7.63. (iv) (a) to (d) N.A. (e) — (v) N.A. (vi) Vishnupurag. (vii) and (viii) N.A. (ix) 46·3cm. (x) N.A.

2. TREATMENTS :

5 insecticidal treatmetns : T_0=Control, T_1=560 litres/hr. of 0·3% D.D.T. emulsion, T_2=560 litres/ha. 0·15% vieldrin emulsion, T_3=28 Kg/ha. of 5·5% Aldrindust, T_4=28 Kg/ha of 5%B.H.C. dust.

Date of application 22.9.63.

3. DESIGN :

(i) R.B.D. (ii) (a) 5. (b) N.A. (iii) 4. (iv) (a) 10·06m.×10·06m. (b) 9·45m.×9·45m. (v) 30cm.×30cm. (vi) Yes.

4. GENERAL :

(i) Good. (ii) N.A. (iii) % of insact population after application of treatments. (iv) (a) 1963-only. (b) and (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 27·37 degrees. (ii) 3·25 degrees. (iii) Treatment differences are highly significant. (iv) Mean % of inscet population in degrees.

Treatment	T_0	T_1	T_2	T_3	T_4
Mean angle	62·92	25·90	21·97	14·89	11·18

C.D.=5·01 degrees

Crop :- Paddy (*Kharif*). **Ref :- U.P. 64(64)**

Site :- Govt. Res. Farm, Kanpur. **Type :- 'D'.**

Object :—To study the effect of different seed dressing fungicides on the germination and stand of Paddy.

1. BASAL CONDITIONS:

(i) (a) to (c) N.A. (ii) Sandy loam. (iii) 5.6.64. (iv) (a) N.A. (b) Line sowing. (c) 50 seeds/row. (d) and (e) N.A. (v) to (viii) N.A. (ix) 67.0cm. (x) N.A.

2. TREATMENTS :

All combinations of (1) and (2)+a Control

(1) 4 fungcides : F_1=Agrosan G.N. at 0·28%, F_2=Flit-406 at 0·20% F_3=Thiran at 0.28% and F_4=Cereson at 0·33%.

(2) 3 times of seed treatment : T_1=,Same day of sowing, T_2=One week before sowing and T_3=Two weeks before sowing.

3. DESIGN :

(i) Fact. in R.B.D. (ii) (a) 13. (b) N.A. (iii) 4. (iv) (a) and (b) N.A. (v) Nil. (vi) Yes.

4. GENERAL:

(i) and (ii) N.A. (iii) Germination and plant stand. (iv) (a) 1964-only. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

Germination

(i) 58·84 degrees. (ii) 2·25 degrees. (iii) All the effects are highly significant. (iv) Mean germination in degrees.

Control=51·16 degrees.

	F_1	F_2	F_3	F_4	Mean
T_1	75·35	57·45	74·85	71·60	69·82
T_2	53·16	55·57	61·74	57 80	57·07
T_3	56·18	46·72	49·90	53·50	51·56
Mean	61·56	53·25	62·16	60·95	59·48

C.D. for T marginal means=1·61 degrees.

C.D. for F marginal means=1·85 degrees.

C.D. for the body of F T×F table=3·21 degrees.

C.D. for 'control vs others'=2·37 degrees.

Plant stand.

(i) 58·84 degrees. (ii) 8·97 degrees. (iii) Main effect of T alone is highly significant. (iv) Av. stand in degrees.

Control=49·90 degree.

	F_1	F_2	F_3	F_4	Mean
T_1	74·85	57·13	74·19	71·60	69·44
T_2	52·57	54·68	60·71	57·80	56·44
T_3	56·18	46·72	49·91	53·44	51·56
Mean	61·20	52·84	61·60	60·95	59·51

C.D. for T marginal means=6·43 degrees.

Crop :- Paddy (*Kharif*). **Ref :- U.P. 65(579).**

Site :- Govt. Res. Farm, Kanpur. **Type :- 'D'.**

Object :—To test tha efficiency of organo-mercurial, copper and carbonate compounds to control the blast disease of Paddy.

1. BASAL CONDITIONS:

(i) (a) to (c) N.A (ii) Loam. (iii) 16.8.65. (iv) (a) N.A. (b) In lines. (c) N.A. (d) Rows 30cm. apart. (e) 2. (v) N.A. (vi) T-9. (vii) Unirrigated. (viii) N.A. (ix) 41·4cm. (x) 22.11.65.

2. TREATMENTS:

All combinations of (1) and (2)+Control (4 plots)

(1) 4 chemical spray : T_1=5% coppersan, T_2=0 2% Dithane Z-78, T_3=0·2% cereson and T_4=Flit 406.

(2) 3 frequencies of sprayings : F_1=1, F_2=2 and T_3=3 sprayings.

3. DESIGN:

(i) Fact. in R.B.D. (ii) (a) 16, (b) 26.50m×3.00m (iii) 3. (iv) (a) 3·50m.×1·75m. (b) 3·00m.×1·25m. (v) 25cm.×25cm. (vi) Yes.

4. GENERAL :

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

5. RESULTS:

(i) 4212 Kg/ha. (ii) 396·0 Kg/ha. (iii) None of the effects is significant. (iv) Av. yield of grain in Kg/ha.

Control=4290 Kg/ha.

	T_1	T_2	T_3	T_4	Mean
F_1	4273	4519	4455	3750	4249
F_2	3661	4296	4155	4330	4110
F_3	4126	4394	3851	4409	4195
Mean	4020	4403	4151	4163	4185

Crop :- Paddy (*Kharif*). **Ref :- U.P. 64(44), 65(389).**

Site :- Govt. Res. Farm, Kanpur. **Type :- 'D'.**

Object :—To study the control of weeds in Paddy crop.

1. BASAL CONDITIONS:

(i) (a) N.A. (b) Dhaincha; pea. (c) N.A. (ii) Sandy loam. (iii) 7.8.64; 17.8.65. (iv) (a) One ploughing with V.P.+2 ploughings with D.P. (b) Transplanting. (c) N.A. (d) 23cm.×15cm.; 25cm.×15cm. (e) 2. (v) 30cm. high Dhaincha as G.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 N as A/S top dressed. (vi) T-9(late). (vii) Irrigated. (viii) As per treatments. (ix) 39cm.; 28cm. (x) 16 and 17.12.64; 24.11.65.

2. TREATMENTS

All combinations of (1) and (2)

(1) 2 levels of weeding : H_0=No weeding and H_1=Hand weeding after 4 weeks of transplanting.

(2) 6 weedicides : W_0=No weedicides, W_1=2·24 a. e/ha. of E.P.T.C. as Eptam, applied as pre-transplanting treatment, W_2=1·12 Kg/ha. a. e./ha. of sodium salt of 2,4-D applied as post emergence, 6 week after transplanting, W_3=1·12 Kg a. e./ha. of Ester 2,4-D as planotox applied as post emergence, 6 weeks after tranplanting, W_4=1·12 Kg a. e./ha. of 2,4-D+2,4-5-T as spontox applied as post emergence, 6 weeks after transplanting and W_5=1·12 Kg a. e./ha. of Amine 2,4-D as Bladex-G applied as post emergence, 6 week after transplanting.

3. DESIGN:

(i) Fact in R.B.D. (ii) (a) 12. (b) 22m.×15m. (iii) 4. (iv) (a) 5·2m.×4·7m. (b) 4·6m.×4·1m.; 4·2m.×3·7m. (v) 30cm.×30cm.; 50cm.×50cm. (vi) Yes.

4. GENERAL

(i) Good. (ii) Nil. (iii) Yield of grain. (iv) (a) 1964-65. (b) No. (c) Results of combined analysis have been presented under 5. Results. (v) and (vi) Nil. (vii) Error variances are homogeneous and Treatments ×Years interaction is absent.

5. RESULTS :

Pooled results

(i) 1718 Kg/ha. (ii) 401·8 Kg/ha. (based on 77 d.f. made up of pooled error and Treatments×Years interaction). (iii) Only main effect of H is highly significant. (iv) Av. yield of grain in Kg/ha,

	W_0	W_1	W_2	W_3	W_4	W_5	Mean
H_0	1286	1603	1696	1811	1523	1644	1594
H_1	1672	1946	1775	1996	1812	1856	1843
Mean	1479	1774	1735	1903	1667	1750	1718

C.D. for H marginal means=231·3 Kg/ha.

Individual results :

Treatment	W_0	W_1	W_2	W_3	W_4	W_5	Sig.	H_0	H_1	Sig.	G. M.	S.E./plot
Years												
1964	1476	1644	1642	1639	1782	1720	N.S	1418	1883	**	1651	377.2
1965	1482	1904	1830	2168	1552	1779	**	1770	1802	N.S.	1786	391.2
Pooled	1479	1774	1736	1903	1667	1750	N.S.	1594	1843	**	1718	401.8

Crop :- Paddy (*Kharif*). **Ref :- U.P. 63(57).**

Site :- Instt. of crop Physiology, Dilkusha, Lucknow. **Type :- 'D'**

Object :—To study the effectiveness of certain hormonal herbicides for the contol of weeds in Paddy.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A, (ii) Sandy loam to loam. (iii) 6.7.63. (iv) (a) N.A. (b) Broadcast. (c) to (e) N.A. (v) N.A. (vi) N.22 (early). (vii) N.A. (viii) As per treatments. (ix) 52cm. (x) N.A.

2. TREATMENTS :

8 weedicidal treatments : W_0=Control, W_1=2 Hand weedings, W_2=2,4-D as Bladex-G @ 2·47 pint/ha. W_3=Spontox @ 0·84 Kg/ha., W_4=Tafazine 50W @ 2·47 Kg/ha. (per-emergence) W_5=Tafazine 50w @ 2·47 Kg/ha(post-emergeuce), W_6=Tafapon @ 2·47 Kg/ha. (pre-emergence) and W_7=Planotox @ 2·47 pint/ha.

3. DESIGN :

(i) R.B.D. (ii) (a) 8. (b) 19·20 m.×27·74m. (iii) 4. (iv) (a) 3·96m.×3·20m. (b) 3·05m.×2·29m. (v) 46cm.×46cm. (vi) Yes.

4. GENERAL :

(i) Good. (ii) N.A. (iii) Yield of grain. (iv) (a) 1962-63(modified in 1963). (b) No. (c) Nil. (v) and (vii) Nil.

5. RESULTS :

(i) 1332 Kg/ha, (ii) 313·8 Kg/ha. (iii) Treatment differences are highly significant. (iv) Av. yield of grain in Kg/ha.

Treatment	W_0	W_1	W_2	W_3	W_4	W_5	W_6	W_7
Av. yield	1076	1794	1507	1758	1256	1005	897	1363

C.D.=461·5 Kg/ha.

Crop :- Paddy (*Kharif*). **Ref :-U.P. 62(48).**

Site :- Instt. of crop Physiology, Dilkusha, Lucknow. **Type :- 'D'.**

Object :—To study the effect of harmonal herbicides on weeds in Paddy. crop.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Sandy loam to loam. (iii) to (vii) N.A. (viii) As per treatments. (ix) 93·0cm. (x) N.A.

2. TREATMENTS :

6 weedicidal treatments : W_0=Control (unweeded), W_1=Hand weeding, W_2=1%2,4-D sprayed at 4th leaf stage, W_3=1%2,4 5-T sprayed at 4th leaf stage, W_4=1%2,4-D sprayed at 6th leaf stage and W_5=1%2,4,5-T sprayed at 6 th leaf stage.

3. DESIGN :

(i) R.B.D. (ii) (a) 6. (b) N.A. (iii) 4. (iv) (a) and (b) 4·88m.×33·66m. (v) Nil. (vi) Yes.

4. GENERAL :

(i) Poor. (ii) N.A. (iii) Yield of grain. (iv) (a) 1962-63(modified in 63). (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 238 Kg/ha. (ii) 70·7 Kg/ha. (iii) Treatment differences are not significant. (iv) Av. yield of grain in Kg/ha.

Treatment	W_0	W_1	W_2	W_3	W_4	W_5
Av. yield	224	196	196	273	287	252

Crop :- Paddy (*Kharif*). **Ref:- U.P. 64(558).**

Site :- Instt. of crop Physiology, Dilkusha, Lucknow. **Type :- 'D'.**

Object :—To study the effect of weedicide in the control of weeds in Paddy crop.

1. BASAL CONDITIONS:

(i) (a) to (c) N.A. (ii) Sandy-loam. (iii) 29.7.64. (iv) (a) 1 ploughing by soil turning and 4-5 ploughings by deshi plough. (b) Transplanting. (c) N.A. (d) 23cm. × 15cm. (e) 2. (v) 44·8 Kg/ha. of N as A/S (vi) N 22. (vii) and (viii) As per treatments. (ix) N.A. (x) 18 to 21.10.64.

2. TREATMENTS:

Main-plot treatments:—

8 irrigational-cum-cultural treatments : T_1=Crop in continuous water submergence till grain-filling and not weeded, T_2=Crop in continuous water submergence till grain filling and weeded with Japanese-weeder, T_3=Crop kept moist by light irrigation on every 2-3 days in the absence of rains but no submergence and not weeded,, T_4=Crop kept moist by light irrigation on every 2-3 days in the absence of rains but no submergence and hand weeded, T_5=Crop irrigated when cracks developed, irrigated 5-6 days in the absence of rains and hand weeded, T_7=Crop irrigated when cracks developed, irrsgated 5,6 days in obsence of rains and hand weedded, $T_7=T_2+3·4$ Kg/ha. of E. P. T. C. as Eptam as pre-planting application and $T_8=T_5+3·4$ Kg/ha. of E.P.T.C. as Eptam as pre-planting application.

Sub-plot treatments :-

4 levels of weedicides : W_0=No post emergence (Control), W_1=1·41 litre/ha. of Amine 2,4-D as Bladex, applied 4,6 weeks after planting, W_2=9·9 litres /ha. of 3,4-D.P.A. as stam F-34, applied when grass and weeds are in 2·4 leaf stage and $W_3=W_1+W_2$.

3. DESIGN:

(i) Split-plot. (ii) (a) 8 main-plots/replication and 4 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) 3·05m. × 3.05m. (b) 2·44m. × 2·44m. (v) 30cm. × 30cm. (vi) Yes.

4. GENERAL :

(i) Satisfactory. (ii) N.A. (iii) Yield of grain. (iv) (a) 1964-only. (b) and (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 856 Kg/ha. (ii) (a) 437·5 Kg/ha. (b) 271·3 Kg/ha. (iii) Main effect of W is highly significant and that of T is significant. (iv) Av. yield of grain in Kg/ha.

	T_1	T_2	T_3	T_4	T_5	T_6	T_7	T_8	Mean
W_0	433	593	454	572	605	807	1123	891	685
W_1	982	761	631	885	837	782	1366	1312	944
W_2	761	732	618	807	673	757	1038	3730	801
W_3	1072	967	668	824	1047	883	1228	1261	995
Mean	812	763	593	772	790	807	1189	1123	856

C.D. for T marginal means=132·9 Kg/ha.

C.D. for W marginal means=321·7 Kg/ha.

Crop :- Paddy (*Kharif*). **Ref :- U.P. 63(197), 64(203) 65(261).**

Site :- Govt. Reg. Agri. Res. Stn., Nawabgunj. **Type :- 'D'**

Object :—To find out efficient spray fungicides for the control of Paddy blast (due to piricularia oryzae).

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Gram for 65 ; N.A. for others. (c) Nil. (ii) Clay loam. (iii) 23.7.63; 19.8.64; 17.8.65. (iv) (a) 4 ploughings, 2 palewa and 2 plankings for 65; N.A. for others. (b) Transplanting. (c) N.A. (d) 15cm.×15cm. (e) 2. (v) 45 Kg/ha. of N as C.A.N.+34 Kg/ha. of P_2O_5 as Super, top-dressing with 22·4 Kg/ha. of N as C.A.N. (vi) T-100. (vii) Irrigated. (viii) 1 weeding and hoeing. (ix) 81·7cm; 91·3cm. 19·6cm. (x) N.A.; 19,20.12.64; 6.12.65.

2. TREATMENTS:

4 fungicidal treatments : T_0=Controls (2 plots), T_1=Fungimar at 0·3%, T_2=Dithan Z-78 at 0·2%. and T_3= Ceresanwet at 0·2%.

3. DESIGN :

(i) R.B.D. (ii) (a) 5. (b) 10·06m.×24·08m. for 65; N.A. for others. (iii) 4. (iv) (a) 10·06m.×3·35m. (b) 9·14m.×2·74m. for 63; 9·75m.×3 05m. for others. (v) 45cm,×30cm. for 63; 15cm.×15cm. (vi) Yes.

4. GENERAL:

(i) Good. (ii) Paddy blast appeared on 26.9.63 and control measurs takeu on 13.12.63; N.A. (iii) Yield of grain. (iv) (a) 1963-65. (b) N.A. (c) Nil. (v) and (vi) N.A. (vii) As the variances are heterogeneous and Treatment×Years interaction is absent, the results of individual years have been presented under 5. Results.

5. RESULTS.

63(197)

(i) 3161 Kg/ha. (ii) 935·3 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	3128	2775	3244	3532

64(203)

(i) 1610 Kg/ha. (ii) 407·9 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	1598	1547	1825	1456

65(261)

(i) 1599 Kg/ha. (ii) 323·1 Kg/ha. (iii) Treatment differences are not significant. (iv) Av. yield of grain in Kg/ha.

Treatments	T_0	T_1	T_2	T_3
Av. yield	1601	1584	1423	1788

Crop :- Paddy (*Kharif*). **Ref :- U.P. 63(198), 64(202), 65(260).**

Site :- Govt. Reg. Agri. Res. Stn., Nawabganj. **Type :- 'D'.**

Object :—To find out on efficient dust fungicide for the control of Paddy blast (Due to pericularia oryzae).

1. BASAL CONDITIONS:

(i) (a) N.A. (b) Gram. for 65, N.A. for others. (c) N.A. (ii) Clay loam. (iv) 23.7.63; 19.8.64; 16.8.65. (iv) (a) 3 ploughings by mould baord plough, 1 ploughing by *desi* plough, 2 palawa, 2 plankings for 65; N.A. for others (b) Transplanting. (c) N.A. (d) 15cm.×15cm. [for [64 [and [65; [N.A. for 63. (e) 2 (v) 45 Kg/ha. of N as C.A.N.+34 Kg/ha. of P_2O_5 as Super, Top dressing by 22·4 Kg/ha. of N as C.A.N. (vi) N.A. for 63; T_100 for others. (vii) Irrigated. (viii) 1 weeding and hoeing. (ix) 81·7cm.; 91·3cm. 19·6 cm. (x) 13.12.63; 19/20.64; 6.65.

2. TREATMENTS:

T_0=Control (2plots) T_1=Murcury dust 2%@20 to 22 Kg/ha. T_2=Ceresan line 1·6%@20 to 23 Kg/ha, T_3=Ceresan formulated murcury (0·3%) @20 to 22 Kg/ha.

3. DESIGN:

(i) R.B.D. (ii) (a) 5. (b) 10·06m.×24·08m. for 65;N.A. for others. (iii) 4. (iv) (a) 9·45m.×3·35m. for 63; 10.05m.×3·35m. for others. (b) 9·14m.×2·74m. for 63 ; 9·75m.×3.05m. for others. (v) 15cm.×30cm. for 63; 15cm.×15cm. for others. (vi) Yes.

4. GENERAL:

(i) Good. (ii) Appearence of Paddy blast dusting and spraying for 63; N.A. for others. (iii) Yield of grain. (iv) 1963-65 (b) No. (c) Nil. (v) to (vi) N.A. (vii) As the variances are heterogeneous and interaction is absent; the results of individual years are presented under 5. Results.

5. RESULTS :

63(198)

(i) 2982 Kg/ha. (ii) 880·3 Kg/ha. (iii) Treatmeut differences are not significant. (iv) Av. yield of grain in Kg/ha.

Treatment	T_0	T_1	T_2	T_3
Av. yield	2869	2931	3055	3186

64(202)

(i) 1881 Kg/ha. (ii) 262.5 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	1991	2014	1660	1747

65(260)

(i) 2180 Kg/ha. (ii) 311.7 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
Av. yield	2092	2226	2231	2001

Crop :- Paddy (*Kharif*). **Ref:-U.P. 64(208), 65(259).**

Site :- Govt. Reg. Agri. Res, Stn., Nawabganj. **Type :- 'D'.**

Object —To find out on easy and convinient method for the control of Paddy Blast (due to pericularia oxyzae) and blight (due to Helmin thosporium sp.) disease of Paddy.

1. BASAL CONDITIONS:

(i) (a) Nil. (b) N.A.; Gram. (c) N A.; Nil (ii) Clay loam. (iii) 20/21.8.64; 16.8.65. (iv) (a) N A ; 4 ploughings, 2 palewa and 2 plankings. (b) Transplanting. (c) N.A. (d) 15cm ×15 m. (e) 2. (v) 45 Kg/ha. of N as C/A/N+30 Kg/ha. of P_2O_5. as Super applied as basal and 22·5 Kg/ha. of N as C/A/N top dressed. (vi) T-9 (late). (vii) Irrigated. (viii) N.A ; 1 hoeing and weeding. (ix) 91 3cm.; 19·6cm. (x) N.A.; 6.12.65.

2. TREATMENTS

T_0=Control (2 plots), T_1=Seed treated with argosan G.N, T_2=Seed treated with agrosan G.N+Ceresan line dusting three times, T_3=Seed treated with agrosan G.N+Dithan Z-78 spraying three times.

3. DESIGN :

(i) R.B.D. (ii) (a) 5. (b) N.A. (iii) 4. (iv) (a) 9.90m. × 3·60m. (b) 8 10m. × 2·45m.; 9.30m. × 3·30m. (v) 90cm. × 57cm.; 30cm. × 15cm. (vi) Yes.

4. GENERAL:

(i) Good. (ii) N.A. (iii) Yield of grain. (iv) 1964-66. (b) No. (c) Nil. (v) and (vi) Nil. (vii) As the experiment is continued beyond 65, therefore individual year results are presented under 5. Results.

5. RESULTS :

64(566)

(i) 2579 Kg/ha. (ii) 266·5 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
Av. yield	2312	2847	2803	2620

65(259)

(i) 1651 Kg/ha. (ii) 142·8 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	1682	1605	1560	1727

Crop :- Paddy (*Kharif*). **Ref :- U.P. 63(410).**

Site :- State Tarai Farm, Matkota, Rudrapur. **Type :- 'D'.**

Object :—To investigate on dry leaf disease of Paddy (Khaira disease).

1. BASAL CONDITIONS:

(i) (a) to (c) N.A. (ii) Clay to Clay loam. (iii) 31.7.63. (iv) (a) N.A. (b) Transplanting. (c) and d) N.A. (e) 2. (v) Nil. (vi) N.A. (vii) Unirrigated. (viii) As per treatments. (ix) N.A. (x) 4.11.63.

2. TREATMENTS :

Main-plot treatments:

All combinations of (1) and (2)

(1) 2 levels of Interculture : I_0=No interculture and I_1=Interculture.

(2) 2 levels of drained :-D_0=Undrained and D_1=Drained.

Sub-plot treatments :

5 levels of manures :

F_0=Control, F_1=44·8 Kg/ha. of N as F.Y.M., F_2=44·8 Kg/ha. of N as A/S, F_3=44·8 Kg/ha. of N as A/S+ 22·4 Kg/ha. of P_2O_5 and F_4=44·8 Kg/ha. of N as Ammo. Phos.

3. DESIGN :

(i) Split-plot. (ii) (a) 4 main-plots/replication; 5 sub-plots/main-plot. (b) N.A. (iii) 3. (iv) (a) and (b) 10.06m.×5·33m. (v) Nil. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Khaira disease control measures as per treatments. (iii) Yield of grain. (iv) (a) 1963-64. (b) N.A. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 1873 Kg/ha. (ii) (a) 907·1 Kg/ha. (b) 308·7 Kg/ha. (iii) None of the effects is significat (iv) Av. yield of grain in Kg/ha.

	F_0	F_1	F_2	F_3	F_4	D_0	D_1	Mean
I_0	1860	1690	2209	2034	1842	1953	1901	1927
I_1	1596	1889	1832	1773	2007	1643	1997	1820
Mean	1882	1789	2020	1904	1924	1798	1949	1873
D_0	1640	1657	1842	1966	1885			
D_1	1817	1923	2199	1842	1963			

Crop :- Paddy (*Kharif*). **Ref :- U.P. 65(680).**

Site :- Govt. Reg. Agri. Res. Stn., Rudrapur. **Type :- 'D'.**

Object :—To evole on effective method of control against Khaira disease of Paddy for the region.

1. BASAL CONDITIONS:

(i) Nil. (b) Toria. (c) N.A. (ii) Loam. (ili) 27.7.65. (iv) (a) 3-4 ploughings by Jcladhari ploughi followed by planting. (b) Transplanting. (c) N.A. (d) 23cm.×15cm. (e) 2. (v) Nil. (vi) T-9(late). (vii) Irrigated. (viii) 1 weeding. (ix) N.A. (x) 24/25.11,65.

2. TREATMENTS :

Main-plot treatments:

Ali combinations of (1) and (2)

(1) 2 levels of treatment with H_2O_2 : H_1=No treatment and H_2=Application of H_2O_2.

(2) 2 treatments with water : W_1=Stagment water and W_2=Fresh water

Sub-plot treatments :

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

(1) 2 levels of N: N_0=0, N_1=80 Kg/ha. of N as A/S applied as broadcast.

(2) 2 levels of P_2O_5 : P_0=0, P_1=60 Kg/ha. of P_2O_5; P_2O_5 as Super applied as broadcast

(3) 2 levels of K_2O : K_0=0 and K_1=60 Kg/ha. of K_2O: K_2O as Mur. of Pot. applied as broadcast.

(4) 2 levels of common salt : S_0=0 and S_1=20 Kg/ha. of common salt.

3. DESIGN:

(i) SPlit-plotcum confounded. (ii) (a) 4 main-plots/replication, 2 blocks/main-plot, 8 sub-plots/block. (b) N.A. (iii) 3 (iv) (a) and (b) 1·14m.×3·05m. (v) Nil, (vi) Yes.

4. GENERAL:

(i) Good. (ii) Khaira diseases under study. (iii) Yield of grain. (iv) (a) 1965-66. (b) Yes. (c) Nil. (v) No. (vi) and (vii) Nil.

5. RESULTS:

(i) 1486 Kg/ha. (ii) (a) 705.0 Kg/ha. (b) 597·3 (iii) Main effect of P alone is highly significant. (iv) Av. yield of grain in Kg/ha.

	W_1	W_2	N_0	N_1	P_0	P_1	K_0	K_1	S_0	S_1	Mean
H_1	1536	1618	1594	1560	1673	1481	1564	1590	1497	1657	1577
H_2	1318	1472	1412	1377	1603	1187	1381	1409	1385	1405	1395
Mean	1427	1545	1503	1468	1638	1334	1472	1500	1441	1531	1486
S_0	1359	1525	1460	1424	1557	1327	1451	1432			
S_1	1496	1565	1547	1513	1719	1341	1494	1567			
K_0	1356	1588	1454	1490	1620	1325					
K_1	1498	1501	1552	1447	1656	1342					
P_0	1540	1735	1637	1639							
P_1	1313	1354	1370	1297							
N_0	1467	1539									
N_1	1387	1560									

C.D. for P marginal means=170·6 Kg/ha.

Crop :- Paddy (*Kharif*). **Ref :-U.P 63(185), 64(184).**

Site:- Govt. Reg. Agri. Res. Stn., Varanasi. **Type :- 'D'.**

Object :—To test the efficay of dust fungicides in controlling blast disease of Paddy caused by Piricularia oryzai ear.

1. BASAL CONDITIONS:

(i) (a) N.A.; Wheat-Paddy. (b) N.A.; Wheat. (c) N.A.; 67·2 Kg/ha. of N. (ii) Loam. (iii) 31.7.63; 1.8.64. (iv) (a) 1 palewa, 3 to 4 ploughings by *desi* plough. (b) Transplanting. (c) N.A. (d) 23cm.×15cm; 23cm.×23cm. (e) 3 to 6. (v) 22·4Kg/ha. of N as basal +22·4 Kg/ha. of N as A/S for 63; 33·6 Kg/ha. of N as basal and 33·6 Kg/ha. of N as A/S top dressed for 64. (vi) N.A.; N22. (vii) Irrigated. (viii) Nil; Hoeings. (ix) 95·4cm.; 95·3cm. (x) N.A.; 19/20.10.64.

2. TREATMENTS:

3 chemical treatments: T_0=Controls (3 plots), T_1=0·2% mercury dust and T_2=Ceresan+lime (1:6) For 63(185): T_1 and T_2 applied on 18.9.63 @ 20 to 22 Kg/ha. and applied on 7.10.64 as dusting for 64.

3. DESIGN:

(i) R.B.D. (ii) (a) 5. (b) 10·06m.×24·08m. (iii) 5. (iv) (a) and (b) 10·06m.×3·35m. (v) Nil. (vi) Yes.

4. GENERAL:

(i) Good, (ii) Disease appeared on 6.9.63 for 63. 18.8.64 for 64. control measure as per treatments (iii) Yield of grain. (iv) (a) 1963-64 (b) Yes. (c) Nil. (v) and (vi) Nil. (v) As the variances are heterogeneous and interaction is absent, the results of the individual years are presented below.

5. RESULTS

63(185)

(i) 1518 Kg/h (ii) 214·2 Kg/ha. (iii) Treatment differences are not significant. (iv) Av. yield of grain in Kg/ha.

Treatment	T_0	T_1	T_2
Av. yield	1618	1446	1293

64(184)

(i) 1105 Kg/ha. (ii) 78·8 Kg/ha. (iii) Treatment differences are not significant. (iv) Av. yield of grain n Kg/ha.

Treatment	T_0	T_1	T_2
Av. yield	1100	1068	1155

Crop :- Wheat (*Rabi*). **Ref :- U.P. 60(431), 61(447).**

Site :- Allahabad Agri. Instt., Allahabad. **Type :- 'M'.**

Object :—To study the effect of different levels of N and P on the yield of Wheat.

1. BASAL CONDITIONS:

(i) (a) to (c) N.A. (ii) Sandyl oam. (iii) N.A. (iv) (a) to (d) N.A. (e) — (v)Nil. (vi) NP-720; N.A. (vii) Irrigated. (viii) Weeding and hoeing. (ix) 11·4cm.; 6·3cm. (x) 25 4.61.; N.A.

2. TREATMENTS :

All combinations of (1) and (2)

(1) 3 levels of N as A/S : N_0=0, N_1=67 and N_2=101 Kg/ha.

(2) 3 levels of P_2O_5 as Super : P_0=0, P_1=56 and P_2=112 Kg/ha.

3. DESIGN

(i) Fact. in R.B.D. ii) (a) 9. (b) 15·85m.×17·68m. (iii) 4. (iv) (a) and (b) [illegible] (v) Nil. (vi) Yes.

4. GENERAL:

(i) and (ii) N.A. (iii) Yield of grain. (iv) (a) 1960-61. (b) N.A. (c) Nil. (v) and (vi) Nil. (vii) As the error variances are heterogeneous and Treatments×Years interaction is absent, the results of individual years have been presented under 5. Results.

5. RESULTS:

60 (431)

(i) 1825 Kg/ha. (ii) 466·9 Kg/ha. (iii) None of the effects is significant. (iv) Av. yield of grain in Kg/ha.

	P_0	P_1	P_2	Mean
N_0	1689	2027	2244	1987
N_1	1924	1896	1411	1744
N_2	1892	1684	1663	1746
Mean	1835	1869	1772	1825

61(447)

(i) 2204 Kg/ha. (ii) 849·9 Kg/ha. (iii) None of the effects is significant. (iv) Av. yield of grain in Kg/ha.

	P_0	P_1	P_2	Mean
N_0	2659	2120	2398	2392
N_1	1667	2659	2191	2248
N_2	2452	1564	1896	1971
Mean	2359	2115	2138	2204

Crop :- Wheat (*Rabi*). **Ref :- U.P. 60(432), 61(448)**

Site :- Allahabad Agri. Instt., Allahabad. Type :- 'M'.

Object :—To study the effect of trace-elements on the growth and yield of Wheat, when the application is done at various levels of N and the levels of P and K are adequate.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Sandy loam. (iii) to (v) N.A. (vi) C-13. (vii) Irrigated. (viii) N.A. (ix) 11·2cm.; 6.2cm. (x) N.A.

2. TREATMENTS :

Main-plot treatments :

2 levels of Trace-elements : T_0=Nil and T_1=2·2 F Kg/ha. of B as Borax+2·8 Kg/ha. of Cu. as Copper Sul.+5·6 Kg/ha. of Fe. as Ferrous Sul.+1·1 Kg/ha. of Mn. as Manganese Sul.+1·1 Kg/ha. of Mo. as Ammonium Molybdate+2·2 Kg/ha, Zn. as Zinc Sul.

Sub-plot treatments :

4 concentration of N : N_1=454, N_2=487, N_3=516 and N_4=540 gm./litre of A/S.

3. DESIGN :

(i) Split-plot. (ii) (a) 2 main-plots/replication and 4 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) and (b) 9·45m. × 6·10m. (v) Nil. (vi) Yes.

4. GENERAL :

(i) Good. (ii) N.A. (iii) Yield of grain. (iv) (a) 1960-61. (b) N.A. (c) Nil. (v) and (vi) Nil. (vii) As sub-plot error variances are heterogeneous, the results of individual years have been presented under 5. Results.

5. RESULTS :

60(432)

(i) 1468 Kg/ha. (ii) (a) 126·6 Kg/ha. (b) 389·8 Kg/ha. (iii) None of the effects is significant. (iv) Av. yield of grain in Kg/ha.

	N_1	N_2	N_3	N_4	Mean
T_0	1516	1390	1319	1598	1456
T_1	1685	1325	1757	1155	1480
Mean	1600	1357	1538	1377	1468

61(448)

(i) 1115 Kg/ha. (ii) (a) 145·7 Kg/ha. (b) 189·7 Kg/ha. (iii) None of the effects is significant. (iv) Av. yield of grain in Kg/ha.

	N_1	N_2	N_3	N_4	Mean
T_0	1004	1060	1072	987	1031
T_1	1 33	1155	1116	1395	1200
Mean	1069	1109	1094	1191	1115

Crop :- Wheat (*Rabi*). **Ref :-U.P. 64(711).**

Site :- Govt. Reg. Agri. Res. Stn., Amrukh. **Type :- 'M'.**

Object :—To study the effect of different sources and levels of N on Wheat.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Parwa soil. (iii) 29.10.64 (iv) (a) 2 ploughings by *Bakhar* plough and pata application. (b) Line sowing behind *Nari* plough. (c) 92 Kg/ha. (d) Rows 30cm. apart. (e) — (v) **Nil.** (vi) Pb-591. (vii) Irrigated. (viii) Hoeing aud weedings. (ix) 3·56cm. (x) 12/13.4.65.

2. TREATMENTS :

All combinations of (1) and (2)+One control.

(1) 4 sources of N : F_1=Guar meal, F_2=A/S, F_3=F.Y.M. and F_4=G.N.C.

(2) 3 levels of N : N_1=24·7, N_2=49·4 and N_3=74·1 Kg/ha.

3. DESIGN :

(i) Fact. R.B.D. (ii) (a) 13. (b) N.A. (iii) 4. (iv) (a) 10·97m.×4·57m. (b) 10·36m.×3·96m. (v) 30cm×**30cm.** (vi) Yes.

4. GENERAL :

(i) Good. (ii) Nil. (iii) Yield of grain. (iv) (a) 1964-only. (b) and (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 1710 Kg/ha. (ii) 382·6 Kg/ha. (iii) Main effects of F and N are highly significant and 'Control *vs.* others' is significant. (iv) Av. yield of grain in Kg/ha.

Control=1248 Kg/ha.

	N_0	N_1	N_2	Mean
F_1	1449	1887	2222	1853
F_2	1875	2301	2545	2240
F_3	1193	992	1187	1124
F_4	1370	1918	2040	1776
Mean	1472	1775	1998	1748

C.D. for F marginal means=316·9 Kg/ha.

C.D. for N marginal means=274·4 Kg/ha.

C.D. for 'control Vs. others'=404·3 Kg/ha.

Crop :- Wheat (*Rabi*). **Ref :- U.P. 60(409).**

Site :- Govt. Reg. Agri. Res. Stn., Amrukh. **Type :-'M'.**

Object :—To study the effect of nitrogenous manures on wheat crop applied in organic and n-organic forms with and without Super

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Parwa soil. (iii) 8.11.60 **(iv) (a) 2-3** ploughings by *Bakhar* plough and Pata application. (b) Line sowing with *Nari* plough. (c) 92 Kg/ha. **(d) Rows** 30cm. apart. (e) — (v) Nil. (vi) Pb-591. (vii) Irrigated. (viii) Weeding and sowing. **(ix) N.A. (x) 13.4.61.**

2. TREATMENTS:

10 manurial treatments : T_0=Control (No manurial), T_1=28Kg/ha. of N as A/S, T_2=56 Kg/ha. of N as A/S, T_3=44·8Kg/ha. of P_2O_5 as Super, $T_4=T_1+T_3$, T_5=28 Kg/ha. of N as F.Y.M, T_6= 56 Kg/ha. of N as F.Y.M., $T_7=T_5+T_3$, $T_8=T_1+T_5$ and $T_9=T_8+T_3$.

3. DESIGN:

(i) R.B.D. (ii) (a) 10. (b) N.A. (iii) 4. (iv) (a) and (b) 6·40m.×10·36m. (v) Nil. (vi) Yes.

4. GENERAL:

(i) Good. (ii) Nil. (iii) Yield of grain. (iv) (a) 1960-only. (b) No. (c) Nil. (v) Rudrapur, Meerut, Nawabganj, Varanasi and Hardoi. (vi) and (vii) Nil.

5. RESULTS :

(i) 1505 Kg/ha. (ii) 226·7 Kg/ha. (iii) Treatments differences are highly significant. (iv) Av. yield of grain in Kg/ha.

Treatments.	T_0	T_1	T_2	T_3	T_4	T_5	T_6	T_7	T_8	T_9
Av. yield	960	1136	1701	1151	1626	991	1479	1659	1947	2396

C.D=328·8 Kg/ha.

Crop :- Wheat (*Rabi*). **Ref :- U.P. 61(435), 62(495), 63(615), 64(718), 65(607).**

Site :- Govt. Reg. Agri. Res. Stn., Amrukh. **Type :- 'M.'**

Object :—To study the efficiency of organic and inorganic nitrogenous fertilizers with and without Super.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Sata for 62; Chari for 64; N.A. for others. (c) Nil. (ii) Parwa soil. (iii) 30.10.61; 17;11.62 14.11 63; 2.11.64; 4/5.12.66. (iv) (a) 2-3 ploughings by Bakhar plough and pata application. (b) Line sowing behind *Nari* plough. (c) 92 Kg/ha. (d) Rows 30cm. apart. (e) — (v) G M. by Sarai for 62, Nil for others. (vi) K. 68 to 65. Pb. 591 for others. (vii) Irrigated. (viii) Hoeing and weeding. (ix) N.A.; N.A. ;1·45cm.; 3·66cm,; 0·15cm. (x) 14.4.62; 13.4.63; 16.4.64; 13/15.4.65; 27/29.4.66.

2. TREATMENTS :

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

(1) 3 forms of N : F_1=A/S, F_2=F.Y.M. and F_3=1/2 as A/S+1/2 as F.Y.M.

(2) 2 levels of N : N_1=28 and N_2=56 Kg/ha.

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

Extra treatments : E_0=Control (No manure) and E_1=44·8 Kg/ha. of P_2O_5 as Super.

3. DESIGN:

(i) Fact. R.B.D. (ii) (a) 14. (b) N.A. (iii) 4. (iv) (a) and (b) 8·23m. × 6·10m. (v) Nil. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Nil. (iii) Yield of grain. (iv) (a) 1961-65. (b) Yes. (c) Nil. (v) Rudrapur, Majhera, Hardoi, Varanasi, Nawabganj, Meerut and Atarra. (vi) Nil. (viii) As the error variances are hetrogeneous and Treatments × Years interaction is absent, the results of individual ysars have been presented under 5. Results.

5. RESULTS :

61(435)

(i) 1658 Kg/ha. (ii) 187·4 Kg/ha. (iii) Main effects of N, F and 'extra treatments Vs. others' are highly significant, Main effect of P is significant. (iv) Av, yield of grain in Kg/ha.

E_0=1315 and E_1=1420 Kg/ha.

	N_1	N_2	F_1	F_2	F_3	Mean
P_0	1530	1751	1849	1453	1619	1640
P_1	1701	1844	2011	1515	1791	1772
Mean	1615	1797	1930	1484	1705	1706
F_1	1764	2095				
F_2	1480	1487				
F_3	1602	1809				

C.D. for N or P marginal means=109 4 Kg/ha.

C.D. for F marginal means=134·0 Kg/ha.

C.D. for 'extra treatments Vs. others'=144·8 Kg/ha.

62(495)

(i) 1548 Kg/ha. (ii) 162·7 Kg/ha. (iii) Main effects of F and 'extra treatments Vs. others' are highly significant. (iv) Av. yield of grain in Kg/ha.

E_0=1296 and E_1=1507 Kg/ha.

	N_1	N_2	F_1	F_2	F_3	Mean
P_0	1511	1541	1669	1339	1570	1526
P_1	1545	1694	1732	1483	1644	1619
Mean	1528	1617	1701	1411	1607	1573
F_1	1595	1806				
F_2	1395	1426				
F_3	1595	1619				

C.D. for F marginal means=116·1 Kg/ha.

C.D. for 'extra treatments Vs. others'=125·7 Kg/ha.

63(615)

(i) 1107 Kg/ha. (ii) 221·4 Kg/ha. (iii) Main effect of P is significant and main effects of N, F and 'extra treatments Vs. others are highly significant. (iv) Av. yield of grain in Kg/ha.

E_0=752 and E_1=782 Kg/ha.

	N_1	N_2	F_1	F_2	F_3	Mean
P_0	1009	1158	1374	762	1114	1083
P_1	1103	1383	1672	790	1268	1243
Mean	1056	1270	1523	776	1191	1163
F_1	1344	1702				
F_2	721	831				
F_3	1103	1278				

C.D. for P or N marginal means=129·3 Kg/ha.
C.D. for F marginal means=158 4 Kg/ha.
C.D. for 'extra treatments Vs. others'=171.1 Kg/ha.

64(718)

(i) 768 Kg/ha. (ii) 131·9 Kg/ha. (iii) Main effects of N and F, interaction N×F and 'extra treatments Vs. others' are highly significant. (iv) Av. yield of grain in Kg/ha.

E_0=571 and E_1=471 Kg/ha.

	N_1	N_2	F_1	F_2	F_3	Mean
P_1	646	943	1055	542	786	794
P_2	687	961	1186	574	711	824
Mean	667	952	1121	558	749	809
F_1	790	1451				
F_2	549	567				
F_3	660	837				

C.D. for N marginal means=77·0 Kg/ha.
C.D. for F marginal means=94·3 Kg/ha.
C.D. for body of N×F table=133·3 Kg/ha.
C.D. for 'extra treatments Vs. otaers'=101·9 Kg/ha.

65(607)

(i) 480 Kg/ha. (ii) 91·7 Kg/ha. (iii) Main effects of N and F and 'extra treatments Vs. others' are highly significant. Interaction P×F is significant. (iv) Av. yield of grain in Kg/ha.

E_0=262 and E_1=309 Kg/ha.

	N_1	N_2	F_1	F_2	F_3	Mean
P_0	449	572	660	349	523	511
P_1	442	586	667	299	476	514
Mean	445	579	714	324	499	512
F_1	625	802				
F_2	297	351				
F_3	415	351				

C.D. for N marginal means=53.5 Kg/ha.
C.D. for F marginal means=65.5 Kg/ha.
C.D. for body of P×F table=92.7 Kg/ha .
C.D. for 'extra treatments Vs. others'=70·8 Kg/ha.

Crop : Wheat (*Rabi*). **Ref :-U.P. 65(606).**

Site :- Govt. Reg. Agri. Res. Stn., Amrukh. **Type : 'M.'.**

Object :--To see the effect of re-inforced and ripe-compost with and without Super on Wheat crop.

1. BASAL CONDITIONS

(i) (a) to (c) N.A. (ii) Kabar and Parwa. (iii) 20.11.65. (iv) (a) 2 to 3 ploughings by *Bakhar* plough. (b) Line sowing behind *Desi* plough. (c) 92 Kg/ha. (d) Rows 30cm. apart. (e) — (v) Nil. (vi) NP-798. (vii) Irrigated. (viii) Hoeing. (ix) 0·15cm. (x) 21/22.4.66.

2. TREATMENTS :

5 manurial treatmants : T_1=50.2 Q/ha. of ripe-compost, T_2=50.2 Q/ha. of re-inforced compost, T_3=50.2 Q/ha. of ripe-compost+31.4 Kg/ha. of Super, T_4=50·2 Q/ha. of ripe-compost mixed with 31·4 Kg/ha. of Super and T_5=67·2 Kg/ha. of N.

3. DESIGN :

(i) R.B.D. (ii) (a) 5. (b) 49·38m.×10·97m. (iii) 6. (iv) (a) 9.14m.×10.97m. (b) 8.53m.×10·36m. (v) 30cm.×30cm. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Nil. (iii) Yield of grain. (iv) (a) 1965-only. (b) and (c) Nil. (v) Varanasi. (vi) and (vii) Nil.

5. RESULTS :

(i) 613 Kg/ha. (ii) 40.3 Kg/ha. (iii) Treatment differences are highly significant. (iv) Av. yield of grain in Kg/ha.

Treatment	T_1	T_2	T_3	T_4	T_5
Av. yield	531	562	545	552	876

C.D.=48·4 Kg/ha.

Crop :- Wheat (*Rabi*). **Ref :- U.P. 60(414),**

Site :- Govt. Reg. Agri. Res. Stn., Amrukh. **Type :- 'M'.**

Object:—To find out suitable fertilizer mixture for Wheat crop.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Parwa soil. (iii) 9.11.60. (iv) (a) 2 to 3 plouhings by *Bakhar* plough and pata application. (b) Line sowing with *Nari* plough. (c) 92 Kg/ha. (d) Rows 30cm. apart. (v) Nil. (vi) Pb-591. (vii) Irrigated. (viii) Weeding and hoeing. (ix) N.A. (x) 13.4.61.

2. TREATMENTS :

2 manurial treatments : T_1=Fertilizer mix ture at 67 Kg/ha. and T_2=56 Kg/na. of N as A/S +28 Kg/ha. P_2O_5 as Super.

3. DESIGN :

(i) R.B.D. (ii) (a) 2. (b) N.A. (iii) 12. (iv) (a) and (b) 10.52m.×6·40m. (v) Nil. (vi) Yes.

4. GENERAL:

(i) Good. (ii) Nil. (iii) Yield of grain. (iv) (a) 1960-only. (b) and (c) Nil. (v) to (vii) Nil.

5. RESULTS

(i) 1787 Kg/ha. (ii) 280·5 Kg/ha. (iii) Treatment differences are not significant. (iv) Av. yield of grain in Kg/ha.

Treatment	T_1	T_2
Av. yield	1760	1813

Crop :- Wheat (*Rabi.*). **Ref :- U.P. 61(430), 62(453), 63(610) 64(713) 65(605).**

Site :- Govt. Reg. Agri. Res. Stn. Amrukh. **Type :- 'M'**

Object :—To find out the suitable combination of N,P and K for Wheat crop.

1. BASAL CONDITIONS :

(i) (a) Wheat-Moong for 65, Sanai-Wheat for 62, Chari-Wheat for 64 and N.A. for others. (b) Sanai for 62; Chari for 64, Moong for others. (c) N.A. (ii) *Parwa* soil. (iii) 6/7.11.61 6/7.11.62. 20.10.63;2.11.64; 17.11.65 (iv) (a) 2 to 3 ploughings by *Bakhar* plough and *Pata* application. (b) Line sowing behind the *Nari* plough. (c) 92 Kg/ha. (d) Rows 30cm apart. (e)—.(v) G.M. by Sanai for 62, Nil for others (vi) K-68 for 65 Pb. 5·91 for others. (vii) Irrigated. (viii) Hoeing and 6 weeding. (ix) N.A. for 61 and 62; 145cm. 356cm.; 0.15cm. (x) N.A. 10.4.62 N.A. 8.4 65 & N.A.

2. TREATMENTS :

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

(1) 3 levels of N : N_0=0, N_1=44·8 and N_2=89·6 Kg/ha.

(2) 3 levels of P_2O_5 : P_0=0, : P_1=22·4 and P_2=44·8 Kg/ha.

(3) 3 levels of K_2O : K_0=0, : K_1=22·4 and K_2=44.8 Kg/ha.

3. DESIGN:

(i) 3^3 confd. (NP^2K^2 and NPK^2 confd. in Rep I and II respectively). (ii) (a) 9 plots/block, 3 blocks/replication. (b) N.A. (iii) 2. (iv) (a) & (b) 9·14m×10.97m. (v) Nil. (vi) Yes.

4. GENERAL:

(i) Good. (ii) Nil. (iii) Yield of grain. (iv) (a) 1961-65. (b) Yes. (c) Results of combined analysis have been presented under 5. Results. (v) Meerut Hardoi Nawabganj and Varanasi (vi) Nil. (vii) Error variances are heterogenous and Treatments×Years interaction is present.

5. RESULTS :

Pooled results

(i) 1402 Kg/ha (ii) (a) 389·4 Kg/ha. (based on 72 d.f. made up of Treatments × Years interaction). (iii) Main effects of N and P are highly significant and Interaction N×P 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	833	1001	982	941	964	911	939
N_1	1196	1559	1589	1370	1549	1426	1448
N_2	1487	1875	2099	1776	1814	1870	1820
Mean	1172	1478	1557	1362	1443	1402	1402
K_0	1121	1409	1557				
K_1	1233	1502	1593				
K_2	1163	1524	1520				

C.D. for N or P marginal means=116.4 Kg/ha.

C.D. for body of N×P table=201.5 Kg/ha.

Individual Results :

Year	N_0	N_1	N_2	Sig	P_0	P_1	P_2	Sig.	K_0	K_1	K_2	Sig.	G. M.	S.E./plot
1961	1315	1901	1966	**	1370	1833	1858	**	1611	1741	1708	N.S.	1687	155.0
1962	1537	1863	1979	**	1416	1915	1987	**	1777	1823	1719	**	1773	85.6
1963	861	1539	1960	**	1140	1477	1643	**	1387	1482	1391	N.S.	1420	191.9
1964	480	1272	1998	**	1114	1277	1358	**	1209	1280	1261	N.S.	1250	137.1
1965	500	817	1329	**	820	890	936	N.S.	828	887	931	N.S.	882	137.2
Pooled	939	1448	1820	**	1172	1478	1557	**	1362	1443	1402	N.S.	1402	389.4

Crop :- Wheat (*Rabi*). **Ref:-U.P. 62(493).63(613) 64(715)**

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

Object —To study the effect of different methods of application of Phosphatic fertilizer with and with out N on the yield of Whcat.

1. BASAL CONDITIONS :

(I) (a) and (c) N.A. (ii) Parwa soil (iii) 10.12.62; N.A. 8.11.64. (iv) (a) 2-3 ploughings by Bakhar plough and Pataying. (b) Line sowing behind N 1 plough. (c) 92 Kg/ha. (d) Rows 30cm. apart. (e) — (e) Nil. (vi) Pb. 591cm. (vii) Irrigated. (viii) Weeding. (ix) N.A.; 1.5 cm.; 3·6cm. (x) 17.4.63 24.4.64 &16.4.65.

2. TREATMENTS :

Main-plot treatments :

4 levels. of N : N_0=0, N_1=13·4 N_2=26·8 and N_3=40.3 Kg/ha.

Sub-plot treatments :

All combinations of (1) and (2)+One control.

(1) 3 levels of P_2O_5 : P_1=13·4; P_2=26·8 and P_3=40·3 Kg/ha.

(2) 2 methods of application of P_2O_5 : M_1=Broadcasting and M_2=Placement.

3. DESIGN :

(i) Split-plot. (ii) (a) 4 main-plots/replication. 7 sub-plots/main-plot, (b) N.A. (iii) 4. (iv) (a) 8·38m. ×4·72m. (b) 7·77m.×4·11m. (v) 30cm.×30cm. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Nil. (iii) Yield of grain. (iv) (a) 1962-64. (b) Yes. (c) Results combined analysis have been presented under 5. Results. (v) Varanasi, Hardoi, Nawabganj and Meerut (vi) Nil. (vii) Both the error variations are homogeneous. main-plots Treatment×Years interaction and sub-plots×Years interaction are absent.

5. RESULTS :

Pooled results

(i) 1697 Kg/ha. (ii) (a) 557 7 Kg/ha. (based on 33 d.f. made up of Treatment×Years interaction and pooled error (b) 429·1 Kg/ha.(based on 252 d.f. made up of Treatment×Years interaction and pooled error). (iii) Main effect of N and Control vs. Others, are highly significant. (iv) Av. yield of grain in Kg/ha.

P_0 N_0=1265 Kg/ha. P_0 N_1=1609 Kg/ha. P_0 N_2=1702 Kg/ha. P_0 N_3=1625 Kg/ha.

	P_1	P_2	P_3	M_1	M_2	Mean
N_0	1277	1351	1383	1324	1350	1337
N_1	1766	1672	1747	1677	1776	1727
N_2	1863	1832	1872	1786	1926	1857
N_3	2024	1956	1917	1973	1960	1967
Mean	1732	1704	1729	1690	1753	1722
M_1	1707	1711	1652			
M_2	1758	1696	1805			

C.D. for N marginal means=189·3 Kg/ha.

C.D. for 'Control vs. others'=130·8 Kg/ha.

Year	N_0	N_1	N_2	N_3	Sig.	P_1	P_2	P_3	Sig.	M_1	M_2	Sig.
1962	1364	1671	1569	1542	**	1490	1595	1525	N.S.	1533	1540	N.S.
1963	1550	2012	2186	2204	**	2001	1926	2037	N.S.	1934	2042	N.S.
1964	1097	1497	1812	2154	**	1706	1590	1624	N.S.	1603	1677	N.S.
Pooled	1337	1727	1856	1957	**	1732	1708	1729	N.S.	1690	1753	N.S.

P_0N_0	P_0N_1	P_0N_2	P_0N_3	Sig.	G.M.	S.E per Main-plot	S.E per Sub-plot
1235	1302	1392	1274	*	1348	219.8	363.3
1442	1861	2212	1708	*	1842	475.7	295.9
1118	1665	1501	1862	N.S.	1563	420.8	351.4
1265	1609	1702	1625	**	1697	412.5	363.0

Crop :- Wheat (*Rabi*). **Ref. U.P. 65(409).**

Site :- Seed Multiplication Farm. Araul **Type :-'M'.**

Object :—To study the effect of N and P on Wheat under Barani conditions.

1. BASAL CONDITIONS:

(i) (a) to (c) N.A. (ii) Light loam. (iii) 10.11.65. (iv) (a) N.A. (b) Sown behind the plough. (c) 91·4 Kg/ha. (d) Rows 23cm. apart. (e) — (v) Nil. (vi) K-65(medium). (vii) Unirrigated. (viii) 1 weeding. (ix) N.A. (x) 9.4.66.

2. TREATMENTS :

All combinations of (1) and (2)

(1) 4 levels of N as A/S : N_0=0, N_1=11·2 N_2=22·4 and N_3=33·6 Kg/ha.

(2) 3 levels of P_2O_5 as Super P_0=0, P_1=11·2 Kg/ha.

Method of Application : Drilled with *Nai* in furrows behind the plough on 10.11.65.

3. DESIGN

(i) Fact. in R.B.D. (ii) (a) 12. (b) 24·60m. × 16 80m. (iii) 4. (iv) (a) 12·00m. × 2.30m. (b) 11·00m. × 1·84m. (v) 50cm. × 23cm. (vi) Yes.

4. GENERAL :

(i) Poor; (ii) 24·7 Kg/ha. of B.H.C. broad casted before sowing and mixed in soil to control termites, heavy attack of termites No control meaures adopted late damage to crop was about 50%. (iii) Yield of grain. (iv) (a), (b) and (c) Nil. (v) Girthan. (vi) There was complete drought. (vii) Nil.

5. RESULTS :

(i) 803 Kg/ha. (ii) 717·7 Kg/ha. (iii) None of the effects is significant. (iv) Av. yield of grain in Kg/ha.

	P_0	P_1	P_2	Mean
N_0	543	641	527	571
N_1	1843	768	626	1079
N_2	667	711	809	729
N_3	886	747	862	832
Mean	985	717	706	803

Crop : Wheat (*Rabi*) **Ref :- U.P. 64(562), 65 (378).**

Site :- Govt. Agri. Res. Farm, Atarra **Type :- 'M'.**

Object :—To study the effect of trace-elements on wheat crop.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Paddy in 64 & *Sanai* G.M. in 65. (c) 247 Kg/ha of Super+123.6 Kg/ha of A/S for 64 and Nil for 65. (ii) Light *Parwa*. (iii) 10.11.64 ; 29.11.65. (iv) (a) 5 ploughings by watts' plough & *Deshi* plough, 2-5 applications of *Deshi palta*. (b) Behind the plough. (c) 91.4 Kg/ha. (d) Rows 15 to 22.5 cm. apart. (e) —. (v) 56 Kg./ha. of N as A/S and 56 Kg./ha. of P_2O_5 as Super for 64 ; *Sanai* G.M.+67.3 Kg/ha. as P_2O_5 Super+11.2 Kg/ha of N as A/S for 65. (vi) Pb. .591. (vii) Irrigated for 64, Unirrigated for 65. (viii) Nil for 64, 1 weeding for 65. (ix) Nil; 0.2cm. (x) 3-4.4.65; 18-19.4.66.

2. TREATMENTS :

All combinations of (1), (2), (3) and (4)+one additional treatments

(1) 2 levels of Boron : B_0=0 and B_1=22.4 Kg. Borox/ha.

(2) 2 levels of Copper : C_0=0 and C_1=22.4 Kg Copper Sulphate/ha.

(3) 2 levels of Manganese: M_0=0 and M_1=33.6 Kg Mn SO_4/ha.

(3) 2 levels of Zinc : Z_0=0 and Z_1=33.6 Kg Zn.SO_4/ha.

Additional treatment : E=370.7 Kg/ha. of Spartin. Treatments applied on 11.11.64 and 30.11.65 treatments mixed with soil and spread infurrows.

3. DESIGN :

(i) R.B.D. (ii) (a) 17. (b) 9.50m×89.80m. (iii) 4. (iv) (a) and (b) 5.00m×9.50m. (v) Nil. (vi) Yes.

4. GENERAL:

(i) Good in 64 and growth checked due to lack of irrigation in 65. (ii) Nil (iii) Yield of grain (iv) (a) 1964—65 (b) No (c) Nil. (v) Kalai & Bharari in 64 and at Bharari in 65 (vi) The season remained dry due to drought conditions in 65. (vii) As error variances are hetrogeneous and majority of treatments×years interaction are absent, the results of individual years have been presented under 5 results.

5. RESULTS:

64(562)

(i) 1728 Kg/ha. (ii) 274.5 Kg/ha. (iii) Main effects of M and Z are highly significant and interaction C×Z is significant. (iv) Table of mean and differential response in Kg/ha.

E=1642 Kg/ha.

Differential response

	Meane respons	B		C		M		Z	
		Absent	Present	Absent	Present	Absent	Present	Absent	Present
B	98.81	—	—	31.84	165.78	109.47	88.15	163.15	34.47
C	—38.02	—104.99	28.94	—	—	—37.89	—38.15	118.42	—194.47
M	247.49	258.15	236.84	247.63	247.36	—	—	268.42	226.57
Z	180.13	244.47	115.78	336.57	23.68	201.05	159.21	—	—

C.D. for mean response=138.1 Kg/ha.

C.D. for differential response=195.4 Kg/ha.

65(378)

(i) 570 Kg/ha. (ii) 158.6 Kg/ha. (iii) None of the effects is significant. (iv) Table of mean and differential response in Kg/ha.

E=558 Kg/ha.

	Mean response	B		C		M		Z	
		Absent	Present	Absent	Present	Absent	Present	Absent	Present
B	—24.99	—	—	43.42	—93.42	—47.36	—2.63	—65.78	15.78
C	40.78	109.21	—27.63	—	—	—2.63	84.21	110.52	—28.94
M	15.78	—6.57	38.15	—27.63	59.21	—	—	18.42	13.15
Z	68.42	27.63	109.21	138.15	—1.31	71.05	65.78	—	—

Crop :- Wheat (*Rabi*)

Site : Govt. Agri. Res. Farm, Atarra

Ref. :- U.P. 61 (478), 62(497), 63(617) & 64 (721)

Type :- 'M'

Object :—To study the efficiency of organic and inorganic nitrogeneous manures with and without phosphatic fertiiizers.

1. BASAL CONDITIONS:

(i) (a) to (c) N.A. (ii) *Kabar* and *Parwa* soil. (iii) 22.11.61 ; 11.12.62 ; 22.12.63 ; 5.12.64. (iv) (a) 2 to 3 ploughings and pata application. (b) Line sowing. (c) 92 Kg/ha. (d) Rows 30 cm. apart. (e) —. (v) Nil. (vi) Pb. 591. (vii) Irrigated. (viii) Hoeing and weeding. (ix) N.A. (x) N.A. ; 24.4.63 ; 26.4.64 N.A.

2. TREATMENTS:

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

(1) 3 sources of N : F_1=A/S, F_2=F.Y.M. and F_3=$\frac{1}{2}$ as A/S+$\frac{1}{2}$ as F.Y.M.

(2) 2 levels of N : N_1=28 and N_2=56 Kg/ha.

(3) 2 levels of P_2O_5 as super : P_0=0 and P_1=44.8 Kg/ha.

Extra treatments : E_0=control (No manure) and E_1=44.8 Kg/ha. of P_2O_5 as Super.

3. DESIGN:

(i) R.B.D. (ii) (a) 14. (b) N.A. (iii) 4. (iv) (a) and (b) 12·80m × 7·92m. (v) Nil. (vi) Yes.

4. GENERAL:

(i) Good. (ii) Nil. (iii) Yield of grain. (iv) (a) 1961-64. (b) Yes. (c) Nil. (v) Rudrapur, Majhera, Meerut, Varanasi, Nawabganj, & Amrukh and Hardoi. (vi) Nil. (vii) As the error variances are heterogeenous and Treatment × Years interaction is absent, the results of individual years have been presented under 5 Results.

5. RESULTS:

61(478)

(i) 848 Kg/ha. (ii) 166.6 Kg/ha. (iii) Main effects of P & F are significant and 'Extra treatments, *Vs.* others' is highly significant (iv) Av. yield of grain in Kg/ha.

E_0=749 and E_1=623 Kg/ha.

	N_1	N_2	F_1	F_2	F_3	Mean
P_0	802	849	870	754	853	825
P_1	869	979	1094	752	926	924
Mean	835	914	982	753	889	875
F_1	929	1035				
F_2	760	745				
F_3	817	962				

C.D. for P marginal means=97.3 Kg/ha.

C.D. for F marginal means=119.1 Kg/ha.

C.D. for extra treatment *Vs.* others'=128.7 Kg/ha.

62(497)

(i) 774 Kg/ha. (Ii) 150.8 Kg/ha. (iii) Main effect of F is significant and "extra treatment *Vs.* others" is highly significant (iv) Av. yield of grain in kg/ha.

E_0=488 and E_1=670 kg/ha.

	N_1	N_2	F_1	F_2	F_3	Mean
P_0	762	861	878	744	812	811
P_1	766	835	848	692	862	801
Mean	764	848	863	718	837	806
F_1	796	930				
F_2	707	729				
F_3	790	885				

C.D. for F marginal means=107.0 Kg/ha.

C.D. for 'extra treatments *Vs.* others'=116.5 Kg/ha.

63(617)

(i) 595 Kg/ha. (ii) 99.4 Kg/ha. (iii) Main effect of F is highly significant. 'Extra treatments *Vs.* others' is significent. (iv) Av. yield of grain in Kg/ha.

E_0=542 and E_1=515 Kg/ha.

	N_1	N_2	F_1	F_2	F_3	Mean
P_0	612	625	626	549	680	618
P_1	570	619	674	500	609	594
Mean	591	622	650	524	644	606
F_1	655	646				
F_2	483	561				
F_3	630	659				

C.D. for F marginal means=71.1 Kg/ha.

C.D. for 'extra treatments *Vs*, others' =76.8 Kg/ha.

64(721)

(i) 645 Kg/ha. (ii) 155.9 Kg/ha. (iii) Main effect of F alone is significant. (iv) Av. yield of grain in Kg/ha.

E_0=583 and E_1=611 Kg/ha.

	N_1	N_2	F_1	F_2	F_3	Mean
P_0	614	662	661	589	664	638
P_1	630	704	670	541	789	667
Mean	622	683	666	565	727	652
F_1	665	666				
F_2	522	609				
F_3	679	774				

C.D. for F marginal means=111.5 Kg/ha.

Crop :- Wheat (*Rabi*). **Ref :-U.P. 64(712),**

Site :- Govt. Reg. Agri. Res. Farm, Atarra **Type :-'M'.**

Object : To study the effect of trace—elements on Wheat crop.

1. BASAL CONDITIONS:

(i) (a) (b) to (c) N.A. (ii) *Parwa* Soil (iii) 10.11.64 (iv) (a) 2 to 3 ploughings with *Bakhar* plough and Pataing (b) Line sowing with *Nari* Plough. (c) 92 Kg/ha. (d) Rows 3 cm apart (e) — (v) 56 Kg/ha. of N as A/S+56 Kg/ha. of P_2O_5 as Super+44.8 Kg/ha. of K_2O (vi) Pb—592 (vii) Irrigated (viii) Weeding & hoeing (ix) N.A. (x) 5.4.65.

2. TREATMENTS:

All combinations of (1), (2), (3) & (4) + 1 extra treatments :—

(1) 2 levels of Borax : B_0=0 and B_1=22.4 Kg/ha.
(2) 2 levels of copper Sul : C_0=0 and C_1=22.4 Kg/ha.
(3) 2 levels of Manganese Sul : M_0=0 and M_1=38.6 Kg/ha.
(4) 2 levels of Zinc Sul : Z_0=0 and Z_1=33.6 Kg/ha.

Extra Treatment : E_1=168 Kg/ha. of Spartin.

3. DESIGN :

(i) R.B.D. (ii) (a) N.A. (iii) 4 (iv) (a) 5.00m×9.50m (b) 4.00m×8.50m (v) 50 cm alround the plot. (vi) Yes.

4. GENERAL:

(i) Good (ii) Nil (iii) Yield of grain (iv) (a) 1964 only (b) — (c) — (v) to (vii) Nil.

5. RESULTS:

(i) 2450 Kg/ha. (ii) 390.7 Kg/ha. (iii) Main effect of M is significant and that of Z is highly significant. Interaction C×Z is significant. (iv) Av. Mean & differential responses in Kg/ha.

E_1=2290 Kg/ha.

Differential responses in Kg/ha.

Effects	Mean response	B		C		M		Z	
		Absent	Present	Absent	Present	Absent	Present	Absent	Present
B	49.17	0.0	0.0	—92.83	191.17	—45.95	144.30	92.83	5.51
C	—23.43	—165.44	118.56	0.0	0.0	—159.92	113.05	203.12	—249,99
M	256.89	161.76	352.02	120.40	393.38	0.0	0.0	155.33	358.45
Z	318.47	362.13	274 81	545.03	91.91	216.91	420.03	0.0	0.0

C.D. for mean response=393.2 Kg/ha.

C.D. for differential response=566.1 Kg/ha.

Crop :- Wheat (*Rabi*). **Ref :- U.P. 64(561), 65 (377)**

Site :- Govt. Agri. Res. farm, Bharari. **Type 'M'.**

Object: To study the effect of trace—elements on Wheat.

1. BASAL CONDITIONS:

(i) (a) Nil (b) and (c) N.A. (ii) *Parwa & Kabar* (iii) 9.11.65; 30.12.65 (iv) (a) 1 ploughing by victory plough+3 ploughings by *Deshi* plough (b) Behind the plough. (c) 91.4 Kg/ha. (d) Rows 15Cm apart. (e) — (v) 56 Kg/ha. of N as A/S+56 Kg/ha. of P_2O_5 as Super +44.8 Kg/ha. of K_2O as Sulphate of Potash for 64 and 56 Kg/ha. of N as A/S+ 28 Kg/ha. of P_2O_5 as Super+28 Kg/ha. of K_2O_5 as Sulphate of Potash for 65. (vi) C13 (vii) Unirrigated (viii) 1 weeding (ix) N.A. (x) 21.4.65; 1.4.66.

2. TREATMENTS:

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

(1) 2 levels of Boron : B_0=0 and B_1=22.4 Kg/ha.

(2) 2 levels of Copper : C_0=0 and C_1=22.4 Kg/ha.

(3) 2 levels of Manganese : M_0=0 and M_1=33.6 Kg/ha.

(4) 2 levels of Zinc : Z_0=0 and Z_1=33.6 Kg/ha.

Extra treatment : E_1=168 Kg/ha. of Spartin.

N.B.:—Treatments applied as Top dressing on 21.12.64, 12.2.66.

3. DESIGN:

(i) R.B.D. (ii) (a) 17 (b) 9.50m×62.60m. (iii) 4 (iv) 9.50m×3.40m (b) 9.50m×3.40m for 64, 8.50M×2.40M for 65. (v) Nil for 64, 50cm×50cm for 65. (vi) Yes.

4. GENERAL:

(i) Good (ii) Nil (iii) Yield of grain & straw. (iv) (a) 1964—65 (b) No (c) Nil (v) Kalai and Atarra. (vi) Nil (vii) As the error variances are heterogeneous and treatments × years interaction is absent, the results of individual year have been presented under 5 Results.

5. RESULTS:

64(561)

(i) 1504 Kg/ha. (ii) 646.4 Kg/ha. (iii) None of the effects is significant (iv) Table of mean and differential response in Kg/ha.

E_1=1683 Kg/ha.

	Mean response	B		C		M		Z	
		Absent	Present	Absent	Present	Absent	Present	Absent	Present
B	126.16	—	—	59.01	193.30	11.60	240.71	—149.96	402.28
C	—38.11	—105.26	29.02	—	—	—294.11	217.87	26.12	—102.36
M	173.76	59.21	288.31	—82.23	429.76	—	—	213.81	133.70
Z	207.62	—68.49	483.74	271.86	143.38	247.67	167.56	—	—

65(377)

(i) 1667 Kg/ha. (ii) 380.2 Kg/ha. (iii) None of the effects is significant (iv) Table of mean and differential response in Kg/ha.

E_1=1569 Kg/ha.

	Mean response	B		C		M		Z	
		Absent	Present	Absent	Presetn	Absent	Present	Absent	Present
B	4.59	—	—	—82.72	91.91	61.27	70.46	134.80	—125.61
C	—1.53	—88.84	85.78	—	—	—73.52	70.46	49.01	—52.08
M	154.71	88.84	220.58	82.72	226.71	—	—	98.03	211.39
Z	—16.85	113.35	—147.5	33.70	—67.40	—73.52	39.82	—	—

Crop :- Wheat (*Rabi*). **Ref :- U.P. 60(260).**

Site :- R.B.S. College, Bichpuri. **Type :- 'M'.**

Object :—To study the relative effeciency of split application of two forms of N on growth, yield and quality of wheat.

1. BASAL CONDITIONS :

(i) (a) Nil (b) Fallow (c) Nil (ii) Sandy loam (iii) 5/6.11.60 (iv) (a) One ploughing and 2 harrowings (b) Behind the plough. (c) 89.7 Kg/ha. (d) 23 cm. between rows. (e) — (v) Nil (vi) Pb .591 (vii) Irrigated (viii) Weedings (ix) 7.7 cm. (x) 25.4.61.

2. TREATMENTS :

All combinations of (1) and (2)

(1) 2 Sources of N at 67.2 Kg/ha. N_1=A/S. and N_2=Urea.

(2) 10 Times of application of N :

T_1= At sowing T_2= 1/4 at sowing and 3/4 one month after sowing T_3= 1/4 at sowing and 3/4 two months after sowing T_4= 1/4 at sowing and 3/4 three months after sowing, T_5= 1/2 at sowing and 1/2 one months after sowing, T_6= 1/2 at sowing and 1/2 two months after sowing, T_7= 1/2 three months after sowing, T_8= 3/4 at sowing and 1/4 one months after sowing, T_9= 3/4 at sowing and 1/4 two month after sowing, T_{10}= 3/4 at sowing and 1/4 three months after sowing. N was applied by broad casting.

3. DESIGN :

(i) Fact. in R.B.D. (ii) (a) 20 (b)—. (iii) 3 (iv) (a) 13.41m×6.40m. (b) 10.97m×4.57m. (v) 122cm×91cm. (vi) Yes.

4. GENERAL:

(i) Good. (ii) Nil. (iii) Yield of grain. (iv) (a) 1960—Only. (b) and (c) Nil.

5. RESULTS:

(i) 2677 Kg/ha. (ii) 289 4 Kg/ha. (iii) Main effect of N alone is significant. (iv) As yield of grain in Kg/ha.

Tratement :	N_1	N_2	T_1	T_2	T_3	T_4	T_5	T_6	T_7	T_8	T_9	T_{10}.
As yield :	2778	2576	2668	2660	2932	2350	2742	2675	2501	2653	2816	2873

C.D. for N means=151.3 Kg/ha.

Crop :- Wheat (*Rabi*). **Ref :- U.P. 60(275).**

Site :- R.B.S. College, Bichpuri. **Type :- 'M'**

Object :—To study the effect of Bentonitic black soil and Bentonite with and without F.Y.M. on soil. fertility and the yield of Wheat.

1. BASAL CONDITIONS:

(i) (a) Nil (b) Bajra (c) N.A. (ii) Sandy loam (iii) 13.11.60 (iv) (a) 3 harrowings (b) By seed-drill (c) 80.7 Kg/ha. (d) Rows 23 cm. apart (e) — (v) 22.4 Kg/ha. of N as A/S (vi) Pb. 591 (vii) Irrigated (viii) N.A. (ix) 7.7 cm. (x) 25.4.61.

2. TREATMENTS:

6 manurial Treatments :—

T_0= Control, T_1= 67.2 Kg/ha. of N as F.Y.M, T_2= 100.4 Kg/ha. of Bentonitic black soil, T_3= T_1+T_2, = 100.4 Kg/ha. of Bentonite and T_5= T_1+T_4.T_4

3. DESIGN :

(I) R.B.D. (ii) (a) 6 (b) 33.83 m.×11.89 m. (iii) 6. (iv) 11.89 m.×5.49 m. (b) 9.45 m.× 4.27 m. (vi) Yes.

4. BASAL CONDITIONS

(i) Good. (ii) Nil (iii) Yield of grain & Straw. (iv) (a) 1960—Only. (b) and (c) Nil. (v) (vi) to (vii) Nil.

5. RESULTS :

(i) 2434 Kg/ha. (ii) 255.7 Kg/ha. (ii) 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:	2296	2521	2389	2408	2454	2535.

Crop :- Wheat (*Rabi*). **Ref :- U.P. 62(282),**

Site :- R.B.S. College, Bichpuri. **Type :- 'M'.**

Object . To see the effect of N and P. applied alone and in combination on the growth, yield and quality of Wheat

1. BASAL CONDITIONS:

(i) (a) Nil (b) Fallow (c) Nil (ii) Sandy loam (iii) 12.11.62 (iv) (a) 1 ploughing, 2 harrowings with *disc* harrow and 1 planking (d) Behind the plough. (c) 100 Kg/ha. (d) Rows 23 cm. apart. (e) — (v) Nil (vi) Pb. 591 (vii) Irrigated (viii) Weeding by *Khurpi* (ix) 1.2 cm. (x) 20.4.63.

2. TREATMENTS :

All combinations of (1) & (2):

(1) 6 levels of N as A/S : $N_0=0$, $N_1=25$, $N_2=50$, $N_3=75$, $N_4=100$ and $N_5=125$ Kg/ha.

(2) 6 levels of P_2O_5 as Super : $P_0=0$, $P_1=25$, $P_2=50$, $P_3=75$, $P_4=100$ and $P_5=125$ Kg/ha.

3. DESIGN :

(i) Fact in R.B.D. (ii) (a) 36. (b) N.A. (iii) 3 (iv) (a) 9.00 m×6.00 m (b) 8.00 m×5.00 m (v) 50 cm×50 cm. (vi) Yes.

4. GENERAL :

(i) Good (ii) Nil (iii) Germination %, No. of tillers/plant, length of ear, No. of grain per ear, 100 grains weight, yield of grain & straw. (iv) (a) 1962—Only (b) and (c) Nil. (v) to (vii) Nil.

5. RESULTS:

(I) 1755 Kg/ha. (ii) 338.1 1 Kg/ha. (iii) Main effect of N is highly significant and that of P and Interaction N×P is significant. (iv) Av. yield of grain in Kg/ha.

	N_0	N_1	N_2	N_3	N_4	N_5	Mean
P_0	1362	1516	1775	1487	1649	1723	1585
P_1	1476	1700	1895	1779	1975	1790	1799
P_2	1595	1477	1854	2012	2170	1766	1829
P_3	945	1808	1579	1858	2050	1587	1621
P_4	1362	1933	2000	2025	1774	1454	1758
P_5	1649	2250	2030	1889	1891	1924	1939
Mean	1398	1747	1889	1842	1918	1737	1755

C.D. for N or P marginal means=225.9 Kg/ha.

C.D. for body of the table=553.3 Kg/ha.

Crop :- Wheat (*Rabi*). **Ref :- U.P. 62(283),**

Site :- R.B.S. College, Bichpuri **Type :- 'M'.**

Object :—To study the effect of N. P & K applied alone and in combinations on the growth, yield and quality of Wheat.

1. BASAL CONDITIONS :

(i) (a) Nil (b) Fallow (c) Nil (ii) Sandy loam (iii) 14.11.62 (iv) (a) 1 ploughing, 2 harrowings and planking (b) Behind the plough (c) 100 Kg/ha. (d) Rows 23 cm. apart (e) — (v) Nil (vi) Pb. 591 (vii) Irrigated (viii) Weeding by *Khurpi* & ridge making (ix) 1 2 cm. (x) 20.4.63.

2. TREATMENTS:

All combinations of (1) & (2)

(1) 4 levels of fertilizer : F_0= control, F_1= 25 Kg/ha. of N+25 Kg/ha. of P_2O_5 $F_3=3\times F_1$ and $F_5= 5\times F_1$.

(2) 3 levels of K_2O : $K_0=0$, $K_1=$ 50 and $K_2=100$ Kg/ha.

Sources of N, P & K are N A.

3. DESIGN :

(i) Fact. in R.B.D. (ii) (a) 12 (b) N.A. (iii) 4 (iv) 9.00 m × 6.00 m (b) 8.00 m × 5.00 m (v) 50 cm × 50 cm (vi) Yes.

4. GENERAL:

(i) Good (ii) Nil (iii) Germination %, No. of tillers, height of the plant, No. of grains/ear, Weight of 1000 grains, yield of grain & straw. (iv) (a) 1962—Only (b) and (c) Nil. (v) to (vi) Nil (vii) Raw data N.A.

5. RESULTS:

(i) 2051 Kg/ha. (ii) 298.8 Kg/ha. (iii) Main effect of F alone is highly significant (iv) Av. yield of grain in Kg/ha.

Treatment	F_0	F_1	F_2	F_3	K_0	K_1	K_2
Av. Yield	1615	1952	2283	2353	2083	2029	2041

C.D. for F marginal means=248.2 Kg/ha.

Crop :- Wheat (*Rabi*). **Ref. :- U.P. 63(303), 64 (325).**

Site :-R.B.S. College, Bichpuri **Type :- 'M'.**

Object :—To study the effect of micro-nutrients and spartin in combination with N, P and K fertilizer mixture on the growth, yield and quality of Wheat.

1. BASAL CONDITIONS :

(i) (a) Nil (b) Fallow ; N.A. (c) Nil : (ii) Sandy loam. (iii) 21.10.63 ; 27.10.64 (iv) (a) 4—5 harrowings by tractor. (b) Behind the plough. (c) 100 Kg/ha. (d) Rows 25 cm. apart. (e) — (v) Nil (vi) P_6 59nt (vii) Irrigated (viii) 1 Weeding by *Khurpi* (ix) 0.8 cm.; 1.2 cm. (x) 15.4.64 ; 23.4.65.

2. TREATMENTS:

15 manurial treatments :—

T_0= Control, T_1=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. T_2= T_1+28.0 Kg/ha. of Zn. Sul. as soil application. T_3= T_1+28.0 Kg/ha. of Cu. Sul. as soil application, T_4= T_1+1.1 Kg/ha. of Sod. Moly. as soil application, T_5= T_1+56.0 Kg/ha. of Mn. Sul. as soil application, T_6= T_1+16.8 Kg/ha. of Borax as soil application, T_7= T_1+369.9 Kg/ha. Sparo.6 as soil application, T_8= T_1+all micro-nutrients combined as soil application T_9= T_1+11.2 Kg/ha. of Zn. Sul. as foliar application, T_{10}= T_1+11.2 Kg/ha. of, Cu. Sul. as foliar application, T_{11}= T_1+0.6 Kg/ha. Sod. Molybdate as foliar application, T_{12}= T_1+16.8 Kg/ha. Mn. Sul. as foliar application, T_{13}= T_1+5.7 Kg/ha. of Borax as foliar application and T_{14}= T_1+all micro-nutrients combined. as foliar application.

3. DESIGN :

(i) R.B.D. (ii) (a) 15 (b) N.A. (iii) 4 (iv) (a) 9.74 m.×5.47 m ; 10.00m.×5.00m. (b) 8.84 m.×4.57m 9.00m.×4.00m. (v) 50 cm.×50 cm. (vi) Yes.

4. GENERAL:

(i) Good (ii) Nil (iii) Yield of grain (iv) (a) 1963—65 (Experiment modified in 1965). (b) No. (c) Nil. (v) & (vi) Nil. (vii) As error variances are heterogeneous and Treatments × years in interaction is absent, the results of individual years have been presented under 5. Results.

5. RESULTS:

63(303)

(i) 1658 Kg/ha. (ii) 144.0 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	T_5	T_6	T_7	T_8	T_9
Av. Yield	1052	1685	1638	1707	1712	1663	1750	1744	1712	1737

Treatment	T_{10}	T_{11}	T_{12}	T_{13}	T_{14}
Av. Yield	1517	1868	1695	1707	1683

C.D.=205.6 Kg/ha.

64(335)

(i) 1444 Kg/ha. (ii) 282.0 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	T_5	T_6	T_7	T_8
Av. Yield	1107	1430	1340	1535	1555	1332	1392	1540	1445

Treatment	T_9	T_{10}	T_{11}	T_{12}	T_{13}	T_{14}
Av. Yield	1300	1322	1550	1867	1630	1310

C.D.=402.5 Kg/ha.

Crop :- Wheat (R*abi*). **Ref :- U.P. 65(147)**

Site :- R.B.S. College, Bichpuri **Type :- 'M'.**

Object: To study the effect of micro-nutrients and Spartin in combination with N, P and K.

1. BASAL CONDITIONS:

(i) (a) Nil. (b) *Jowar* for fodder. (c) N.A. (ii) Sandy loam. (iii) 4.11.65. (iv) (a) 5 Ploughings by tractor & *Desi* plough. (b) Behind the *Desi* plough. (c) 100 Kg/ha. (d) Rows 25 cm. apart. (e) — (v) Nil (vi) C.303. (vii) Irrigated. (viii) Weeding (ix) 2.3 cm. (x) 4.4.66.

2. TREATMENTS:

15 manurial treatments:—

T_0= Control, T_1= 35 Kg/ha. of N+35 Kg/ha. of P_2O_5+35 Kg/ha. of K_2O, T_2= T_1+30 Kg/ha. Zinc Sul. T_3= T_1+30 Kg/ha. of Copper Sul., T_4= T_1+1.25 Kg/ha. of Sodium Molybdate, T_5= T_1+60 Kg/ha. of Mn. Sul., T_6= T_1+17.5 Kg/ha. of Borax, T_7= T_1+395 Kg/ha. of Spartin, T_8= T_1+ all micro-nutrients combined and applied as soil application, T_9= T_1+12.50 Kg/ha. Zn. Sul. T_{10}= T_1+12.50 Kg/ha. of Cu. Sul., T_{11}= T_1+0.62 Kg/ha. of Sodium Molybdate. T_{12}= T_1+17.50 Kg/ha. of Mn. Sul. T_{13}= T_1+6.25 Kg/ha. of Borax and T_{14}= T_1+all micro-nutrients combined.

N.B. Micronutrients from T_2 to T_8 were applied through soil and from T_9 to T_{14} applied through foliar spray.

3. DESIGN:

(i) R.B.D. (ii) (a) 15 (b) N.A. (iii) 4. (iv) (a) 10.00 m. × 4.00 m. (v) 50 cm. × 50 cm. (vi) Yes.

4. GENERAL:

(i) Good. (ii) Nil (iii) Yield of grain. (iv) (a) 1963–65 (Experiment modified in 1965). (b) No. (c) Nil. (v) (vi) to (vii) Nil.

5. RESULTS:

(i) 1199 Kg/ha. (ii) 266.0 Kg/ha. (iii) Treatment differences are not significant. (iv) 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 :	978	1241	1251	1429	1255	1227	1324	1108

Treatment:	T_8	T_9	T_{10}	T_{11}	T_{12}	T_{13}	T_{14}
Av. Yield:	1505	1310	1102	1012	1075	1061	1108

Crop :-Wheat (*Rabi*). **Ref :- U.P. 62(284).**

Site :- R.B.S. College, Bichpuri **Type :- 'M'.**

Object :—To study the effect of certain nitrogenous fertilizers at different levels on the growth, yield and quality of Wheat.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) *Jowar* for fodder (c) Nil. (ii) Sandy loam. (iii) 25.10.62. (iv) (a) 4 ploughings by tractor (b) Behind the *Deshi* plough. (c) 100 Kg/ha. (d) Rows 23 cm. apart. (e) — (v) 49.8 Kg/ha. of P_2O_5 (vi) Pb.591 (vii) Irrigated. (viii) Weeding by *Khurpi* (ix) 1.2 cm. (x) 16.4.63.

2. TREATMENTS:

All combinations of (1) & (2).

(1) 4 sources of N S_1= A/S, S_2= A/c., S_3= C/A/N and S_4=U.P. mixture No. 1.
(2) 4 levels of N : N_0=0, N_1=44.8, N_2=67.3 and N_3=89.7 Kg/ha.

3. DESIGN:

(i) Fact. in R.B.D. (ii) (a) 16 (b) N.A. (iii) 4. (iv) (a) (b) 8.83 m × 4.57 m. (v) N.A. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Nil (iii) Yield of grain. (iv) (a) 1962—Only. (b) and (c) Nil. (v) to (vi) Nil. (vii) Raw data N.A. Results as available have been presented under 5—Results.

5. RESULTS:

(i) 1458 Kg/ha. (ii) 242.7 Kg/ha. (iii) Main effect of N alone is highly significant (iv) Av. yield of grain in Kg/ha.

Treatments :	S_1	S_2	S_3	S_4	N_0	N_1	N_2	N_3
Av. Yield :	1480	1419	1500	1431	882	1529	1675	1747

C.D. for N marginal means=173.0 Kg/ha.

Crop :- Wheat (*Rabi*). **Ref :-U.P. 61(262).**

Site :- R.B.S. College, Bichpuri. **Type .-'M'.**

Object :—To study the effect of forms and levels of N on the growth, development and yield of Wheat.

1. BASAL CONDITIONS:

(i) (a) Nil. (b) Fallow (c) Nil. (ii) Sandy loam (iii) 1.11,61. (iv) (a) 4 harrowings by tractor and levelling (b) Behind the plough. (c) 86.5 Kg/ha. (d) Rows 23 cm. apart. (e) — (v) Nil. (vi) Pb.591 (vii) Irrigated. (viii) Weeding by *Khurpi*. (ix) 6.3 cm. (x) 25.4.62.

2. TREATMENTS:

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

(1) 5 Sources of N: F_1= A/S, F_2= A/S/N, F_3=A/c, F_4= C/A/N and F_5= U.P. Mixture No. 1.

(2) 3 levels of N: N_1=44.8, N_2=67.2 and N_3=89.6 Kg/ha.

U.P. Mixture No : 1 Contains 16.2% N and 9% P_2O_5. Therefore equivalent quantity of P_2O_5 as Super applied in F_1, F_2, F_3 & F_4 to compensate P_2O_5 in F_5.

3. DESIGN:

(i) R.B.D. (ii) (a) 16 (b) N.A. (iii) 4. (iv) (a) 10.06m.×5.79m. (b) 8.84m.×4.57m. (v) 60cm.×60cm. (vi) Yes.

4. GENERAL:

(i) Good. (ii) Nil (iii) Gemination %, height/plant, No. of grain/ear, No. of tillers/plant, & yield of grain (iv) (a) 1961—Only. (b) and (c) Nil. (v) to (vii) Nil.

5. RESULTS:

(i) 1024 Kg/ha. (ii) 180.0 Kg/ha. (iii) Control *vs* others' is highly significant (iv) Av. yield of grain in Kg/ha.

Control=636 Kg/ha.

Treatment :	N_1	N_2	N_3	F_1	F_2	F_3	F_4	F_5
Av. Yield :	1009	1116	1025	1070	1116	1006	1073	987

C.D. for 'Control *Vs.* others"=187.4 Kg/ha.

Crop :- Wheat (*Rabi*). **Ref :- U.P. 63(599), 64(701), 65(597).**

Site :- Soil cons. Res. Demos, & Trg. Centre, Chhalesar. **Type :- 'M'.**

Object :—To find out the suitable source of N for irrigated Wheat.

1. BASAL CONDITIONS:

(i) (a) Fallow—Wheat. (b) Fallow. (c) Nil. (ii) Sandy loam. (iii) 12-11-63, 11-11-64, 8-11-65. (iv) (a) 5 ploughings by Tractor/*Deshi* plough and planking twice (b) Line sowing behind the Plough. (c) 100Kg/ha. (d) Rows 23cm. apart. (e) — (v) Nil. (vi) Pb—591. (vii) Irrigated. (viii) 1 Weeding. (ix) 0.6cm., 4.9cm,, 0.7cm. (x) 15.4.64; 9.4.65; N.A.

2 TREATMENTS:

8 Sources of N at 67.2 Kg/ha.

T_0=Control (No. manure), T_1=A/c, T_2=Urea, T_3=A/S/N, T_4=A/S, T_5=Castor Cake, T_6=F.Y.M. and T_7=City Compost.

3. DESIGN:

(i) R.B.D. (ii) (a) 8. (b) N.A. (iii) 4 for 63, 5 for others. (iv) (a) 6.10m.×4.88m. (b) 5.49m.×4.27m. (v) 30cm.×35cm. (vi) Yes.

4. GENERAL:

(i) Good. (ii) Nil. (iii) Yield of grain. (iv) (a) 1963-65. (b) No. (c) Combined analysis have been presented under 5. Results. (v) & (vi) Nil. (vii) The error variances are heterogeneous and Treatment×Year interaction is present.

5. **RESULTS:**

Pooled results :

(i) 1854Kg/ha. (ii) 609.1Kg/ha. (based on 14 df. made up of Treatment × Years interaction). (iii) Treatment differences are 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 :	1571	2395	2213	1956	1822	1732	1697	1446

C.D.=493.8Kg/ha.

Individuel results:

Treatment	T_0	T_1	T_2	T_3	T_4	T_5	T_6	T_7	Sig	G.M	SE/Plot
Year											
1963	814	1421	1198	1269	1189	1274	904	846	**	1114	230.7
1964	1680	2699	2291	2028	1946	1506	2383	1470	**	2000	430 9
1965	2068	2870	2947	2434	2204	2325	1647	1903	**	2300	493.5
Pooled	1571	2395	2213	1956	1822	1732	1697	1446	*	1854	609.1

Crop :- Wheat (*Rabi*). **Ref :-U.P. 63(602).**

Site :- Soil Cons. Res. Demons & Trg. Centre, Chhalesar **Type :- 'M'.**

Object :—To study the effect of different levels of N and P on the yield of Wheat.

1. BASAL CONDITIONS :

(i) (a) Wheat—Fallow—Wheat. (b) Fallow. (c) — (ii) Sandy loam. (iii) 3.11.63 (iv) (a) 3 dise harrowings by tractor, 2 ploughings by *Deshi* plough (b) Line sowing behind the plough. (c) 91.4 Kg/ha. (d) Rows 23cm. apart. (e) — (v) Nil (vi) Pb—591. (vii) Irrigated. (viii) Weedings. (ix) 0.6cm. (x) 15.4.64.

2. TREATMENTS:

All combinations of (1) & (2):

(1) 6 levels of N : $N_0=0$, $N_1=22.4$, $N_2=44.8$, $N_3=67.2$, $N_4=89.6$ and $N_5=112.0$ Kg/ha.

(2) 2 levels of P_2O_5 : $P_0=0$ and $P_1=44.8$ Kg/ha.

3. DESIGN :

(i Fact in R.B D. (ii) 12 (b) N.A. (iii) 4 (iv) (a) 7.32m.×6.40m. (b) 6.40m.×5.49m. (v) 46cm.×46cm. (vi) Yes.

4. GENERAL:

(i) Good. (ii) Nil. (iii) Yield of grain. (iv) (a) 1963—Only. (b) and (c) Nil. (v) to (vii) Nil.

5. RESULTS

(i) 1309Kg/ha. (ii) 534.8Kg/ha. (iii) None of the effects is significant. (iv) Av. Yield of grain in Kg/ha.

	N_0	N_1	N_2	N_3	N_4	N_5	Mean
P_0	818	1260	1074	1839	1543	1080	1269
P_1	985	1235	1799	1555	1013	1512	1350
Mean	902	1247	1436	1697	1278	1296	1309

Crop :- Wheat (*Rabi*). **Ref:- U.P. 61(418), 62(441)**

Site :- Soil Cons. Res. Demons. and Trg. Centre, Chhalesar. **Type :- 'M'.**

1. BASAL CONDITIONS :

(i) (a) Wheat—Fallow—Wheat. (b) Wheat. (c) 150Q/ha. of Compost. (ii) Sandy loam. (iii) 12.11.61; 23.10.62. (iv) (a) 5 ploughings and two plankings. (b) Line sowing. (c) 100 Kg/ha. (d) Rows 23 cm. apart. (e) — (v) 150 Q/ha. of Compost. (vi) Pb. 591. (vii) Irrigated. (viii) One weeding. (ix) 4.1 cm. ; 3.5 cm. (x) 4.4.62 ; 1.4.63.

2. TREATMENTS:

Main-plot treatments :

3 times of application of N : T_1=Full dose at 1st irrigation, T_2=Full dose at flowering and T_3=1/2 dose at 1st irrigation+1/2 does at flowering.

Sub-plot treatments :

All combinations of (1) and (2) :

(1) 3 levels of N : N_1=18.4, N_2=31.8 and N_3=45.4 Kg/ha.

(2) 3 levels of P_2O_5 : P_1=18.4, P_2=31.8 and P_3=45.4 Kg/ha.

3. DESIGN :

(i) Split—Plot (ii) (a) 3 main-plots/replication, 9 sub-plots/main-plot. (b) N.A. (iii) 2. (iv) 8.28 m.× 3.58m. (b) 8.05 m.×3.35 m. (v) 12 cm×12 cm. (vi) Yes.

4 GENERAL :

(i) Good. (ii) Nil. (iii) Yield of grain. (iv) (a) 1961-62. (b) Yes. (c) Nil (v) and (vi) Nill. (vii) As the sub-plot error variances are heterogeneous the results of individual years have been presented under 5 Results.

5. RESULTS

61 (418)

(i) 2159 Kg/ha. (ii) (a) 633.0 Kg/ha. (b) 227.8 Kg/ha. (iii) Main effect of N alone is highly significant. (iv) Av. yield of grain in Kg/ha.

	N_1	N_2	N_3	P_1	P_2	P_3	Mean
T_1	1897	2156	2256	2169	1984	2156	2103
T_2	1929	2257	2321	2144	2047	2315	2169
T_3	1958	2269	2384	2190	2185	2237	2204
Mean	1928	2227	2320	2168	2072	2236	2159
P_1	1913	2214	2376				
P_2	1922	2049	2245				
P_3	1949	2420	2339				

C. D. for N marginal means=156.7 Kg/ha.

62 (441)

(i) 1885 Kg/ha. (ii) (a) 159.7 Kg/ha. (b) 345·0 Kg/ha. (iii) Main effects of T and interaction T×N are highly significant. (iv) Av. yield of grain in Kg/ha,

	N_1	N_2	N_3	P_1	P_2	P_3	Mean
T_1	1672	2047	1526	1703	1595	1946	1748
T_2	1655	1908	2061	1579	2156	1889	1874
T_3	2527	1912	1661	2083	2125	1892	2033
Mean	1951	1956	1749	1788	1959	1909	1885
P_1	1962	2040	1563				
P_2	1967	1937	1972				
P_3	1925	1890	1912				

C. D. for T marginal means=229.1 Kg/ha.

C.D. for N means at the same level of T=411.1 Kg/ha.

C.D. for T means at the same level of N=363.1 Kg/ha.

Crop :- Wheat (*Rabi*) **Ref :- U.P. 65(410),**

Site :- Wheat Res. Sub-Stn., Girthan. **Type :- 'M'.**

Object :—To study the effect of foliar application of Urea on Wheat under rainfed and *Barani* conditions.

1. BASAL CONDITIONS :

(i) (a) N. A. (b) Fallow. (c) Nil. (ii) *Mar.* (iii) 2.11.65 (iv) (a) 2—3 ploughing by *Bakhar* plough. (b) Sown behind the plough. (c) 91.4 kg/ha. (d) Rows 30 cm. apart. (e) — (v) Nil. (vi) K65. (vii) Unirrigated. (viii) to (ix) N.A. (x) 15.4..66.

2. TREATMENTS:

9 manurial treatments :

T_0=Control (no manure).
T_1=5.6 Kg/ha. of N as soil application.
T_2=5.6 Kg/ha. of N as foliar application.
T_3=5.6 Kg/ha. of N as soil application+5.6 Kg/ha. of N as foliar application.
T_4=11.2 Kg/ha. of N as soil application.
T_5=11.2 Kg/ha. of N as soil application+5.6 Kg/ha. of N as foliar application.
T_6=16.8 Kg/ha. of N as soil application.
T_7=16.8 Kg/ha. of N as soil application+5.6 Kg/ha. of N as foliar application.
T_8=22.4 Kg/ha. of N as soil application.
In soil application :
N as Urea, drilled with the help of *Nai* before sowing with last ploughing. 2% Concentration of sol. Sprayed thrice.

3. DESIGN

(i) R.B.D. (ii) (a) 9. (b) 12.19 m×25.30 m. (iii) 4. (iv) (a) 7.92 m×3.66 m. (b) 7.32 m×3.05 m. (v) 30 cm. × 30 cm. (vi) Yes.

4. GENERAL :

(i) Not good crop had larg[illegible] aps. (ii) Nil (iii) No. of tillers/plant ; No. of levels/plant ; height of plant yield of grain and shea[illegible] iv) (a) 1964-65 [Data N.A. for 64] (b) No. (c) Nil. (v) Kanpur (vi) and (vii) Nil.

5. RESULTS :

(i) 611 Kg/ha. (ii) 163.0 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	T_5	T_6	T_7	T_8
Av. Yield :	571	593	554	700	638	616	593	487	750

Crop :- Wheat (*Rabi*). **Ref :- U.P. 65(408).**

Site :- Wheat Res. Sub. Stn., Girthan **Type :- 'M'.**

Object :—To study the effect of diffrent doses of N & P on Wheat under *Barani* conditions.

1. BASAL CONDITIONS:

(i) (a) N.A. (b) Fallow. (c) Nil. (ii) *Mar.* (iii) 2.11.65. (iv) (a) 2—3 ploughings by *Bakhar* plough. (b) Sown behind the plough with *Nari* (c) 91.4 Kg/ha. (d) Rows 30cm. apart. (e) — (v) Nil. (vi) K-65. (vii) Unirrigated. (viii) to (ix) N.A. (x) 18-4-66.

2. TREATMENTS:

All combinations of (1) and (2).

(1) 4 levels of N as urea : N_0=0, N_1=11.2, N_2=22.4 and N_3=33.6Kg/ha.

(2) 3 levels of P_2O_5 as Super : P_0=0, P_1=11.2 and P_2=22.4Kg/ha.

Full doses of N and P_2O_5 applied at sowing behind the plough in furrows with last ploughing.

3 DESIGN:

(i) Factorial in R.B D. (ii)(a) 12. (b) 25.30m.×18.90m. (iii) 4. (iv) (a) 7.92m.×4.27m. (b) 7.32m.×3.66m. (v) 30cm.×30cm. (vi) Yes.

4. GENERAL:

(i) Not good. (ii) Nil. (iii) No. of tillers/plant, height of plant recorded on different dates; yield of grain & straw. (iv) (a) 1964 65 (Data for 64 N.A). (b) and (c) Nil. (v) Araul. (vi) and (vii) Nil.

5. RESULTS

(i) 559 Kg/ha. (ii) 170.1Kg/ha. (iii) None of the effects is significant (iv) Av. yield of grain in Kg/ha.

	P_0	P_1	P_2	Mean
N_0	611	508	821	647
N_1	532	453	481	488
N_2	714	480	513	569
N_3	448	588	560	532
Mean	576	507	594	559

Crop :- Wheat (*Rabi*) **Ref :- U.P. 61(309), 62(333), 63(364)**

Site.-Govt. Agri. Flood Res. Stn., Gograghat **Type :- 'M'.**

Object: —To see the effect of N and P applied singly and in combinations on the yield of Wheat.

1. BASAL CONDITIONS :

(i) (a) N.A. for 61 ; Paddy—Wheat for others. (b) N.A. for 61 ; Paddy for others. (c) N.A. (ii) Sandy lo am (iii) 11.12 61 ; 9.12 62 ; 22.10.63. (iv) (a) 4 ploughings by soil turning and *Desi* ploughs followed byplanking (b) Behind the *Desi* plough. (c) 92.2 Kg/ha. for 61 and 62 ; 86.5 Kg/ha. for 63. (d) Rows 23 cm. apart. (e) — (v) Nil. (vi) K. 68. (vii) Unirrigated. (viii) Hoeing. (ix) 7.5 cm. ; 4.4 cm.; 0.6 cm. (x) 15.4.62 ; N.A. ; 30.3 64.

2. TREATMENTS :

All combinations of (1) & (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 levels of P_2O_5 as Super : P_0=0, P_1=33.6 and P_2=67.2 Kg/ha.

Fertiiizer applied at sowing.

3. DESIGN :

(i) Factorial in R.B.D. (ii) (a) 9. (b) 14.94 m×24.08 m. ; 26.52 m.×16.92 m. ; 15.54 m.×28.35 m. (iii) 4. (iv) (a) 7.62 m.×4.57 m. ; 8.23 m.×5.03 m. ; 8.84 m.×4.57 m. (b) 7.62 m.×4.57 m. for 61 and 62 ; 8.23m×4.11 m. for 63. (v) Nil for 61 ; 30 cm.×23 cm. for 62 and 63. (vi) Yes.

4. GENERAL

(i) Satisfactory. (ii) Incidence by Rust. (iii) Yield of grain. (iv) (a) 1961–63. (b) No. (c) Nil. (v) Nil (vi) Damage by birds in 62. (vii) As the error variances are heterogeneous and Treatments × years interaction is absent, the results of individual years have been presented under section 5.

5. RESULTS

61 (309)

(i) 760 Kg/ha. (ii) 209.9 Kg/ha. (iii) None of the effects is significant. (iv) Av. yield of grain in Kg/ha.

	P_0	P_1	P_2	Mean
N_0	557	783	826	722
N_1	789	800	797	795
N_2	670	710	909	763
Mean	672	764	844	760

62 (333)

(i) 355 Kg/ha. (ii) 88.5 Kg/ha. (iii) None of the effects is significant. (iv) Av. yield of grain in Kg/ha :

	P_0	P_1	P_2	Mean
N_0	304	382	337	341
N_1	330	372	351	351
N_2	349	371	401	374
Mean	327	375	363	355

63 (364)

(i) 961 Kg/ha. (ii) 250.9 Kg/ha. (iii) Main effect of N and interaction N × P are significant. (iv) Av. yield of grain in Kg/ha :

	P_0	P_1	P_2	Mean
N_0	904	854	738	832
N_1	906	1098	840	948
N_2	816	1005	1492	1104
Mean	875	986	1023	961

C.D. for N marginal means=211.1 Kg/ha.

C.D. for body of table=365.6 Kg/ha.

Crop :- Wheat (*Rabi*). **Ref :- U.P. 64(398).**

Site :- Govt. Agri. Flood Res. Stn., Gograghat. **Type :- 'M'.**

Object :—To find out the suitable dose of P for wheat in flood affected areas of U.P.

1. BASAL CONDITIONS :

(i) (a) Paddy—Wheat. (b) Paddy. (c) N.A. (ii) Sandy loam. (iii) 17.12.64. (iv) (a) 2 ploughings by soil turning plough, one ploughing by tractor and 3 *pataying* by *Singh Desi* pata. (b) Behind *Desi* plough. (c) 86.5Kg/ha. (d) Rows 23cm. apart. (e)— (v) Nil. (vi) N.P. 835 (mid-late) (vii) Unirrigated. (viii) 1 Weeding. (ix) 5.3cm. (x) 5.4.65.

2. TREATMENTS :

All combinations of (1) and (2).

(1) 4 levels of N as A/s : N_0=0, N_1=50.4, N_2=67.3 and N_3=84.1Kg/ha.

(2) 4 levels of P_2O_5 as super : P_0=0, P_1=50.4, P_2=67.3 and P_3=84.1Kg/ha.

N was broad casted on 18.12.64 and P_2O_5 drilled in furrows by sowing.

3. DESIGN :

(i) Factorial in R.B.D. (ii) (a) 16. (b) 9.60m.×73.91cm. (iii) 3. (iv) (a) and (b) 8.84m×4.57m (v) Nil (vi) Yes.

4. GENERAL:

(i) Good. (ii) N.A. (iii) Plant population, height, yield of grain. (iv) (a) 1964—Only. (b) and (c) Nil. (v), (vi) to (vii) Nil.

5. RESULTS :

(i) 306.7Kg/ha. (ii) 106.0Kg/ha. (iii) Main effect of N alone is highly significant. (iv) Av. Yield of grain in Kg/ha.

	P_0	P_1	P_2	P_3	Mean
N_0	135.3	94.9	94.1	118.8	110.8
N_1	253.3	305.3	308.6	313.5	295.2
N_2	464.5	429.1	358.9	246.7	374.8
N_3	331.7	528.1	445.5	476 8	446.0
Mean	296.2	339.3	301.8	289.4	306.7

C.D. for N marginal means=88.34Kg/ha.

Crop :- Wheat (*Rabi*). **Ref :- U.P. 65(197).**

Site :- Govt. Agri. Flood Res. Stn., Gograghat. **Type :-'M'.**

Object : —To find out the suitable dose of N and P for wheat in flood effected area of *Eastern* U.P.

1. BASAL CONDITION:

(i) (a) Paddy-Wheat. (b) Paddy. (c) N.A. (ii) Sandy loam. (iii) 19/20.11.65. (iv) (a) 3 harrowings by tractor followed by pata. (b) Behind *Desi* plough. (c) 86.5Kg/ha. (d) Rows 25cm. apart. (e) — (v) Nil. (vi) N.P. 835 (late). (vii) Unirrigated (viii) One weeding (ix) 3.4cm. (x) 6.4.66.

2. TREATMENTS:

All combinations of (1) and (2).

(1) 3 levels of as A/S: N_0=0, N_1=20 and N_2=40Kg/ha.

(2) 3 levels of P_2O_5 as Super: P_0=0, P_1=10 and P_2=20Kg/ha.

A/S was brodcasted and P_2O_5 was drilled in furrows at sowing time on 19/20.11.65.

3. DESIGN:

(i) Factorial in R.B.D. (ii) (a) 9. (b) 4 50m.×84.00m. (iii) 6. (iv) (a) and (b) 8.80m.×4.50m. (v) Nil. (vi) Yes.

4. GENERAL:

(i) Good. (ii) Nil. (iii) Yield of grain. (iv) (a) 1965—67. (b) No. (c) Nil. (v) Nil. (vi) Damage by birds and rats (vii) Nil.

5. RESULTS:

(i) 649Kg/ha. (ii) 19/8Kg/ha. (iii) Main effects of N and P are significant (iv) Av. Yield of grain in Kg/ha.

	P_0	P_1	P_2	Mean
N_0	535	634	436	535
N_1	677	871	647	732
N_2	676	717	650	681
Mean	621	741	578	649

C.D. for N or P marginal means=129.2Kg/ha.

Crop :-Wheat (R*abi*). **Ref :- U.P. 63(370), 64(394), 65(193).**

Site :- Govt. Agri. Flood Res. Stn., Gograghat **Type :- 'M'.**

Object :—To study the response of wheat to minor elements in the flood effected area.

1. BASAL CONDITION:

(i) (a) Paddy—Wheat. (b) Paddy. (c) 33.6 to 39.2Kg/ha. of N (ii) Sandy loam. (iii) 14.12.63; 1.12.64; 6.12.65. (iv) (a) 3 ploughings by soil turning, with *Deshi* ploughand 2 plankings. (b) Sown behind the plough, (c) 80.7Kg/ha. (d) Rows 23cm. apart. (e) — (v) Nil. (vi) K-68 (late). (vii) Unirrigated. (viii) 2 Weedings and hoeings. (ix) Nil; 5.3em; 3.4cm. (x) 10/11.4.66 for 65.

2. TREATMENT :

8 manurial treatments :

T_0=Control, T_1=22.4Kg/ha. of N as A/s+22.4Kg/ha. of P_2O_5 as Super+22.4Kg/ha. of K_2O as Mur. Pot. T_2=T_1+28Kg/ha. of Zn. Sul. T_3= T_1+56Kg/ha. of Mn. Sul. T_4=T_1 +28Kg/ha. of Cu. Sul., T_5= T_1+16.8Kg/ha. of Borax, T_6=T_1+1.12Kg/ha. of Sodium Molybdate and T_7=T_1+ all the micro-nutrients.

Note:—P_2O_5 applied deep in furrows at sowing, N and K broad casted at sowing. Trace elements mixed with soil and broad casted at the time of sowing.

3. DESIGN :

(i) R.B.D. (ii) (a) 8. (b) 22.71m×16.46m. for 63; 19.66m.×18.14m. for others (iii) 4. (iv) (a) and (b) 11.05m.×3.66m. for 63; 8.23m×3.96m for others (v) Nil. (vi) Yes.

4. GENERAL :

(i) Not satisfactory for 63, Satisfactory for others. (ii) Incidence of rust in all years, (iii) Yield of grain. (iv) (a) 1963—65. (b) No. (c) Combined analysis have been presented under section 5. (v) & (vi) Nil. (vii) Error variances are homogeneous and Treatments×Year interaction is present.

5. RESULTS :

Pooled results

(i) 527Kg/ha. (ii) 195.5Kg/ha. (based on 14 d. f. made up of Treatments×Years interaction) (iii) Treatment differences are highly significant. (iv) Av. Yield of grain in Kg/ha.

Treatments :	T_0	T_1	T_2	T_3	T_4	T_5	T_6	T_7
Av. Yield :	288	411	590	592	505	716	641	469

C.D.=170.9Kg/ha.

Individual Results :

Treat-ment	T_0	T_1	T_2	T_3	T_4	T_5	T_6	T_7	Sig	O.M	SE/Plot
Year											
1963	131	312	389	388	337	505	442	403	* *	363	105.2
1964	401	554	879	899	747	1135	974	644	* *	779	127.5
1965	333	368	502	490	429	507	506	359	N. S.	437	155.8
Pooled	288	411	590	592	502	716	641	469	* *	527	195.2

Crop :- Wheat (R*abi*). **Ref :- U.P. 60(290).**

Site :- Govt, Agri. Flood Res. Stn., Gograghat. **Type :- 'M'.**

Object :—To see the effect of different levels of N, P and K singly and in Combinations on Wheat.

1. BASAL CONDITIONS:

(i) (a) Nil. (b) *Dhincha* for seed. (c) N.A. (ii) Sandy loam. (iii) 18.12.60. (iv) (a) 2 ploughings by soil turning plough and one ploughing by *Desi* plough ; 3 patayings by *Singh* and *Deshi* pata. (b) Behind the plough. (c) 77.5 Kg/ha. (d) Rows 23 cm. apart. (e) — (v) Nil. (vi) K. 68. (vii) Unirrigated. (viii) 1 weeding. (ix) 2.84 cm. (x) 23.4.61.

2. TREATMENTS:

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

(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=O and P_1=44.8 Kg/ha.

(3) 2 levels of K_2O as Mur. Pot. : K_0=O and K_1=44.8 Kg/ha.

All the fertilizers were applied by placement of sowing.

3. DESIGN:

(i) Factorial in R. B. D. (ii) (a) 8 (b) 8.23 m. × 42.98 m. (iii) 4 (iv) (a) and (b) 4.57 m. × 8.23 m. (v) Nil. (vi) Yes.

4. GENERAL:

(i) Poor. (ii) N.A. (iii) Germination % ; yield of grain, (iv) (a) 1960—only. (b) and (c) Nil. (v) No. (vi) and (vii) Nil.

5. RESULTS:

(i) 911 Kg/ha. (ii) 300.5 Kg/ha. (iii) Main effect of N is significant. (iv) Av. yield of grain in Kg/ha.

	P_0	P_1	K_0	K_1	Mean
N_0	737	808	708	837	773
N_1	886	1213	954	1144	1049
Mean	811	1010	831	991	911
K_0	732	930			
K_1	891	1090			

C. D. for N marginal mean=220.9 Kg/ha.

Crop :- Wheat (R*abi*).

Ref :- U.P. 60(289)

Site :- Govt. Agri. Flood Res. Stn., Gograghat

Type :- 'M'.

Object :—To test the efficiency of different green manures.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) As per treatments. (c) Nil. (ii) Sandy loam. (iii) 6.12.60. (iv) (a) 2 ploughings by soil turning plough and 2 ploughings by *Deshi* plough ; 3 patayings by *Singh & Deshi* Pata. (b) Sown in line prepared by hoe. (c) 72.6 Kg/ha. (d) Rows 23 cm. apart. (e) — (v) Nil. (vi) K-68 (vii) Unirrigated. (viii) N.A. (ix) 2.84 cm. (x) 24.4.61.

2. TREATMENTS :

4 Green manures : G_0=Control, G_1=Croton, G_2=*Bhang* and G_3=*Dhaincha*.

G.M. turned in on 2.9·60.

3. DESIGN :

(i) R. B. D. (ii) (a) 4 (b) 11.58 m.×15.24 m. (iii) 3 (iv) (a) and (b) 5.49 m.×7.32 m. (v) Nil. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Nil. (iii) Yield of grain. (iv) (a) 1960—only. (b) and (c) — (v) to (vii) Nil.

5. RESULTS :

(i) 1095 Kg/ha. (ii) 308.3 Kg/ha. (iii) Treatment differences are not significant. (iv) Av. yield of grain in Kg/ha.

Treatment :	G_0	G_1	G_2	G_3
Av. yield :	1199	1094	1044	1044

———

Crop .- Wheat (*Rabi*). **Ref :- U.P. 60(119).**

Site :- Govt. Reg. Agri. Res. Stn., Hardoi. **Type :- 'M'.**

1. BASAL CONDITIONS

(i) (a) to (c) N. A. (ii) Sandy loam. (iii) 8.11.1960. (iv) (a) N. A. (b) Line sowing. (c) 92 Kg/ha. (d) Rows 23 cm. apart. (e) — (v) C.M. (vi) N.P. 710 (vii) Irrigated. (viii) N.A. (ix) 5.80cm. (x) N.A.

2. TREATMENTS :

4 manurial treatments : T_0=control, T_1=33.6 Kg/ha. of N at sowing, T_2=T_1+22.4 Kg/ha. of N applied as top dressing at I irrigation T_3=T_1+11.2 Kg/ha. of N applied as top dressing each at I and II irrigation. Top dressings in Dec' 60 and on 7.2.61.

3. DESIGN :

(i) R.B.D. (ii) (a) 4 (b) 23.47 m.×9.75 m. (iii) 4 (iv) (a) and (b) 11.4 m.×4.57 m. (v) Nil. (vi) Yes.

4. GENERAL

(i) N.A. (ii) N.A. (iii) Yield of grain. (iv) (a) 1960—only. (b) and (c) Nil. (v) to (vii) Nil.

5. RESULTS:

(i) 2978 Kg/ha. (ii) 175.0 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
Av. yield :	1432	3233	3559	3689

C.D.=279.9 Kg/ha.

Crop :- Wheat (R*abi*). **Ref :- U.P. 60(120).**

Site :- Govt. Reg. Agri. Res. Stn., Hardoi. **Type :- 'M'**

Object :—To study the effect of manuring at different stages for maximizing the yield.

1. BASAL CONDITIONS :
Same as in Experiment No 60 (119) Conducted at Hardoi and prescnted on page No. 316.

2. TREATMENT :

4 manurial treatments :

T_0=Control, T_1=67.2 Kg/ha of N at sowing, T_2=T_1+22.4 Kg/ha N as top dressing at 1st irrigation and T_3=T_1+11.2 Kg/ha N as top dressing each at I and II irrigations.

Top dressing of N was done in Dec. 60 and on 7.2.61.

3. DESIGN and 4. General Information same as in experiment No 60 (119) presented on page No. 316

5. RESULTS :

(i) 3347 Kg/ha. (ii) 218.6 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 :	1389	3863	4101	4036

C.D.=349.6 Kg/oa.

Crop :- Wheat (R*abi*) **Ref :- U.P. 61(143), 62(121), 63(127), 64(116), 65(9).**

Site :- Govt. Reg. Agri. Res. Stn., Hardoi **Type :- 'M'**

Object : —To study the most suitable Combination of N, P and K for Wheat.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) *Dhincha* for 61. *Urd* for 63. *Mong* for 64 N.A. for 62 and 65. (c) N.A. (ii) Sandy loam. (iii) 28.11.61 ; 7.11.62 ; 7.11.63 ; 11.11.64 ; 28.10.65. (iv) (a) N.A. (b) Line sowing behind the

plough. (c) 115.3 Kg/ha for 61; 92.2 Kg/ha for 62; 66·7 Kg/ha for 63; 98.8 Kg/ha for 64 and 65. (d) Rows 23 cm. apart. (e) — (v) *Dhincha* G.M. for 61 & Nil for others (vi) N.P. 710 (early medium). (vii) Irrigated. (viii) weeding & hoeing. (ix) 3.8 cm; 5.5 cm; 0.5 cm; 2.0/cm; 0.9 cm. (x) 13.4.62; 5/6. 4.63; 7.9.4.94; 25/26.4.65 & 11.4.66.

2. TREATMENTS :

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

(1) 3 levels of N : N_0=O, N_1=44.8 and N_2=89.6 Kg/ha.

(2) 3 levels of P_2O_5 as Super=P_0=O, P_1=22.4 and P_2=44.8 Kg/ha.

(3) 3 levels of K_2O : K_0=O, K_1=22.4 and K_2=44.8 Kg/ha.

N as A/S/N for 61, as A/S for 63 and 64 and as Urea for 65. K_2O as Pot. Sul. for 61, Mur. Pot. for 63 and 65 and Pot. Chloride for 64.

3. DESIGN :

(i) 3^3 partially Confd. (in which NPK^2 & NP^2K^2 are Confounded) (ii) (a) 3 blocks/replication, 9 plots/block. (b) N.A. (iii) 2 (iv) (a) 10.97 m × 6 63 m. (b) 10.97 m.×6.63 m. for 61, 63 and 64; 10.67 m×6 17 m for 62 and 65 (v) 15 cm.×23 cm for 62 and 65; Nil for others. (vi) Yes.

4. GENERAL :

(i) Good. (ii) N.A. (iii) Yield of grain. (iv) (a) 1961—70 (b) Yes. (c) Nil. (v) Meerut, Varansi, Amrukh & Nawabganj. (vi) Nil. (vii) As the experiment is continued beyond 1965 results of individual years have been presented under 5. Results.

5. RESULTS :

61 (143)

(i) 1984 Kg/ha. (ii) 233.9 Kg/ha. (iii) Main effect of N is highly significant (iv) Av. yield of grain in Kg/ha.

	P_0	P_1	P_2	K_0	K_1	K_2	Mean
N_0	2316	2291	2163	2248	2316	2206	2257
N_1	2188	2009	1920	1996	2085	2037	2039
N_2	1643	1705	1622	1569	1739	1661	1657
Mean	2049	2002	1902	1937	2047	1968	1984
K_0	1853	2080	1978				
K_1	2209	2009	1922				
K_2	2085	1915	1904				

C.D. for N marginal means=161.7 Kg/ha;

62 (121)

(i) 3398 Kg/ha. (ii) 178.1 Kg/ha. (iii) Main effects of N, P, K and interaction N×P are highly significant. Interaction P×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	1083	1473	2187	1481	1610	1653	1581
N_1	2863	3435	4711	3461	3638	3911	3670
N_2	4005	5276	5547	4676	5000	5152	4943
Mean	2651	3395	4148	3206	3416	3572	3398
K_0	2324	3263	4030				
K_1	2711	3463	4073				
K_2	2916	3458	4342				

C.D. for N, P or K marginal means=123.2 Kg/ha and
C.D. for body of N×P or P×K table=213.3 Kg/ha :

63 (127)

(i) 2567 Kg/ha. (ii) 393.3 Kg/ha. (iii) Main effect of N is highly significant. (iv) Av. yield of grain in Kg/ha :

	P_0	P_1	P_2	K_0	K_1	K_2	Mean
N_0	2060	2266	2298	2083	2213	2328	2008
N_1	2910	2871	2729	2889	2490	3130	2836
N_2	2642	2665	2660	2477	2768	2722	2655
Mean	2537	2600	2562	2483	2490	2726	2567
K_0	2351	2518	2580				
K_1	2330	2596	2545				
K_2	2930	2687	2561				

C.D. for N marginal means=271.9 Kg/ha.

64 (116)

(i) 1955 Kg/ha. (ii) 154.9 Ka/ha. (iii) Main effects of N, P and interaction P×K are highly significant. 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	1168	1434	1407	1166	1338	1505	1337
N_1	1856	2080	1989	1952	1998	1975	1975
N_2	2351	2706	2605	2502	2637	2523	2584
Mean	1792	2073	2000	1873	1991	2001	1955
K_0	1558	2051	2012				
K_1	1819	2108	2046				
K_2	1998	2062	1943				

C.D. for N, P or K marginal means=107.1 Kg/ha.
C D. for body of P×K table=185.5 Kg/ha.

65 (9)

(i) 2034 Kg/ha, (ii) 275.5 Kg/ha. (iii) Main effect of N is highly significant. (iv) Av. yield of grain in Kg/ha:

	P_0	P_1	P_2	K_0	K_1	K_2	Mean
N_0	1573	1595	1698	1574	1622	1669	1622
N_1	2297	2281	2124	2111	2320	2288	2240
N_2	2326	2148	2244	2113	2326	2278	2239
Mean	2065	2008	2028	1933	2089	2079	2034
K_0	2081	1812	1906				
K_1	2054	2134	2081				
K_2	2062	2077	2097				

C.D. for N marginal means=190.4 Kg/ha.

Crop :- Wheat *(Rabi)*, **Ref :- U.P. 63(124)**

Site :- Govt. Reg. Agri. Res. Stn., Hardoi. **Type :- 'M'.**

Object :—To see whether Guar meal as nitrogenous fertilizer will prove better in comparison to A/S on the yield. of Wheat.

1. BASAL CONDITIONS:

(i) (a) (b) to (c) N.A. (ii) Sandy loam. (iii) 5.12.63. (iv) (a) N.A. (b) Line sowing behind the plough. (c) 67Kg/ha. (d) Rows 23cm. apart. (v) Nil. (vi) N.P. 830. (vii) Irrigated. (viii) Weeding & hoeing. (ix) 0.51cm. (x) 19/20.4.64.

2. TREATMENTS: and 3. DESIGN ;

3 manurial treatments : T_0=Control (No manure), T_1=725Kg/ha. of Guar meal and T_2=254Kg/ha. of A/S.

3. DESIGN:

(i) R.B.D. (ii) (a) and (b) N.A. (iii) 4. (iv) (a) and (b) 10.52m×13.11m. (v) Nil. (vi) Yes.

4. GENERAL :

(i) & (ii) N.A. (iii) Yield of grain. (iv) (a) 1963—Only. (b) and (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 1792Kg/ha. (ii) 444.3Kg/ha. (iii) Treatment differences are not significant. (iv) Av. Yield of grain in Kg/ha.

Treatment :	T_0	T_1	T_2
Av. Yield :	1585	1657	2166

Crop :- Wheat (*Rabi*). **Ref :- U.P. 61(69), 62(110), 63(122), 64(112), 65(11).**

Site :- Govt. Reg. Agri. Res. Stn., Hardoi. **Type :-'M'.**

Object :—To test the comparative efficiency of organic and inorganic nitrogenous fertilizers with and without Super on the yield of Wheat.

1. BASAL CONDITIONS :

(i) (a) Nil for 61 & 65. Wheat—*Urd/Lobia* for others (b) N.A. for 61, *Urd* for 62 & 63, *Lobia* for 64, *Moong* for 65. (c) N.A. (ii) Sandy loam. (iii) 21.11.61; 13.11.62; 30.11.63; 12.11.64; 30/31.10.65. (iv) (a) 2—3 ploughings. (b) Behind the plough. (c) N.A.; 92Kg/ha. ; 67Kg/ha. 99Kg/ha. 100Kg/ha. (d) Rows 23cm. apart. (e) — (v) G.M. by *Urd* for 63, G.M. by *Lobia* for 64, Nil for others. (vi) N.P. 830 for 63; N.P. 710 for others. (vii) Irrigated. (viii) Weeding & hoeing. (ix) N.A.; 5.5cm.; 0.5cm.; 2.0cm.; 0.9cm. (x) N.A.; 6—7.4.63; 20/21. 4.64; 22-4.65 & 10.4.66.

2. TREATMENTS:

All combination of (1), (2) and (3) +2 extratreatments.

(1) 2 levels of P_2O_5 as Super : P_0=0 and P_1=44.8Kg/ha.

(2) 2 levels of N : N_1=28 and N_2=56Kg/ha.

(3) 3 Forms of N: F_1= A/S/N ; F_2= F.Y.M. and F_3= 1/2 N as A/S/N+1/2 N as F.Y.M.

Extratreatments : E_0=Control and E_1=44.8Kg/ha. of P_2O_5 as Super.

3. DESIGN :

(i) Fact in R.B.D. (ii) (a) 14. (b) N.A. (iii) 4. (iv) (a) and (b) 10.52m×4.80m. (v) Nil. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Nil. (iii) Yield of grain. (iv) (a) 1961—Contd. (b) Yes. (c) Nil. (v) Rudrapur, Majhera, Meerut, Nawabganj, Varanasi, Ataira and Amrukh. (vi) Nil. (vii) As the experiment is continued beyond 1965, results of individual years have been presented under 5 Results.

5. RESULTS :

61(69)

(i) 2036Kg/ha. (ii) 347.1Kg/ha. (iii) Main effect of N is highly significant and that of E is significant (iv) Av. yield of grain in Kg/ha.

E_0=2344 and E_1=1792Kg/ha.

	F_1	F_2	F_3	N_1	N_2	mean
P_0	1994	2122	2122	2270	1888	2079
P_1	1921	2153	1872	2245	1719	1982
mean	1958	2138	1997	2258	1803	2031
N_1	2137	2385	2251			
N_2	1778	1890	1742			

C.D. for N marginal means=202.6Kg/ha.

C.D. for Extra treatments=495.8Kg/ha.

62(110)

(i) 24 23Kg/ha. (ii) 433.3Kg/ha. (iii) Main effect of N, interaction N×F and Extra treatment *Vs.* Others are significant. Interactions N×P, P×F and between extra treatments are highly significant, (iv) Av. yield of grain in Kg/ha.

E_0=2516 and E_1=1684Kg/ha.

	F_1	F_2	F_3	N_1	N_2	mean
P_0	2465	2257	2632	1997	2904	2451
P_1	2872	2687	1954	2661	2347	2504
mean	2664	2472	2293	2329	2626	2477
N_1	2290	2446	2251			
N_2	3048	2496	2335			

C.D. for N marginal means=253.1Kg/ha.

C.D. for the body of N×P table=357.9Kg/ha.

C.D. for body of N×F or P×F table=438.3Kg/ha.

C.D. for 'extra treatments *Vs.* others'=334.8Kg/ha.

C.D. for extra treatment=306.4Kg/ha.

63(122)

(i) 3159Kg/ha. (ii) 493.2Kg/ha. (iii) None of the effects is significant (iv) Av. yield of grain in Kg/ha.

E_0=3021 and E_1=3080Kg/ha.

	F_1	F_2	F_3	P_0	P_1	mean
N_1	3066	3202	3298	3117	3260	3189
N_2	3276	3092	3130	3245	3087	3166
mean	3171	3147	3214	3181	3174	3177
P_0	3110	3273	3160			
P_1	3232	3021	3268			

64(112)

(i) 2761Kg/ha. (ii) 216.7Kg/ha. (iii) Main effects of N and P are significant and that of Between extra treatments and 'Extra treatments *Vs.* 0 thers' are highly significant (iv) Av. yield of grain in Kg/ha.

E_0=2139 and E_1=2694Kg/ha.

	F_1	F_2	F_3	P_0	P_1	mean
N_1	2793	2700	2731	2709	2773	2741
N_2	2986	2850	2845	2783	3004	2894
mean	2890	2775	2788	2746	2889	2818
P_0	2808	2687	2744			
P_1	2971	2863	2832			

C.D. for N or P marginal means=126.3Kg/ha.

C.D. for 'extra treatments *Vs.* others'=167.4Kg/ha.

C.D. for extra treatments=310Kg/ha.

65(11)

(i) 1819Kg/ha. (ii) 321.9Kg/ha. (iii) Main effect of F alone is significant (iv) Av. yield of grain in Kg/ha.

E_0=1785 E_1=1533Kg/ha.

	F_1	F_2	F_3	P_0	P_1	mean
N_1	2042	1544	1820	1885	1905	1802
N_2	1831	1752	2085	1719	1874	1889
mean	1936	1648	1952	1802	1889	1845
P_0	1971	1663	2052			
P_1	1902	1633	1855			

C.D. for F marginal means=230.2Kg/ha.

Crop :- Wheat (*Rabi*).

Ref : U.P. 60(118).

Site :- Govt. Reg. Agri. Res. Stn., Hardoi.

Type :- 'M'.

Object :—To study the efficiency of organic & inorganic nitrogenous manures with and without phosphatic fertilizer.

1. BASAL CONDITIONS:

(i) (a) to (c) N.A. (ii) Sandy loam. (iii) 2.11.60. (iv) (a) N.A. (b) Line sowing. (c) 92 Kg./ha. (d) Rows 23 cm. apart. (e) — (v) Nil. (vi) N.P. 710. (vii) & (viii) N.A. (ix) 5.80 cm. (x) 5.4.61.

2. TREATMENTS

10 Manurial treatments : M_0=Control, M_1=44.8 Kg/ha. of P_2O_5 as Super, M_2=28.0 Kg/ha. of N as A/S, M_3=56.0 Kg/ha. of N as A/S, $M_4=M_3+M_1$, M_5=28.0 Kg/ha. of N as F.Y.M, M_6=56.0 Kg/ha of N as F.YM, $M_7=M_6+M_1$. $M_8=M_2+M_5$ and $M_9=M_2+M_5+M_1$

3. DESIGN :

(i) R.B.D. (ii) (a) 10 (b) N.A. (iii) 4 (iv) (a) and (b) 10.36 m.×7.62 m. (v) Nil. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of grain. (iv) (a) 1958–60 (b) and (c) Nil. (v) Rudra pur, Meerut, Nawabganj, Varansi & Amrukh. (vi) and (vii) Nil.

5. RESULTS :

(i) 3128 Kg/ha. (ii) 102.8 Kg/ha. (iii) Treatment differences are highly significant. (iv) Av. yield of grain in Kg/ha.

Treatment :	M_0	M_1	M_2	M_3	M_4	M_5	M_6	M_7	M_8	M_9
Av. yield :	1321	2211	3217	3576	3619	2771	3332	3719	3533	3978

C.D.=149.2 Kg/ha.

Crop :- Wheat (*Rabi*). **Ref :- U.P. 60(146).**

Site :- Govt. Reg. Agri. Res. Stn, Hardoi. **Type :- 'M'.**

Object :—To find out the suitable dose, form and time of application of N.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) & (c) N.A. (ii) Sandy loam. (iii) 2.11.60. (iv) (a) N.A. (b) Line sowing behind the plough. (c) N.A. (d) Rows 23 cm. apart. (e) — (v) Nil. (vi) N.P. 710. (vii) Irrigated. (viii) N.A. (ix) 5.77 cm. (x) 8.4.61.

2. TREATMENTS:

All combinations of (1), (2) & (3) + Control in each block.

(1) 3 sources of N : S_1=A/S ; S_2=Urea and S_3=A/N.

(2) 3 times of application of N : T_1=Full dose at sowing, T_2=Full dose at Ist irrigation and T_3=1/2 at sowing+1/2 at 1st iraigation.

(3) 2 levels of N : N_1=22.4 and N_2=44.8 Kg/ha

3. DESIGN:

(i) $3^2 \times 2$ Confd. (ii) (a) 7 plots/block, 3 blocks/replication. (b) N.A. (iii) 4 (iv) (a) and (b) 6.71m $\times$5.49 m. (v) Nil. (vi) Yes.

4. GENERAL:

(i) Good. (ii) Nil. (iii) Yield of grain. (iv) (a) 1959—60 (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS:

(i) 2960 Kg/ha. (ii) 230.3 Kg/ha. (iii) Main effect of N, 'Control *VS.* Others' and interaction S×T are highly significant. (iv) Av. yield of grain in Kg/ha :

Control=1336 Kg/ha.

	S_1	S_2	S_3	T_1	T_2	T_3	mean
N_1	2928	2928	2949	2887	2980	2938	2935
N_2	3586	3555	3442	3483	3555	3545	3528
mean	3257	3242	3195	3185	3267	3242	3231
T_1	3409	3191	2955				
T_2	3195	3229	3378				
T_3	3167	3306	3252				

C.D. for N marginal means=108.6 Kg/ha.

C.D. for body of S×T table=230.2 Kg/ha.

C.D. for 'Control *Vs.* Others'=143.6 Kg/ha.

Crop :- Wheat (*Rabi*). **Ref :- U.P. 60(123)**

Site :- Govt. Reg. Agri. Res. Stn,, Hardoi. **Type :- 'M'.**

Object :—To study the effect of different levels of N and P on the yield of Wheat.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) & (c) N.A. (ii) Sandy loam. (iii) 12.11.60. (iv) (a) N.A. (b) Line sowing. (c) 37.4 Kg/ha. (d) Rows 23 cm. apart. (e) — (v) Nil. (vi) N.P. 710. (vii) and (viii) N.A. (ix) 2.83 cm. (x) N.A.

2. TREATMENTS :

9 manurial treatments; T_0=Control, T_1=33.6 Kg/ha. of N as A/S, T_2=56.0 Kg/ha. of N as A/S, $T_3=T_1+19.0$ Kg/ha. of P_2O_5 as Super, $T_4=T_2+31.4$ Kg/ha. of P_2O_5 as Super, T_5=19.0 Kg/ha. of P_2O_5 as Super. T_6=31.4 Kg/ha of P_2O_5 as super. T_7=33.6 Kg/ha. of N+19.0 Kg/ha. of P_2O_5 as mixed fertilizer and T_8=56.0 Kg/ha. of N+31.4 Kg/ha. of P_2O_5 as mixed fertilizer.

3. DESIGN :

(i) R.B.D. (ii) (a) 9. (b) N.A. (iii) 3. (iv) (a) and (b) 4.11 m.×7.32 m, (v) Nil. (vi) Yes.

4. GENERAL :

(i) Good. (ii) N.A. (iii) Yield of grain. (iv) (a) 1959—60. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 3287 Kg/ha. (ii) 326.0 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	T_6	T_7	T_8
Av. yield :	1260	2974	3729	4032	5040	1663	2016	4082	4788

C.D. = 565.7 Kg/ha.

Crop :- Wheat (*Rabi*). **Ref :- U P. 64(141).**

Site :- Govt. Reg, Agri. Res. stn., Hardoi. **Type :- 'M'.**

Object :--To determine the dose of fertilizer for maximum production of Wheat.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) & (c) N.A. (ii) Sandy loam. (iii) 7.11.64. (iv) (a) N.A. (b) Line sowing behind the plough. (c) 92 Kg/ha. (d) Rows 28 cm. apart. (e) — (v) Nil. (vi) N.P. 710. (vii) Irrigated. (viii) N.A. (ix) 2.03 cm. (x) N.A.

2. TREATMENTS :

3 levels of fertilizers : F_0 = Control, F_1 = 22.4 Kg/ha of N + 22.4 Kg/ha. of P_2O_5 + 22.4 Kg/ha of K_2O + 45.56 Q/ha. of F.Y.M. and $F_2 = 2 \times F_1$

3. DESIGN :

(i) R.B.D. (ii) (a) 3. (b) N.A. (iii) 4 (iv) (a) and (b) 19.20 m. × 3.66 m. (v) Nil. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Nil. (iii) Yield of grain. (iv) (a) 1964—only. (b) and (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 3048 Kg/ha. (ii) 227.7 Kg/ha. (iii) Treatment differences are not significant. (iv) Av. yield of grain in Kg/ha :

Treatment:	F_0	F_1	F_2
Av. yield :	2769	3182	3193

Crop :- Wheat (*Rabi*). **Ref :- U.P. 62(112).**

Site :- Govt. Reg. Agri. Res. Stn., Hardoi. **Type :- 'M'.**

Object :—To study the effect of activated & non-activated compost on Wheat.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A.(ii) Sandy loam. (iii) 11.12.62. (iv) (a) N.A. (b) Line sowing. (c) 90 Kg/ha. (d) Rows 23 cm. apart. (e) — (v) Nil. (vi) N.P. 824. (vii) Irrigated. (viii) N.A. (ix) 5.50 cm. (x) 17.4.63.

2. TREATMENTS:

Manurial treatments : T_1=184.5 Q/ha. of activated Compost and T_2=184.5 Q/ha. of non-activated Compost.

3. DESIGN :

(i) R.B.D. (ii) (a) 2. (b) N.A. (iii) 6. (iv) (a) and (b) 7.54 m.×13.79 m. (v) Nil. (vi) Yes.

4. GENERAL :

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

5. RESULTS ;

(i) 2090 Kg/ha. (ii) 115.1 Kg/ha. (iii) Treatment difference is not significant. (iv) Av. yield of grain in Kg/ha :

Treatment :	T_1	T_2
Av. yield :	2106	2074

Crop :- Wheat (*Rabi*). **Ref :- U.P. 61(153), 62(135).**

Site :- Govt. Reg. Agri. Res. Stn., Hardoi. **Type :- 'M'.**

Object :—To study the effect of different levels and methods of application of Super with different levels of N on Wheat.

1. BASAL CONDITIONS:

(i) (a) Nil. (b) *Dhaincha* as G.M. ; N.A. (c) N.A. (ii) Sandy loam. (iii) 26.11.61 ; 15.11.62. (iv) (a) N.A. (b) Line sowing behind the plough. (c) 92 Kg/ha. (d) Rows 23 cm. apart. (e) — (v) G.M. by *Dhaincha* ; Nil. (vi) N.P.—710. (vii) Irrigated. (viii) Weeding and hoeing. (ix) 3.8 cm. ; 5.5 cm. (x) 12.4.62 ; 7.4.63.

2. TREATMENTS:

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

(1) 4 levels of N : N_0=O, N_1=16.8, N_2=33.6 and N_3=50.4 Kg/ha.

(2) 3 levels of P_2O_5 : P_1=16.8, P_2=33.6 and P_3=50.4 Kg/ha.

(3) 2 methods of application of P_2O_5 : M_1=Broadcasting and M_2=Placement.

Extra treatments : E_0=Control (No manure), E_1=16.8 Kg/ha. of N, E_2=33.6 Kg/ha. of N and E_3=50.4 Kg/ha. of N.

3. DESIGN:

(i) R.B.D. (ii) (a) 28. (b) N.A. (iii) 4 ; 2. (iv) (a) and (b) 8.00 m.×4.57 m. (v) Nil. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Nil. (iii) Yield of grain. (iv) (a) 1961-62. (b) No. (c) Results of combined analysis have been presented under 5 Results. (v) Meerut, Nawabganj, Amrukh and Varanasi. (vi) Nil. (vii) Error variances are heterogeneous and Treatments × years interactions are present.

5. RESULTS:

Pooled results :

(i) 2341 Kg/ha. (ii) 1198 Kg/ha. (based on 21 d. f. made up of treatment × years interactions. (iii) Main effect of N alone is significant. (iv) Av. yield of grain in Kg/ha.

E_0=1398, E_1=1928, E_2=2237 and E_3=2501 Kg/ha.

	N_0	N_1	N_2	N_3	P_1	P_2	P_3	mean
M_1	1738	2167	2563	2768	2123	2429	2375	2309
M_2	1866	2493	2701	2868	2509	2471	2467	2482
mean	1802	2330	2632	2818	2316	2450	2421	2395
P_1	1660	2168	2671	2765				
P_2	1869	2436	2631	2864				
P_3	1877	2386	2595	2826				

C.D. for N marginal means=587.3 Kg/ha.

Individual results :

Treatment	N_0	N_1	N_2	N_3	Sig.	M_1	M_2	Sig.	P_1	P_2	P_3	Sig.
Year 1961	2073	2219	2258	2378	**	2212	2252	N.S.	2199	2303	2194	*
1962	1259	2552	3382	3699	**	2503	2943	**	2551	2744	2874	**
Pooled	1802	2330	2632	2818	*	2309	2482	N.S.	2316	2450	2421	N.S.

E_0	E_1	E_2	E_3	Sig.	G.M.	S.E./plot
1722	1955	2351	2050	N.S	2202	191·4
750	1875	2010	3404	N.S.	2621	259·7
1398	1928	2237	2501	N.S.	2341	1198

Crop :- Wheat (*Rabi*). **Ref :- U.P. 62(136), 63(138), 64(129).**

Site :- Govt. Reg. Agri. Res. Stn., Hardoi. **Type :- 'M'.**

Object :—To study the effect of brodcasting Vs. placement of Super with and without N on the yield of Wheat.

1. BASAL CONDITIONS:

(i) (a) Nil. (b) & (c) N.A. (ii) Sandy lo am. (iii) 9.11.62; 2.11.63; 10.11.64. (iv) (a) N.A. (b) Line sowing behind the plough (c) 92Kg/ha. (d) Rows 23cm. apart. (e) — (v) Nil. (vi) N.P. 710. (vii) Irrigated (viii) 1 to 2 hoeings & weedings. (ix) 5.0cm; 1.0cm.; 2.0cm. (x) 27 to 29.4.63; 13 to 15.4.64; 23 & 24.4.65.

2. TREATMENTS:

Main-plot treatments:

4 levels of N : N_0=0, N_1=16.8, N_2=33.6 and N_3=50.4Kg/ha.

Sub-plot treatments :

All combinations of (1) and (2)+a control (P_0)

(1) 3 levels of P_2O_5 as Super : P_1=16.8, P_2=33.6 and P_3=50.4Kg/ha.

(2) 2 methods of application of P_2O_5 : M_1=Broadcasting and M_2=Placement.

3. DESIGN:

(i) Split-plot. (ii) (a) 4 main-plots/replication, 7 sub-plots/main-plot. (b) N.A. (iii) 4. (iv) (a) and (b) 7.54m.×3.96m. (v) Nil. (vi) Yes.

4. GENERAL:

(i) Good. (ii) Slight rust infestation was observed for 64. (iii) Yield of grain. (iv) (a) 1962-64. (b) Yes. (c) Nil. (v) Amrukh, Nawabganj, Varanasi & Meerut. (vi) Nil. (vii) As the sub-plot error variances are heterogeneous, the results of individual year have been presented under 5 Results.

5. RESULTS :

62(136)

(i) 2990Kg/ha. (ii) (a) 334.5Kg/ha. (b) 452.6 Kg/ha. (iii) Main effects of N, P and interaction N×P are highly significant. (iv) Av. yield of grain in Kg/ha.

P_0N_0=962, P_0N_1=1589, P_0N_2=1881 and P_0N_3=3362Kg/ha.

	P_1	P_2	P_3	N_0	N_1	N_2	N_3	mean
M_1	2396	3216	3563	1174	2230	4006	4823	3058
M_2	2750	3368	3687	1274	2378	4327	5094	3268
mean	2573	3292	3625	1224	2304	4166	4958	3163
N_0	1045	1179	1447					
N_1	1915	2363	2634					
N_2	3190	4492	4818					
N_3	4140	5135	5599					

C.D. for N marginal means=218.5Kg/ha.
C.D. for P marginal means=225.9Kg/ha.
C.D. for P means at the same level of N=451.7Kg/ha.
C.D. for N means at the same level of P=420.7Kg/ha.

63(138)

(i) 2645Kg/ha. (ii) (a) 646.7Kg/ha. (b) 480.4Kg/ha. (iii) None of the effects is significant. (iv) Av. yield of grain in Kg/ha.

P_0No=2568, P_0N_1=2643, P_0N_2=2752 and P_0N_3=2467Kg/ha.

	P_1	P_2	P_3	N_0	N_1	N_2	N_3	mean
M_1	2647	2678	2706	2529	2626	2905	2648	2677
M_2	2515	2557	2802	2668	2715	2548	2568	2625
mean	2581	2618	2754	2598	2671	2726	2608	2651
N_0	2392	2685	2718					
N_1	2425	2622	2965					
N_2	2706	2660	2814					
	2802	2505	2517					

64(129)

(i) 2956Kg/ha. (ii) (a) 366.5Kg/ha. (b) 342.8Kg/ha. (iii) Main effects of N, P. M and interaction N×P are highly significant. (iv) Av. yield of grain in Kg/ha.

P_0N_0=1807, P_0N_1=2543, P_0N_2=2660 and P_0N_3=2710Kg/ha.

	P_1	P_2	P_3	N_0	N_1		N_3	mean
M_1	2666	2852	3017	2565	2782	3016	.016	2845
M_2	3132	3189	3404	3014	3192	3351	3410	3242
mean	2899	3020	3211	2790	2987	3184	3213	3044
N_0	2313	3095	2961					
N_1	3065	2902	2994					
N_2	3174	2969	3408					
N_3	3044	3115	3479					

C.D. for N marginal means=239.3Kg/ha,

C.D. for P marginal means=171.1Kg/ha,

C.D. for M marginal means=139.7Kh/ha,

C.D. for P means at the same level of N=342.1Kg/ha.

C.D. for N means at the same level of P=357.6Kg/ha.

Crop :- Wheat (*Rabi*). **Ref :- U.P. 60(125).**

Site :- Govt. Reg. Agri. Res. Stn., Hardoi. **Type :- 'M'.**

Object :—To study the effect of raw and steamed Bone-meal and Super with and without N.

1. BASAL CONDITIONS:

(i) (a) Nil. (b) & (c) N.A. (ii) Sandy loam. (iii) 12.11.60. (iv) (a) N.A. (b) Line sowing. (c) 36.9 Kg/ha. (d) Rows 23 cm. apart. (e) — (v) Nil. (vi) N.P. 710. (vii) Irrigated. (viii) N.A. (ix) 2.8 cm. (x) N.A.

2. TREATMENTS:

All combinations of (1) and (2) :

(1) 2 levels of N as A/S : N_0=O and N_1=28.0 Kg/ha-

(2) 6 forms of P_2O_5 at 28 Kg/ha : F_0=Nil. F_1=Super, F_2=Bone meal raw, F_3=Bone meal steamed, F_4=1/2 as Super+1/2 as Bone meal raw and F_5=1/2 as Super+1/2 as Bone meal steamed.

3. DESIGN:

(i) Fact in R.B.D. (ii) (a) 12. (b) N.A. (iii) 4. (iv) (a) and (b) 5.64 m.×13.72 m. (v) Nil. (vi) Yes.

4. GENERAL:

(i) Good. (ii) Nil. (iii) Yield of grain. (iv) (a) 1959–60. (b) and (c) Nil. (v) to (vii) Nil.

5. RESULTS:

(i) 2409 Kg/ha. (ii) 168.1 Kg/ha. (iii) Main effects of N,P and N×P Interaction are highly significant. (iv) Av. yield of grain in Kg/ha :

	F_0	F_1	F_2	F_3	F_4	F_5	mean
N_0	1246	1876	1964	2008	2213	2301	1935
N_1	2916	3077	2638	2667	2858	3151	2884
mean	2081	2476	2301	2338	2536	2726	2409

C.D. for N marginal means=98.8 Kg/ha.
C.D. for F marginal means=171.3 Kg/ha. &
C.D. for body of N×F table=241.9 Kg/ha.

Crop :- Wheat (*Rabi*) **Ref :- U.P. 64(554).**

Site :- Govt. Agri. Farm, Kalai **Type :- 'M'**

Object :—To study the effect of trace—elements on growth and yield of Wheat.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) & (c) N.A. (ii) Loam. (iii) 1.11.64. (iv) (a) 1 ploughing by Victory plough & 8 ploughings by *Deshi* plough. (b) Behind the plough. (c) 91.4 Kg/ha. (d) Rows 15 cm. apart. (e) —

(v) 56 Kg/ha. of N as A/S+56 Kg/ha of P_2O_5 as Super + 44.8 Kg/ha. of K_2O as Pot. Sul. (vi) Pb. 591. (vii) Irrigated (viii) 1 hoeing by hand hoe. (ix) 2.3 cm. (x) 8—10.4.65.

2. TREATMENTS:

All combinations of (1), (2), (3) and (4)+one extra treatment :

(1) 2 levels of Boron : B_0=O and B_1=22.4 Kg/ha.

(2) 2 levels of Copper : C_0=O and C_1=22.4 Kg/ha.

(3) 2 levels of Manganese : M_0=O and M_1=33.6 Kg.ha.

(4) 2 levels of Zinc : Z_0=O and Z_1=33.6 Kg/ha.

Extra treatment E_1=168 Kg/ha of spartin.

Trace—elements applied as top dress on 27.11.64.

3. DESIGN :

(i) R.B.D. (ii) (a) 17. (b) N.A. (iii) 4 (iv) (a) and (b) 4.70 m×9.30 m. (v) Nil. (vi) Yes,

4. GENERAL:

(i) Good. (ii) Nil. (iii) No. of fertile tillers/metre, height of plant and yield of grain. (iv) (a) 1964—only. (b) & (c) Nil. (v) Atarrra & Bharari. (vi) and (vii) Nil.

5. RESULTS :

(i) 2396 Kg/ha. (ii) 261.7 Kg/ha. (iii) None of the effects is significant. (iv) Table of differential response in Kg/ha.

E_1=2217 Kg/ha,

Table of differential response.

	Mean response	B Absence	B Presence	C Absence	C Presence	M Absence	M Presence	Z Absence	Z Presence
B	—29.3	—	—	—2.85	—55.76	—67.20	8.57	—50.04	—8.57
C	60.76	87.22	34.31	—	—	84.36	37.17	110.10	11.43
M	7.86	—30.02	45.75	31.45	—15.72	—	—	132.97	—117.25
Z	73.63	52.90	94.37	122.96	24.30	198.75	—51.47	—	—

Crop :- Wheat (*Rabi*). **Ref :- U.P. 63(76), 64(66), 65(411).**

Site :- Govt. Res. Farm, Kanpur. **Type :- 'M'.**

Object :—To study the effect of spraying Urea solution at different concentrations on the yield of Wheat. under irrigated conditions.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) *Jowar* (fodder) for 63 & 65, Sanai (G.M.) for 64. (c) N.A. (ii) Loam. (iii) 21.11.63; 20.11.64; 12.11.65. (iv) (a) 1 palewa and 3 to 6 ploughings (b) Line sowing behind the plough. (c) 91Kg/ha. (d) Row 23cm apart. (e)—. (v) N.A. for 63, G.M. by Sanai. for 64; 97Kg/ha. P_2O_5 Super for 65. (vi) K-64; NP-876; K-65. (vii) Irrigated. (viii) Weeding & heoing. (ix) 1.3cm.; 5.9cm.; 0.2cm. (x) 2.4.64; 25.4.65; 6.4.66.

2. TREATMENTS :

5 concentrations of Urea spray: C_1=1, C_2=2, C_3=4, C_4=6 and C_5=8%
N.B : 2 sprayings done @ 67.2Kg/ha.

3. DESIGN:

(i) R.B.D. (ii) (a) 5 (b) 4.57m×12.12m.; 3.36m×8.08m.; 8.23m×8.69m. (iii) 4 for 65; 3 for others. (iv) (a) 4.57m×2.06m.; 3.66m×1.37m.; 8.23m×1.37m. (b) 3.66m×1.60m.; 3.05m×0.91m. 7.62m×0.91m. (v) 45cm.×23cm. for 63; 30cm.×23cm. for others. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Dusting with 2% Folidol; 10% B.H.C. broadcasted @ 24.7Kg/ha. with last ploughing; 24.7Kg/ha. Aldrin broadcasted and mixed with soil. (iii) No. of tillers/plant, height of plant, grains/ear, yield of grain and straw. (iv) (a) 1963-65. (b) No. (c) Results of combined analysis have been presented under 5 Results. (v) & (vi) Nil. (vii) Error variances are homo geneous and Treatments×years interaction is absent.

5. RESULTS :

Pooled Results :

(i) 2186Kg/ha. (ii) 339.5Kg/ha. (based on 36 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 :	C_1	C_2	C_3	C_4	C_5
Av. Yield :	1854	2156	2176	2422	2323.

C.D.=304.9Kg/ha.

Individual Results :

Treatment	C_1	C_2	C_3	C_4	C_5	Sig.	G.M.	S.E./Plot
Year								
1963	749	812	1071	1364	1392	* *	1078	177.3
1964	2571	2918	2775	2882	2727	N. S.	2775	397.9
1965	2146	2592	2556	2870	2717	N. S.	2576	409.3
Pooled	1854	2156	2176	2422	2323	* *	2186	339.5

Crop :- Wheat (*Rabi*) **Ref :- U.P. 64(67), 65(412)**

Site :- Govt. Res. Farm. Stn., Kanpur **Type :- 'M'**

Object :—To study the effect of spraying Urea solution at different concentrations on the yield of Wheat under rainfed conditions.

1. BASAL CONDITIONS:

(i) (a) N.A. (b) *Sanai* (G.M.). (c) N.A. (ii) Loam. (iii) 21.11.64 ; 4.11.65. (iv) (a) N.A. ; 6 ploughings. (b) Line sowing behind the plough. (c) 91 Kg/ha. (b) Rows 23 cm. apart. (e) — (v) 33.6 Kg/ha. of N as G.M. by *Sanai* ; 22.4 Kg/ha. of P_2O_5 as Super, applied in furrows behind the plough with last ploughing. (vi) K—65. (vii) Unirrigated. (viii) N.A. ; 1 weeding. (ix) 5.9 cm ; 0.2 cm. (x) N.A.; 21.3.66.

2. TREATMENTS :

6 Concentrations of Urea solution : C_0=Control (water spray), C_1=2, C_2=4, C_3=6, C_4=8 and C_5=10%

Note :—Teepole @ 0.1% solution was used with each spray. Sprayings @ 674, 899 and 1123 litres/ha. were done on 13.1.65, 21.1.65 and 29.1.65. respectively for 64(67). Sprayings @ 300 C.C./plot were done on 15.12.65; 30.12.65 and 18.1.66 for 65(412).

3. DESIGN :

(i) R.B.D. (ii) (a) 6. (b) 2.74 m.×14.6 3 m. ; 3.05 m.×11.89 m. (iii) 3. (iv) (a) 4.57 m.×1.14 m. ; 3.05 m× 1.37 m. (b) 3.96 m.×0.69 m. ; 2.44 m.×0.91 m. (v) 30 cm×23 cm (vi) Yes.

4. GENERAL :

(i) Good. (ii) 10% B.H.C. broad casted @ 24.71 Kg/ha. before sowing ; 12.5 Kg/ha. Aldrin broadcasted and mixed with the soil & 2.5 Kg/ha. Aldrin dusted to control Rust. (iii) Yield of grain. (iv) (a) 1964—65. (b) No. (c) Results of combined analysis have been presented under 5. Results. (v) & (vi) Nil. (vii) Error variances are homo geneous and Treatment×year interactions is absent.

5. RESULTS :

Pooled results :

(i) 1767 Kg/ha. (ii) 409.0 Kg/ha. (based on 25 d.f. made up of pooled error and Treatment×years interaction). (iii) Treatment differences are not significant. (iv) Av. yield of grain in Kg/ha.

Treatment :	C_0	C_1	C_2	C_3	C_4	C_5
Av. yield :	1537	1600	2104	1904	1578	1877

Individual results:

Treatment	C_0	C_1	C_2	C_3	C_4	C_5	Sig	G.M.	S.E./plot
Years									
1964	1631	1705	2429	2306	1705	2049	N.S.	1971	517.8
1965	1443	1495	1779	1502	1450	1704	N.S.	1562	317.1
Pooled	1537	1600	2104	1904	1578	1877	N.S.	1767	409.0

Crop :- Wheat (*Rabi*) **Ref :- U P. 63(77).**

Site :- Govt. Res. Farm, Kanpur. **Type :- 'M'**

Object :—To study the effect of spraying *Urea* solution at different concentrations on the yield of Wheat.

1. BASAL CONDITIONS

(i) (a) N.A. (b) *Jowar* for fodder. (c) N.A. (ii) Loam. (iii) 21.11.63. (iv) (a) 1 palewa and 3 ploughings by *deshi* plough. (b) Line sowing behind the plough. (c) 91 Kg/ha. (d) Rows 23 cm. apart. (e) — (v) N.A. (vi) K—65. (vii) Irrigated. (vii) Hoeing by hand hoe. (ix) 1.3 cm. (x) 2.5.64.

2. TREATMENTS

5 Concentrations of Urea solution : C_1=1, C_2=2, C_3=4, C_4=6 and C_5=8%

Sprayings were done on 22.1.64 & 12.2.64.

3. DESIGN

(i) R.B.D. (ii)(a) 5. (b) 4.57 m.×12.12 m, (iii) 3 (iv) (a) 4.57 m.×2.06 m. (b) 3.66 m.×1.60 m. (v) 46 Cm.×23 Cm. (vi) Yes.

4. GENERAL

(i) N.A. (ii) Dusting with 2% Folidol dust on 13.12.63. (iii) Yield of grain. (iv) (a) 1963—66. (Modified in 1964). (b) No. (c) Nil. (v) (vi) to (vii) Nil.

5. RESULTS

(i) 1129 Kg/ha. (ii) 250.2 Kg/ha. (iii) Treatment differences are not significant. (iv) Av.yield of grain in Kg/ha.

Treatment :	C_1	C_2	C_3	C_4	C_5
Av. yield :	803	988	1099	1279	1475

Crop :- Wheat (*Rabi*) **Ref :- U.P. 62(74), 63(84), '64(70), 65(415).**

Site :- Govt. Res. Farm, Kanpur. **Type :- 'M'**

Object :—To study the effect of pruning on tillering, lodging and yield of Wheat.

1. BASAL CONDITIONS

(i) (a) N.A. (b) *Chari* for fodder for 62 ; *Lobia* for 63, *Sanai* for G.M. for others. (c) N A. (ii) Loam. (iii) 9.12.62 ; 26.11.63 ; 13.11.64 : 3.11.65. (iv) 4 ploughings. (b) Line sowing behind the plough. (c) 91 Kg/ha. (d) Rows 23 cm. apart. (e) — (v) 44.8 Kg/ha. of P_2O_5 as Super. (vi) Pb.591 (late). (vii) Irrigated. (viii) Weeding with *Khurpi*. (ix) 5.6 cm. ; 1.3 cm. ; 5.9 cm. ; 0.2 cm. (x) 1.5.63; 7.5.64 ; 15.4.65 ; 11.4.66.

2- TREATMENTS

10 manurial-*cum*--pruning treatments

M_1=56 Kg/ha. of N as basal—(Unpruned),

M_2=112 Kg/ha. of N as basal—(Unpruned);

M_3=56 Kg/ha. of N as basal+56 Kg/ha. of N as top dressing after one month of sowing,

M_4=56 Kg/ha of N as basal+56 Kg/ha. of N as top dressing after 1 and 1/2 months of sowing.

M_5=56 Kg/ha. of N as basal—pruned after 1 month of sowing,

M_6=56 Kg/ha. of N as basal—pruned after 1 and 1/2 months of sowing:

M_7=112 Kg/ha of N as basal—pruned after 1 month after sowing.

M_8=112 Kg/ha. of N as basal—pruned after 1 and 1/2 months of sowing.

M_9=56 Kg/ha. of N as basal+56 Kg/ha. of N as top dressing pruning after 1 month of sowing.

M_{10}=56 Kg/ha. of N as basal+56 Kg/ha of N as top dressing—pruning after 1 and 1/2 months of sowing.

Note : 56 Kg/ha. of N basal consisted of 33.6 Kg/ha. of N through Sanai G.M.+22.4 Kg/ha. through A/S for M_1, M_3, M_4, M_5, M_6, M_9 and M_{10}. 112 Kg/ha. of N basal consisted of 33.6 Kg/ha. of N through Sanai G.M.+78.4 Kg/ha. through A/S. for M_2, M_7 and M_8.

3. DESIGN:

(i) R.B.D. (ii) (a) 10. (b) 11.58 m.×16.15 m.; 16.15 m.×9.75 m.; 11.13 m.×22.48 m.; 17.37 m×14.94 m; (iii) 4 (iv) (a) 5.49 m.×2.74 m; 4.57 m.×2.74 m.; 5.18 m.×3.89 m; 7.01 m.×2.74 m. (b) 4.88 m.×2.29 m; 3.96 m.×2.29 m.; 4.57 m.×3.43 m.; 6.40 m.×2.29 m. (v) 30 Cm.×23 Cm. (vi) Yes.

4. GENERAL :

(i) Good, lodging in some plots. (ii) Incidence of brown & black rust, 10% B.HC. applied with last pruniug. (iii) Yield of grain. (iv) (a) 1962—65. (b) No. (c) Results of combined analysis have been presented under 5. Results. (v) & (vi) Nil. (vii) The error variances are heterogeneous and Treatment×years interaction is present.

5. RESULTS :

Pooled Results :

(i) 2020 Kg/ha. (ii) 683.6 Kg/ha. (based on 27 d. f. made up of Treatments×years interaction). (iii) Tseatment differences are not significant. (iv) Av. yield of grain in Kg/ha.

Treatment :	M_1	M_2	M_3	M_4	M_5	M_6	M_7	M_8	M_9	M_{10}
Av. yield :	2195	2180	2070	2191	2163	1911	2117	2143	2093	2071

Individual results :

Treatment	M_1	M_2	M_3	M_4	M_5	M_6	M_7	M_8	M_9	M_{10}	Sig	G.M.	S.E./plot
Years													
1962	2366	1727	1458	1940	2444	1940	2130	2467	1682	2377	* *	2053	342.2
1963	1399	1457	1259	1156	1554	1891	1537	1579	1372	1634	* *	1484	220.5
1964	2360	2240	2435	2507	2073	1593	2100	1896	2338	1821	* *	2136	137.0
1965	2657	3297	3127	3161	2580	2221	2699	2631	2981	2452	* *	2781	246.1
Pooled	2195	2180	2070	2191	2163	1911	2117	2143	2093	2071	N.S.	2020	683.6

Crop :-Wheat (*Rabi*). **Ref :- U.P. 63(85).**

Site:- Govt. Res. Farm, Kanpur. **Type :- 'M.**

Object :—To study the time of application of N on growth, development and yield of Wheat.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) *Jowar* for fodder. (c) N.A. (ii) Loam. (iii) 21.11.63. (iv) (a) 1 paleva, 3 ploughings by *Deshi* plough. (b) Line sowing behind the plough. (c) 91Kg/ha. (d) Rows 23cm. apart. (e) — (v) 44.8Kg/ha. of P_2O_5 as Super. (vi) K —68. (vii) Irrigated. (viii) Hoeing by hand hoe. (ix) 1.3cm. (x) 4.5.64.

2. TREATMENTS :

10 times of application of 112Kg/ha of N as urea : T_1=At sowing. T_2=At Ist Irrigation. T_3=At IInd Irrigation, T_4=2/3 at sowing+1/3 at Ist Irrigation, T_5=2/3 at sowing+1/3 at IInd Irrigation, T_6=2/3

at Ist Irrigation+1/3 at Ist Irrigation, T_7=1/3 at sowing+2/3 at Ist Irrigation, T_8=1/3 at sowing+2/3 at IInd Irrigation, T_9=1/3 at Ist Irrigation+2/3 at IInd Irrigation and, T_{10}=1/3 at Ist sowing+1/3 at Ist Irrigation+1/3 at IInd Irrigation.

Urea applied as top dressing.

3. DESIGN :

(i) R.B.D. (ii) (a) 10 (b) 16.15m×17.37m. (iii) 4. (iv) (a) 7.62m×2.74m. (b) 6.71m×2.29m. (v) 46cm×23cm (vi) Yes.

4. GENERAL :

(i) Satisfactory. (ii) Incidence of black & brown dust. 2% dust of Folidol dusted on 13.12.63. (iii) Yield of grain. (iv) (a) 1963–65 (modified in 64). (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 1996Kg/ha. (ii) 260.8Kg/ha. (iii) Treatment differences are highly significant, (iv) Av. yield of grain in Kg/ha.

Treatment :	T_1	T_2	T_3	T_4	T_5	T_6	T_7	T_8	T_9	T_{10}
Av. Yield:	2781	1831	545	2702	2357	2027	2583	1543	1277	2309

C.D.=378.4Kg/ha.

———

Crop :- Wheat (R*abi*) **Ref :- U.P. 64(71), 65(414).**

Site :- Govt. Res. Farm, Kanpur **Type :- 'M'**

Object:—To study the effect of time of application of N on growth, development and yield of Wheat.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) *Bajra* for foder; *Jowar* for feder (c) N.A. (ii) Loam (iii) 16-11-64; 12-11-65. (iv) (a) 1 Palewa, and 3 ploughings by *Deshi* plough. (b) Line sowing behind the plough (c) 91Kg/ha. (d) Rows 23cm. apart. (e)— (v) 44.8Kg/ha. of P_2O_5 as Super at sowing time. (vi) K-68 (medium). (vii) Irrigated. (viii) 1 hoeing. (ix) 5.9cm; 0.2cm. (x) 13.4.65, 9.4.66.

2. TREATMENTS

10 times of application of 67.2 Kg/ha. of N as Urea

T_1=At sowing, T_2=At Ist Irrigation, T_3=At 2nd Irrigation, T_4=2/3 at sowing+1/3 at Ist Irrigation, T_5=2/3 at sowing+1/3 at 2nd Irrigation, T_6=2/3 at Ist Irrigation+1/3 at 2nd Irrigation, T_7=1/3 at sowing+2/3 at Ist Irrigation, T_8=1/3 at sowing+2/3 at 2nd Irrigation, T_9=1/3 at Ist Irrigation +2/3 at 2nd Irrigation and T_{10}=1/3 at sowing+1/3 at Ist Irrigation+1/3 at 2nd Irrigation.

3. DESIGN :

(i) R.B.D. (ii) (a) 10. (b) 16.15.m.×17.37m.; 22.25m.×16.76m. (iii) 4. (iv) (a) 7.62m.×2.74m.; 10.67m.×2.74m. (b) 6.71m.×2.29m.; 10.06m.×2.29m. (v) 30cm.×23cm. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Moderate incidence of brown & black rust B.H.C. 10% broadcasted; Incidenee of rust & smut, 25Kg/ha. Aldrin applied before sowing. (iii) Yield of grain (iv) (a) 1963-65 (modified in 64). (b) No. (c) Results of combined analysis have been presented under 5 Results. (v) Nil. (vi) N.A. (vii) The error variances are heterogenous and Treatment×year interaction is present.

5. RESULTS :

Pooled results :

(i) 2689Kg/ha. (ii) 459.1Kg/ha. (based on 9 d.f. made up of Treatment × Years interaction.) (iii) Treatment differences are not signlficant. (iv) Av. Yield of grain in Kg/ha.

Treatment :	T_1	T_2	T_3	T_4	T_5	T_6	T_7	T_8	T_9	T_{10}
Av. Yield :	2619	2585	2441	2713	2798	2865	2666	2695	2853	2650

Individual results :

Treatment	T_1	T_2	T_3	T_4	T_5	T_6	T_7	T_8	T_9	T_{10}	Sig	G.M.	S.E/Plot
Years 1964	2694	2636	2893	2800	2998	3056	2869	2911	2960	3190	N.S.	2901	247.3
1965	2544	2533	1990	2626	2599	2675	2463	2479	2745	2109	* *	2476	153.7
Pooled	2619	2685	2441	2713	2798	2865	2666	2695	2853	2650	N.S.	2689	459.1

Crop :- Wheat (*Rabi*). **Ref :- U.P. 64(69).**
Site :- Govt. Res. Farm, Kanpur. **Type :- 'M'**

Object :—To study the effect of N applied as foliar and soil applications on the yield of Wheat under dry conditions.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) *Bajra* for green fodder. (c) N.A. (ii) Loam. (iii) 16.11.64 (iv) (a) N.A. (b) Behind the plough in furrows. (c) 91Kg/ha. (d) Rows 23cm. apart. (e) — (v) Nil (vi) K. 65 (vii) Unirrigated. (viii) Weeding and hoeing. (ix) 5.9cm. (x) 13.4.65.

2. TREATMENTS :

All combinations of (1) and (2) + one extra treatment.

(1) 4 levels of N as Urea applied as soil applications:

N_0=0, N_1=5.6, N_2=11.2 and N_3=16.8Kg/ha.

(2) 2 foliar applications : F_0=No spraying and F_1=Foliar spray @ 5.6Kg/ha. of N as urea.
Extra treatment : E=22.4Kg/ha. of N as Urea applied as soil application.

Sprayings done on 21, 31.12.64 and 11.1.65. In case of soil application Urea was broadcasted at sowing.

3. DESIGN :

(i) R.B.D. (ii) (a) 9 (b) N,A. (iii) 4 (iv) (a) 5.49m × 1.37m. (b) 4.88m × 0.91m. (v) 30cm. × 23cm (vi) Yes.

4. GENERAL :

(i) Good (ii) Light incidence of brown and black rust. 1% B.H.C. broadcasted. (iii) No. of tillers/plant, No of leaves/plant, height. of plant, dates of flowering & maturity, fresh yield of sheaf & grain, yield of dry grain No. of fertile spikes. (iv) (a) 1964 only (b) and (c) Nil (v) to (vii) Nil.

5. RESULTS :

(i) 2909Kg/ha (ii) 310.7Kg/ha (iii) None of the effects is significant (iv) Av. Yield of grain in Kg/ha.

E=3027Kg/ha.

	F_0	F_1	mean
N_0	2641	2983	2812
N_1	3050	2943	2996
N_2	2882	3067	2974
N_3	2814	2769	2792
mean	2847	2940	2894

Crop :- Wheat (Rabi) **Ref :- U.P. 64(68)**
Site :- Govt. Res. Farm, Kanpur, **Type :- 'M'**

Object:—To study the effect of N, applied as foliar spray on Wheat.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) *Sanai* G.M. (c) N.A. (ii) Loam (iii) 21.16.64 (iv) (a) N.A. (b) Line sowing behind the plough (c) 91Kg/ha. (d) Rows 23cm. apart (e) — (v) 33.6Kg/ha. of N as *Sanai*. 22.4Kg/ha. of P_2O_5 as Super applied in furrows behind the plough before sowing (vi) K-65 (vii) Unirrigated (viii) Weeding and hoeing (ix)5.9cm (x) N.A.

2. TREATMENTS :

4 sprayings of N as Urea.
S_1=11.2Kg/ha. of N—one spraying,
S_2=22.2Kg/ha of N—two sprayings each of 11.2Kg/ha of N,
S_3=33.6Kg/ha of N—three sprayings each of 11.2Kg/ha. and
S_4=44.8Kg/ha of N—four sprayings each at 11.2Kg/ha.
Sprayings were done on 13.1.65, 21.1.65, 29.11.65 and 10.2.65. Teepole at 0.10% was also used along with Urea solution with each spray.

3. DESIGN :

(i) R.B.D. (ii) (a) 4 (b) 10.36m×3.35m. (iii) 3 (iv) (a) 4.88m×1.37m (b) 4.27m×0.91m (v) 30cm×23cm (vi) Yes.

4. GENERAL :

(i) N.A. (ii) 10% B.H.C.@ 24.71Kg/ha applied before sowing. (iii) Dates of flowering and maturity, height of plant, No. of tillers/plant, fresh yield of sheaf and grain (iv) (a) 1964—only (b) and (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 2200Kg/ha. (ii) 352.3Kg/ha. (iii) Treatment difference are not significant (iv) Av. yield of grain in Kg/ha.

Treatment :	S_1	S_2	S_3	S_4
Av. yield :	2153	1973	1965	2708

Crop :- Wheat (*Rabi*) **Ref :- U.P. 60(75).**
Site :- Govt. Res. Farm, Kanpur. **Type :- 'M'**

Object :—To study the effect of various levels of K on drought resistance.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Loam (iii) 21.11.60 (iv) (a) N.A. (b) Line sowing behind the plough (c) 90Kg/ha, (d) Rows 23cm. apart (e) – (v) 56Kg/ha of N as A/S (vi) N.P. 775 (Medium early) (vii)— (viii) N.A. (ix) 6.3cm (x) 28.4.61

2. TREATMENTS :

5 levels of K as Mur. Pot. : K_0=0, K_1=22.4, K_3=44.8, K_8=67.2 and K_4=89.6Kg/ha.

3. DESIGN :

(i) R.B.D. (ii) (a) 5 (b) 5.49m×5.26m (iii) 6 (iv) (a) 5.49m×0.69m (b) 4.88m×0.69m (v) 30cm at each end, (vi) Yes.

4. GENERAL :

(i) N.A. (ii) 50 to 80% incidence of brown rust (iii) Germination %, dates of heading, No of ears, No. of bearing tiller, height of plant, fresh yield of sheaf, grain and bhusa (iv) (a) 1960—only (b) and (c) Nil (v) to (vii) Nil.

5. RESULTS :

(i) 1394Kg/ha (ii) 395.0Kg/ha (iii) Treatment differences are not significant (iv) Av. yield of grain in Kg/ha

Treatment :	K_0	K_1	K_2	K_3	K_4
Av. Yield :	1435	1306	1510	1380	1841

Crop :- Wheat (*Rabi*) **Ref :- U.P. 60(69).**
Site :- Govt. Res. Farm, Kanpur. **Type :- 'M'**

Object :—To study the N, P and K requirements of Wheat.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Loam (iii) 18.11.60 (iv) (a) N.A. (b) Line sowing behind the plough. (c) 90Kg/ha. (d) Rows 23cm. apart (e) — (v) Nil (vi) N.P.718 (vii) and (viii) N.A. (ix) 6.3cm (x) 17.4.61

2. TREATMENTS:

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

(1) 2 levels of N as A/S : N_1=56.0 and N_2=84.0Kg/ha.

(2) 2 levels of P_2O_5 as Super : P_1=44.8 and P_2=67.2Kg/ha.

(3) 3 levels of K_2O as Mur. Pot. : K_0=0, K_1=44.8 and K_2=67.2Kg/ha.

A/S and Mur. Pot. broadcasted and Super applied in furrows between rows on 18.11.60

3. DESIGN :

(i) Fact in R.B.D. (ii) (a) 12 (b) 16.00m×17.52m. (iii) 4 (iv) (a) 7.62m×2.29m (b) 6.7m×1.83m (v) 46cm×23cm (vi) Yes.

4. GENERAL :

(i) Good, (ii) 15% to 70% incidence of brown rust (iii) Germination %, dates of ear heading and maturity, No. of ear bearing tillers, height of plant, fresh weight of sheaft, and yield of grain & bhusa (iv) (a) 1960—only (b) and (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 1691Kg/ha (ii) 368.4Kg/ha (iii) Main effect of N alone is highly significant (iv) Av. yield of grain in Kg/ha.

	P_1	P_2	K_0	K_1	K_2	mean
N_1	1859	1848	1957	1646	1957	1853
N_2	1502	1556	1442	1539	1605	1529
mean	1680	1702	1700	1592	1781	1691
K_0	1738	1661				
K_1	1549	1636				
K_2	1753	1809				

C.D. for N marginal means=216.6Kg/ha.

Crop :- Wheat (*Rabi*). **Ref :- U.P. 61(385), 62(417), 63(499), 64(610), 65(463)**

Site :- State Usar Reclamation Farm, Katiyar. **Type : - 'M'**

Object :—To study the effect of leaching with water, with and without application of Gypsum on reclamation of saline-alkali land.

1. BASAL CONDITIONS :

(i) (a) *Dhaincha* (G.M.) –Wheat (b) G.M. by *Dhaincha* (c) N.A. (ii) Saline-alkali soil (iii) N.A. (iv) (a) 6 to 8 ploughings (b) By seed drill (c) 100Kg/ha (d) Rows 20cm apart (e) — (v) Nil (vi) N.P. 710 (vii) Irrigated (viii) One weeding (ix) 8.33cm.; 2.97cm.; 7.24cm.; 11.02cm. & 2.36cm. (x) In the month of May.

2. TREATMENTS :

Main treatments :

3 levels of of Gypsum : G_0=0, G_1=100 and G_2=200 Kg/ha.

Sub-plot treatments :

2 levels of leaching : L_0=No leaching and L_1=Leaching.

Note :—Date of application of Gypsum.—N.A.

3. DESIGN :

(i) Split-plot (ii) (a) 3 main plots/replication. 2 sub plots/main plot: (b) 60.35m×77.72m (iii) 6 (iv) (a) 60.35m×13.41m (b) 59.13m×12.19m (v) 61cm×61cm (vi) Yes.

4. GENERAL :

(i) Normal (ii) Nil. (iii) Yield of grain (iv) (a) 1656—Contd. (b) Yes (c) Nil (v) to (vi) Nil (vii) As the experiment is continued beyond 65, results of individual years have been presented under 5. Results. (vii) In 1960 the experiment was conducted on Oats crop.

5. RESULTS :

61(385)

(i) 1348Kg/ha. (ii) (a) 508.9Kg/ha (b) 418.8Kg/ha. (iii) Main effect of L is significant (iv) Av. yield of grain in Kg/ha.

	L_0	L_1	mean
G_0	786	1301	1044
G_1	1247	1656	1452
G_2	1475	1623	1549
mean	1169	1526	1348

C.D. for L marginal Means=297.5Kg/ha

62(417)

(i) 995Kg/ha (ii) (a) 449.6Kg/ha (b) 265.5Kg/ha (iii) Main effect of L is highly significant (iv) Av. yield of grain in Kg/ha.

	L_0	L_1	mean
G_0	576	961	769
G_1	936	1218	1077
G_2	1005	1273	1139
mean	839	1151	995

C.D. for L marginal means=188.6Kg/ha.

63(499)

(i) 838Kg/ha (ii) (a) 462.3Kg/ha (b) 261.0Kg/ha (iii) Main effect of L is highly significant (iv) Av. yield of grain in Kg/ha,

	L_0	L_1	mean
G_0	520	790	655
G_1	739	1025	882
G_2	860	1091	976
main	706	969	838

C.D. for L marginal means=185.4

64(610)

(i) 923Kg/ha (ii) (a) 484.3Kg/ha (b) 288.2Kg/ha (iii) Main effect of L is significant (iv) Av. yield of grain in Kg/ha.

	L_0	L_1	mean
G_0	595	874	735
G_1	813	1121	967
G_2	943	1190	1067
mean	784	1062	923

C.D. for L marginal means=204.7Kg/ha.

65(463)

(i) 496Kg/ha (ii) (a) 370.9Kg/ha (b) 187.0Kg/ha (iii) Main effect of L is significant (iv) Av. yield of grain in Kg/ha.

	L_0	L_1	mean
G_0	230	428	329
G_1	443	662	553
G_2	569	643	606
mean	414	578	496

C.D. for L marginal means=132.9Kg/ha.

Crop :- Wheat (*Rabi*). **Ref:- U.P. 65(696).**

Site :- State Usar Reclamation Farm, Katiyar. **Type :- 'M'.**

Object: To assess the manurial requirement of saline--alkali soils after reclamation operations for Wheat.

1. BASAL CONDITIONS :

(*i*) (a) Paddy—Wheat. (b) Paddy. (*c*) N. A. (*ii*) (a) Clay loam (saline—alkali soil). (iii) 26/27.11.65. (iv) (a) 2 ploughings by disc harrow by tractor & 2 ploughings by Mould Board plough. (b) Line sowing behind the plough. (c) 99Kg/ha. (d) Rows 23cm apart (e) — (v) 20Kg/ha of N as F.Y.M. (vi) N.P. 710 (vii) Irrigated (viii) 1 Weeding (ix) 2.35cm (x) 17 to 20.4 66 & 29.4 to 2.5.66.

2. TREATMENTS :

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

(1) 3 levels of N as A/S : N_0=0 and N_1=30 and N_2=60Kg/ha.

(2) 2 levels of P_2O_5 as Super : P_0=0 and P_1=30Kg/ha.

(3) 2 levels of K_2O as Mur. Pot : K_0=0 and K_1=30Kg/ha.

A/S broadcasted at sowing. Super and Mur. Pot. placed in bands about 10 – 15cm deep on 24/25.11.65.

3. DESIGN:

(i)Fact. in R.B.D. (ii) (a) 12 (b) N.A. (iii) 12 (only 7 effective).(iv) (a) 12.50m×7.50m (b) 11.50m×6.50m (v) 50cm×50cm (vi) Yes.

4. GENERAL :

(i) In the 3rd week of Feb., the stand of the crop varied from 10 to 100% in addition to total blank plots. (ii) Nil (iii) Yield of grain & bhusa (iv) (a) 1965—68 (b) No (c) Nil (v) Nil (vi) N.A. (vii) Out of 144 plots, there was very little germination in 19 plots and there plants subsequantly died as a result of high soil pH value of the plots viz 9.9 to 10.05. The growth of plants was subsequanty good in plots whose PH was upto 9.0. It was observed that plants very well to lerated a pH of 8.5 and grow well. Beyond this, the growth has been reduced. The land is very heterogenous. For purpose of analysis, replication VIII to XII have been excluded.

5. RESULTS:

(i) 749Kg/ha (ii) 584 5Kg/ha (iii) None of the effects is significant (iv) Av. yield of grain in Kg/ha.

	P_0	P_1	K_0	K_1	mean
N_0	874	710	712	872	792
N_1	640	771	512	899	705
N_2	656	844	757	743	750
mean	723	775	660	838	749
K_0	637	684			
K_1	810	866			

Crop :- Wheat (*Rabi.*) **Ref :-U.P. 63(176), 64(162).**

Site :- State Usar Reclamation Farm, Katiyar. **Type :- 'M'.**

Object :—To study the effect of different levels of N, P and K on the yield of Wheat under recently redaimed saline—alkali soils.

1. BASAL CONDITIONS:

(i) (a) to (c) N.A. (ii) Clay loam (Saline—Alkaline Soils) (iii) N.A. (iv) (a) N.A. (b) Behind the plough (c) 92Kg/ha (d) Rows 23cm apart (e) — (v) Nil (vi) N.P—710; N.A. (vii) to (x) N.A.

2. TREATMENTS :

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

(1) 3 levels of N as A/S.: N_0=0, N_1=22 4 and N_2=44.8Kg/ha.

(2) 3 levels of P_2O_5 as Super : P_0=0, P_1=22.4 and P_2=44.8Kg/ha.

(3) 3 levels of K_20 as Mur. Pot : K_0=0, K_1=22.4 and K_2=44.8Kg/ha.

A/S broadcasted, Super and Mur. Pot. placed deep behind the plough.

3. DESIGN :

(i) Fact .in R.B.D. (ii) (a) 27 (b) N.A. (iii) 2 (iv) (a) and (b) 8.23m×2.74m; 5.49m×4.11m (v) Nil (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of grain (iv) (a) 1963-64 (b) No (c) Nil (v) to (vi) Nil (vii) As the error variances are heterogeneous and Treatments × Years interaction is absent, the results of individual years have been prcsented.

5. RESULTS :

63(176)

(i) 1114Kg/ha. (ii) 284.9Kg/ha (iii) Main effect of N is highly significant (iv) Av. yield of grain in Kg/ha.

	P_0	P_1	P_2	K_0	K_1	K_2	mean
N_0	1059	941	891	971	985	935	964
N_1	856	1120	1107	867	1129	1087	1028
N_2	1159	1288	1602	1329	1225	1495	1350
mean	1025	1117	1200	1056	1113	1172	1114
K_0	937	1141	1089				
K_1	993	1122	1225				
K_2	1144	1087	1286				

C.D. for N marginal means=195.2Kg/ha.

64(162)

(i) 1489Kg/ha (ii) 611.5Kg/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	1986	1871	1270	1901	1801	1425	1709
N_1	1521	1927	1115	1565	1631	1366	1521
N_2	1233	1107	1373	1336	1307	1070	1238
mean	1580	1635	1253	1601	1580	1287	1489
K_0	1639	1857	1307				
K_1	1691	1565	1484				
K_2	1410	1484	967				

Crop :- Wheat (*Rabi*). **Ref :- U.P. 62(51),**

Site :- Instt. of Crop Physiology, Dilkusha, Lucknow. **Type :- 'M'.**

Object :—To study the effectiveness of spraying N during reproductive stage on grain size, yield and chemical composition of Wheat.

1. BASAL CONDITIONS:

(i) (a) to (c) N.A. (ii) Sandy loam to loam (iii) to (iv) N.A. (v) 44.8Kg/ha of N as A/S+22.4Kg/ha of P_2O_5 as Super (vi) N.P. 710 (vii) and (viii) N.A. (ix) 2.6cm (x) N.A.

2. TREATMENTS :

6 manurial treatments: T_0=Control (water spray). T_1=One spraying at pre-flowering stage, T_2=One spraying at milky stage, T_3=Two sprayings, one each at pre-flowering and milky stages, T_4=5.6Kg/ha of N as soil application at pre-flowering stage and, T_5=5.6Kg/ha of N as soil application at milky stage. N sprayed in the form of urea @ 0.2% N.

3. DESIGN :

(i) R B.D. (ii) (a) 6 (b) N.A. (iii) 4 (iv) (a) and (b) 3.5m×3.05m (v) Nil (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) No of ears/plant, length of ear, No. of grains/ear. wt. of grains/ear, yield of grain and straw. (iv) (a) 1962—only (b) and (c) Nil (v) to (vii) Nil.

5. RESULTS :

(i) 2574Kg/ha (ii) 254.0Kg/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 :	2341	2772	2476	2583	2718	2556

Crop :- Wheat (*Rabi*). **Ref :- U.P. 60(74), 61(49), 62(52).**

Site :- Instt. of Crop Physiology, Dilkusha, Lucknow **Type : 'M'.**

Object :—To study the up-take of nutrients (N and P) by Wheat plants at different. growth stages

1. BASAL CONDITIONS :

(i) (a) N.A. (b) *Chari* for 61, N.A. for others (c) Nil (ii) Sandy loam to loam (iii) 5.11.60; 4.11.61; 5.11.62 (iv) (a) to (d) N.A. (e) — (v) Nil (vi) N.P. 710 (vii) Irrigated (viii) N.A. (ix) 2.8cm; 11.2cm; 3.3cm (x) 26.4.61; N.A.; 4.4.63.

2. TREATMENTS:

All combinations of (1) and (2) :

(1) 3 levels of N as A/S : N_0=0, N_1=28 and N_2=56Kg/ha.
(2) 3 levels of P_2O_5 as Super : P_0=0, P_1=22.4 and P_2=44.8Kg/ha.

A/S and Super application. at sowing

3. TREATMENTS :

(i) Fact. in R.B.D. (ii) (a) 9 (b) 22.56m×17.22m; 22.56m×17.98m; 21.03m×17.83m (iii) 4 (iv) (a) 7.32m×5.49m; 7.32m×5.49m; 6.71m×5.49m (b) 6.40m×4.57m; 6.71m×4.88m; 5.79m×4.57m (v) 46m×46cm for 60 & 62 and 30cm×30cm for 61 (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of grain (iv) (a) 1959—62 (b) No (c) Results of combined analysis have been presented under 5 Result. (v) & (vi) Nil (vii) Experiment for 1959 have been taken for pooled analysis. Error variances are heterogeneous and Treatment×years interaction is present.

5. RESULTS :

Pooled results:

(i) 1639Kg/ha (ii) 484.0Kg/ha (based on 24 d.f. made up of Treatments×years interaction) (iii) Main effect of N is highly significant (iv) Av. yield of grain in Kg/ha.

	P_0	P_1	P_2	mean
N_0	1160	1158	1104	1141
N_1	1600	1709	1689	1666
N_2	2014	2088	2227	2110
mean	1591	1652	1673	1639

C.D. for N marginal means=203.9Kg/ha

Individual results :

Treatment	N_0	N_1	N_2	Sig.	P_0	P_1	P_2	Sig.	G.M.	S.E./plot
Year										
1960	1051	1863	2406	**	1745	1777	1799	N.S.	1774	256·2
1961	784	1304	1898	**	1280	1326	1380	N.S.	1329	239·4
1962	1766	2335	2867	**	2269	2338	2361	N.S.	2323	570.3
Pooled	1141	1666	2110	**	1591	1652	1673	N.S.	1639	484·0

Crop :- Wheat (*Rabi*). **Ref :- U.P. 60(421).**

Site :- Govt. Reg. Res, Sub. Stn., Majhera. **Type :- 'M'**

Object :—To study the efficiency of organic and inorganic manures with and without phosphate on the yield of Wheat.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Sandy loam. (iii) to (iv) (d) N.A. (e) —. (v) Nil. (vi) N.P. 770. (vii) to (ix) N.A. (x) 26.4.61.

2. TREATMENTS :

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

(1) 3 sources of N @ 56 Kg/ha. : S_1=Urea, S_2=F.Y.M. and S_3=½ as urea and ½ as F.Y.M.

(2) 2 levels of P_2O_5 as super : P_0=0 and P_1=44.8 Kg/ha.

3. DESIGN :

(i) Fact. in R.B.D. (ii) (a) 7. (b) 56.69m. × 2.74m. (iii) 4. (iv) (a) and (b) 7.32m × 2.74m. (v) Nil. (vi) Yes.

4. GENERAL :

(i) Normal. (ii) N.A. (iii) Yield of grain. (iv) (a) 1963 only. (b) and (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 1428 Kg/ha. (ii) 303.5 Kg/ha. (iii) None of the effects is significant. (iv) Av. yield of grain in Kg/ha. :

Control=1243 Kg./ha.

	P_0	P_1	mean
S_1	1315	1563	1439
S_2	1396	1455	1425
S_3	1402	1622	1512
mean	1371	1546	1459

Crop :- Wheat (*Rabi*). **Ref :- U.P. 61(444), 62(459), 63(533), 64(654)**

Site :-Govt. Reg. Agri. Res. Sub. Stn., Majhera. **Type :- 'M'.**

Object :—To find out a suitable dose of N alone and in combination with P in the form of organic and inorganic manures.

1. BASAL CONDITIONS :

(i) (a) *Mandua*—Wheat. (b) *Mandua*. (c) 44.8 Kg/ha. of N as F.Y.M. and C/A/N+22.4 Kg/ha. of P_2O_5. (ii) Sandy loam. (iii) 6.12.61; 14.11.62; 6.11.63; 6.11.64. (iv) (a) 1 to 2 ploughings by *Deshi* plough.

(b) Behind the plough (c) 100Kg/ha (d) Rows 23cm apart (e)— (v) Nil (vi) N.P.770 (vii) Irrigated (viii) Weeding & hoeing (ix) N.A. (x) 13.5.62; N.A. for 62 & 63; 24.5.65.

2. TREATMENTS :

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

(1) 2 levels of N : N_1=28.0 and N_2=56.0Kg/ha.

(2) 2 levels of P_2O_5 as Super : P_0=0 and P_1=44.8Kg/ha

(3) 3 souces of N : S_1=A/S, S_2=F.Y.M. and S_3=1/2 A/S + 1/2 F.Y.M.

2 extra treatments : E_0=Control and E_1=44 8Kg/ha of P_2O_5 as Super.

3. DESIGN :

(i) R.B.D. (ii) (a) 14 (b) 51.51m×1.83m; 22.86m×4.27m; 47.85×1.83m; N.A. (iii) 4 (iv) (a) & (b) 2.74m×1.83m (v) Nil (vi) Yes.

4. GENERAL :

(i) Good (ii) Incidence of rust for 64 (iii) Yield of grain (iv) (a) 1961—67 (Expt. falled in 1965). (b) No (c) Nil (v) Rudrapur, Meerut Nawab ganj Amrukh Atarra Varanasi and Hardoi. (vi) Nil (vii) As the experiment is continued beyond 65, results of individual years have been presented under 5. Results.

5. RESULTS :

61(444)

(i)1124Kg/ha. (ii) 328.0Kg/ha (iii) Main effect of P and S are highly significant (iv) Av. yield of grain in Kg/ha.

E_0=857 and E_1=1027Kg/ha

	N_1	N_2	S_1	S_2	S_3	mean
P_0	1025	992	1251	767	1007	1008
P_1	1161	1437	1520	1236	1141	1299
mean	1093	1214	1386	1002	1074	1154
S_1	1268	1503				
S_2	929	1074				
S_3	1081	1066				

C.D. for P marginal means=201.0Kg/ha and

C.D. for S marginal means=234.5Kg/ha

62(459)

(i) 1835Kg/ha (ii) 220.4Kg/ha (iii) Main effects of N, P,S and 'Extra treatments *vs.* Others' are highly significant. Interaction N×P is significant (iv) Av. yield of grain in Kg/ha.

E_0=1261 and E_1=1520Kg/ha

	N_1	N_2	S_1	S_2	S_3	mean
P_1	1726	1799	1784	1545	1959	1763
P_2	1849	2261	2276	1802	2089	2055
mean	1788	2030	2030	1673	2024	1909
S_1	1989	2071				
S_2	1523	1824				
S_3	1852	2296				

C.D. for N or P marginal means=129.0Kg/ha

C.D. for S marginal means=158.0Kg/ha

C.D. for 'Extra treatments *vs.* Others,=170.3Kg/ha

C.D. for body of N×P table=182.0Kg/ha

63(533)

(i) 1167Kg/ha (ii) 270.4Kg/ha (iii) Main effect of P is highly significant and that of S is significant 'Extra treatments *vs.* Others' is highly significant (iv) Av. yield of grain in Kg/ha.

E_0=897 and E_1=922Kg/ha

	N_1	N_2	S_1	S_2	S_3	mean
P_0	1083	1058	1022	1032	1159	1071
P_2	1236	1462	1433	1066	1548	1349
mean	1160	1260	1227	1049	1353	1210
S_1	1201	1253				
S_2	1027	1071				
S_3	1251	1455				

C.D. for P marginal means=157·9Kg/ha

C.D. for S marginal means=193.0Kg/ha

C.D. for 'extra treatments *vs.* Others,=209Kg/ha

64(654)

(i) 1402Kg/ha (ii) 277.9Kg/ha (iii) Main effects of N and S are highly significant, "Extra treatments *vs.* Others" and between extra treatments are significant (iv) Av. yield of grain in Kg/ha.

E_0=977 and E_1=1376Kg/ha

	N_1	N_2	S_1	S_2	S_3	mean
P_0	1371	1512	1587	1236	1500	1441
P_1	1279	1597	1717	1219	1378	1438
mean	1325	1554	1652	1227	1439	1440
S_1	1587	1717				
S_2	1154	1301				
S_3	1233	1645				

C.D. for N marginal means=162.0Kg/ha
C.D. for S marginal means=199.0Kg/ha
C.D. for 'extra treatments *Vs.* others,=214.8Kg/ha
C.D. for extra treatments=398.0Kg/ha

Crop :- Wheat (*Rabi*). **Ref :- U.P. 62(416), 63(498),**

Site :- State Soil Cons. Res., Demons & Trg. Centre, Majkhali **64(609), 65(462).**

Type :- 'M'.

Object :—To study the manurial requirements of Wheat under hill conditions.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Sandy loam, (iii) 17.10.64; N.A. for others (iv) (a) 3—4 operations by Spade and levelling (b) Line sowing (c) 74Kg/ha (e)—(v) Nil (vi) N.P. 770 (vii) Uniirigated (viii) 20 operations by *Kutia* to remove weeds, (ix) N.A. (x) 24.5.63; N.A.; 21.5.65 N.A.

2. TREATMENTS :

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

(1) 3 levels of N as C/A/N : N_0=0, N_1=22.4 and N_2=44.8Kg/ha

(2) 3 levels of P_2O_5 as Super : P_0=0, P_1=22.4 and P_2=44.0Kg/ha

(3) 2 forms of Organic manures : M_1=G.M. by *Soyabean* and M_2=44.8KgN/ha as F.Y.M.

Date of application of Treatments : 4.9.62 to 24.10.62; 19.8.93 to 23.10.63; 3.9.64 to 7.10.64; 17.8.65 to 16.10.65.

3. DESIGN :

(i) $3^2 \times 2$ partially confd. in which N P aud NPM are confounded (ii) (a) 3 blocks/replication; 6 plots/block (b) N.A. (iii) 4 (iv) (a) and (b) 4.57m×2.44m (v) Nil (vi) Yes.

4. GENERAL :

(i) Good; No lodging (ii) Nil (iii) Yield of grain and bhusa (iv) (a) 1962-contd (b) Yes (c) Nil. (v) to (vii) Nil. (vii) As the expt. is continued beyond 65, results of individual years have been presented under 5. Results.

5. RESULTS :

62(416)

(i) 891Kg/ha, (ii) 442.3Kg/ha (iii) Main effects of N and P are significant and that of M is highly significant (iv) Av. yield of grain in Kg/ha.

	P_0	P_1	P_2	M_1	M_2	mean
N_0	857	685	783	736	814	775
N_1	449	1007	1007	729	913	821
N_2	794	1293	1143	756	1397	1077
mean	700	995	978	740	1042	891
M_1	505	853	863			
M_2	895	1137	1092			

C.D. for N or P marginal means=256·1 Kg/ha.

C.D. for M marginal means=209.1 Kg/ha.

63(498)

(i) 588 Kg/ha. (ii) 240.1 Kg/ha. (iii) Main effects of P and M are highly significant and interaction P×M is significant. (iv) Av. yield of grain in Kg/ha:

	P_0	P_1	P_2	M_1	M_2	mean
N_0	549	525	689	554	622	588
N_1	331	750	520	403	664	534
N_2	516	790	622	410	875	643
mean	465	688	610	455	721	588
N_1	304	544	518			
N_2	626	832	703			

C.D. for P marginal means=139. 0Kg/ha.

C.D. for M marginal means=113.5Kg/ha

C.D. for the body of P×M table=196.6Kg/ha

64(609)

(i) 1162 Kg/ha (ii) 376.6Kg/ha (iii) Main effects of N, P and M are highly significant and interactions P×M and N×M are significant (iv) Av. yield of grain in Kg/ha.

	P_0	P_1	P_2	M_1	M_2	mean
N_0	816	969	1152	933	1025	979
N_1	680	1492	949	803	1278	1041
N_2	1260	1553	1591	1098	1838	1468
mean	919	1338	1231	945	1380	1162
M_1	556	1076	1202			
M_2	1282	1599	1259			

C.D. for N or P marginal means=218.1Kg/ha

C.D. for M marginal means=178.1Kg/ha

C.D. for body of N×M or P×M tables=308.4Kg/ha

65(462)

(i) 432Kg/ha (ii) 158.7Kg/ha (iii) Main effects of N, P and M are highly significant and interaction P×M is significant (iv) Av. yield of grain in Kg/ha.

	P_0	P_1	P_2	M_1	M_2	mean
N_0	309	314	380	308	361	334
N_1	217	466	556	360	466	413
N_2	325	641	679	400	697	549
mean	284	434	538	356	508	432
M_1	169	407	493			
M_2	399	541	584			

C.D. for N or P marginal means=91.9Kg/ha

C.D. for M marginal means=75.0Kg/ha

C.D. for body of P×M table=130.0Kg/ha

Crop :- Wheat (*Rabi*). **Ref :- U.P. 61(70).**

Site :- Govt. Reg. Agrl. Res. Stn., Meerut. **Type :- 'M'.**

Object :—To test the comparative efficiency of organic and inorganic nitrogenous fertilizers with and without super on the yield of Wheat.

1. BASAL CONDITIONS:

(i) (a) to (c) N.A. (ii) Sandy loam. (iii) 11.11.61. (iv) (a) N.A. (b) Line sowing. (c) N.A. (d) Rows 23 cm. apart. (v) Nil. (vi) N.P. 718. (vii) Irrigated. (viii) and (ix) N.A. (x) 17.4.62.

2. TREATMENTS:

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

(1) 2 levels of P_2O_5 as Super : P_0=0 and P_1=44.8 Kg./ha.

(2) 2 levels of N : N_1=28 and N_2=56 Kg./ha.

(3) 3 sources of N : S_1=A/S, S_2=F.Y.M. and $S_3=\frac{1}{2}$ as A/S+$\frac{1}{2}$ as F.Y.M.

Extra treatments : E_0=Control and E_1=44.8 Kg./ha. of P_2O_5 as Super.

3. DESIGN :

(i) R.B D. (ii) (a) 14. (b) 9.14m.×96.62m. (iii) 4. (iv) (a) 9.14m.×5.64 m. (b) 8.23m.×4.72m. (v) 46 cm.×46 cm. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of grain. (iv) (a) 1961 only (b) and (c) Nil (v) Majhera, Rudrapur, Atarra, Hardoi, Varanasi and Amrukh. (vi) and (vii) Nil.

RESULTS:

(i) 2044Kg/ha (ii) 269.8Kg/ha. (iii) Main effects of N and S are highly significant and that of P is significant (iv) Av. yield of grain in Kg/ha.

E_0=1569 and E_1=1807Kg/ha.

	S_1	S_2	S_3	N_1	N_2	mean
P_0	2286	1842	1978	2056	2015	2035
P_1	2566	1929	2019	2024	2319	2171
mean	2426	1886	1998	2040	2167	2103
N_1	2157	1858	1904			
N_2	2496	1913	2093			

C.D. for N or P marginal means=157.6Kg/ha
C.D. for S marginal means=192.8Kg/ha

Crop :- Wheat (*Rabi*).

Ref :- U.P. 61(70), 62(238), 63(251), 64(276), 65(94).

Site :- Govt. Reg. Agri. Res. Stn., Meerut.

Type - 'M'

Object :—To study the efficiency of organic and Inorganic nitrogenous manures with and without phosphate on wheat.

1. BASAL CONDITIONS:

(i) (a) Nil for 61, Wheat –*Lobia*/Bajra fodder for others (b) N.A. for 61; Lobia for 62, 63 and Bajra for 65 (c) N.A. for 61; Nil for others (ii) Loam (iii) 11.11.61; 5.11.62 ; 6.11.63 ; 31.10.64 ; 1.11.65 (iv) (a) One ploughing by soil turning plough and 4-6 ploughings by *Deshi* plough. 1—3 plankings by *Deshi* Pata (b) Line sowing behind the plough (c) 86.5Kg/ha (d) Rows 25cm apart for 62 and 23cm apart for others (e)— (v) Nil (vi) N.P. 718 for 61 C; 273 for 65 and Pb. 591 for others (vii) Irrigated (viii) Weeding and hoeing for 62 and 63 and nil for others (ix) 10.70cm; 5.21cm; 1.34cm; 7.69cm; 3.53cm (x) 17.4.62; 25 to 27.4.63; 20.4.64; 26.4.65; 16.4.66

2. TREATMENTS :

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

(1) 2 levels of P_2O_5 as Super : P_0=0 and P_1=44.8Kg/ha

(2) 2 levels of N : N_1=28 and N_2=56Kg/ha

(3) 3 Sources of N : S_1=A/S, S_2=F.Y.M. and S_3=1/2 A/S+1/2 F.Y.M.

2 Extra treatments : E_0=Control (No manure) and E_1=44.8Kg/ha of P_2O_5 as Super

Full dose of F.Y.M. applied before sowing, 1/2 dose of A/s and full dose of P_2O_5 applied at sowing and rest 1/2 dose of A/S top dressed from 2nd week of Dec. to 2nd week of January.

3. DESIGN:

(i) Fact. in R.B.D. (ii) (a) 14 (b) 9.14m×94.79m (iii) 4 (iv) (a) 9.14m×5.64m (b) 8.23m×4.72m (v) 46 cm×46 cm (vi) Yes.

4. GENERAL:

(i) Satisfactory (ii) Nil (iii) Yield of grain (iv) (a) 1961—69 (b) Yes (c) Nil (v) Majhera, Rudrapur ,

Nawabganj, Amrukh, Atarra, Va ranasi and Hardoi. (vi) Nil (vii) Residual effect tested on Lobia n 62 and 63, (Expt. failed in 1964 Residual effect tested on Bajra in 1965 (failed) and in 1966. As the experiment is continued beyond 65, hence results of individual years have been presented under 5. Results.

5. RESULTS:

61(70)

(i) 2046Kg/ha (ii) 270.1Kg/ha (iii) Main effect of S and "Extra treatments *Vs.* others" are highly significant. Interaction N×P is significant (iv) Av. yield of grain in Kg/ha.

E_0=1570 and E_1=1808Kg/ha.

	N_1	N_2	S_1	S_2	S_3	mean
P_0	2057	2017	2288	1844	1979	2037
P_1	2025	2321	2568	1931	2021	2173
mean	2041	2169	2428	1887	2000	2105
S_1	2359	2497				
S_2	1860	1915				
S_3	1905	2095				

C.D. for S marginal means=193.2Kg/ha

C.D. for 'Extra treatments *Vs.* others=208.7Kg/ha

C.D. for the body N×P table =223.0Kg/ha

62(238)

(i) 2082Kg/ha (ii) 377.7Kg/ha (iii) Main effects of P, S and 'Extra treatments *Vs,* others are highly significant (iv) Av. yield of grain in Kg/ha.

E_0=1583 and E_1=1577Kg/ha

	N_1	N_2	S_1	S_2	S_3	mean
P_0	1886	2132	2217	1776	2034	2009
P_1	2293	2349	2754	1915	2294	2321
mean	2089	2241	2486	1845	2164	2165
S_1	2462	2510				
S_2	1796	1895				
S_3	2011	2317				

C.D. for P marginal means=220.6Kg/ha

C.D. for S marginal Means=270.1Kg/ha

C.D. for Extra treatment *Vs.* others=291.8Kg/ha

63(251)

(i) 1911Kg/ha (ii) 255.0Kg/ha (iii) Main effects of P, S and "Extra treatments *Vs.* others" are highly significant (iv) Av. yield of grain in Kg/ha.

E_0=1557 and E_1=1641Kg/ha

	N_1	N_2	S_1	S_2	S_3	mean
P_0	1768	1869	2008	1660	1786	1818
P_1	2111	2104	2355	1767	2201	2108
mean	1939	1986	2182	1713	1993	1963
S_1	2030	2333				
S_2	1770	1657				
S_3	2018	1969				

C.D. for P marginal means=148.9Kg/ha

C.D. fot S marginal means=182.4Kg/ha

C.D. for 'Extra treatments *Vs.* others'=197.0Kg/ha

64(276)

(i 1699Kg/ha (ii) 183.2Kg/ha (iii) Main effect of P and interactions P×S a nd N×S are significant. Main effects of N and S and "Extra treatments *Vs.* others" are highly significant (iv) Av. yield of grain in Kg/ha.

E_0=1729 and E_1=1422Kg/ha

	N_1	N_2	S_1	S_2	S_3	mean
P_0	1581	1785	1911	1339	1799	1683
P_1	1682	1929	2223	1400	1792	1805
mean	1631	1857	2067	1369	1795	1744
S_1	1918	2217				
S_2	1371	1367				
S_3	1606	1985				

C.D. for P or N Marginal means=107.0Kg/ha

C.D. for S marginal means=131.0Kg/ha

C.D. for the body of P×S or N×S table=185.3Kg/ha

C.D. for Extra treatments *Vs.* others'=141.6Kg/ha

65(94)

(i) 1641Kg/ha (ii) 117.7Kg/ha (iii) Main-effects of N and S ; interaction P×S and 'Extra treatments *Vs.* others' are highly significant (iv) Av. yield of grain in Kg/ha-

E_0=1191 and E_1=1216Kg/ha

	N_1	N_2	S_1	S_2	S_3	mean
P_0	1594	1808	1911	1409	1783	1701
P_1	1598	1856	2018	1519	1644	1727
mean	1596	1832	1965	1464	1713	1714
S_1	1808	2121				
S_2	1390	1538				
S_3	1590	1837				

C.D. for N marginal means=68.7Kg/ha
C.D. for S marginal means=84.2Kg/ha
C.D. for the body of P×S Table=119.0Kg/ha
C.D. for 'Extra treatments *Vs.* others'=90.9Kg/ha

Crop :- Wheat (*Rabi*). **Ref :- U.P. 60(60).**

Site :- Govt. Reg. Agri. Res. Stn., Meerut. **Type :- 'M'.**

Object: To study the comparative efficiency of organic and inorganic nitrogenous fertilizers with and without super on the yield of Wheat.

1. BASAL CONDITIONS:

(i) (a) N.A. (b) *Lobia* for fodder. (c) N.A. (ii) Sandy loam. (iii) 9.11.60. (iv) (a) N.A. (b) Line sowing. (c) 90 Kg/ha. (d) Rows 23 cm. apart. (e) N.A. (v) Nil. (vi) Pb. 591. (vii) Irrigated. (viii) Nil. (ix) N.A. (x) 22.4.61.

2. TREATMENTS:

10 manurial treatments:

T_0=Control (No manure), T_1=28 Kg/ha. of N as A/S, T_2=56 Kg/ha. of N as A/S, T_3=44.8 Kg/ha of P_2O_5 as super, $T_4=T_2+T_3$, T_5=28 Kg/ha. of N as F.Y.M., T_6=56 Kg/ha. of N as F.Y.M., $T_7=T_3+T_6$, $T_8=T_1+T_5$ and $T_9=T_3+T_8$.

3. DESIGN:

(i) R.B.D. (ii) (a) 10. (b) N.A. (iii) 4. (iv) (a) 10.36m.×5.04m. (b) 9.45m.×4.11m. (v) 46 cm.×46cm. (vi) Yes.

4. GENERAL:

(i) N. A. (ii) Nil. (iii) Yield of grain (iv) (a) 1959-60. (b) N.A. (c) Nil. (v) Nawabganj, Hardoi, Amrukh, Rudrapur and Varanasi. (vi) and (vii) Nil.

5. RESULTS:

(i) 1739 Kg/ha. (ii) 281.7 Kg/ha. (iii) Treatment differences are highly significant. (iv) Av. yield of grain in Kg/ha.

Treatments:	T_0	T_1	T_2	T_3	T_4	T_5
Av. yield:	1283	1983	2071	1597	2239	1367
	T_6	T_7	T_8	T_9		
	1356	1473	1867	2155		

C.D.=408.7 Kg/ha.

Crop :- Wheat (R*abi*) **Ref :- U.P. 63(264).**

Site :- Govt. Reg. Agri. Res. Stn., Meerut, **Type :- 'M'.**

Object :—To study the effect of Guar-meal, A/S and F.Y.M. with and without P_2O_5 on the yield of Wheat.

1. BASAL CONDITIONS :

(i) (a) Nil (b) Fallow (c) Nil (ii) Loam (iii) 2.12.63 (iv) (a) 1 ploughing by S.T.P. and 3-4 ploughings by *Deshi* plough (b) Broadcasting (c) 86Kg/ha (d) Rows 23 cm apart (e)— (v) Nil (vi) Pb. 591 (vii) Irrigated (viii) N.A. (ix) 0.92 cm (x) 22.4.64.

2. TREATMENTS:

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

(1) 2 levels of P_2O_5 as Super : P_0=0 and P_1=44.8Kg/ha

(2) 3 Forms of N at 56Kg/ha : F_1=Guar meal, F_2=A/S and F_3=F.Y.M.

Extra treatments : E_0=Control (No manure) and E_1=44.8Kg/ha of P_2O_5 as super.

3. DESIGN:

(i) Fact, in R.B.D. (ii) (a) 8 (b) 44.50m×10.06m (iii) 3 (iv) (a) 10.05m×5.03m (b) 9.14m×4.11m (v) 46cm×46cm (vi) Yes.

4. GENERAL:

(i) Satisfactory except in all replications of treat. E_0, E_1, F_3 P_0 and F_3 P_1 (ii) Nil (iii) Yield of grain (iv) (a) 1963—only (b) and (c) Nil (v) to (vii) Nil.

5. RESULTS:

(i) 1176Kg/ha (ii) 118.0Kg/ha (iii) Main effect of F and 'extra treatments Vs. others' are highly significant. Interaction P×F is significant (iv) Av. yield of grain in Kg/ha.

E_0=612 and E_1=683Kg/ha

	F_1	F_2	F_3	mean
P_0	1367	1828	710	1298
P_1	1420	2174	621	1405
mean	1393	2001	661	1352

C.D. for F marginal means=146.1Kg/ha

C.D. for 'extra treatments *Vs.* others=119.3Kg/ha

C.D. for the body of P×F table=206.7Kg/ha

Crop :- Wheat (*Rabi*). **Ref :- U.P. 61(232).**

Site :- Govt. Reg. Agri. Res. Stn., Meerut **Type :- 'M'.**

Object :—To study the residual effect of intercropping G.M. (*Urd* and *Moong*) in Maize during Kharif on Wheat.

1. BASAL CONDITIONS :

(i) (a) Nil (b) As per treatments (c) Nil (ii) Loam (iii) 29.10.61 (iv) (a) 1 ploughing by S.T.P. and 3-4 ploughings by *Deshi* plough (b) Line sowing behind the plough (c) 81Kg/ha (d) Rows 23cm apart (e)— (v) G.M. by Urd and Moong in Kharif (Maize), turned down on 30.8.61 (vi) N.P. 718 (vii) Irrigated (viii) N.A. (ix) 13.2cm (x) 20.4.62.

2. TREATMENTS :

3 inter-crops applied in previous Kharif

T_1=Maize alone, T_2=Maize+*Urd* and T_3=Maize+*Moong*.

3. DESIGN :

(i) R.B.D. (ii) (a) 3 (b) 17.68m×12.19m (iii) 8 (iv) (a) 12.19m×5.49m (b) 11.28m×4.57m (v) 46cm 46cm (vi) Yes.

4. GENERAL:

(i) Good (ii) Nil (iii) No. of tillers/plant ; yield of grain and straw (iv) (a) 1961—only (b) and (c) Nil (v) to (vii) Nil.

5. RESULTS:

(i) 3055Kg/ha (ii) 2617Kg/ha (iii) Treatment differences are not significant (iv) Av. yield of grain in Kg/ha.

Treatments :	T_1	T_2	T_3
Av. yield :	3026	3116	3024

Crop :- Wheat (*Rabi*). **Ref :- U.P. 60(228), 61(227), 62(243), 63(257).**

Site :- Govt. Reg. Agri. Res. Stn., Meerut. **Type :- 'M'**

Object :—To study the effect of application of Super in *Dhaincha* as G.M. on the yield of succeeding Wheat crop.

1. BASAL CONDITIONS :

(i) (a) Nil for 61; *Dhaincha*-Wheat for others. (b) *Dhaincha*, (c) As per treatments (ii) Loam (iii) 26.10.60; 13.11.61; 23.10.62; 29.10 63 (iv) (a) 4 to 5 ploughings by S.T.P. and *Deshi* plough (b) Line sowing (c) 81Kg/ha (d) Rows 23cm apart (e) — (v) Nil for 60; 22.4Kg/ha as A/S for others (vi) N.P. 718 for 61; Pb.591 for others (vii) Irrigated (viii) N.A. for 60; 2 Hoeings and 2 weedings for 62; Nil for others (ix) 19.8cm; 10.70cm; 5.21cm; 1.34cm (x) 23.4.61; 18.4.62; 15 to 17.4.63 ; 16.4.64.

2. TREATMENTS:

6 manurial treatments:

T_1=Fallow(No manure), T_2=*Dhaincha* without P_2O_5, T_3=*Dhaincha* with Super 22.4Kg/ha of P_2O_5 as Super

T_4=*Dhaincha* with 33.6Kg/ha of P_2O_5 as Super, T_5=*Dhaincha* with 44.8Kg/ha of P_2O_5 as Super and T_6=*Dhaincha* with 56.0Kg/ha of P_2O_5 as Super.

3. DESIGN :

(i) R.B.D. (ii)(a) 6 (b) 17.07m×32.92m for 61, 25.60m×22.56m for others (iii) 4 for 61 ; 6 for others. (iv) (a) 7.92m×10.36m for 61; 12.19m×6.71m for others (b) 11.28m×5.49m for 60, 7.01m×9.45m for 61 11.28m×5.79m for others. (v) 46cm×61cm for 60, 46cm×46cm for others. (vi) Yes.

4. GENERAL:

(i) Good (ii) Nil (iii) Yield of Grain (iv) (a) 1960—63 (b) No (c) Results of combined analysis have been presented under. 5 Results. (v) and (vi) Nil (vii) Error variances are heterogeneous and Treatments×years interaction is present.

5. RESULTS :

Pooled results :

(i) 2126Kg/ha (ii) 333.5Kg/ha (based on 15d.f. and made up of Treatments×years interaction) (iii) Treatment differences are highly significant. (iv) Av. yield of grain in Kg/ha.

Treatments :	T_1	T_2	T_3	T_4	T_5	T_6
Av. yield :	1917	2069	2006	2151	2254	2358

C.D.=214.3Kg/ha

Individual results:

Treatment	T_1	T_2	T_3	T_4	T_5	T_6	Sig	G.M.	S.E./plot
Year 1960	1365	1820	1378	1686	1740	1944	N.S.	1655	461.3
1961	2151	1989	1966	1921	2359	2284	*	2112	203.8
1962	1906	2092	2355	2358	2401	2539	**	2275	194.5
1963	2322	2348	2312	2562	2552	2641	**	2456	122.7
Pooled	1917	2069	2006	2151	2254	2358	**	2126	333.5

Crop :- Wheat (*Rabi*). **Ref :- U.P. 64(282).**

Site :- Govt. Reg. Agri. Res. Stn., Meerut **Type :- 'M'**

Object :—To study the effect of Guar-meal, A/S, F.Y.M. and G.N. Cake with and without Super on the yield of Wheat.

1. BASAL CONDITIONS :

(i) (a) Nil (b) Pea (c) Nil (ii) Loam (iii) 24.11.64 (iv) (a) 1 ploughing by S.T.P.; 2 ploughings by *Deshi* plough (b) Behind the plough (c) 86Kg/ha (d) Rows 23cm. apart (e)—(v) Nil (vi) Pb. 591 (vii) Irrigated (viii) 1 weeding by *Khurpi* (ix) 7.69cm (x) 26.4.65.

2. TREATMENTS :

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

(1) 2 levels of P_2O_5 as Super : P_0=0 and P_1=44.8Kg/ha

(2) 4 forms of N at 56Kg/ha.

F_1=Guar-meal, F_2=A/S, F_3=F.Y.M. and F_4=G.N. Cake.

Extra treatments : E_0=Control (No manure) and E_1=44.8Kg/ha. P_2O_5 as Super.
1/2 dose of N and full of P_2O_5 was applied at sowing and 1/2 dose of N top dressed on 7-1-65.

3. DESIGN:

(i) R.B.D. (ii) (a) 10 (b) 13.41m×39.01m (iii) 3 (iv) (a) 13.41m×3.35m (b) 12.50m×2.44m (v) 46cm×46cm (vi) Yes.

4. GENERAL :

(i) Unsatisfactory (ii) Nil (iii) Yield of grain (iv) (a) 1964-only (b) and (c) Nil (v) to (vii) Nil

5. RESULTS:

(i) 2061Kg/ha (ii) 225.9Kg/ha (iii) Main effect F and 'extra treatments *Vs.* others' are highly significant Interaction P×F is significant. (iv) Av. yield of grain in Kg/ha.

E_0=1279 and E_1=1038Kg/ha.

	F_1	F_2	F_3	F_4	mean
P_0	2863	3005	1027	2240	2284
P_1	2601	2831	996	2732	2290
mean	2732	2918	1101	2486	2287

C.D. for F marginal means=274·1 Kg/ha.
C.D. for body of P×F table=387·6 Kg/ha.
C.D. for extra treatments *Vs.* others=216.6 Kg/ha

Crop :- Wheat. (*Rabi*). **Ref :-U.P. 61(223), 62(237), 63(250), 64(275), 65(92).**

Site :- Govt. Reg. Agri. Res. Stn., Meerut. **Type :- 'M'.**

Object :—To find out the suitable doses of N, P and K fertilizers for wheat.

1. BASAL CONDITIONS:

(i) (a) Nil for 61; *Moong/Bajra*—Wheat for others (b) N.A. for 61; *Bajra* for 65; *Moong* for others (c) Nil (ii) Loam (iii) 14.11.61; 4.11.62; 7.11.63; 28.10.64; 31.10.65 (iv) (a) 5—6 ploughings by S.T.P. and *Deshi* plough, 4 pataings (b) Behind the plough (c) 86Kg/ha (d) Rows 23cm apart (e) — (v) Nil (vi) N.P. 718 for 61; C.273 for 65; Pb 591 for others (vii) Irrigated (viii) 1 Weeding for 62 and 64 only (ix) 8.0cm; 5.2cm; 0.9cm; 7.7cm; 4.5cm (x) 10.4.62; 19/21.4.63; 19.4.64; 24.4.65; 14/15.4.66.

2. TREATMENTS:

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

(1) 3 levels of N as A/S : N_0=0, N_1=44.8 and N_2=89.6Kg/ha.

(2) 3 levels of P_2O_5 as Super : P_0=0, P_1=22.4 and P_2=44.8Kg/ha.

(3) 3 levels of K_2O as Pot. Sul. : K_0=0, K_1=22.4 and K_2=44.8Kg/ha

N.B. 1/2 dose of N and full dose of P_2O_5 and K_2O applied at sowing and 1/2 dose of N top dressed.

3. DESIGN:

(i) 3^3 partially confd. (in which NPK^3 and NP^2K^2 being confounded) (ii) (a) 9 plots/block, 3 blocks/replication (b) 17.07m×45.72m (iii) 2 (iv) (a) 17.07m×4.27m (b) 16.15m×3.35m (v) 46cm×46cm (vi) Yes.

.4 DESIGN :

(i) Good, lodging on 7.3.62 and 19.4.63 (ii) Nil (iii) Yield of grain (iv) (a) 1961 –Contd. (b) Yes, from 62 (c) Nil (v) Hardoi, Varanasi, Amrukh and Nawabganj (vi) Nil (vii) Residual effect was tested on *Moong* crop during 62 to 65 and on *Bajra* during 66 Expt. on *Moong* failed for 64.

As the experiment is continued beyond 1965, results of individual years have been presented under 5 Results.

5. RESULTS :

61(223)

(i) 2091Kg/ha (ii) 179.0Kg/ha (iii) Main effects of N, P, K and interactions N×P, and P×K are highly significant (iv) Av. yield of grain in Kg/ha.

	P_0	P_1	P_2	K_0	K_1	K_2	mean
N_0	1710	1747	1891	1623	1913	1901	1812
N_1	1944	2119	2467	2113	2252	2166	2177
N_2	2144	2455	2255	2049	2406	2400	2285
mean	1933	2107	2234	1928	2190	2155	2091
K_0	1710	2058	2018				
K_1	2221	2052	2289				
K_2	1867	2212	2387				

C.D. for N, P or K marginal means=123.7Kg/ha

C.D. for body N×P or P×K table=214.4Kg/ha.

62(237)

(i 2274Kg/ha (ii) 247.8Kg/ha (iii) Main effect of N and P are highly significant (iv) Av. yield of grain in Kg/ha.

	P_0	P_1	P_2	K_0	K_1	K_2	mean
N_0	1905	1878	2148	1905	2080	1945	1977
N_1	2139	2382	2449	2382	2317	2271	2323
N_2	2182	2689	2695	2554	2535	2477	2522
mean	2075	2316	2431	2280	2311	2231	2274
K_0	2056	2339	2446				
K_1	2234	2265	2434				
K_2	1936	2345	2412				

C.D. for N or P marginal means=171.3Kg/ha

3(250)

(i) 1922Kg/ha (ii) 169.4Kg/ha (iii) Main effects of N and P are highly significant. Interaction N×P 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	1454	1432	1506	1454	1509	1429	1464
N_1	1814	2068	2166	2030	1993	2055	2026
N_2	1975	2344	2507	2372	2239	2215	2275
mean	1748	1958	2060	1952	1914	1900	1922
K_0	1854	1935	2067				
K_1	1762	1928	2052				
K_2	1627	2012	2061				

C.D. for N or P marginal means=117.1Kg/ha.
C.D. for body of N×P table=202.9Kg/ha.

64(275)

(i) 2007Kg/ha (ii) 270.5Kg/ha (iii) Main effects of N and P are highly significant (iv) Av. yield of grain in Kg/ha.

	P_0	P_1	P_2	K_0	K_1	K_2	mean
N_0	1294	1303	1441	1349	1435	1260	1348
N_1	1913	2036	2184	1971	1984	2178	2044
N_2	2252	2757	2877	2662	2554	2671	2629
mean	1819	2023	2170	1994	1991	2036	2007
K_0	1802	2024	2156				
K_1	1787	2027	2159				
K_2	1870	2045	2193				

C.D. for N or P marginal means=187.0Kg/ha

65(92)

(i) 1800Kg/ha (ii) 170.7Kg/ha (iii) Main effects of N, P and interactions N×P and N×K are highly significant (iv) Av. yield of grain in Kg/ha.

	P_0	P_1	P_2	K_0	K_1	K_2	mean
N_0	1041	1041	1053	977	1072	1087	1045
N_1	1787	1935	1895	1943	1950	1722	1872
N_2	2033	2665	2751	2489	2329	2631	2483
mean	1620	1880	1900	1803	1784	1813	1800
K_0	1531	1990	1888				
K_1	1657	1836	1857				
K_2	1673	1814	1953				

C.D. for N or P marginal means=118.0Kg/ha.
C.D. for body of N×P or N×K table=204.4Kg/ha

Crop :- Wheat (*Rabi*). **Ref :- U.P. 64(280)**

Site :- Govt. Reg. Agri. Res. Stn., Meerut. **Type :- 'M'.**

Object :—To find out the suitable doses of Nitrogenous fertilizer for wheat crop.

1. BASAL CONDITIONS:

(i) (a) Nil (b) Maize (c) N.A. (ii) Loam (iii) 22.11.64 (iv) (a) 1ploughing by S.T.P., and 4 ploughings by *Deshi* plough (b) behind the plough (c) 86Kg/ha (d) Rows 23cm apart (e) — (v) Nil (vi) Pb. 591 (vii) Irrigated; (viii) Nil (ix) 7.69cm (x) 29.4.65.

2. TREATMENTS :

4 levels of N : N_1=22.4, N_2=28.0, N_3=33.6 and N_4=44.8Kg/ha.

3. DESIGN :

(i) R.B.D. (ii) (a) 4 (b) 5.49m × 38.86m (iii) 5 (iv) (a) 9.14m × 5.49m (b) 8.23m × 4.57m (v) 46cm × 46cm (vi) Yes.

4. GENERAL :

(i) Good (ii) Nil (iii) Yield of grain (iv) (a) 1964—only (b) and (c) Nil (v) to (vii) Nil.

5. RESULTS:

(i) 3942Kg/ha (ii) 416.7Kg/♂a (iii) Treatment differences are not significant. (iv) Av. yield of grain in Kg/ha.

Treatments :	N_1	N_2	N_3	N_4
Av. Yield :	3927	4066	3641	4133

Crop :- Wheat (*Rabi*). **Ref :-U.P. 60(232)**

Site :- Govt. Reg. Agri. Res. Stn., Meerut **Type :-'M'.**

Object :—To study the effect of raw and steamed Bone meal and Super with and without N on the yield of Wheat.

1. BASAL CONDITIONS:

(i) (a) Nil (b) Fallow (c) Nil (ii) Loam (iii) 7.11.60, (iv) (a) 1 ploughing by S.T.P. and 4—5 ploughings by *Deshi* plough (b) Behind the plough (c) 90Kg/ha (d) Rows 23cm apart (e)— (v) 46Kg/ha (vi) N.P. 710 (vii) Irrigated (viii) Weeding and hoeing (ix) 5.07cm (x) 14 and 17-4-61.

2. TREATMENTS:

All combinations of (1) and (2):

(1) 2 levels of N as A/S : N_0=0 and N_1=28Kg/ha

(2) 6 forms of P_2O_5 at 28Kg/ha.

F_0=Nil, F_1=Super, F_2=Bonemeal raw, F_3=Bonemeal steamed, F_4=1/2 as Super+1/2 as Bonemeal raw and F_5=1/2 as Super+1/2 as Bonemeal steamed.

P_2O_5 was applied at sowing and A/S top dressed on 12-1-61.

3. DESIGN:

(i) Fact in R.B.D. (ii) (a) 12 (b) 53.49m×18.90m (iii) 4 (iv) (a) 12.80m×5.79m (b) 11.89m×4.88m (v) 46cm×46cm (vi) Yes.

4. GENERAL:

(i) Good (ii) Nil (iii) Yield of grain (iv) (a) 1959—60 (b) No (c) Nil (v) Amrukh, Varanasi.and Hardoi (vi) and (vii) Nil.

5. RESULTS:

(i) 2152Kg/ha, (ii) 351.4Kg/ha (iii) None of the effects is significant (iv) Av. yield of grain in Kg/ha.

	F_0	F_1	F_2	F_3	F_4	F_5	mean
N_0	2132	2122	1939	2391	2169	2059	2135
N_1	2254	1961	2274	2223	2161	2140	2169
mean	2193	2041	2106	2307	2165	2099	2152

Crop :- Wheat (*Rabi*). **Ref :- U.P. 60(233)**

Site :- Govt, Reg. Agri. Res. Stn., Meerut. **Type :- 'M'.**

Object :—To compare the efficiency of Departmental Mixture and A/S + Super on the yield of Wheat.

1. BASAL CONDITIONS:

(i) (a) N.A. (b) *Dhaincha* for G.M. (c) Nil (ii) Loam (iii) 14.11.60 (iv) (a) 1 ploughing by S.T.P. and 3-4 ploughings by *Deshi* plough (b) Line sowing behind the plough (c) 90Kg/ha (d) Rows 23cm apart (e) — (v) *Dhaincha* (vi) Pb. 591 (vii) Irrigated (viii) Weeding and gap filling (ix) 5.07cm (x) 2.5.61

1. BASAL CONDITIONS:

2 manurial treatments:

T_1=Departmental mixture giving 56Kg/ha of N+31Kg/ha of P_2O_5 and T_2=56Kg/ha of N as A/S + 31Kg/ha of P_2O_5 as Super.

Fertizers were applied at sowing

3. DESIGN:

(i) R.B.D. (ii) (a) 2 (b) 12.19m×9.45m (iii) 12 (iv) (a) 12.20m×4.27m (b) 11.29m×3.36m (v 46cm×46cm discarded (vi) Yes.

4. GENERAL:

(i) Normal (ii) Nil (iii) Yield of grain (iv) (a) 1959—60 (b) No (c) Nil (v) to (vii) Nil.

5. RESULTS:

(i) 2631Kg/ha (ii) 121.2Kg/ha (iii) Treatment differences are not significant (iv) Av. yield of grain in Kg/ha.

Treatment:	T_1	T_2
Av. yield :	2605	2657

Crop :- Wheat (*Rabi*). **Ref:-U.P. 63(252), 64(281).**

Site :- Govt. Res. Agri. Res. Stn., Meerut. **Type :- 'M'.**

Object :—To study the effect of broadcast *Vs.* placement of Super with and without N on Wheat.

1. BASAL CONDITIONS:

(i) (a) to (c) Nil (ii) Loam (iii) 11.11.63; 6.11.64 (iv) (a) 1 ploughing by Soil turning plough, 4 ploughings by *Deshi* and 2 plankings (b) Behind the plough (c) 69Kg/ha (d) Rows 23cm apart (e)—(v) Nil. (vi) Pb.591. (vii) Irrigated. (vii) Hoeing and weeding. (ix) 1.3cm; 2.77cm (x) 21.4.64; 27.4.65.

2. TREATMENTS:

Main plot treatments :

4 levels of N as Urea : N_0=0, N_1=16.8, N_2=33.68 and N_3=50.4 Kg/ha.
Sub plot treatments :

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

(1) 2 Methods of application of Super : M_1=Broadcast and M_2=Placement.

(2) 3 levels of P_2O_5 as Super : P_1=16.8, P_2=33.6 and P_3=50.4Kg/ha.

Full dose of P_2O_5 and 1/2 dose of N was applied at sowing and 1/2 dose of N top dressed at 1st irrigation.

3. DESIGN:

(i) Split-plot (ii) (a) 4 main plots/replication, 7 Sub-plots/main-plot (b) 26.06m×42.06m; 35.66m×31.70m (b) 5.18m×4.57m; 6.40m×3.66m (v) 46cm×46cm. (vi) Yes.

4. GENERAL:

(i) Satisfactory (ii) Nil (iii) Yield of grain (iv) (a) 1963—64 (b) No (c) Nil (v) Amrukh, Hadoi, Nawabganj and Varanasi (vi) Nil (vii) As the Main-plot and sub-plot error variances are heterogenous, the results of individual years have been presented under 5 Results.

5. RESULTS:

63(253)

(i) 1814Kg/ha (ii) (a) 425.4Kg/ha (b) 285.1Kg/ha (iii) Main effect of N is highly significant and control *Vs.* others is significant (iv) Av. yield of grain in Kg/ha.

Control treatments : N_0=1215, N_1=1563, N_2=1785 and N_3=2112Kg/ha

	N_0	N_1	N_2	N_3	M_1	M_2	mean
P_1	992	1753	1917	2334	1740	1759	1749
P_2	1014	1610	1969	2788	1864	1827	1848
P_3	1172	1779	1959	2767	1903	1935	1919
mean	1059	1714	1948	2630	1836	1840	1838
M_1	1025	1732	1975	2612			
M_2	1095	1697	1922	2647			

C.D. for N marginal means=277.0 Kg/ha.
C.D. for 'control vs others' =153.6Kg/ha.

64(281)

(i) 1999Kg/ha (ii) (a) 849.6Kg/ha (b) 203.3Kg/ha (iii) Main effect of N alone is significant (iv) Av. yield of grain in Kg/ha.

Control treatments : N_0=1523, N_1=2063, N_2=2035 and N_3=2206Kg/ha.

	N_0	N_1	N_2	N_3	M_1	M_2	mean
P_1	1451	1850	2262	2732	2074	2074	2074
P_2	1359	1871	2134	2441	1911	1992	1951
P_3	1380	1971	2099	2519	1964	2021	1992
mean	1397	1897	2165	2564	1983	2029	2006
M_1	1399	1883	2130	2519			
M_2	1395	1912	2201	2609			

C.D. for N marginal means=692·8 Kg/ha.

Crop :- Wheat(*Rabi*). **Ref :- U.P. 65(100).**

Site :- Govt. Reg. Agri. Res. Stn., Meerut. **Type :- 'M'.**

Object : To find out the suitable combination of compost with different doses of A/N and Pot. Sui. applied as mixed on the yield of Wheat.

1. BASAL CONDITIONS:

(i) (a) Nil. (b) *Guar.* (c) Nil. (ii) Loam. (iii) 2.11.65. (iv) (a) 1 ploughings by soil turning plough, 3 ploughings by *Deshi* plough and 3 pataing. (b) Behind the plough. (c) 86.2 Kg/ha. (d) Rows 23 cm. apart. (e) —. (v) Nil. (vi) C-273. (vii) Irrigated. (viii) Nil. (ix) 4.53 cm. (x) 17.4.66.

2. TREATMENTS:

10 manurial treatmeats :

T_1=22.4 Kg/ha. of N as compost, T_2=22.4 Kg/ha. of N+22.4 Kg/ha. P_2O_5 as super reinforced compost, T_3=22.4 Kg/ha. of N as compost+22.4 Kg/ha. of P_2O_5 as super—applied mixed, T_4=22.4 Kg/ha. of N as compost+22.4 Kg/ha. of P_2O_5 as super—applied separately, T_5=44.8 Kg/ha. of N as compost, T_6=44.8 Kg/ha. of N+44.8 Kg/ha. of P_2O_5 as reinforced compost, T_7=44.8 Kg/ha. of N as compost+44.8Kg/ha. of P_2O_5 as Super—applied separately, T_8=44.8Kg/ha. N as compost+44.8Kg/ha. of P_2O_5 as Super—applied separately, T_9=22.4Kg/ha. of N +22.4Kg/ha. of P_2O_5 as Reinforced composh+22.41Kg/ha. of N as A/S and T_{10}=22.4Kg/ha. of N as compost+22.4Kg/ha. of N as A/S+22.4Kg/ha. of P_2O_5 as Super.

Treatment applied as broadcasting on 2.11.65.

Date of manuring on 29.10.65.

3. DESIGN:

(i) R.B.D. (ii) (a) 10 (b) 10.0m×55.78m (iii) 3 (iv) (a) 10.06m×5.03m (b) 9.14m×4.11m (v) 46cm×46cm (vi) Yes.

4. GENERAL:

(i) Poor (ii) Nil (iii) Yield of grain (iv) (a) 1965—only (b) and (c) Nil (v) to (vii) Nil.

5. RESULTS:

(i) 1383Kg/ha. (ii) 298.1Kg/ha. (iii) Treatment differences are highly significant. (iv) Av. yield of grain in Kg/ha.

Treatment :	T_1	T_2	T_3	T_4	T_5	T_6	T_7	T_8	T_9	T_{10}
Av. yield :	1260	1100	1322	1269	1358	1278	1178	1056	2209	1863

C.D.=511.3Kg/ha.

Crop :- Wheat (*Rabi*). **Ref :- U.P. 60(231).**

Site :- Govt. Reg. Agri. Res. Stn., Meerut **Type : 'M'.**

Object :—To study the most suitable time of application of Nitrogenous fertilizers.

1. BASAL CONDITIONS:

(i) (a) to (c) N.A. (ii) Loam. (iii) 12.11.60. (iv) (a) 1 ploughing by S.T.P. and 3-4 ploughings by *Deshi* plough. (b) Behind the plough. (c) 81Kg/ha. (d) Rows 23cm apart. (e) — (v) 22.4Kg/ha. of P_2O_5 as Super in deep bands just before sowing. (vi) Pb.591. (vii) Irrigated. (viii) Nil. (ix) 0.40cm. (x) 29.4.61 and 1.5.61.

2. TREATMENTS:

All combinations of (1), (2) and (3)+ control (3 plots).

(1) 3 times of application of N : T_1=At sowing, T_2=At first irrigation and T_3=1/2 at sowing+1/2 at first irrigation.

(2) 3 sources N : S_1=A/S, S_2=A/S/N and S_3=Urea.

(3) 2 levels of N : N_1=22.4 and N_2=44.8Kg/ha.

3. DESIGN:

(i) $3^2 \times 2$ confd. +one (ii) (a) 7 plots/block; 3 blocks/replication. (iv) (a) 60.96m×6.40m. (b) 7.01m×5.49m (v) 46cm×46cm (vi) Yes.

4. GENERAL:

(i) Good. (ii) Nil. (iii) Yield of grain. (iv) (a) 1959-60. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 2716Kg/ha. (ii) 117.9Kg/ha. (iii) Main effect of N, and 'control *Vs.* others' are highly significant (iv) Av. yield of grain in Kg/ha.

Control=2317Kg/ha.

	S_1	S_2	S_2	T_1	T_2	T_3	mean
N_1	2673	2722	2661	2586	2774	2695	2685
N_2	3025	2822	2791	2857	2875	2905	2879
mean	2849	2772	2726	2721	2825	2800	2782
T_1	2787	2712	2665				
T_2	2943	2718	2814				
T_3	2817	2886	2699				

C.D. for N marginal means=55·8 Kg/ha.
C.D. for Control *Vs.* others=73.8Kg/ha.

Crop :- Wheat (*Rabi*). **Ref :- U.P. 63(266).**

Site :- Meerut (Meerut, C.F.) **Type :- 'M'**

Object :—To see the response of different doses of N P K fertilizers on the yield of Wheat in Brick Kiln area.

1. BASAL CONDITIONS:

(i) (a) N.A. (b) *Dhaincha* for seed. (c) Nil. (ii) Silty loam. (iii) Compost applied before sowing. (iv) Pb.591. (v) 3 to 5 ploughings by *Desi* plough. (b) Line sowing behind the plough. (c) 86Kg/ha. (d) Rows 30cm apart. (e) — (vi) 22.11.63 (vii) to (ix) N.A. (x) 15.4.64.

2. TREATMENTS:

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

(1) 2 levels of N :—N_0=0 and N_1=33.6Kg/ha.

(2) 2 levels of P_2O_5 :—P_0=0 and P_1=33.6Kg/ha.

(3) 2 levels of K_2O :—K_0=0 and K_1=33.6Kg/ha.

Top dressing of fertilizers on 27.12.63.

3. DESIGN :

(i) Fact in R.B.D.; 8 plots/replication, 3 replications. (ii) Expt. conducted in Brick Kiln area. (iii) (a) and (b) 4.57m×10.97m. (iv) Yes.

4. GENERAL:

(i) Good except 4 treatment in Rep I which were very poor. (ii) N.A. (iii) Yield of grain and straw (iv) (a) 1963-only (b) and (c) Nil. (v) N.A. (vi) Nil. (vii) Depth of Kily=1.83m.

5. RESULTS:

(i) 1367Kg/ha. (ii) 451.2Kg/ha. (iii) Main effect of N is significant (iv) Av. yield of grain in Kg/ha.

	P_0	P_1	K_0	K_1	mean
N_0	905	1366	1015	1257	1136
N_1	1618	1578	1593	1603	1603
mean	1261	1472	1304	1430	1367
K_0	1120	1487			
K_1	1403	1457			

C D. for N marginal means=395.2 Kg/ha.

Crop :- Wheat (*Rabi*). **Ref :- U.P. 60(153).**

Site :- Govt. Reg. Agri. Res. Stn., Nawabganj. **Type :- 'M'.**

Object :—To find out the best time of application, level and form of N for Wheat crop.

1. BASAL CONDITIONS

(i) (a) Nil. (b) and (c) N.A. (ii) Clay loam. (iii) 12.11.60 (iv) (a) N.A. (b) Line sowing behind the plough. (c) 92Kg/ha. (d) Rows 23cm apart. (e)— (v) 22.4Kg/ha. of P_2O_5 applied at sowing time (vi) Pb 591. (vii) Irrigated. (viii) Weeding by *Khurpi*. (ix) 5.6cm. (x) 22 and 23-4-61.

2. TREATMENTS :

All combinations of (1), (2) and (3)+control (3 plots).

(1) 3 times of application of N : T_1=Full dose at sowing time, T_2=Full dose at 1st irrigation and T_3=1/2 dose at sowing time+1/2 dose at Ist irrigation.

(2) 3 forms of N : F_1=A/S, F_2=A/S/N and F_3=Urea.

(3) 2 levels of N : N_1=22.4 and N_2=44.8Kg/ha.

3. DESIGN:

(i) $3^2 \times 2$ confd. fact. +one control in each block (ii) (a) 3 blocks/replication, 7 plots/block. (b) N.A. (iii) 4 (iv) (a) 5.49m×9.14m (b) 5.03m×7.92m (v) 23cm×61cm. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Nil. (iii) Yield of grain. (iv) (a) 1959—60 (b) No. (c) Nil. (v) Rudrapur. (vi) and (vii) Nil.

5. RESULTS:

(i) 1062Kg/ha. (ii) 133.3Kg/ha. (iii) Main effect of N and 'Control *Vs.* Others' are highly significant. (iv) Av. yield of grain in Kg/ha :

Control=801Kg/ha.

	T_1	T_2	T_3	N_1	N_2	mean
F_1	1171	1077	1081	982	1238	1110
F_2	1100	1106	1032	995	1164	1079
F_3	1139	1140	1100	1066	1186	1126
mean	1137	1107	1071	1014	1196	1105
N_1	1055	1027	960			
N_2	1219	1187	1182			

C.D. for N marginal means=62.9Kg/ha.

C.D. for 'Control *Vs.* Others'=83.2Kg/ha.

Crop :- Wheat (*Rabi*). **Ref :- U.P. 60(161).**

Site :- Govt. Reg. Agri. Res. Stn., Nawabganj **Type :- 'M'.**

Object : —To determine the efficiency of blood-meal as a manure.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) Paddy. (c) N.A. (ii) Clay loam. (iii) 14.11.60. (iv) (a) N.A. (b) Line sowing behind the plough. (c) 109Kg/ha (d) Rows 23cm apart. (e) — (v) Nil. (vi) Pb. 591. (vii) Irrigated. (viii) Hoeing. (ix) 5.59cm. (x) 30.4.61.

2. TREATMENTS :

4 Sources of N at 56.0Kg/ha. : S_0=Control, S_1=Blood-meal, S_2=A/S and S_3=F.Y.M.

3. DESIGN :

(i) R.B.D. (ii) (a) 4. (b) N.A. (iii) 6. (iv) (a) 5.49m×9.14m (b) 5.03m×7.92m. (v) 23cm×61cm. (vi) Yes.

4. GENERA : L

(i) Good. (ii) Nil. (iii) Yield of grain. (iv) (a) 1959-60. (b) Yes. (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 1038Kg/ha. (ii) 155.7Kg/ha. (iii) Treatment defferences are highly significant (iv) Av. yield of grain in Kg/ha.

Treatment :	S_0	S_1	S_2	S_3
Av. yield :	789	1149	1278	936

C.D.=191.6Kg/ha.

Crop :- Wheat (*Rabi*). **Ref :- U.P. 60(162).**

Site :- Govt. Reg. Agri. Res. Stn., Nawabganj **Type :- 'M'.**

Object :—To compare the efficiency of new nitrogenous fertilizers on Wheat.

1. BASAL CONDITIONS:

(i) (a) Nil. (b) Paddy (Nursary). (c) N.A. (ii) Clay loam. (iii) 14.11,60. (iv) (a) N.A. (b) Line sowing behind *Deshi* plough. (c) 96Kg/ha. (d) Rows 23cm apart. (e)—. (v) Nil. (vi) C13. (vii) Irrigated. (viii) Hoeing. (ix) 5.6cm. (x) 27,4.61.

2. TREATMENTS :

6 Sources of N at 56Kg/ha : S_0=Control (No manure), S_1=A/S, S_2=A/S/N, S_3=Urea, S_4=A/C and S_5=C/A/N.

3. DESIGN :

(i) R.B D. (ii) (a) 6. (b) N.A. (iii) 4. (iv) (a) 5.49m×9.14m. (b) 1/250.81ha. (v) N.A. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Nil. (iii) Yield of grain. (iv) (a) 1960-only. (b) and (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 1347Kg/ha. (ii) 179.4Kg/ha. (iii) Treatment differences are highly significant. (iv) Av. yield of grain in Kg/ha.

Treatment :	S_0	S_1	S_2	S_3	S_4	S_5
Av. yield :	1009	1432	1204	1368	1634	1437

C.D.=270.3Kg/ha.

Crop :- Wheat (R*abi*). **Ref :- U.P. 60(65).**

Site :- Govt. Reg. Agri. Res. Stn., Nawabganj. **Type :- 'M'.**

Object :—To study the comparative efficiency of organic and inorganic nitrogenous fertilizers with and without Super on the yield of Wheat.

1. BASAL CONDITIONS:

(i) (a) Nil. (b) *Lobia*. (c) N.A. (ii) Clay loam. (ii) 22.11.60. (iv) (a) N.A. (b) Behind the plough. (c) 92Kg/ha. (d) Rows 23cm apart. (v) N.A. (vi) Pb. 591. (vii) Irrigated. (viii) and (ix) N.A. (x) 29.4.61.

2. TREATMENTS :

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

(1) 2 levels of P_2O_5 as Super : P_0=0 and P_1=44.8Kg/ha.

(2) 4 Sources of N at 56Kg/ha : S_0=Control, S_1=A/S, S_2=F.Y.M. and S_3=1/2 as A/S+1/2 as F.Y.M.

Extra treatments : E_1=28Kg/ha. of N as A/S and E_2=28Kg/ha. of N as F.Y.M.

3. DESIGN :

(i) R.B.D. (ii) (a) 10. (b) N.A. (iii) 4. (iv) (a) 10.97m.×4.57m (b) 9.75m×4.11 m. (v) 61cm×23cm. (vi) Yes.

4. GENERAL:

(i) N.A. (ii) Incidence of loose smut of wheat and orange rust. (iii) Yield of grain. (iv) (a) 1959–60. (b) No. (c) Nil. (v) Meerut, Hardoi, Amrukh and Vanarasi(vi) and (vii) Nil.

5. RESULTS:

(i) 739Kg/ha. (ii) 193.4Kg/ha. (iii) Main effects of P, and S and 'extra treatments *Vs.* others' are highly significant. (iv) Av. yield of grain in Kg/ha.

E_1=641Kg/ha and E_2=441Kg/ha.

	S_0	S_1	S_2	S_3	mean
P_0	574	596	568	919	664
P_1	625	1150	716	1162	913
mean	600	873	642	1040	789

C.D. for P marginal means=140·5 Kg/ha.
C.D. for S marginal means=198.5 Kg/ha.
C.D. for Extra treatments *Vs.* Others=156.9Kg/ha.

Crop :- Wheat (*Rabi*). **Ref :- U.P. 61(161), 62(209), 63(220), 64(230), 65(40).**

Site :- Govt. Reg. Agri. Res. Stn., Nawabganj. **Type :- 'M'.**

Object :—To study the efficiency of organic and inorganic nitrogenous manures with and without phosphatic fertilizers.

1. BASAL CONDITIONS :

(i) (a) Wheat-*Lobia* for 61; Wheat-Paddy for 65 and N.A. for others. (b) *Lobia* for 61, Paddy for 65 and N.A. for others. (c) N.A. (ii) Clay loam (iii) 14.11.61; 17.11.62; 4.11.63; 24.11.64; 22.11.65. (iv) (a) N.A. (b) Line sowing behind the plough. (c) 92Kg/ha. for 61; 100Kg/ha for 65 and 98.8Kg/ha for others. (d) Rows 23cm. apart. (e)—. (v) Nil. (vi) Pb. 591. (vii) Irrigated. (viii) Hoeing and weeding. (ix) 10.50cm; 3.08cm; N.A.; 16.32cm; N.A. (x) 17.4.62; 24.4.63; 16.4.64; 28.4.65; and 26.4.66.

2. TREATMENTS :

All the combination of (1), (2) and (3) + 2 extra treatments.

(1) 3 forms of N : F_1=A/S; F_2=F.Y.M. and F_3=1/2 as A/S+1/2 as F.Y.M.

(2) 2 levels of N : N_1=28 and N_2=56Kg/ha.

(3) 2 levels of P_2O_5 : P_0=0 and P_1=44.8Kg/ha.

Extra treatments : E_0=Control and E_1=44.8Kg/ha of P_2O_5 as Super.

3. DESIGN :

(i) R.B.D. (ii) (a) 14 (b) N.A. (iii) 4. (iv) (a) 12.19m×4.10m. (b) 11.28m×3.66m. (v) 46cm×23cm (vi) Yes.

4. GENERAL:

(i) Good. (ii) Nil. (iii) Yield of grain. (iv) (a) 1961-65. (b) Yes. (c) Results of combined analysis have been presented uuder 5 Results. (v) Meerut, Majhera, Rudrapur, Amrukh, Atara, Varanasi and Hardoi. (vi) Nil. (vii) Error Variances are heterogeneous and (PF)×Year and (PN)×Year interactions are present.

5. RESULTS:

Pooled results :
(i) 1002Kg/ha. (ii) 231.6Kg/ha. (based on 36 d. f. made up of P×year, F×year, N×year, P×F×year and P×N×year interactions). (iv) Main effects of P, N, F, interaction P×F, between extra treatments and 'Extra *Vs.* Others' are highly significant (iv) Av. yield of grain in Kg/ha.

E_0=687 and E_1=898Kg/ha

	N_1	N_2	F_1	F_2	F_3	mean
P_0	816	899	800	805	908	858
P_1	1117	1315	1373	1000	1276	1216
mean	967	1107	1086	902	1122	1037

C.D. for P or N marginal means=61.3Kg/ha.
C.D. for F marginal means=74-3Kg/ha
C.D. for body of P × F table=106.0Kg/ha
C.D. for control *Vs.* others=803Kg/ha.
C.D. for extra treatments=73.2Kg/ha.

61(161)

	F_1	F_2	F_3	mean
N_1	918	733	794	815
N_2	1164	748	1045	986
mean	1041	741	920	901

62(209)

	F_1	F_2	F_3	mean
N_1	1174	1039	1224	1146
N_2	1273	993	1294	1186
mean	1224	1016	1259	1166

63(220)

	F_1	F_2	F_3	mean
N_1	775	740	999	838
N_2	1077	821	1048	982
mean	926	780	1024	910

64(230)

	F_1	F_2	F_3	mean
N_1	1226	1056	1214	1165
N_2	1433	1097	1481	1337
mean	1330	1077	1347	1251

65(40)

	F_1	F_2	F_3	mean
N_1	799	836	972	869
N_2	1025	960	1151	1045
mean	912	898	1062	957

Individual Results:

Treatment	P_0	P_1	Sig.	N_1	N_2	Sig.	F_1	F_2	F_3	Sig.	E_0	E_1	Sig	G.M.	S.E./Plot
Year															
1961	792	1009	**	815	986	**	1041	741	920	**	727	727	N.S.	876	154.4
1962	984	1348	**	1145	1186	**	1223	1016	1259	**	861	1076	N.S.	1138	219.9
1963	731	1089	**	838	982	**	926	780	1024	**	554	834	N.S.	879	211.8
1964	1096	1406	**	1165	1337	**	1329	1077	1347	**	854	1025	N.S.	1207	122.8
1965	685	1230	**	869	1045	**	912	898	1061	**	441	825	* *	911	172.3
Pooled	858	1216	**	967	1107	**	1086	902	1122	**	687	898	* *	1002	231.6

Crop :- Wheat (*Rabi*). **Ref:-U.P. 63(217).**

Site :- Govt. Reg. Agri. Res. Stn., Nawabganj. **Type :- 'M'.**

Object :—To compare the effect of Guar-meal with C/A/N in the presence and absence of Super on the yield of Wheat.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) and (c) N.A. (ii) Clay loam. (iii) 8.11.63. (iv) (a) N.A. (b) Line sowing behind the plough (c) 100Kg/ha (d) Rows 20cm apart (e)— (v) Nil. (vi) NP 830 (vii) Irrigated. (viii) Hoeing (ix) 0.72cm. (x) 12.4.64.

2. TREATMENTS :

All combinations of (1) and (2) :

(1) 3 Sources of N at 56Kg/ha : S_0=Control, S_1=Guar-meal and S_2=C/A/N.

(2) 2 levels of P_2O_5 as Super : P_0=0 and P_1=28Kg/ha.

3. DESIGN :

(i) Fact. in R.B.D. (ii) (a) 6. (b) N.A. (iii) 4. (iv) (a) and (b) 10.97m × 4.57m. (v) Nil. (vi) Yes.

4. GENERAL:

(i) Good. (ii) Nil. (iii) Yield of grain. (iv) (a) 1963—only (b) and (c) —. (v) to (vii) Nil.

5. RESULTS :

(i) 2002Kg/ha. (ii) 196.2Kg/ha. (iii) Main effect of S is highly significant (iv) Av. yield of grain in Kg/ha.

	P_0	P_1	mean
S_0	1742	1615	1678
S_1	1941	2240	2090
S_2	2188	2290	2239
mean	1957	2048	2002

C.D. for S marginal means=209.0Kg/ha.

Crop :- Wheat (*Rabi*). **Ref :- U.P. 64(223).**

Site :- Govt. Reg. Agri. Res. Stn., Nawabganj. **Type :- 'M'.**

Object :—To compare the efficiency of Guar-meal against F.Y.M. and C/A/N with and without Super on the yield of wheat.

1. BASAL CONDITIONS:

(i) (a) Nil (b) and (c) (ii) Clay loam (iii) 13.11.64 (iv) (a) N.A. (b) Line sowing behind the plough (c) 90Kg/ha. (d) Rows 20cm. apart. (v) Nil. (vi) NP 830 (vii) Irrigated. (viii) Hoeing. (ix) 16.32cm (x) N.A.

2. TREATMENTS:

All combnations of (1) and (2)+2 extra treatments:

(1) 3 Sources of N at 56Kg/ha.: S_1=Guar-meal, S_2=F-Y.M. and S_3=C/A/N.

(2) 2 levels of P_2O_5 as Super: P_0=0 and P_1=28Kg/ha.

Extra treatments: E_0=Control (No manure) and E_1=28Kg/ha of P_2O_5 as Super.

3. DESIGN:

(i) R.B.D. (ii) (a) 8 (b) N.A. (iii) 4 (iv) 10.00m×4.00m (b) 9.00m×3.60m (v) 50cm×20cm One row on either side end. (vi) Yes.

4. GENERAL:

(i) Good (ii) Nil (iii) Yield of grain (iv) (a) 1964—only (b) and (c) —. (v) to (vii) Nil.

5. RESULTS:

(i) 2242Kg/ha (ii) 168.2Kg/ha (iii) Main effects of S,P and 'Extra treatments *Vs.* Others' are highly significant. Interaction S×P is significant. (iv) Av. yield of grain in Kg/ha.

E_0=1667 and E_1=1896Kg/ha.

	S_1	S_2	S_3	mean
P_0	2565	1642	2426	2211
P_1	3010	1705	2978	2579
mean	2787	1696	2702	2395

C.D. for S marginal means=174·9 Kg/ha.

C.D. for P marginal means=142·8 Kg/ha

C.D. for the body of S×P table=247.4 Kg/ha.

C.D. for 'Extra vs Others'=142·8 Kg/ha.

Crop:- Wheat (*Rabi*). **Ref:- UP. 61(160).**

Site :- Govt. Reg. Agri. Res. Stn., Nawabganj. **Type :- 'M'.**

Object :—To study the effect of different methods of application of Super with and without N on the yield of Wheat.

1. BASAL CONDITIONS:

(i) (a) Nil. (b) and (c) N.A. (ii) Clay loam. (iii) 17.11.61 (iv) (a) N.A. (b) Line sowing behind the plough (c) 90Kg/ha. (d) Rows 23cm. apart (e)— (v) Nil (vi) NP—824 (vii) Irrigated (viii) Hoeing and weeding (ix) 10.6cm. (x) 25 and 26.4.62.

2. TREATMENTS:

All the combination of (1), (2) and (3) + 4 extra treatments :

(1) 4 levels of N : N_0=0, N_1=16.8, N_2=33.6 and N_3=50.4Kg/ha.

(2) 3 levels of P_2O_5 as Super : P_1=16.8, P_2=33.6 and P_3=50.4Kg/ha.

(3) 2 methods of application of Super: M_1=As broadcast and M_2=As placement.

4 extra treatments : E_0=0, E_1=16.8, E_2=33.6 and E_3=50.4Kg/ha of N.

3. DESIGN :

(i) R.B.D. (ii) (a) 28 (b) N.A. (iii) 2 (iv) (a) 3.20m×12.80m. (b) 2.74m×11.89m. (v) 23cm×46cm. (vi) Yes.

4. GENERAL :

(i) Good (ii) Nil (iii) Yield of grain (iv) (a) 1961—64 (Experiment modified from 1962) (b) No (c) Nil. (v) Hardoi, Amrukh, Varanasi and Meerut. (vi) and (vii) Nil.

5. RESULTS :

(i) 965Kg/ha (ii) 147.8Kg/ha (iii) Main effect of N and 'Extra treatments Vs. Others' are highly significant (iv) Av. yield of grain in Kg/ha :

E_0=583, E_1=828, E_2=997 and E_3=874Kg/ha.

	M_1	M_2	P_1	P_2	P_3	mean
N_0	884	879	851	874	920	882
N_1	889	848	851	1043	1112	869
N_2	1083	1007	974	1043	1119	1045
N_3	1165	1155	1119	1173	1188	1160
mean	1006	972	949	977	1041	989
P_1	977	920				
P_2	1023	931				
P_3	1016	1066				

C.D. for N marginal means=123.8K g/ha

C.D. for extra 'treatments Vs. others'=115.8Kg/ha.

Crop :- Wheat (*Rabi*). **Ref :- U.P. 62(140), 63(216), 64(226).**

Site :- Govt. Reg. Agri. Res. Stn., Nawabganj. **Type :- 'M'**

Object :—To study the effect of different methods of application of Super with and without N on the yield of Wheat.

1. BASAL CONDITIONS:

(i) (a) Nil (b) and (c) N.A. (ii) Clay loam (iii) 20.11.62; 3/4.12.63; 1/2.12.64. (iv) (a) N.A. (b) Line sowing behind the plough. (c) 90Kg/ha for 62 and 100Kg/ha for others (d) Rows 20cm apart. (e) — (v) Nil (vi) N.P. 830 (vii) Irrigated (viii) Hoeing and weeding (ix) 3.1cm; 0.7cm; 16.3cm. (x) 16/17.4.63; 18/19.4.64; N.A.

2. TREATMENTS:

Main-plot treatments :

4 levels of N : N_0=0, N_1=16.8, N_2=33.6 and N_3=50.4Kg/ha.

Sub-plot treatments :

All cominations of (1) and (2)+one control (P_0).

(1) 3 levels of P_2O_5 as Super : P_1=16.8, P_2=33.6, and P_3=50.4Kg/ha.

(2) 2 methods of application of Super : M_1=As broadcast and M_2=As placement.

3. DESIGN :

(i) Split-plot (ii) (a) 4 main-plots/replication; 7 sub-plots/main-plot (b) N,A. (iii) 4 (iv) (a) 11,00m × 3.60m. (b) 10.00m × 3.20m (v) 50cm × 20cm. (vi) Yes.

4. GENERAL :

(i) Good (ii) Nil (iii) Yield of grain. (iv) (a) 1962-64 (b) Yes. (c) Results of combined analysis have been presented under 5 Results. (v) Hardoi, Amrukh. Varanasi and Meerut (vi) Nil (vii) Both the main-plot and sub-plot error variances are homogeneous and interactions of main-plot treatments × years and sub-plot treatments × years are present.

5. RESULTS .

Pooled results:

(i) 1063Kg/ha (ii) (a) 616.6Kg/ha (based on 6 d. f. made of Treatment × years interaction) (b) 486·2 Kg/ha. (based on 40 d. f. made up of Treatments × years interaction) (iii) Main effect of N is significant (iv) Av. yield of grain in Kg/ha.

N_0P_0=852, N_1P_0=910, N_2P_0=1093 and N_3P_0=1121Kg/ha.

	P_1	P_2	P_3	M_1	M_2	mean
N_0	796	851	861	830	841	836
N_1	1037	1026	1084	1016	1082	1049
N_2	1152	1126	1173	1131	1170	1150
N_3	1209	1256	1305	1287	1227	1257
mean	1049	1065	1106	1066	1080	1073
M_1	1042	1056	1100			
M_2	1055	1073	1111			

C,D. for N marginal means=251.5 Kg/ha.

Individual results :

Treatment	N_0	N_1	N_2	N_3	Sig.	P_1	P_2	P_3	Sig.	M_1	M_2	Sig.
Year												
1962	1043	1334	1540	1777	**	1384	1410	1478	N.S.	1442	1406	N.S.
1963	596	779	827	774	**	726	727	779	N.S.	708	780	N.S.
1964	868	1033	1084	1219	**	1036	1056	1061	N.S.	1048	1054	N.S.
Pooled	836	1049	1150	1257	**	1049	1065	1106	N.S.	1066	1080	N.S.

N_0P_0	N_1P_0	N_2P_0	N_3P_0	Sig.	G.M.	S.E./Plot Main	Sub
1005	1162	1452	1609	N.S.	1407	295.0	167.8
688	651	675	652	N.S.	733	219·1	155.3
863	916	1152	1103	N.S.	1045	199·1	199.1
852	910	1093	1121	N.S.	1063	616·6	486.2

Crop :- Wheat (*Rabi*). **Ref :- U.P. 65(265).**

Site :- Govt. Reg. Agri. Res. Stn., Nawabganj **Type :- 'M.'**

Object :—To evaluate the comparative merit of Super re-inforced compost, compost mixed with Super. and compost and Super, alone and in combination on the yieid of Wheat.

1. BASAL CONDITIONS:

(i) (a) Nil (b) Fallow (c) Nil (ii) Clay loam (iii) 14.11.65 (iv) (a) 4 ploughings by *Deshi* plough and 4 plankings by *Pata* (b) Sown in lines behind *Deshi* plough (c) 100Kg/ha (d) Rows 23cm apart (e)— (v) Nil (vi) C 281 (vii) Irrigated (viii) Nil (ix) 5.8cm (x) 7 4.66.

2. TREATMENTS :

10 manurial treatments :

T_1=22 4Kg/ha. of N as ordinary compost, T_2=22.4Kg/ha. of N and 22.4Kg/ha. of P_2O_5 as re-inforced compost, T_3=22.4Kg/ha. of N as ordinary compost and 22.4Kg/ha. of P_2O_5 as Super mixed together and applied, T_4=22.4Kg/ha. of N as ordinary compost and 22.4Kg/ha. of P_2O_5 as Super added separately, T_5=44.8Kg. /ha of N as ordinary compost, T_6=44.8Kg/ha. of N and 44.8Kg/ha. of P_2O_5 as re-inforced compost, T_7=44.8Kg/ha. of N as ordinary compost and 44.8Kg/ha. of P_2O_5 as Super mixed togather and applied and T_8=44.8Kg/ha. of N as ordinary compost and 44.8Kg/ha. of P_2O_5 as

Super added seperately,

Compost and Super broadcasted uniformally and mixed in soil by ploughing on 13.11.65.

3. DESIGN:

(i) R.B.D. (ii) (a) 8 (b) 17.20m×22.25m (iii) 4 (iv) (a) 8.10m×5.10m (b) 7.00m×4.60m (v) 50cm×20cm (vi) Yes.

4. GENERAL :

(i) Good (ii) Nil. (iii) Yield of grain and straw (iv) (a) 1965 (b) N.A. (c) Nil (v) to (vii) Nil.

5. RESULTS :

(i) 2119Kg/ha (ii) 179.2Kg/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	T_6	T_7	T_8
Av. yield :	2130	2151	2062	2009	2107	2245	2161	2088

Crop :- Wheat (*Rabi*). **Ref :- U.P. 60(163), 61(168), 62(150).**

Site :- Govt. Reg. Agri. Res. Stn., Nawabganj **Type :-'M'.**

Object :—To find out the manurial requirement of Wheat sown after late Paddy.

1. BASAL CONDITIONS :

(i) (a) Paddy-Wheat (b) Late Paddy (c) N.A. (ii) Clay loam (iii) 16.12.60; 29.12.61; 27.12.62 (iv) (a) N.A. (b) Line sowing behind the plough (c) 97Kg/ha (d) Rows 23cm apart (e) — (v) Nil (vi) NP—792 (vii) Irrigated (viii) Hoeing (ix) 5.60cm; 10.60cm: 3.10cm (x) 27.4.61; 28.4.62; 26.4.63.

2. TREATMENTS :

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

(1) 3 levels of N as C/A/N : N_1=28.0, N_2=56.0 and N_3=84.0Kg/ha.

(2) 2 levels of P_2O_5 as Super : P_1=22.4 and P_2=44.8Kg/ha.

1/2 N applied at sowing and 1/2N at 1st irrigation.

3. DESIGN :

(i) R.B.D. (ii) (a) 7 (b) N.A. (iii) 4 (iv) (a) and (b) 2.29m×9.14m (v) Nil (vi) Yes.

4. GENERAL:

(i) Good (ii) Nil (iii) Yield of grain (iv) (a) 1960-62 (b) Yes (c) Nil (v) and (vi) Nil (vii) As the error variances are heterogeneous and Treatments×years interaction is absent. results of individual years have been presented under 5 results.

5. RESULTS:

60(163)

(i) 973Kg/ha (ii) 272.4Kg/ha (iii) Control *Vs.* others' alone is highly significant (iv) Av. yield of grain in Kg/ha.

Control=628Kg/ha.

	N_1	N_2	N_3	mean
P_1	927	975	1024	975
P_2	1088	940	1228	1085
mean	1008	958	1126	1030

C.D. for 'Control *Vs.* Others=309.0Kg/ha.

61(163)

(i) 841Kg/ha (ii) 158.7Kg/ha (iii) Main effects of N and 'Control *Vs*. others' are highly significant and that of N is significant (iv) Av. yield of grain in Kg/ha.

Control=502Kg/ha.

	N_1	N_2	N_3	mean
P_1	669	861	813	781
P_2	849	1065	1125	1013
mean	759	963	969	897

C.D. for P marginal means=136.1Kg/ha

C.D. for N marginal means=156.2Kg/ha.

C.D. for control *Vs*. others=180.0Kg/ha.

62(150)

(i) 927Kg/ha (ii) 107.0Kg/ha (iii) Main effects of N and P and 'Control *Vs*. Others' are highly significant. (iv) Av. yield of grain in Kg/ha.

Control=478Kg/ha.

	N_1	N_2	N_3	mean
P_1	748	1011	969	909
P_2	975	1098	1210	1094
mean	861	1054	1090	1002

C.D. for N marginal means=112.3Kg/ha.

C.D. for P marginal means=91.8Kg/ha.

C.D. for 'Control *Vs*. Others'=121.4Kg/ha.

Crop :- Wheat (*Rabi*). **Ref :- U.P. 63(218), 64(228).**

Site :- Govt. Reg. Agri. Res. Stn., Nawabganj. **Type :- 'M'**

Object:—To find out the suitable combination of N and P for Wheat grown under unirrigated conditions.

1. BASAL CONDITIONS:

(i) (a) Nil (b) and (c) N.A. (ii) Clay loam (iii) 24.11.63; 24.12.64 (iv) (a) N.A. (b) Line sowing behind the plough (c) 100Kg/ha (d) Rows 20cm. apart (e)— (v) Nil (vi) N.P. 830 (vii) Unirrigated (viii) Hoeing (ix) 0.7cm; 16.3cm (x) 8.4.64; 23.4.65.

2. TREATMENTS :

All combinations of (1) and (2)

(1) 3 levels of N : N_0=0, N_1=16.8 and N_2=33.4Kg/ha.

(2) 3 levels of P_2O_5 : P_0=0 : P_1=11.2 and P_2=22.4K g/ha.

3. DESIGN :

(i) Fact. in R.B.D. (ii) (a) 9 (b) N.A. (iii) 3 (iv) (a) 10.00m×5.00m (b) 9.00m×4.60m (v) 50cm×20cm. (vi) Yes.

4. GENERAL:

(i) Good (ii) Nil (iii) Yield of grain (iv) (a) 1963—64 (b) Yes (c) Nil (v) and (vi) Nil. (vii) As the error Variances are heterogeneous and the Treatments×yield interaction is absent, the results of individual years have been presented under 5 Results.

5. RESULTS

63(218)

(i) 1594Kg/ha (ii) 550.8Kg/ha (iii) None of the effects is significant. (iv) Av. yield of grain in Kg/ha.

	P_0	P_1	P_2	mean
N_0	1180	1518	1200	1300
N_1	1412	2007	2080	1833
N_2	1717	1356	1874	1649
mean	1437	1627	1718	1594

64(228)

(i) 662.4Kg/ha (ii) 127 3Kg/ha (iii) Main effect of N alone is highly significant (iv) Av. yield of grain in Kg/ha.

	P_0	P_1	P_2	mean
N_0	451.7	534.6	547.5	5113
N_1	606.3	682.0	691 6	660.4
N_2	665.0	869.6	913.0	815.9
mean	574.3	695.4	717.4	662.4

C.D. for N marginal means=89.93Kg/ha.

Crop :- Wheat (*Rabi*). **Ref :-U.P. 60(164).**

Site :- Govt. Reg. Agri. Res. Stn., Nawabganj. **Type :- 'M'.**

Object :—To study the effect of raw and steamed Bone-meal and Super with and without A/S.

1. BASAL CONDITIONS :

(i) (a) Nil (b) and (c) N.A. (ii) Clay loam (iii) 17.11.60 (iv) (a) N.A. (b) Line sowing behind the plough (c) 92Kg/ha. (d) Rows 23cm. apart (e)— (v) 46.11 Q/ha.of F.Y.M. (vi) Pb. 591 (viii) Irrigated (ix) Hoeing (x) 5.6 and 9.4.61.

2. TREATMENTS :

All combinations (1) and (2).

(1) 2 levels of N as A/S : N_0=0 and N_1=56Kg/ha.

(2) 6 forms of P_2O_5 at 28Kg/ha :

F_0=Control (N_0 P_2 O_5) F_1=Super; F_2=Raw bone-meal, F_3=Steamed bone-meal. F_4=$\frac{1}{2}$ as Super+$\frac{1}{2}$ as raw bone-meal and F_5=$\frac{1}{2}$ as Super+$\frac{1}{2}$ as steamed bone-meal.

3. DESIGN :

(I) Fact. in R.B.D. (ii) (a) 12 (b) N.A. (iii) 4 (iv) (a) 4.57m×14.63m (b) 4.11m×13.41m (v) 23cm×61cm (vi) Yes.

4. GENERAL:

(i) Good (ii) Nil (iii) Yield of grain (iv) (a) 1960—only (b) and (c) Nil. (v) Hardoi, Meerut, Varanasi and Amrukh (vi) and (vii) Nil.

5. RESULTS :

(i) 1409Kg/ha. (ii) 173.0Kg/ha (iii) Main effect of N is highly significant (iv) Av. yield of grain in Kg./ha.

	F_0	F_1	F_2	F_3	F_4	F_5	mean
N_0	1260	1286	1133	1070	1177	56	1164
N_1	1591	1772	1554	1602	1543	1860	1654
mean	1426	1529	1344	1336	1360	1458	1409

Crop :- Wheat (*Rabi*). **Ref :- U.P. 64(225).**

Site :- Govt. Reg. Agri. Res. Stn., Nawabganj **Type :- 'M'.**

Object : —To find out the optimum level of N for Wheat crop.

1. BASAL CONDITIONS:

(i) (a) Nil (b) and (c) N.A. (ii) Clay loam (iii) 15.11.64 (iv) (a) N.A. (b) Line sowing behind the plough (c) 100Kg/ha (d) Rows 20cm. apart (e) — (v) N.A. (vi) N P 830 (vii) Irrigated (viii) Hoeing (ix) 16.3cm (x) 21.4.65.

2. TREATMENTS :

6 levels of N as C/A/N : N_0=0, N_1=16.8, N_2=33.6, N_3= 50.4, N_4=67.2 and N_5=84.0Kg/ha.

3. DESIGN:

(i) R B. D. (ii) (a) 6 (b) N.A. (iii) 4 (iv) (a) 10.00m×5.00m (b) 9.00m×4.60m. (v) 50cm× 20cm. (vi) Yes.

4. GENERAL:

(i) Good (ii) Nil (iii) Yield of grain (iv) (a) 1964—only (b) and (c) Nil. (v) to (vii) Nil.

5. RESULTS:

(i) 2089Kg/ha (ii) 123.9Kg/ha (iii) Treatment differences are highly significant (iv) Av. yield of 9 rain in Kg/ha.

Treatment :	N_0	N_1	N_2	N_3	N_4	N_5
Av. yield :	1422	1748	2044	2278	2361	2681

C.D.=186.5Kg/ha.

Crop :- Wheat (*Rabi*). **Ref :- U.P. 65(266).**

Site :- Govt. Reg. Agri. Res. Stn., Nawabganj. **Type :- 'M'.**

Object :—To test the efficacy of Foliar spray of Urea againist its Soil application under rain-fed conditions on the growth and yield of Wheat.

1. BASAL CONDITIONS:

(i) (a) Nil (b) Fallow (c) Nil (ii) Clay loam (iii) 16.11.65 (iv) (a) 4 ploughing by *Deshi* plough and planking (b) Sown behind the plough (c) 100Kg/ha (d) 23cm. apart. (e)— (v) 20Kg/ha of P_2O_5 as Super applied in furrows behind the plough. (vi) K65 (early) (vii) Unirrigated (viii) 2 weedings by *Khurpi* (ix) 5.8cm. (x) 12.4.66.

2. TREATMENTS :

All combinations of (1) and (2)+a Control

(1) 2 levels of N as Urea : N_1=10 and N_2=20Kg/ha.

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

3. DESIGN :

(i) R.B.D. (ii) (a) 5 (b) 8.50m×20.25m (iii) 6 (iv) (a) 3.45m×8.50m (b) 2.99m×7.50m (v) 23cm×50cm (vi) Yes.

4. GENERAL:

(i) I, II and III replications good, IV, V and VI replications poor (ii) Nil (iii) Yield of grain (iv) (a) 1965-only (b) and (c) Nil. (v) to (vii) Nil.

5. RESULTS:

(i) 2028Kg/ha (ii) 343.2Kg/ha (iii) None of the effects is significant (iv) Av. yield of grain in Kg/ha.

Control=2003Kg/ha.

	M_1	M_2	mean
N_1	2031	2201	2116
N_2	1967	1940	1953
mean	1999	2070	2035

Crop :- Wheat (*Rabi*). **Ref :- U.P. 64(215),**

Site :- Govt. Reg. Agri. Res. Stn., Nawabganj **Type :- 'M'.**

Object :—To see the effect of different doses of phosphate on rust incidence and yield of Wheat in late sown crop.

1. BASAL CONDITIONS:

(i) (a) Nil (b) Paddy (c) N.A. (ii) Clay loam (iii) 22.12.64 (iv) (a) N.A. (b) Behind the plough (c) 100Kg/ha (d) Rows 20cm. apart (e)— (v) and (vi) N.A. (vii) Irrigated (viii) Nil. (ix) 1.6cm (e) 4.5.65.

2 TREATMENTS :

5 manurial treatments :

T_0=Control T_1=60Kg/ha of N as C/A/N, $T_2=T_1+15$Kg/ha of P_2O_5, $T_3=T_1+30$Kg/ha of P_2O_5 and $T_4=T_1+45$Kg/ha of P_2O_5.

3. DESIGN

(i) R.B.D. (ii) (a) 5 (b) N.A. (iii) 4 (iv) (a) 4.00m×5.00m (b) 3.60m×4.00m (v) 20cm×30cm (vi) Yes.

4. GENERAL :

(i) Good. (ii) Rust appearence except in replication III (iii) Yield of grain (iv) (a) 1964—only (b) & (c)—. (v) to (vii) Nil.

5. RESULTS:

(i) 1191Kg/ha. (ii) 181.7Kg/ha (iii) Treatment diffcrances are highly significant (iv) Av. yield of grain in Kg/ha.

Treatment :	T_0	T_1	T_2	T_3	T_4
Av. Yield :	877	920	1285	1564	1311

C.D.=279.8Kg/ha.

Crop :- Wheat (*Rabi*). **Ref :-U.P. 61(156), 62(208), 63(223), 64(231).**

Site :- Govt. Reg. Agri. Res. Stn., Nawabganj **Type : 'M'.**

Object :—To find out the optimum combination of N, P and K for Wheat.

1. BASAL CONDITIONS

(i) (a) Wheat-Paddy (b) Paddy (c) Nil (ii) Clay loam (iii) 28.11.61; 12.11.62; 25.10.63; 21.11.64. (iv) (a) N.A. (b) Line sowing behind the plough (c) 92Kg/ha for 61 and 99Kg/ha for others (d) Rows 23cm. apart. (e) – (v) Nil (vi) Pb. 591. (vii) Irrigated (viii) Hoeing and weeding (ix) 10.56cm.; 3.08cm; 0.72cm; 16.32cm (x) 27/28-4-62; 21/22-4-63; 9/10-4-64; 25/26-4-65.

2. TREATMENTS:

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

(1) 3 levels of N as C/A/N : No=0, N_1=44.8 and N_2=89.6Kg/ha.

(2) 3 levels of P_2O_5 as Super : P_0=0, P_1=22.4 and P_2=44.8Kg/ha.

(3) 3 levels of K_2O as Pot. Chloride : K_0=0, K_1=22.4 and K_2=44.8Kg/ha.

½ dose of N and full dose of P and K was applied at sowing and ½ dose of N top dressed at 1st. irrigation.

3. DESIGN:

(i) 3^3 parti ally confd. in which N P^2 K and N P K^2 is confounded (ii) (a) 3 blocks/replication and 9 plots/block (b) N.A. (iii) 2 (iv) (a) 7.32m×13.72m (b) 6.86m×12.91m. (v) 23cm×38cm. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Nil. (iii) Yield of grain (iv) (a) 1961—64 (b) Yes (c) Results of combined analysis have been presented under 5 Results (v) Meerut, Hardoi Varanasi and Amrukh (vi) Nil (vii) Error variances are homogeneous and Treatments×years interction is present.

5. RESULTS

Pooled results :

(i) 1197Kg/ha (ii) 243.7Kg/ha (based on 54 d. f. made up of Treatment×year intraction (iii) Main effects of N, P and K and interaction N×P are highly significant (iv) Av. yield of grain in Kg/ha.

	P_0	P_1	P_2	K_0	K_1	K_2	mean
N_0	877	987	908	837	955	981	924
N_1	1182	131	1390	1199	1362	1321	1294
N_2	1096	1438	1580	1266	1398	1451	1371
mean	1052	1245	1293	1101	1239	1251	1197
K_0	913	1124	1265				
K_1	1161	1279	1275				
K_2	1081	1333	1339				

C.D. for N, P or K marginal means=81.42Kg/ha.
C.D. for body of N×P table=141.0Kg/ha.

Individual results:

Treatment	N_0	N_1	N_2	Sig.	P_0	P_1	P_2	Sig.	K_0	K_1	K_2	Sig.	G.M.	S.E/plot
Year														
1961	1065	1440	1474	**	1174	1374	1431	**	1135	1434	1410	**	1326	183.9
1962	864	1309	1407	**	1076	1214	1290	**	1160	1194	1226	N.S.	1194	158.7
1963	703	988	1150	**	783	1039	1019	**	972	911	998	N.S.	947	142.1
1964	1065	1440	1455	**	1174	1355	1431	**	1135	1415	1410	**	1320	166.1
Pooled	924	1294	1371	**	1052	1245	1293	**	1101	1239	1251	**	1197	243.7

Crop :- Wheat (*Rabi*). **Ref :- U.P. 63(474), 64(571)**

Site :- Fertilizer Res. Stn., Pura. **Type :- 'M'.**

Object : --To study the effect of application of Urea and A/S applied in single or split doses on the yield of Wheat.

1. BASAL CONDITIONS:

(i) (a) to (c) N.A. (ii) Sandy loam (iii) 31.10.63 ; 15.11.64 (iv) (a) 1 ploughing by soil turning plough and 2-3 cultivations by cultivator's *deshi* plough. (b) Sown behind the plough (c) 100Kg/ha. (d)Rows 23cm. apart (e) — (v) 33.6Kg/ha. of P_2O_5 as Super+33.6Kg/ha. of K_2O as Mur. Pot. (vi) N.A. (vii) Irrigated (viii) I weeding and earthing (ix) N.A. (x) 20.4.64; N.A.

2. TREATMENTS:

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

(1) 2 forms of N : F_1=A/S and F_2=Urea.

(2) 3 levels of N : N_1=33.6 N_2=67.2 and N_3=100.8Kg/ha.

(3) 2 methods of application of N : M_1=Full dose before sowing and M_2=1/3 dose at sowing, 1/3 dose at tillering and 1/3 dose before flowering.

3. DESIGN:

(i) R.B.D. (ii) (a) 13 (b) N.A.; 10.00m×55.60m. (iii) 4 (iv) (a) and (b) 11.86m×4.27m; 10.00m×4.00m (v) Nil (vi) Yes.

4. GENERAL :

(i) Good (ii) N.A. (iii) Yield of grain (iv) (a) 1963-64 (b) No. (c) Results of combined analysis have been presented under 5 Results. (v) Nil (vi) N.A. (vii) Error variances are homogeneous and Treatments×years interaction is absent.

5. RESULTS

Pooled results:

(i) 2529Kg/ha. (ii) 293.2Kg/ha. (based on 82 d. f. made up of pooled error and Treatments × years interaction. (iii) 'Control *Vs.* Others' alone is highly significant. (iv) Av. yield of grain in Kg/ha.

Control=2224Kg/ha.

	F_1	F_2	N_1	N_2	N_3	mean
M_1	2524	2508	2583	2565	2400	2516
M_2	2622	2562	2529	2653	2594	2592
mean	2573	2535	2556	2609	2497	2554
N_1	2669	2443				
N_2	2603	2615				
N_3	2447	2547				

C.D. for P 'Control *Vs.* Others'=215.0Kg/ha.

Individual Results:

Treatment	M_1	M_2	Sig.	F_1	F_2	Sig.	N_1	N_2	N_3	Sig.	Control	Sig.
Year												
1963	2611	2619	N.S.	2657	2573	N.S.	2611	2672	2562	N.S.	2544	N.S.
1964	2421	2565	N.S.	2489	2497	N.S.	2501	2546	2432	N.S.	1904	**
Pooled	2516	2592	N.S.	2573	2535	N.S.	2556	2609	2497	N.S.	2224	**

G.M.	S.E. /plot
2610	270.2
2448	310.9
2529	293.2

Crop :- Wheat (*Rabi*). **Ref :- U.P. 60(364), 61(374), 62(400), 63(472), 64(569), 65(418).**

Site :-Fertilizer Res. Stn., Pura. **Type :- 'M'**

Object:—To study the efficiency of organic and inorganic nitrogeneus manures with and without phosphatic fertilizers and to assess their cumulative effect on soils.

1. BASAL CONDITIONS:

(i) (a) Fallow—Wheat (b) Fallow (c) Nil (ii) Sandy loam (iii) 23.1160; N.A.; 4.11.62; 29.10.63; 3.11.64; 16.11.65 (iv) (a) 1 ploughing by soil turning plough, 2—3 cultivations by cultivator and *Deshi* plough.

(b) Sown behind the plough (c) 100Kg/ha (d) Rows 23cm. apart (e) – (v) Nil(vi) K68 – for 64; N.A. for others (vii) Irrigated (viii) 1 weeding and earthing (ix) N.A. (x) 13/15.4.61; 26.4.62; N.A.; 19.4.64; N.A.; N.A.

2. TREATMENTS:

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

(1) 3 forms of N at 33.6Kg/ha : F_1=A/S, F_2=F.Y.M. $F_3=\frac{1}{2}$ as A/S+$\frac{1}{2}$ as F.Y.M.

(2) 2 levels of P_2O_5 as Super : P_0=0 and P_1=44.8Kg/ha.

Extra treatments : E_0=Control (No manure) and E_1=33.6Kg/ha. of N as Castor Cake.

F.Y.M. broadcasted and ploughed under Super placed deep in bands with the help of manure drill and A/S and Castor Cake applied after final preparation of field a day before sowing.

3. DESIGN:

(i) Fact. in R.B.D. (ii) (a) 8 (b) 50.90m×18.42m (iii) 4 (iv) (a) and (b) 18.42m×6.10m. (v) Nil (vi) Yes.

4. GENERAL :

(i) Satisfactory (ii) N.A. (iii) Yield of grain (iv) (a) 1955-Contd. (b) Yes (c) Nil (v) and (vi) Nil (vii) As the experiment is continued beyond 65, results of individual years have been presented under 5 Results.

5. RESULTS:

60(364)

(i) 1242Kg/ha (ii) 170.2Kg/ha (iii) Main effect of F is significant. Main effect of P, Interaction F×P and 'between extra treatments' are highly significant. (iv) Av. yield of grain in Kg/ha.

E_0=968 and E_1=1459Kg/ha.

	P_0	P_1	mean
F_1	1079	1684	1381
F_2	1132	1135	1134
F_3	1094	1384	1239
mean	1102	1401	1251

C.D. for F marginal means=177·0 Kg/ha.
C.D. for P marginal means=144·5 Kg/ha.
C.D. for the body of table or 'between extra treatments'=250.4Kg/ha.

61(374)

(i) 1083Kg/ha (ii) 190.5Kg/ha (iii) Main effects of P and 'between extra treatments' are highly significant. (iv) Av. yield of grain in Kg/ha.

E_0=724 and E_1=1332Kg/ha.

	P_0	P_1	mean
F_1	949	1390	1169
F_2	893	1076	984
F_3	969	1333	1151
mean	937	1266	1102

C.D. for P marginal means=164.4Kg/ha.
C.D. for 'between extra treatments'=284.6Kg/ha.

62(400)

(i) 1896Kg/ha (ii) 141.8Kg/ha (iii) Main effects of F, P, interaction F×P and 'between extra treatments' are highly significant (iv) Av. yield of grain in Kg/ha.

E_0=1526 and E_1=2110Kg/ha.

	P_0	P_1	mean
F_1	1639	2375	2007
F_2	1783	1781	1782
F_3	1911	2040	1976
mean	1778	2065	1922

C.D. for F marginal means=147.5Kg/ha.
C.D. for P merginal means=120.4Kg/ha.
C.D. for the body of table or 'between extra treatments'=208.5Kg/ha.

63(472)

(i) 1868Kg/ha (ii) 224.0Kg/ha (iii) Main effect of P and interaction F×P are highly significant. 'Extra treatments *vs.* others' is significant (iv) Av. yield of grain in Kg/ha.

E_0=1613 and E_1=1787Kg/ha.

	P_0	P_1	mean
F_1	1453	2328	1890
F_2	2078	1886	1982
F_3	1798	1997	1898
mean	1776	2070	1923

C.D. for P marginal means=190.2Kg/ha.
C.D. for the body of table=329.5Kg/ha.
C.D. for 'extra treatments *vs.* others'=190.3Kg/ha.

64(569)

(i) 1944Kg/ha (ii) 201.5Kg/ha (iii) Main effect of P and 'between extra treatments' are highly significant. 'Extra treatments *vs.* others' is significant (iv) Av. yield of grain in Kg/ha.

E_0=1585 and E_1=2002Kg/ha.

	P_0	P_1	mean
F_1	1599	2305	1952
F_2	1926	2201	2064
F_3	1656	2281	1968
mean	1727	2262	1995

C.D. for P marginal means=171.1Kg/ha.
C.D. for 'extra treatments *vs.* others'=171.2Kg/ha.
C.D. for 'between extra treatments'=296.4Kg/ha.

65(418)

(i) 1939Kg/ha (ii) 169.5Kg/ha (iii) Main effect of P and interaction F×P are highly significant (iv) Av. yield of grain in Kg/ha.

E_0=1760 and E_1=1992Kg/ha.

	P_0	P_1	mean
F_1	1581	2241	1911
F_2	2148	1883	2015
F_3	1714	2192	1953
mean	1814	2105	1960

C.D. for P marginal means=143.9Kg/ha.
C.D. for the body of table=249.2Kg/ha.

Crop :- Wheat (*Rabi*). **Ref :-U.P. 64(572).**

Site :- Fetilizer Res. Stn., Pura. **Type :- 'M'.**

Object :—To study the residual effect on Wheat of the experiment conducted to determine the minimum quantity of organic matter necessary for maintaining higher early Paddy production under high inorganic fertilizer application.

1. BASAL CONDITIONS:

(i) (a) Early Paddy--Wheat/Barley (b) Paddy (c) As per treatments (ii) Sandy loam (iii) N.A. (iv) (a) 1 ploughing by soil turning plough 2—3 cultivations by cultivator and *deshi* plough (b) Sown behind the plough (c) 100Kg/ha (d) Rows 23cm. apart (e)— (v) Nil (vi) N.A. (vii) Irrigated (viii) 1 weeding and earthing (ix) to (x) N.A.

2. TREATMENTS:

All combinations of (1) and (2).

(1) 8 levels of F.Y.M. : M_0=0, M_1=20, M_2=40, M_3=60, M_4=80, M_5=120, M_6=160 and M_7=200Q/ha.
(2) 2 levels of Inorganic fertilizers: F_0=Nil and F_1=20Kg/ha of N+20Kg/ha of P_2O_5+10Kg/ha of K_2O.
These treatments were applied to previous early paddy.

3. DESIGN :

(i) Fact in R.B.D. (ii) (a) 16 (b) N.A. (iii) 4 (iv) (a) and (b) 10.06m×6.71m (v) Nil (vi) Yes.

4. GENERAL:

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

5. RESULTS:

(i) 1050Kg/ha (ii) 173.6Kg/ha (iii) Main effect of M alone is highly significant (iv) Av. yield of grain in Kg/ha.

	M_0	M_1	M_2	M_3	M_4	M_5	M_6	M_7	mean
F_0	976	981	986	1097	903	933	1101	1172	1019
F_1	819	941	1161	1331	1074	945	1315	1071	1082
mean	898	961	1073	1214	989	939	1208	1121	1050

C.D. for M marginal means=175.0Kg/ha.

Crop :- Wheat (*Rabi*). **Ref:-U.P. 60(419).**

Site :- State Soil Cons. Res. Demons. & Trg. Centre, Rehmankhera. **Type :- 'M'**

Object : -To study the effect of different times of application of A/S (at different stages) in green manured Wheat crop grown on denuded soils.

1. BASAL CONDITIONS:

(i) (a) to (c) As per treatments (ii) Loamy sand to sandy loam. (iii) Nov., 60 (iv) (a) 2 to 3 ploughings (b) Sown behind the plough (c) 92Kg/ha (d) Rows 23cm. apart (e)— (v) Nil (vi) N.A. (vii) Irrigated (viii) Weeding (ix) N.A. (x) 27.4.61.

2. TREATMENTS:

5 manurial treatments :

To=control (G.M. Sanai), T_1=33.6Kg /ha of N as A/S applied at the time of turning in of sanai, T_2=33.6Kg/ha of N as A/S applied at the time of second turning in of sanai, T_3=33.6Kg/ha of N applied just-before sowing of Wheat and T_4=33.6Kg/ha. of N applied at the time of 1st irrigation.

3. DESIGN :

(i) R.B.D. (ii) 5 (b) 14.02m×39.61m (iii) 3 (iv) (a) 14.02m×7.32m (b) 12.8m×6.10m (v) 61cm×61cm (vi) Yes.

4. GENERAL :

(i) Satisfactory (ii) Nil (iii) Yield of grain (iv) (a) 1957-60 (b) Yes. (c) Nil (v) to (vii) Nil.

5. RESULTS :

(i) 1260Kg/ha (ii) 175.5Kg/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 :	1329	1192	1309	1232	1235

Crop :- Wheat (*Rabi*). **Ref :- U.P. 61(56), 62(62), 63(52),**

Site :- State Soil Cons. Res. Demons. & Trg. Centre, Rehmankhera. **64(41), 65(498).**

Type :- 'M'.

Object :—To study the effect of fertilizers alone and in combination with organic manures on the yield of Wheat in eroded soils.

1. BASAL CONDITIONS:

(i) (a) Nil (b) N.A. (c) Nil (ii) Loamy sand (iii) 6/7.11.61 ; 1st. week of Nov., 62 : 30.10.63 ; 1.11.64 ; 5.11.65. (iv) (a) 1 palewa and 3 to 4 ploughings. (b) Sown behind the plough (c) 92.2Kg/ha (d) Rows 30cm. apart (e)— (v) Nil (vi) K-68 for 65 ; N.P. 710 for others (vii) Irrigated (viii) 1—2 Weedings. (ix) N.A. (x) 1—7.5.62 ; 20.4.63 ; 6—10.4.64 ; N.A. ; N.A.

2. TREATMENTS

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

(1) 3 manurial treatments : M_0=Control (No manure), M_1=44.8Kg/ha. of N as F.Y.M and M_2=*Sanai* G.M.

(2) 3 levels of N as C/A/N : N_0=0, N_1=22.4 and N_2=44.8Kg/ha.

(3) 2 levels of P_2O_5 as Super : P_0=0 and P_1=44.8Kg/ha.

Sanai turned-in during July/August ; F.Y.M. applied in the 2nd fortnight of September ; C/A/N. broadcasted and mixed one day before sowing. Super applied deep in furrows with the help of *Deshi* plough before sowing. However, in 61 C/A/N. was top dressed at first irrigation.

3. DESIGN:

(i) Fact. in R.B.D. (ii) (a) 18. (b) 42.10m×50.60m (iii) 4. (iv) (a) 12.85m×7.95m. (b) 11.63m×6.73m. (v) 61cm×61cm (vi) Yes.

4. GENERAL :

(i) Satisfactory (ii) Yellow, black and brown rusts for 61 ; yellow rust for 62; N.A. for other. (iii) Yield of grain (iv) (a) 1961—65 (b) Yes (c) Results of combined analysis have been presented under 5. Results. (v) and (vi) Nil (vii) Error variances are homogeneous and Treatments×years interaction is absent.

5. RESULTS :

Pooled Result :

(i) 1826Kg/ha (ii) 316.9Kg/ha. (based on 307 d.f. made up of pooled error and Treatments×years interaction) (iii) Main effects of N, P, M and interactions N×M and P×M are highly significant. (iv) Av. yield of grain in Kg/ha.

	N_0	N_1	N_2	P_0	P_1	mean
M_0	1438	1813	2086	1612	1946	1779
M_1	1556	2048	2162	1788	2056	1922
M_2	1782	1708	1856	1442	2110	1776
mean	1592	1856	2029	1614	2038	1826
P_0	1468	1676	1699			
P_1	1717	2043	2359			

C.D. for N or M marginal means=80.2Kg/ha.

C.D. for P marginal means=65.5Kg/ha.

C.D. for the body of M×P table=113.4Kg/ha.

C.D. for the body of M×N table=138.9Kg/ha.

Individual Results :

Treat ment	M_0	M_1	M_2	Sig.	N_0	N_1	N_2	Sig.	P_0	P_1	Sig.
Year 1961	2033	2045	2028	N.S	1938	2067	2102	N.S.	1824	2247	**
1962	1804	1904	1911	N.S.	1697	1893	2029	**	1662	2124	**
1963	1599	1688	1494	N.S.	1429	1608	1744	**	1341	1846	**
1964	1797	2047	1778	**	1573	1951	2099	**	1632	2117	**
1965	1663	1926	1668	**	1324	1762	2171	**	1652	1853	**
Pooled	1779	1922	1776	**	1592	1856	2029	**	1614	2038	**

G.M.	S.E/plot
2036	320.8
1873	348.7
1594	287.5
1874	233.1
1752	296.7
1826	316.9

Crop :- Wheat (*Rabi*). **Ref :- U.P. 62(175).**

Site :- State Soil Cons. Res.. Damons. & Trg. Centre, Rehmankhera. **Type :- 'M'**

Object :—To study the efficiency of different forms and grades of phosphatic carriers on the yield of Wheat.

1. BASAL CONDITIONS:

(i) (a) Fallow—Wheat (b) Fallow (c) Nil (ii) Fine sandy soil, eroded soil (iii) 5.11.62 (iv)(a) 2 summar cultivations by soil turning plough & 3 ploughings by *Deshi* plough. (b) By dibbling (c) 2 seeds/hole (d) 23cm×11cm (e) — (v) 28Kg/ha. of N as Urea broadcasted before sowing. (vi) N.P. 710 (vii) Irrigated (viii) 1 weeding (ix) 4.6cm (x) 14.4.63.

2. TREATMENTS:

All combinations of (1) and (2) +control (4 plots)

(1) 4 forms of P_2O_5 : F_1=Bonemeal Coarse, F_2=Bonemeal Medium, F_3=Bonemeal Fine and F_4=Super.

(2) 2 levels of P_2O_5 : P_1=44.8 and P_2=89.6Kg/ha.

Bonemeal & Super. applied with the help of hand hoe in furrows at a depth of about 13cm. Date of manuring=4.11.62. Coarse bonemeal taken as available in the market i.e. material which could pass through 10 mesh sieve, medium bonemeal passed through 30 mesh sieve and fine bonemeal passed through 70 mesh sieve.

3. DESIGN :

(i) Fact in R.B.D. (ii) (a) 12 (b) 3.66m×43.28m (iii) 4 (iv) (a) and (b) 3.06m×3.66m (v) Nil (vi) Yes.

4. GENERAL:

(i) The germination was not satisfactory (ii) Nil (iii) Yield of grain (iv) (a) 1962-65 (modified from 1963 to 65) (b) No (c) Nil. (v) to (vii) Nil.

5. RESULTS

(i) 1653Kg/ha (ii) 449.6Kg/ha (iii) None of the effects is significant (iv) Av. yield of grain in Kg/ha.

Control=1609Kg/ha.

	F_1	F_2	F_3	F_4	mean
P_1	1772	1996	1166	2108	1760
P_2	1525	1659	1547	1749	1620
mean	1648	1828	1357	1929	1690

Crop :- Wheat (*Rabi*). **Ref :- U.F. 63(173), 64(166), 65(64).**

Site :- State Soil Cons. Res. Demons. & Trg. Centre, Rehmankhera **Type :- 'M'**

Object : –To study the effect of different forms and grades of phosphatic carriers on the yield of Wheat.

1. BASAL CONDITIONS:

(i) (a) Fallow –Wheat (b) Fallow (c) Nil (ii) Fine sandy loam (iii) 5.11.63 ; 26.10.64 ; 2.11.65 (iv) (a) 4 to 6 ploughings by S.T.P. and *Deshi* plough (b) Dibbling (c) 2 seeds /hole (d) Rows 23cm. apart (e) 2 (v) 28Kg/ha. of N broadcasted before sowing (vi) NP–710 (vii) Irrigated (viii) 1 to 2 weedings (ix) 1.0cm. ; 5.7cm ; 1.4cm (x) 4.4.64 ; 1st week of April, 65 ; 2nd week of April, 66.

2. TREATMENTS :

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

(1) 4 forms of P_2O_5 : F_1=Bonemeal Coarse, F_2=Bonemeal Medium, F_3=Bonemeal Fine and F_4=Super.

(2) 2 levels of P_2O_5 : P_1=44.8 and P_2=89.6Kg/ha.

P_2O_5 was applied in furrows before sowing.

3. DESIGN:

(i) Fact. in R.B.D. (ii) (a) 9 (b) 3.66m × 32.31m ; N.A. ; 3.4m × 29.47m (iii) 4 (iv) (a) and (b) 3.05m × 3.66m for 63 and 64 ; 3.40m × 2.83m for 65 (v) Nil (vi) Yes.

4. GENERAL

(i) Satisfactory (ii) Nil (iii) Yield of grain (iv) (a) 1963–65 (b) Yes. (c) Nil (v) and (vi) Nil (vii) As the error variances are heterogeneous and Treatments × years interaction is absent, the results of individual years have been presented under 5 Results.

5. RESULTS:

63(173)

(i) 660Kg/ha (ii) 262.0Kg/ha (iii) Main effect of F alone is significant. (iv) Av. yield of grain in Kg/ha.

Control=527Kg/ha.

	F_1	F_2	F_3	F_4	mean
P_1	516	684	527	987	678
P_2	505	919	583	695	676
mean	510	802	555	841	677

C.D. for F marginal means=270.4Kg/ha.

64(166)

(i) 2764Kg/ha (ii) 568.0Kg/ha (iii) None of the effects is significant (iv) Av. yield of grain in Kg/ha.

Control=2332Kg/ha.

	F_1	F_2	F_3	F_4	mean
P_1	2850	2377	3099	2422	2687
P_2	3151	2550	3070	3025	2949
mean	3000	2463	3085	2723	2818

65(164)

(i) 2861Kg/ha (ii) 667.7Kg/ha (iii) 'Control *vs.* Others' alone is significant (iv) Av. yield of grain in Kg/ha.

Control=2053Kg/ha.

	F_1	F_2	F_3	F_4	mean
P_1	3045	2949	2650	2676	2830
P_2	3274	2629	3131	3339	3093
mean	3159	2789	2891	3007	2962

C.D. for 'Control *Vs.* Others'=731.0Kg/ha.

Crop :- Wheat (*Rabi*). **Ref :- U.P. 60(14).**

Site :- State Soil Cons. Res., Demons. & Trg. Centre, Rehmankhera. **Type :- 'M'.**

Object : To study the effect of different levels of N and P on the yield of Wheat in severely eroded soils.

1. BASAL CONDITIONS:

(i) (a) G.M.—Wheat (b) *Sanai* as G.M. (c) Nil (ii) Loamy sand to sandy loam (iii) 1.11.60. (iv) (a) 3 plougings by Tractor and 3 ploughings by *Deshi* plough (b) Behind the plough (c) 92Kg/ha. (d) Rows 23cm. apart (e) — (v) G.M. by *Sanai* (vi) N.P. 710 (vii) Irrigated (viii) Weeding and hoeing (ix) 5.8cm (x) 17 to 23.4.61.

2. TREATMENTS :

All combinations of (1) and (2)

(1) 3 levels of N as A/S/N : N_0=0, N_1=33.6 and N_2=67.2Kg/ha.

(2) 3 levels of P_2O_5 as Super : P_0=0, P_1=33.6 and P_2=67.2 Kg/ha.

A/S/N. applied as broadcast and Super, placed deep in bands with the help of a funnel behind the U.P. plough. Date of manuring=31.10.60.

3. DESIGN :

(i) 3×3 Fact. in R B.D. (ii) (a) 9 (b) 12.19m×53.04m. (iii) 4 (iv) (a) and (b) 5.49m×12.19m (v) Nil (vi) Yes.

4. GENERAL:

(i) Good (ii) Nil (iii) Yield of grain (iv) (a) 1960—only (b) and (c) Nil (v) Another expt. 60(175) at this Centre was also conducted. (vi) Nil (vii) There was a great heterogenity of the soil as a result of erosion and levelling.

5. RESULTS:

(i) 1563Kg/ha. (ii) 255.4Kg/ha (iii) Main effects of N and P are highly siginificant (iv) Av. yield of grain in Kg/ha.

	N_0	N_1	N_2	mean
P_0	1168	1399	1295	1287
P_1	1589	1665	1918	1724
P_2	1356	1676	2003	1678
mean	1371	1580	1739	1563

C.D. for N or P marginal means=215.2 Kg/ha.

Crop :- Wheat (*Rabi*). **Ref :- U.P. 60(175).**

Site :- State Soil Cons. Res., Demons. & Trg., Centre, Rehmankhera. **Type :- 'M'.**

Object :—To study the effect of different levels of N and P on the yield of Wheat in erored soils.

1. BASAL CONDITIONS:

(i) (a) G.M.—Wheat. (b) *Sanai* (G.M.) (c) Nil (ii) Sandy loam (iii) 10.11.60 (iv) (a) 3 ploughings by Tractor and 3 ploughings by *Deshi* plough (b) Behind the plough (c) 92Kg/ha. (d) Rows 23cm. apart (e) — (v) G.M. by *Sanai* (vi) N.P. 710 (vii) Irrigated (viii) Weeding and hoeing (ix) 5.8cm (x) 17 to 23.4.61.

2. TREATMENTS :

All combinations of (1) and (2).

(1) 3 levels of N as A/S/N : N_0=0, N_1=33.6 and N_2=67.2Kg/ha.

(2) 3 levels of P_2O_5 as Super : P_0=0, P_1=33.6 and P_2=67.2Kg/ha.

A/S/N. applied as broadcast and Super. placed deep in bands with the help of a funnel behind the U.P. plough.

3. DESIGN :

(i) Fact in R.B.D. (ii) (a) 9 (b) 9.14 m×72.24m (iii) 4 (iv) (a) and (b) 9.14m×7.62m · (v) Nil (vi) Yes

4. GENERAL :

(i) Good. (ii) Nil (iii) Yield of grain (iv) (a) 1960 – only (b) and (c) Nil. (v) Another expt. 60(14) was also conducted at this Station. (vi) and (vii) Nil.

5. RESULTS:

(i) 1808Kg/ha (ii) 309.9Kg/ha (iii) Main effect of P alone is significant. (iv) Av. yield of grain in Kg/ha.

	N_0	N_1	N_2	mean
P_0	1354	1486	1879	1606
P_1	1867	1854	2028	1916
P_2	1848	2078	1781	1902
mean	1689	1839	1896	1808

C.D. for P marginal means=261.0Kg/ha.

Crop :- Wheat (*Rabi*). **Ref :- U.P. 65(66).**

Site :- State Soil Cons. Res. Demons. & Trg. Centre., Rehmankhera. **Type :- 'M'.**

Object :—To study the effect of phosphate application to *Sanai* at various stages of growth for Wheat crop in eroded alluvial land.

1. BASAL CONDITIONS :

(i) (a) Fallow/G.M.—Wheat (b) *Sanai* (as G.M.) (c) As per treatments (ii) Sandy loam (iii) 5.11.65 (iv) (a) 4 ploughings by mould board plough and 1 ploughing by *Deshi* plough (b) Line sowing behind the plough (c) 92.2Kg/ha (d) Rows 25cm. apart (e) — (v) [22.4Kg/ha. of N as C/A/N (vi) K. 68 (vii) Irrigated (viii) Weeding and hoeing (ix) 1.4cm (x) 5 to 9.4.66.

2. TREATMENTS:

10 manurial treatments :

T_0=Control, T_1=22.4Kg/ha. of P_2O_5 at the time of Wheat sowing, T_2=44.8Kg/ha. of P_2O_5 at the time of Wheat sowing, T_3=Sunnhemp. alone, T_4=T_3+22.4Kg/ha. of P_2O_5 at sanai sowing, T_5=T_4+44.8Kg/ha. of P_2O_5 at *sanai* sowing, T_6=T_5+22.4Kg/ha. of P_2O_5 at *sanai* turning, T_7=T_3+44.8Kg/ha. of P_2O_5 at *sanai* turning, T_8=T_6+22.4Kg/ha. of P_2O_5 at Wheat sowing and T_9=T_3+44.8Kg/ha. of P_2O_5 at Wheat sowing. P_2O_5 as Super ; Supur. applied as basal dressing.

Date of manuring : 3.11.65, 1st week of July and 3rd week of August.

3. DESIGN :

(i) R.B.D. (ii) (a) 10 (b) 10.50m×79.50m (iii) 4 (3 rep. at one site and 1 rep. at another site) (iv) (a) 10.50m×7.50m (b) 9.50m×6.50m (v) 50cm×50cm (vi) Yes.

4. GENERAL :

(i) Good (ii) Nil (iii) Yield of grain (iv) (a) 1965–67 (b) No (c) Nil (v) Nil (vi) Late onset of monsoon and draught during August. (vii) Due to bad weather conditions *sanai* could be sown late resulting in very poor stand of *sanai* crop. There was hardly any visible variations in the growth of *sanai*.

4. GENERAL :

(i) 2234Kg/ha. (ii) 423.2Kg/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	T_8	T_9
Av. yield :	1733	2279	2490	2287	2134	2453	2138	2401	1968	2453

Crop :- Wheat (*Rabi*). **Ref :- U.P. 61(57), 62(174),**

Site :- State Soil Cons., Res. Demons. & Trg. Centre, Rahmankhera. **63(168), 65(65).**

Type :- 'M'.

Object : —To study the effect of different levels of N, P and K on the yield of Wheat in eroded land.

1. BASAL CONDITIONS :

(i) (a) Nil for 61; Fallow-Wheat for 65; N.A. for others (b) Maize for 61; fallow for 65; N.A. for others. (c) 44.8Kg/ha. of N+22.4Kg/ha. of P_2O_5 for 61; Nil for 65; N.A. for others (ii) Loam to sandy loam (iii) 5.11.61 ; 4.11.62 ; 5.11.63 ; 8.11.65 (iv) (a) 6 ploughings by tractor and *Deshi* plough (b) By seed drill for 61 ; behind the plough for others. (c) 93Kg/ha. for 65 ; 92Kg/ha. for others (d) Rows 23cm apart. (e) — (v) Nil (vi) K. 68 for 65; N.P. 710 for others (vii) Irrigated (viii) Weeding (ix) 6.3cm ; 4.6cm ; 1.0cm ; 1.4cm (x) 9/10.4.62 ; 13/14.4.63 ; 1/3.4.64 ; 10/12.4.66.

2. TREATMENTS:

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

(1) 2 levels of N as C/A/N : N_0=0, N_1=44.8Kg/ha.

(2) 2 levels of P_2O_5 as Super : P_0=0 and P_1=44.8Kg/ha.

(3) 3 levels of K_2O as Pot. chloride : K_0=0, K_1=44.8 and K_2=89.60Kg/ha

N was broadcasted and P & K were placed deep in furrows with the help of the funnel behind the plough.

3. DESIGN:

(i) Fact. in R.B.D. (ii) (a) 12 (b) 10.67m×96.47m ; 12.19m×96.47m ; 94.79m×9.14m ; 9.00m×100.40m (iii) 4 (iv) (a) 10.67m×7.62m ; 12.19m×7.62m ; 7.62m×9.14m ; 9.00m×8.00m (b) 9.45m×6.40m ; 11.58m×7.01m ; 7.01m×8.53m ; 8.00m×7.00m (v) 61cm×61cm. or 61 ; 50cm.×50cm. for 65 ; 30cm×30cm. for others. (vi) Yes.

4. GENERAL

(i) Satisfactory. (ii) Nil (iii) Yield of grain (iv) (a) 1961—contd. (Expt. failed in 64.) (b) No (c) Nil (v) and (vi) Nil (vii) As the experiment is continued beyond 1965, results of individual years have been presented under 5 Results.

5. RESULTS:

61(57)

(i) 1883Kg/ha (ii) 302.0Kg/ha. (iii) Main effect of N is highly significant and that of P is significant. (iv) Av. yield of grain in Kg/ha.

	P_0	P_1	K_0	K_1	K_2	mean
N_0	1626	1754	1726	1672	1672	1690
N_1	1929	2223	2185	2168	1875	2076
mean	1777	1988	1955	1920	1773	1883
K_0	1746	2164				
K_1	1897	1943				
K_2	1689	1858				

C.D. for N or P marginal means=177.5Kg/ha.

62(174)

(i) 1545Kg/ha. (ii) 481.9Kg/ha. (iii) None the effects is significant (iv) Av. yield of grain in Kg/ha.

	P_0	P_1	K_0	K_1	K_2	mean
N_0	1358	1630	1478	1475	1529	1494
N_1	1475	1718	1519	1681	1589	1596
mean	1416	1674	1499	1578	1559	1545
K_0	1439	1558				
K_1	1236	1920				
K_2	1573	1544				

63(168)

(i) 1337Kg/ha. (ii) 426.1Kg/ha. (iii) Main effect of N is highly signicant. (iv) Av. yield of grain in Kg/ha.

	P_0	P_1	K_0	K_1	K_2	mean
N_0	1114	1164	1030	1295	1093	1139
N_1	1345	1723	1460	1529	1613	1534
mean	1230	1444	1245	1412	1353	1337
K_0	1183	1308				
K_1	1256	1569				
K_2	1251	1454				

C.D. for N marginal means=250.4Kg/ha.

65(65)

(i) 1536Kg/ha. (ii) 279.8Kg/ha. (iii) Maln effects of N and P are highly significant and that of K is significant. (iv) Av. yield of grain in Kg/ha.

	P_0	P_1	K_0	K_1	K_2	mean
N_0	897	1329	939	1173	1228	1113
N_1	1723	2196	1817	1964	2098	1960
mean	1310	1763	1378	1569	1663	1536
K_0	1144	1612				
K_1	1325	1812				
K_2	1462	1864				

C.D. for N or P marginal means=164.4Kg/ha.

C.D. for K marginal means=201.4Kg/ha.

———

Crop. :-Wheat (*Rabi*). **Ref :- U.P. 60(25)**

Site :-State Soil Cons. Res. Demons & Trg. Centre,

Rehmankhera **Type:- 'M'.**

Object:—To study the effect of manuring on Wheat grown in eroded land.

1. BASAL CONDITIONS

(i) (a) and (b) As per treatments (c) Nil (ii) Loamy sand to sandy loam (iii) Nov., 60 (iv) (a) 2 to 4 ploughings (b) Sown behind the plough (c) 104Kg/ha (d) Rows 22cm. apart (e) — (v) Nil (vi) N.P. 718 (vii) Irrigated (viii) Weeding (ix) N.A. (x) 25.4.61.

2. TREATMENTS:

Main-plot treatments:

4 manurial treatments : M_0=Control (No manure), M_1=G.M. with *Sanai*, M_2=22.4Kg/ha. of N as F.Y.M. and M_3=44.8Kg/ha. of N as F.Y.M.

Sub-plot treatments :

3 levels of N as A/S: N_0=0, N_1=22.4 and N_2=44.8Kg/ha.

3. DESIGN:

(i) Split plot (ii) (a) 4 main plots/replication, 3 sub-plots/main-plot (b) 13.41m×87.78m. (iii) 4 (iv (a) 13.41m×6.71m (b) 12.19m×5.49m. (v) 61cm.×61cm (vi) Yes.

4. GENERAL:

(i) Medium (ii) Nil (iii) Yield of grain and straw (iv) (a) 1956-60 (b) Yes. (c) Nil (v) to (vii) Nil.

5. RESULTS

(i) 1436K/ha. (ii) (a) 349.3Kg/ha (b) 224.4Kg/ha. (iii) Main effect of N alone is highly significant. (iv) Av. yield of grain in Kg/ha.

	N_0	N_1	N_2	mean
M_0	1327	1680	1455	1487
M_1	1390	1643	1614	1549
M_2	1272	1455	1425	1384
M_3	1181	1383	1410	1325
mean	1292	1540	1476	1436

C.D. for N marginal means=163.7Kg/ha.

Crop :- Wheat (*Rabi*). **Ref** :- U.P. 61(323), 62(352), 64(446).

Site :- Govt. Agri. Res. Sub-Stn., Rudrapur **Type** :- 'M'.

Object :—To study the efficiency of organic and inorganic nitrogenous manures with and without Super.

1. BASAL CONDITIONS:

(i) (a) Nil (b) N.A.; *Lobia*; Cow pea (c) N.A. (ii) Clay to clay loam (iii) 28.11.61; 2.11.62; 11.11.64 (iv) (a) 4 ploughings and 1 pataing (b) Behind the plough (c) 100Kg/ha (d) Rows 23cm. apart (e)— (v) Nil (vi) N.P. 824 (vii) Irrigated (viii) Nil for 62, 2 weedings for others (ix) N.A. (x) N.A.; 16.4.63 ; 15.4.65.

2. TREATMENTS;

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

(1) 3 Sources of N : F_1=A/S, F_2=F.Y.M. and F_3=1/2 as A/S+1/2 as F.Y.M.

(2) 2 levels of N : N_1=28 and N_2=56Kg/ha.

(3) 2 levels of P_2O_5 as Super : P_0=0 and P_1=44.8Kg/ha.

Extra treatments : E_0=Control (No manure) and E_1=44.8Kg/ha of P_2O_5 as Super.

3. DESIGN:

(i) Fact. in R.B.D. (ii) (a) 14 (b) 67.97m×12.19m for 61 ; N.A. for others. (iii) 4 (iv) (a) and (b) 12.19m×4.11m ; 12.00m×4.00m ; 16.00m×3.00m (v) Nil (vi) Yes.

4. GENERAL :

(i) Good (ii) Incidence of Rust (iii) Yield of grain (iv) (a) 1961-64 (expt. failed in 63). (b) No (c) Nil (v) Meerut, Hardoi, Majhera, Nawabganj, Varanasi and Amrukh (vi) Nil (vii) As the error variences are hetero geneous and Treatments×years interaction is absant, result of individual years have been presented under 5 Results.

5. RESULTS :

61(323)

(i) 1272Kg/ha (ii) 181.7Kg/ha (iii) Main effects of P, N, F and 'extra treatments *vs.* others' are highly significant. Between extra treatments and interaction P×N is significant. (iv) Av. yield of grain in Kg/ha.

E_0=897 and E_1=1161Kg/ha.

	N_1	N_2	F_1	F_2	F_3	mean
P_0	1130	1196	1196	1084	1208	1163
P_1	1304	1620	1620	1246	1520	1462
mean	1217	1408	1408	1165	1364	1312
F_1	1370	1445				
F_2	1034	1296				
F_3	1246	1483				

C.D. for P or N marginal means=106.1Kg/ha.
C.D. for F marginal means=129.9Kg/ha.
C.D. for extra treatments=259.9Kg/ha.
C.D. for 'extra treatments *vs.* others'=140.4Kg/ha.
C.D. for body of P×N table=150.0Kg/ha.

62(352)

(i) 1264Kg/ha (ii) 253.5Kg/ha. (iii) Main effect of P is highly significant, and that of N, F and 'extra treatments *vs.* others' are significant (iv) Av. yield of grain in Kg/ha.

E_0=1031 andE_1=1125Kg/ha.

	N_1	N_2	$_1F$	F_2	F_3	mean
P_0	1115	1293	1307	1068	1237	1204
P_1	1321	1450	1471	1219	1466	1385
mean	1218	1371	1389	1143	1351	1295
F_1	1359	1419				
F_2	1047	1239				
F_3	1247	1456				

C.D. for P or N marginal means=148.1Kg/ha.
C.D. for F marginal means=181.3Kg/ha.
C.D. for 'extra treatments *vs.* others'=195.9Kg/ha.

64(446)

(i) 1241Kg/ha (ii) 333.0Kg/ha (iii) Main effect of N is significant (iv) Av. yield of grain in Kg/ha.

E_0=1213 ann E_1=1151Kg/ha.

	N_1	N_2	F_1	F_2	F_3	mean
P_0	1057	1323	1133	1245	1193	1190
P_1	1226	1399	1320	1281	1336	1312
mean	1141	1361	1227	1263	1264	1251
F_1	1148	1305				
F_2	1211	1315				
F_3	1065	1463				

C.D. for N marginal means=194·5 Kg/ha.

Crop :- Wheat (*Rabi*). **Ref :-U.P. 60(306).**

Site:- Govt. Reg. Agri. Res. Stn., Rudrapur. **Type :- 'M'.**

Object :—To study the efficiency of organic and inorganic nitrogenous manures with and without phosphatic fertilizer and to essess their cumulative effect on soil.

1. BASAL CONDITIONS:

(i) (a) *Lobia*—Wheat (b) *Lobia* (c) Nil (ii) Clay loam (iii) 20.11.60 (iv) (a) 4 to 5 ploughings and planking (b) Behind the plough (c) 92Kg/ha (d) Rows 23em apart (e) — (v) Nil (vi) N.P. 720 (vii) Unirrigated (viii) and (ix) N.A. (x) 3.5.61.

2. TREATMENTS :

10 Manurial Treatments :

T_0=Control (no manure), T_1=28Kg/ha. of N as A/S, T_2=56Kg/ha. of N as A/S, T_3=44.8Kg/ha. of P_2O_5 as Super, $T_4=T_2+T_3$, T_5=28Kg/ha. of N as F.Y.M., T_6=56Kg/ha. of N as F.Y.M., $T_7=T_3+T_6$, $T_8=T_1+T_5$ and $T_9=T_2+T_8$.

3. DESIGN:

(i) R.B.D. (ii) (a) 10 (b) 54·41m×10·97m (iii) 4 (iv) (a) 10 97m×4·57m (b) 9·75m×4·11m. (v) 61cm×23cm. (vi) Yes.

4. GENERAL:

(i) Good (ii) Nil (iii) Yield of grain (iv) (a) 1958—60 (b) No (c) Nil (v) Varanasi, Meerut, Hardoi Amrukh and Nawabganj. (vi) to (vii) Nil.

5. RESULTS:

(i) 1759Kg/ha (ii) 101·3 Kg/ha (iii) Treatment differences are highly significant (iv) Av. yield of grain in Kg/ha.

Treatments :	T_0	T_1	T_2	T_3	T_4	T_5	T_6	T_7	T_8	T_9
Av. yield :	1512	1587	1698	1872	2002	1636	1755	1809	1778	1943

C.D.=146·8Kg/ha.

Crop :- Wheat (Rabi). **Ref :- U.P. 60(59)**

Site :- Govt. Reg. Agri. Res. Stn., Varanasi. **Type :- 'M'.**

Object :—To study the comparative efficiency of organic and inorganic nitrogenous fertilizers with and without Super on the yield of Wheat.

1 BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Clayey loam. (iii) 8.11.60 (iv) (a) 1 palewa and 2 to 3 ploughings (b) Behind the plough (c) 69Kg/ha. (d) Rows 23cm. apart (e) — (v) and (vi) N.A. (vii) Irrigated (viii) 1—2 Inter-cultures (ix) N.A. (x) 6.4.61.

2. TREATMENTS:

10 mamurial treatments :

T_0=Control (No mannre), T_1=28Kg/ha of Nas A/S, T_2=56Kg/ha of Nas A/S, T_3=44.8Kg/ha of P_2O_5 as Super, $T_4=T_1+T_3$, T_5=28Kg/ha of Nas F.Y.M., T_6=56Kg/ha of Nas F.Y.M., $T_7=T_5+T_3$, $T_8=T_1+T_5$ and $T_9=T_8+T_3$.

F.Y.M. ½ dose of A/S and Super applied on 7/8.11.60. ½ dose of A/S applied on 1.12.69.

3. DESIGN:

(i) R.B.D. (ii) (a) 10 (b) 12.19m×53.95m (iii) 4 (iv) (a) and (b) 12.19m×4.57m (v) Nil (vi) Yes.

4. GENERAL:

(i) N.A. (ii) Plot with treatment T_4 in 3rd rep. was badly damaged by rats (iii) Yield of grain (iv) (a) 1960—only (b) and (c) Nil (v) Meerut, Hardoi, Amrukh, Rudrapur and Nawabganj (vi) and (vii) Nil.

5. RESULTS:

(i) 886Kg/ha (ii) 215.3Kg/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	T_6	T_7	T_8	T_9
Av. yield:	471	1076	1345	1031	1224	453	543	762	901	1054

C.D.=312.4 kg/ha

Crop :- Wheat (*Rabi*). **Ref :- U.P. 61(68), 62(190), 63(181), 64(175), 65(54).**

Site :-Govt. Reg. Agri. Res. Stn., Varanasi. **Type :- 'M'.**

Object :—To study the efficiency of organic & inorganic nitrogenous fertilizers with and without Super on the yield of Wheat.

1. BASAL CONDITIONS:

(i) (a) N.A. for 61; *Moong/Urd* - Wheat for 62 to 64 ; Poddy—Barley/Wheat for 65 (b) *Moong* for 62 and 64; *Urd* for 63 ; Paddy for 65 ; N.A. for 61 (c) Nil for 62 to 64 ; N.A. for others (ii) Clay loam (iii) 7.12.61; 21.11.62; N.A.; 30.10.64; 8 11.65 (iv) (a) 1 *palewa* and 3 to 4 ploughings (b) Behind the plough (c) 69 Kg/ha for 61 to 63, 99Kg/ha for 64 and 65 (d) Rows 20cm. apart. (e)— (v) Nil (vi) N.P. 758 for 61, N.P. 710 for others (vii) Irrigated (viii) 1—2 weedings and hoeings (ix) 4.14cm; 5.54cm ; 2.71cm; 5.15cm; 3.60cm (x) 15.4.62 ; 17.4.63 ; 13/15.4.64 ; N.A. for 64 and 65.

2. TREATMENTS:

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

(1) 3 sources of N : F_1=A/S, F_2=F.Y.M. and $F_3=\frac{1}{2}$ as A/S+$\frac{1}{2}$ as F.Y.M.

(2) 2 levels of N : N_1=28 and N_2=56Kg/ha.

(3) 2 levels of P_2O_5 as Super : P_0=0 and P_1=44.8Kg/ha.

Extra treatments : E_0=control (No manure and E_1=44.8 kg/ha of P_2O_5 as Super)

3. DESIGN:

(i) R.B.D. (ii) (a) 14 (b) 12.19m×69.95m for 61 and 62 ; 69.49m×11.89m for 63 and 64 ; 71.63m×11.89 for 65 (iii) 4 (iv) (a) 12.19m×4.57m for 61 and 62 ; 11.89m×4.11m. for 63 and 64 ; 11.89m×4.27m for 65 (b) 11.73m×4.11m for 61and 62 ; 11.28m×3.66m for 63 ; 11.28m×3.35m for 64 ; 11.89m×4.27m for 65 (v) 23cm×23cm for 61 and 62 ; 30cm×23cm ; 30cm×43cm ; Nil. (vi) Yes.

4. GENERAL:

(i) Satisfactory (ii) Nil (iii) Yield of grain (iv) (a) 1961—65 (b) No (c) Results of combined analysis have been presented under 5 Results (v) Rudrapur, Majhera, Meerut, Nawabganj, Amrukh, Hardoi and Atarra (vi) Nil (vii) Error variances are heterogeneous and Treatments×years interaction is present.

5. RESULTS :

Pooled results :

(i) 986Kg/ha (ii) 374.2Kg/ha (based on 44 d. f. made up of Treatments × years interaction) (iii) Main effects of N and F, intraction N × F and 'extra treatments *vs.* others' are highly significant (iv) Av, yield of grain in Kg/ha.

E_0 = 592 and E_1 = 634Kg/ha.

	N_1	N_2	F_1	F_2	F_3	mean
P_0	877	1132	1315	668	1029	1004
P_1	925	1261	1389	712	1178	1093
mean	901	1196	1352	690	1104	1049
F_1	1106	1597				
F_2	662	718				
F_3	934	1273				

C.D. for N marginal means = 97.4Kg/ha.

C.D. for F marginal means = 119.3Kg/ha.

C.D. for body of N × F table = 168.7Kg/ha.

C.D. for 'extra treatments *vs.* others' = 128.9Kg/ha.

Individual results :

Treatment	P_0	P_1	Sig.	N_1	N_2	Sig.	F_1	F_2	F_3	Sig.	E_0	E_1	Sig.	C.M.	S.E. /plot
Year															
1961	931	1120	**	816	1235	**	1443	504	1130	**	285	507	**	936	55.1
1962	878	1030	**	848	1060	**	1497	703	1062	**	535	667	N.S.	904	121.6
1963	791	839	N.S.	685	975	**	1252	397	796	**	409	438	N.S,	759	169.6
1964	671	507	*	526	652	N.S.	784	383	600	**	406	243	N.S.	551	221.9
1965	1750	1968	*	1653	2060	**	2183	1464	1931	**	1326	1316	N.S.	1782	307.7
Pooled	1004	1093	N.S.	901	1196	**	1352	690	1104	**	592	634	N.S.	986	374.2

Crop :- Wheat (*Rabi*). **Ref :- U.P. 63(187).**

Site :- Govt. Reg. Agri. Res. Stn., Varanasi **Type :- 'M'**

Object :– To study the effect of Compost and *guar-meal* on the yield of Wheat.

1. BASAL CONDITIONS :

(i) (a) Nil (b) and (c) N.A. (ii) Loam (iii) N.A. (iv) (a) N.A. (b) In rows behind *deshi* plough (c) 90Kg/ha (d) Rows 23cm. apart (e) — (v) N.A, (vi) N,P. 710 (vii) Irrigated (viii) Nil (ix) 2.7cm. (x) N.A.

2. TREATMENTS :

2 forms of N at 56Kg/ha :

E_1=Compost and F_2=Guar-meal

3. DESIGN ;

(i) R.B.D. (ii) (a) 2 (b) N.A. (iii) 12 (iv) (a) and (b) 4.88m×3.20m (v) Nil (iv) Yes.

4. GENERAL :

(i) Good (ii) Nil (iii) Yield of grain (iv) (a) 1963—only (b) and (c) Nil (v) to (vii) Nil.

5. RESULTS

(i) 910Kg/ha. (ii) 117.3Kg/ha (iii) Treatment difference is highly significant (iv) Av. yield of grain in Kg/ha.

Treatment :	T_1	T_2
Av. yield :	647	1173

C.D.=105.4Kg/ha.

Crop :- Wheat (*Rabi*). **Ref :- U.P. 64(179)**

Site :- Govt. Reg. Agri. Res. Stn., Varanasi **Type :- 'M'.**

Object :—To study the effect of guar-meal with organic and inorganic nitrogenous fertilizer in the presence and absence of P on the yield of Wheat.

1. BASAL CONDITION :

(i) (a) Nil (b) and (c) N.A. (ii) Loam (iii) 28.11.64 (iv) (a) N.A. (b) Behind *deshi* plough (c) 91.4Kg/ha (d) Rows 23cm apart (e) — (v) N.A. (vi) N.P. 798 (vii) Irrigated (viii) Nil (ix) 5.2cm. (x) N.A.

2. TREATMENTS :

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

(1) 3 forms of N at 56Kg/ha :

F_1=Guar-meal, F_2=A/S and F_3=F.Y.M.

(2) 2 levels of P_2O_5 : P_0=0 and P_1=44.8Kg/ha.

Extra treatments : E_0=Control and E_1=44.8Kg/ha. of P_2O_5.

3. DESIGN :

(i) R.B.D. (ii) (a) 8 (b) N.A. (iii) 4 (iv) (a) 5.49m×3.66m (b) 4.88m×3.20m (v) 30cm×23cm. (vi) Yes.

4. GENERAL :

(i) Good (ii) Nil (iii) Yield of grain (iv) (a) 1964—only (b) and (c) Nil (v) to (vii) Nil

5. RESULTS :

(i) 1101Kg/ha. (ii) 204.7 Kg/ha. (iii) Main effect of F and 'extra treatments *vs.* others' are highly significant (iv) Av. yield of grain in Kg/ha.

E_0=632 and E_1=673Kg/ha.

	F_1	F_2	F_3	mean
P_0	1882	1103	671	1249
P_1	1934	1219	612	1255
mean	1908	1206	642	1251

C.D. for F marginal means=212.9Kg/ha.

C.D. for 'extra treatments *vs.* others'=173.9Kg/ha.

Crop :-Wheat (*Rabi*). **Ref :-U.P. 60(178)**

Site :-Govt. Reg. Agri. Res. Stn., Varanasi **Type :-'M'**

Object :—To find out the efficiency of raw and steamed bone-meal and Super along with A/S.

1. BASAL CONDITIONS :

(i) (a) Nil (b) *Moong* (c) N.A. (il) Clayey loam (iii) 15.11.60 (iv) (a) 3 ploughings and 1 application of Pata (b) Sown in lines by seed drill (c) 92Kg/ha (d) Rows 23cm apart (e) — (v) Nil (vi) N.P. 710 (vii) Irrigated viii) Harrowing and weeding (ix) 3.8cm. (x) 25.4.61.

2 TREATMENTS:

All combinations (1) and (2)

(1) 2 levels of N as A/S N_0=0 and N_1=56Kg/ha.

(2) 6 forms of P_2O_5 at 28Kg/ha : F_0=Nil, F_1=Bone-meal raw, F_2=Bone-meal steamed. F_3=Super, F_4=1/2 as bone-meal raw+1/2 as Super and F_5=1/2 as bone-meal steamed+1/2 as Super.

3. DESIGN :

(i) Factorial in R.B.D. (ii) (a) 12 (b) 26.21m×34.29m (iii) 4 (iv) (a) N.A. (b) 8.23m×8.23m (v) N.A. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of grain. (iv) (a) 1959-60 (b) No (c) Nil (v) Amrukh, Meerut and Hardoi (vi) and (vii) Nil.

5. RESULTS :

(i) 1116Kg/ha (ii) 136.9Kg/ha (iii) Main effect of N is highly significant (iv) Av. yield of graia in Kg/ha.

	F_0	F_1	F_2	F_3	F_4	F_5	mean
N_0	646	603	719	633	668	784	675
N_1	1619	1516	1516	1662	1602	1429	1557
mean	1132	1059	1117	1147	1135	1107	1116

C.D. for N marginal means=80.4Kg/ha

Crop :-Wheat (*Rabi*) **Ref :-U.P. 65(55)**

Site :-Govt. Reg. Agri. Rcs. Stn., Varanasi. **Type :-'M'**

Object :—To see the effect of re-inforced and ripe Compost with and without Super on the yield of Wheat

1. BASAL CONDITIONS :

(i) (a) Fallow-Wheat (b) Fallow (c) Nil (ii) Loam (iii) 25.11.65 (iv) (a) 2 ploughing by *deshi* plough and plankings (b) Line sowing behind the plough (c) 92Kg/ha (d) Rows 23cm apart (e) — (v) Nil (vi) N.P. 798 (vii) Irrigated (viii) Nil (ix) 3.7cm. (x) 4.4.66.

2. TREATMENT :

4 manurial treatments:

T_1=50.2Q/ha. of ripe compost, T_2=50.2Q/ha of re-inforced compost, T_3=50.2Q/ha of ripe compost+ 31.4Kg/ha of Super and T_4=50.2Q/ha of ripe compost mixed with 31.4Kg/ha of Super.

3. DESIGN :

(i) R.B.D. (ii) (a) 4 (b) N.A. (iii) 6 (iv) (a) and (b) 9.14m×10.97m (v) Nil (vi) Yes.

4. GENERAL :

(i) Satisfactory (ii) Nil (iii) Yield of grain (iv) (a) 1965—only (b) and (c) Nil (v) Amrukh (vi) and (vii) Nil.

5. RESULTS :

(i) 1145Kg/ha (ii) 118.0Kg/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 :	1234	1167	1089	1090

Crop :-(Wheat), **Ref :-U.P. 61(188).**

Site :- Govt. Reg. Agri. Res. Stn., Varanasi, **Type :-'M'**

Object :—To study the effect of different levels and methods of application of Super in combination with different levels of N on Wheat.

1. BASAL CONDITION:

(i) (a) to (c) N.A. (ii) Clayey loam (iii) 2.12.61 (iv) (a) 1 ploughing (b) Line sowing behind the plough (c) 69.2Kg/ha (d) Rows 23cm. apart (e)— (v) Nil (vi) N.P. 710 (vii) Irrigated (viii) Interculturing by cultivator (ix) 4.1cm (x) 14.4.62.

2. TREATMENTS:

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

(1) 4 levels of N: N_0=0, N_1=16.8, N_2=33.6 and N_3=50.4Kg/ha.

(2) 3 levels of P_2O_5 as Super : P_1=16.8, P_2=33.6 and P_3=50.4Kg/ha.

(3) 2 methods of application of Super : M_1=Broadcast and M_2=Placement.

Extra treatments : E_0=Control (No manure), E_1=16.8Kg/ha. of N, E_2=33.6Kg/ha. of N and E_3=50.4Kg/ha. of N.

3. DESIGN:

(i) R.B.D. (ii) (a) 28 (b) 26.52m×59.13m (iii) 2 (iv) (a) 12.80m×3.66m (b) 12.34m×3.20m (v) 23cm×23cm (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of grain (iv) (a) 1961—64 (Design changed from 1962 onward.) (b) No (c) Nil. (v) Meerut, Nawabganj, Amrukh and Hardoi. (vi) and (vii) Nil.

5. RESULTS:

(i) 1773Kg/ha (ii)128.6Kg/ha (iii) Main effect of N, M ; 'extra treatments *vs.* others' and 'between extra treatments' are highly significant (iv) Av. yield of grain in Kg/ha.

E_0=1087, E_1=1605, E_2=1795 and E_3=1858Kg/ha.

	M_1	M_2	P_1	P_2	P_3	mean
N_0	1256	1669	1454	1747	1485	1462
N_1	1631	1921	1770	1751	1808	1776
N_2	1829	1985	1928	1877	1915	1907
N_3	2002	2145	2042	2092	2086	2073
mean	1679	1930	1798	1792	1823	1804
P_1	1659	1937				
P_2	1685	1899				
P_3	1694	1953				

C.D. for N marginal means=107.7Kg/ha.

C.D. for M marginal means=76.1Kg/ha.

C.D. for 'extra treatments *vs.* others'=100.8Kg/ha.

C.D. between extra treatments=263.9Kg/ha.

Crop :-Wheat (*Rabi*). **Ref :-U.P. 62(188), 63(188), 64(192),**

Site :- Govt. Reg. Agri. Res. Stn., Varsnasi, **Type :-'M'**

Object:—To study the effect of placement *Vs.* broadcast of Super with and without N on Wheat.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Clay loam (iii) 23.11.62 ; 22.11.63 ; 13.11.64 (iv) (a) 1 palewa, 2-4 ploughings (b) Behind *Deshi* plough (c) 69Kg/ha; 119Kg/ha ; 99 kg/ha. (d) Rows 23cm apart (e) — (v) Nil (vi) NP 710 for 62; NP 798 for others (vii) Irrigated (viii) Hoeing and weeding (ix) 5.5cm; 2.7cm; 5.2cm (x) 16.4.63; 8.4.64; 13/14.4.65.

2 TREATMENTS:

Main-plot treatments : 4 levels of N : N_0=0, N_1=16.8, N_2=33.6 and N_3=50.4Kg/ha.

Sub-plot Treatments : All combinations of (1) and (2)+a control (P_0).

(1) 3 levels of P_2O_5 as Super : P_1=16.8, P_2=33.6 and P_3=50.4Kg/ha.

(2) 2 methods of application of Super : M_1=Broadcast and M_2=Placement in furrows by drill.

N applied as urea for 62 and A/S for others,

3. DESIGN :

(i) Split plot (ii) (a) 4 main-plots/replication; 7 sub-plots/main plot (b) N.A.;52.42m×13.72m; 118.87m×47.09m (iii) 4 (iv) (a) 9.75m×2.74m 6.71m×2.74m ; 5.94m×2.29m (b) 9.30m×2.29m; 6.10m×2.51m; 5.33m×2.06m (v) 23cm×23cm; 30cm×12cm for 63 and 64 (vi) Yes.

4. GENERAL :

(i) Good (ii) Nil (iii) Yield of grain (iv) (a) 1961-64 (Design changed from 62 onward) (b) No (c) Results of Combined analysis has been presented under 5. Results. (v) Amrukh, Nawabganj, Hardoi and Meerut. (vi) Nil (vii) Main-plot as well as sub-plot error variances are homogeneous and. Main plot treatments×years interaction is absent while Sub-Plot treatments×years is present.

5. RESULTS :

Pooled results :

(i) 1701Kg/ha (ii) (a) 261.6Kg/ha (based on 33 d.f. made up of Main-plot treatments×year interaction and pooled error) (44) 338.6Kg/ha. (based on 36 d.f. made up of Sub-plot treatments×years intraction.) (iii) Main effects of N, M and 'Control *vs.* others' are highly significant (iv) Av. yield of grain in Kg/ha.

No P_0=2152, N_1P_0=2210, N_2P_0=2120 and N_3P_0=2234Kg/ha.

	M_1	M_2	P_1	P_2	P_3	mean
N_0	1176	1200	1179	1232	1153	1188
N_1	1430	1601	1485	1478	1584	1516
N_2	1667	1875	1713	1782	1818	1771
N_3	1952	2070	2012	1986	2034	2011
mean	1526	1686	1597	1620	1647	1621
P_1	1518	1677				
P_2	1534	1705				
P^2	1617	1677				

C.D. for N marginal means=88.7 Kg/ha.
C.D. for M marginal means=81.0 Kg/ha.
C.D. for 'Control *vs.* others"=107.1 Kg/ha.

Induvidual Results

Treat-ment	N_0	N_1	N_2	N_3	Sig.	M_1	M_2	Sig.	P_1	P_2	P_3	Sig.
Year												
1962	935	1267	1416	1688	**	1299	1354	N.S.	1306	1304	1369	N.S.
1963	1161	1511	1894	2115	**	1581	1750	**	1640	1699	1672	N.S.
1964	1468	1767	2003	2229	**	1790	1943	**	1846	1855	1899	N.S.
Pooled	1188	1116	1771	2011	**	1556	1686	**	1597	1620	1647	N S.

N_0P_0	N_1P_0	N_2P_0	N_3P_0	Sig.	G.M.	S.E./plot Main	Sub
1859	2117	1753	2365	**	1426	203.9	190.9
2211	2136	2259	1941	**	1738	248.7	214.2
2388	2343	2349	2398	**	1939	271.7	171.6
2152	2210	2120	2234	N.S.	1701	261.6	338.6

Crop :- Wheat *(Rabi)*, **Ref :- U.P. 61(186), 62(183), 63(190), 64(196), 65(57).**

Site :- Govt. Reg. Agri. Res. Stn., Varanasi **Type :- 'M'.**

Object : –To study the effect of different levels of N, P and K on the growth and yield of Wheat.

1. BASAL CONDITIONS:

(i) (a) Nil for 61 to 63 ; Poddy–Wheat for 64 and 65 (b) N.A. for 61 ; fallow for 62 ; *Moong* for 63 ; Early Paddy for 64 and 65 (c) Nil for 61 to 63 ; 22.4Kg/ha of N for 64 and 65 (ii) Clay loam (iii) 4.12.61 ; 9/10.11.62; 4.11.63 ; 24.11.64 ; 5.11.65 (iv) (a) 1 *Palewa* and 2 to 3 ploughings (b) Behind the plough (c) 90 to 100 Kg/ha (d) Rows 23cm apart (e) – (v) Nii (vi) N.P. 758 for 61 ; N.P. 710 for others (vii) Irrigated (viii) Weeding and hoeing (ix) 4.1cm; 5.5cm; 2.7cm; 5.2cm; 3.6cm. (x) 16/18.4.62; 29/30.3.63; 4.4.64; 22.4.65; 23/24.3.66.

2. DESIGN:

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

(1) 3 levels of N : $N_0=0$, $N_1=44.8$ and $N_2=89.6$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 : $K_0=0$, $K_1=22.4$ and $K_2=44.8$Kg/ha.

N as A/S and Urea, K_2O as Pot. Sul. and Pot. Chlo. 1/2 dose of N and full dose of P_2O_5 and K_2O was applied at sowing+1/2 dose of N was to pressed from 4th week of Dec. to 3 week of January.

3. DESIGN:

(i) 3^3 Confd. in which NP K^2 and NP^2K^2 are confounded. (ii) (a) 3 blocks/replication, 9 plots/block (b)N.A. for 61 to 63 ; 10.36m×5.258m for 64 and 65 (iii) 2 (iv) (a) 12.80m×8.23m for 61 and 62 ; 12.34m×7.77m for 63 10.36m×5.03m for 64 and 65 (b) 12.34m×7.77m for 61 to 63, 9.75m×4.79m for 64 and 65 (v) 23cm×23cm for 61 and 62; Nil for 63; 30cm×12cm for others. (vi) Yes.

4. GENERAL:

(i) Satisfactory (ii) Nil (iii) Yield of grain (iv) (a) 1961—Contd. (b) No (c) Nil (v) Meerut, Hardoi and Nawabganj. (vi) Nil (vii) As the experiment is continued beyond 65, results of invidual years have been presenred under 5. Results.

5. RESULTS :

61(186)

(i) 1487 Kg/ha. (ii) 29.3 Kg/ha. (iii) Main effect of N, P K and interactions N×P, N×K and P×K are highly significant(iv) Av. yield of grain in Kg/ha.

	P_0	P_1	P_2	K_1	K_2	K_3	mean
N_0	667	806	825	737	763	799	766
N_1	1582	1753	1843	I619	1746	1813	1726
N_2	1928	1968	2006	1980	I947	1775	1967
mean	1393	1509	1558	1445	1485	1529	1487
K_0	1362	1440	1534				
K_1	1393	1503	1560				
K_2	1423	1584	I581				

C. D. for N,P or K marginal means=20.3 Kg/ha.

C.D. for body of N×P, N×K or P×K table=35.1 Kg/ha.

62 (183)

(i) 1862 Kg/ha. (ii) 205.3 Kg/ha. (iii) Main effects of N is highly significant and Interactions N×K and P×K are significant. (iv) Av. yield of grain in Kg/ha.

	P_0	P_1	P_2	K_0	K_1	K_2	mean
N_0	1318	1346	1398	1221	1377	1464	1354
N_1	1869	2182	1892	2121	1979	1843	1981
N_2	2147	2201	2406	2253	2371	2130	2251
mean	1778	1910	1899	1865	1909	1812	1862
K_0	1692	1928	1975				
K_1	1789	2119	1819				
K_2	1853	1681	1902				

C. D. for N marginal means=141.9 Kg/ha.

C.D. for body of N×K or P×K table=245.8 Kg/ha.

63(190)

(i) 1455Kg/ha (ii) 247.7Kg/ha (iii) Main effect of N is highly significant and Interaction P×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	605	976	841	899	767	756	807
N_1	1502	1687	1558	1697	1691	1359	1582
N_2	2041	1934	1952	1898	2025	2004	1976
mean	1382	1532	1451	1498	1494	1373	1455
K_0	1579	1461	1453				
K_1	1323	1767	1393				
K_2	1249	1369	1506				

C.D. for N marginal means=171.3 Kg/ha

C.D. for body of P×K table=296.6 Kg/ha

64 (196)

(i) 2024 Kg/ha. (ii) 387.9 Kg/ha. (iii) Main effect of N alone is highly significant. (iv) Av. yield of grain in Kg/ha :

	P_0	P_1	P_2	K_0	K_1	K_2	mean
N_0	1072	1407	1280	1175	1343	1241	1253
N_1	2279	2042	2334	2030	2209	2416	2218
N_2	2585	2694	2522	2650	2686	2464	2600
mean	1978	2048	2045	1951	2079	2040	2024
K_0	1922	1731	2202				
K_1	2172	2153	1913				
K_2	1841	2259	2021				

C.D. for N marginal means=268.1 Kg/ha.

65 (57)

(i) 2227 Kg/ha. (ii) 236.2 Ka/ha. (iii) Main effects of N is highly significant and interaction N×P 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	1043	1267	1074	1135	1110	1139	1128
N_1	2654	2333	2697	2528	2474	2682	2561
N_2	2762	3110	3102	3036	2944	2993	2991
mean	2153	2237	2291	2233	2176	2271	2227
K_0	2185	2177	2337				
K_1	2095	2223	2211				
K_2	2178	2310	2325				

C.D. for N marginal means=163.3 Kg/ha

C D. for body of N×P table=82.9 Kg/ha.

Crop :- Wheat (R*abi*). **Ref :- U.P. 64(181)**

Site :- Govt. Agri. Res. Stn., Varanasi **Type :- 'M'.**

Object :—To study the effect of different levels of N and spartin on the yield of Wheat.

1. BASAL CONDITIONS :

(i) (a) to (c) Nil (ii) Loam (iii) N.A. (iv) (a) N.A. (b) Line sowing behind *Deshi* plough (c) 90Kg/ha (d) Rows 23cm apart (e) — (v) and (vi) N.A. (vii) Irrigated (viii) Nil (ix) 5.1 cm (x) N.A.

2. TREATMENTS :

All combination of (1) and (2)

(1) 2 levels of Spartin : S_0=0 and S_1=150Kg/ha.

(2) 4 levsls of N : N_0=0, N_1=50, N_2=100 and N_3=150Kg/ha.

3. DESIGN:

(i) Fact. in R.B.D. (ii) (a) 8 (b) N.A. (iii) 4 (iv) (a) 2.74m×0.91m (b) 2.13m×0.68m (v) 30cm×12cm (vi) Yes.

4. GENERAL:

(i) Good (ii) Nil (iii) Yield of grain (iv) (a) 1964—only (b) and (c) Nil (v) to (vii) Nil.

5. RESULTS:

(i) 2144Kg/ha. (ii) 306.6Kg/ha. (iii) Main effect of N alone is highly significant. (iv) Av. Yield of grain in Kg/ha.

	N_0	N_1	N_2	N_3	mean
S_0	906	1982	2785	3038	2183
S_1	957	1709	2648	3110	2106
mean	931	1845	2717	3084	2144

C.D. for N marginal means=318.9 Kg/ha

———

Crop :-Wheat (R*abi*). **Ref :- U.P. 62(310).**

Site :- Res. Farm, College of Agri., B.H.U., Varanasi. **Type :- 'M'.**

Object :—To study of the sources and techniques of application of N fertilizer in relation to growth and yield behaviour of Wheat crop.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Maize (c) N.A. (ii) Loam (iii) Nov., 62 (iv) (a) 3-4 ploughings by tractor (b) Behind the plough (c) 89.7Kg/ha (d) Rows 23cm apart (e) — (v) Nil (vi) N.P. 70 (vii) Irrigated (viii) Nil (ix) 5.5cm (x) 23.3.63.

2. TREATMENTS :

Main plot treatment :

4 techniques of fertilization : M_1=Broadcasting at the time of sowing, M_2=Furrow placement at the time of sowing, M_3=Broadcasting of 2/3 dose of N at the time of sowing and 1/3 dose of N as top dressing 60 days after sowing, M_4=Furrows placement of 2/3 dose of N at the time of sowing and 1/3 dose of N as topdressing 60 days after sowing.

Sub plot treatment :

5 sources of N at 44.8Kg/ha: F_1=A/C, F_2=A/S, F_3=Urea, F_4=C/A/N and F_5=A/S/N.

3. DESIGN :

(i) Split-plot (ii) (a) 4 main plots/replication. 5 Sub-plots/main plot (b) 25.60m×49.99m (iii) 3 (iv) (a) 8.84m×6.10 m (b) 8.23m×5.49m (v) 30cm×30cm (vi) Yes.

4. GENERAL:

(i) Good (ii) Nil (iii) Yield of grain (iv) (a) 1962—only (b) and (c) Nil (v) to (vii) Nil.

5. RESULTS :

(i) 2048Kg/ha. (ii) (a) 189/.1Kg/ha. (b) 211.1Kg/ha. (iii) Main effect of M alone is significant (iv) Av. Yield of grain in Kg/ha.

	N_1	N_2	N_3	N_4	mean
F_1	2116	1689	2271	1948	2006
F_2	2043	2220	2116	2027	2101
F_3	2080	2138	2191	1948	2089
F_4	1961	2213	2043	1660	1969
F_5	2021	2293	2213	1762	2072
mean	2044	2111	2167	1869	2048

C.D. for M marginal means=168.9Kg/ha.

Crop :- Wheat (*Rabi*). **Ref :- U.P. 64(366).**

Site :- Res. Farm, Colle e of Agri., B.H.U., Varanasi. **Type :-'M'.**

Object :—To study the effect of different sources of N on growth and yield of Wheat.

1. BASAL CONDITIONS:

(i) (a) N.A. (b) Fallow (c) Nil (ii) Sandy loam (iii) 2 11.64 (iv) (a) 2 ploughings by S.T.P., 1 harrowing followed by planking (b) Behind the plough (c) 62Kg/ha (d) Rows 23cm apart (e) — (v) 50Kg/ha each of P_2O_5 and K_2O (vi) N.P. 824 (vii) Irrigated (viii) 2 hoenigs by *Khurpi* (ix) 5.2cm (x) 8.3.65.

2. TREATMENTS :

6 sources of N at 74Kg/ha:

S_0=Nil, S_1=A/S, S_2=Urea, S_3=C/A/N, S_4=A/S/N and S_5=A/C.

1/3 dose of N was applied each of sowing, Ist. and 2nd irrigation.

3. DESIGN :

(i) R.B.D. (ii) (a) 6 (b) N.A. (iii) 4 (iv) (a) 8.23m×6.71m (b) 7.62m×6.10m (v) 30cm×30cm (vi) Yes.

4. GENERAL:

(i) Good (ii) Nil (iii) Yield of grain (iv) (a) 1964—only (b) and (c) Nil (v) to (vii) Nil.

5. RESULTS:

(i) 1941 Kg/ha. (ii) 338.8 Kg/ha. (iii) Treatment differences are highly significant (iv) Av. yield of grain in Kg/ha.

Treatment :	S_0	S_1	S_2	S_3	S_4	S_5
Av. Yield :	957	2076	2076	2212	2222	2104

C.D.=510.4 Kg/ha.

Crop :- Wheat (*Rabi*). **Ref :- U.P. 60 to 64(M.A.E.)**

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

Object: Type II: To study the effect of N,P, K and F.Y.M. on Wheat.

1. BASAL CONDITIONS:

(i) (a) N.A. (b) Fallow (c) Nil (ii) Light loam (iii) 7.11.60 ; 14.11.61 ; N.A. ; 24.10.63 ; 10.11.64. (iv) (a) 3 ploughings (b) Behind the plough (c) 80.7Kg/ha. (d) 23cm between rows (e)— (v) Nil (vi) Pb. 591 (vii) Irrigated (viii) Weeding. (ix) N.A. (x) 11.4.61 ; 2.4.62 ; N.A. ; N.A. ; 18.4.65.

2. TREATMENTS:

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

(1) 3 levels of N as A/S: N_0=O, N_1=22.4 and N_2=44.8 Kg/ha.

(2) 3 levels of P_2O_5 as Super=P_0=O, P_1=22.4 and P_2=44.8 Kg/ha.

(3) 3 levels of K_2O as pot. Sul./Mur. Pot. : K_0=O, K_1=22.4 and K_2=44.8 Kg/ha.

(4) 2 levels of F.Y.M. F_0=0 and F_1=56.0Q/ha.

A/S and Mur. Pot./Pot. Sul. broadcasted before sowing and Super drilled at sowing.

3. DESIGN:

(i) $3^3 \times 2$ Fact. confd. (ii) (a) 6 blocks/replication, 9 plots/block. (b) N.A. (iii) 1 (iv) (a) 13.87m × 73.24m for 60 and 61 ; N.A, for others. (b) 12.95m × 6.40m for 60 and 61; N.A. for others. (v) 46cm × 46cm for 60 and 61 ; N.A. for others (vi) Yes.

4. GENERAL:

(i) Satisfactory (ii) Smut disease in 60 and 61 ; N.A. for others (iii) Yield of grain and straws (iv) (a) 1957–64 (b) N.A. (c) Nil. (v) Pantnagar (vi) and (vii) N.A.

5. RESULTS

1960

(i) 1716 Kg/ha. (ii) 327.4 Kg/ha. (iii) Main effect of N alone is highly significant. (iv) Av. yield of grain in Kg/ha.

	N_0	N_1	N_2	P_0	P_1	P_2	K_0	K_1	K_2	mean
F_0	1356	1697	2048	1531	1798	1771	1743	1725	1632	1700
F_1	1264	1798	2130	1596	1798	1799	1679	1706	1808	1731
mean	1310	1748	2089	1564	1798	1785	1711	1716	1720	1716
K_0	1337	1596	2200	1614	1660	1859				
K_1	1208	1789	2151	1586	1872	1690				
K_2	1385	1859	1916	1492	1862	1806				
P_0	1208	1605	1879							
P_1	1402	1826	2166							
P_2	1320	1813	2222							

C.D. for N marginal means=225.9 Kg/ha.

1961

(i) 2025 Kg/ha. (ii) 154.9 Kg/ha. (iii) Main effect of N is highly significant and that of F and K are significant. Interaction N×P is significant. (iv) Av. yield of grain in Kg/ha.

	N_0	N_1	N_2	P_0	P_1	P_2	K_0	K_1	K_2	mean
F_0	1762	1974	2177	1854	2011	2048	1881	2057	1975	1971
F_1	1772	2213	2251	2047	2130	2060	2075	2167	1995	2079
mean	1766	2094	2214	1950	2070	2054	1978	2112	1985	2025
K_0	1762	2056	2116	1946	2075	1912				
K_1	1845	2130	2361	1983	2177	2176				
K_2	1692	2096	2166	1921	1952	2075				
P_0	1734	2066	2050							
P_1	1725	2213	2272							
P_2	1839	2003	2320							

C. D. for N or K marginal means=106.8 Kg/ha.

C.D. for F marginal means=87.2 Kg/ha.

C.D. for body of N×P table=184.9 Kg/ha.

1962

(i) 1687 Kg/ha. (ii) 182.8 Kg/ha. (iii) Main effects of N and P are highly significant. Main effect of K and interaction N×K are significant. (iv) Av. yield of grain in Kg/ha

	N_0	N_1	N_2	P_0	P_1	P_2	K_0	K_1	K_2	mean
F_0	1292	1765	1971	1490	1833	1706	1686	1596	1747	1676
F_1	1309	1814	1967	1590	1868	1632	1784	1593	1714	1697
mean	1301	1790	1969	1540	1850	1669	1735	1595	1731	1687
K_0	1192	1851	2161	1602	1876	1727				
K_1	1289	1709	1787	1467	1765	1552				
K_2	1422	1809	1960	1552	1911	1729				
P_0	1182	1602	1837							
P_1	1446	1936	2169							
P_2	1274	1831	1902							

C.D. for N or P or K marginal means=126.1 Kg/ha.

C.D. for body of N×K table=218.3 Kg/ha.

1963

(i) 1198 Kg/ha. (ii) 266.3 Kg/ha. (iii) Main effect of N is highly significant. Main effect of P is significant. (iv) Av. yield of grain in Kg/ha :

	N_0	N_1	N_2	P_0	P_1	P_2	K_0	K_1	K_2	mean
F_0	908	1110	1501	1141	1283	1095	1075	1140	1304	1173
F_1	909	1155	1607	1225	1365	1081	1332	1141	1198	1224
mean	909	1133	1554	1183	1324	1088	1204	1140	1251	1198
K_0	931	1170	1511	1182	1400	1029				
K_1	853	1082	1486	1220	1220	981				
K_2	943	1146	1665	1147	1352	1255				
P_0	796	1143	1610							
P_1	1084	1188	1700							
P_2	846	1067	1351							

C.D. for N or P marginal means=183.8Kg/ha.

1964

(i) 1098Kg/ha. (ii) 338.5Kg/ha. (iii) None of the effect is significant. (iv) Av. yield of grain in Kg/ha.

	N_0	N_1	N_2	P_0	P_1	P_2	K_0	K_1	K_2	mean
F_0	853	1155	1245	976	1073	1204	1122	1023	1108	1084
F_1	1100	1001	1238	1032	1210	1097	1134	1046	1159	1113
mean	976	1078	1241	1004	1141	1150	1128	1034	1133	1098
K_0	1054	1181	1148	1071	1114	1198				
K_1	906	942	1255	953	1048	1101				
K_2	969	1110	1321	988	1261	1151				
P_0	905	978	1129							
P_1	1069	969	1386							
P_2	955	1287	1209							

Crop :- Wheat (*Rabi*). **Ref. :-U.P. 57 to 65(MAF)**

Site :- M.A.E. Centre Bichpuri. **Type :-'M'.**

Object :—Type IV : To study the effect of phosphatic manuring of legumes and their residual effect on the succeeding Wheat, manured with Nitrogen.

1. BASAL CONDITIONS :

(i) (a) to (c) As per treatments (ii) Light loam (iii) 1.11.60 ; 16.11.61 ; N.A. for others (iv) (a) 3 ploughings (b) Behind the plough (c) 80Kg/ha (d) Rows 23cm apart (e) — (v) Nil (vi) Pb. 591 for 60 and 61 ; N.A. for others (vii) Irrigated (viii) 1 weeding (ix) N.A. (x) 13.4.61 ; 19.4.62 ; N.A. for others.

2. TREATMENTS:

Main-plots treatments :

All combinations of (1) and (2)+a control (L_0P_0).

(1) 2 previous crops : L_1=Moong and L_2=Urd.

(2) 3 levels of P_2O_5 as Super applied to previous Crop : P_0=0, P_1=44.8 and P_2=89.6Kg/ha.

Sub-plot treatments :

3 levels of N as A/S applied to Wheat : N_0=0, N_1=16.8 and N_2=33.6Kg/ha.

3. DESIGN:

(i) Split-plot (ii) (a) 7 main-plots/replication ; 3 sub-plots/main plot (b) N.A. (iii) 3 (iv) (a) 9.75m×5.49m (b) 8.84m×4.57m (v) 45cm×45cm (vi) Yes.

4. GENERAL

(i) and (ii) N.A. (iii) Yield of grain and straws (iv) (a) 1957—65 (b) Yes (c) Pooled results presented under 5. Results. (v) Pura and Varanasi. (vi) N.A. (vii) Nil.

5. RESULTS :

(i) 1609 Kg/ha. (ii) (a) N.A. (b) N.A. (iii) Main effect of N is significant. (iv) Av. yield of grain in Kg/ha.

	L_0P_0	L_1P_0	L_1P_1	L_1P_2	L_2P_0	L_2P_1	L_2P_2	mean
N_0	1407	1508	1510	1450	1455	1517	1510	1480
N_1	1525	1560	1637	1606	1563	1731	1627	1607
N_2	1636	1747	1758	1762	1683	1822	1734	1735
mean	1523	1605	1635	1606	1567	1690	1624	1607

C.D. for N marginal means=67Kg/ha.

Crop :- Wheat (*Rabi*) **Ref :- U.P. 60(M.A.E.).**

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

Object Type VI : - To study the effect of different methods of application of types and levels of phosphetes on the yield of Wheat.

1. BASAL CONDITIONS :

(i) (a) Nil (b) *Jowar* (c) 22.4Kg/ha. of N as A/S (il) Light loam (iii) 9, 10. 11.60 (iv) (a) 3 pre-sowing ploughings (b) Behind the plough (c) 92.2Kg/ha (d) 23cm between rows (e)— (v) Nil (vi) Pb. 591 (vii) Irrigated (viii) Weeding (ix) 6.1cm (x) 14.4.61.

2. TREATMENTS:

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

(1) 2 types of phosphates : S_1=Super and S_2=Ammo. Phos.

(2) 2 levels of phosphates : P_1=22.4 and P_2=44.8Kg/ha.

(3) 3 methods of application : M_1=Broadcast, M_2=6.3cm below seed and M_3=Band placement.

Phosphates applied at sowing.

3. DESIGN:

(i) R.B.D. (ii) (a) 13 (b) N.A. (iii) 3 (iv) (a) 9.75m×5.49m (b) 8.84m×4.57m (v) 46cm×46cm (vi) Yes.

4. GENERAL :

(i) Satisfactory (ii) Slight attack of smut and rust (iii) Yield of grain and straw (iv) (a) 1960-only (b) Nil (c) Nil. (v) (a) Varanasi (b) Nil (vi) Nil (vii) Nil.

(i) 2255 Kg/ha. (ii) 223.8 Kg/ha. (iii) **'Control *Vs.* Others' alone** is highly significant (iv) Av. yield of grain in kg/ha.

Control=1235Kg/ha.

	P_1	P_2	M_1	M_2	M_3	mean
S_1	2301	2382	2123	2366	2535	2341
S_2	2307	2370	2366	2338	2310	2338
mean	2304	2376	2244	2352	2423	2340
M_1	2226	2263				
M_2	2245	2460				
M_3	2441	2404				

C.D. for 'Control *Vs.* Others' means=298.2 Kg/ha.

Crop :- Wheat (R*abi*). **Ref :- U.P. 62(M.A E.)**

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

Object : Type IX (a) : To compare Nitrophosphate by ODDA and PEC process at different levels and different methods of application on Wheat.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Light loam (iii) to (x) N.A.

2. TREATMENTS :

All combinations of (1), (2) and (3)+4extra treatments in each block

(1) 3 types of phosphate : P_1=Super, P_2=O.D.D.A. and P_3=P.E.C.

(2) 3 levels of manuring : L_1=13.4Kg/ha of N+11.8Kg/ha of P_2O_5, $L_2=2\times L_1$ and $L_3=4\times L_1$.

(3) 3 methods of application : M_1=Broadcast, M_2=6.3cm below seeds in bands and M_3=Band placement.

Extra treatments : N_0=0, N_1=13.4, N_2=26.9 and N_3=53.8Kg/ha of N as A/S.

3. DESIGN:

(i) 3^3 confd. fact.+4 Extra treatments in each block (ii) 3 blocks/replication, 13 plots/block. (b) N.A. (iii) 2. (iv) N.A. (b) 4.57m×2.74m (v) N.A. (vi) Yes.

4. GENERAL :

(i) to (ii) N.A. (iii) Yield of grain (iv) (a) 1962–only (b) to (c) — (v) Varanasi (vi) and (vii) N.A.

5. RESULTS :

(i) 576 Kg/ha. (ii) 81.2 Kg/ha. (iii) None of the effects is significant. (iv) Av. yield of grain in Kg/ha.

N_0=570, N_1=529, N_2=579, N_3=539Kg/ha.

	L_1	L_2	L_3	M_1	M_2	M_3	mean
P_1	532	595	636	573	586	604	588
P_2	604	551	626	623	636	523	594
P_3	570	601	560	579	579	573	577
mean	569	582	607	592	600	567	586
M_1	588	573	614				
M_2	592	623	585				
M_3	526	551	623				

Crop :- Wheat (*Rabi*). **Ref. U.P. 61(M.A.E.)**

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

Object : Type IX (b) : To compare Nitro phosphate by O.D.D.A. and P.E.C. process at dlifferent levels and different methods and application.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) *Jowar* (c) 22.4Kg/ha of N as A/S (ii) Light loam (iii) 16.11.61 (iv) (a) 3 presowing ploughings (b) Behind the plough (c) 80 7Kg/ha (d) 23cm between 20cm (e) – (v) Nil (vi) Pb.591 (vii) Irrigated (vii) Weeding (ix) N.A. (x) 19.4.62.

2. TREATMENT :

All combinations of (1), (2), 3 and (4)+4 extra treatments in each blocks.

(1) 2 levels of F.Y.M. : F_0=0 and F_1=5604Kg/ha.

(2) 3 types of phosphate : P_1=Super, P_2=O.D.D.A. and P_3=P.E.C.

(3) 3 levels of fertilizers : L_1=13.4Kg/ha of N+11.8Kg/ha of P_2O_5, L_2=26.9Kg/ha of N+23.5Kg/ha of P_2O_5 and L_3=53.8Kg/ha of N+47.1Kg/ha of P_2O_5.

(4) 3 methods of application : M_1=Broadcast before final culitivation, M_2=6.3cm below seed and M_3=Band placement.

4 extra treatments : N_0=0, N_1=13.4, N_2=26.9 and N_3=53.8Kg/ha N as A/S,

3. DESIGN :

(i) $3^3 \times 2$ split plot confounded factorial in 9 plot blocks+4 Extratreatment. (ii) (a) 6 blocks/replication. 13 plots/block. (b) N.A. (iii) 1 (iv (a) 6.71m×5.49m (b) 5.79m×4.57m. (v) 46cm×46cm (vi) Yes.

4. GENERAL :

(i) Satisfactory (ii) Smut disease smutted ears were rogued out (iii) Yield of grain and straw (iv) (a) 1961– only (b) — (c) — (v) Pura (vi) and (vii) N.A.

5. RESULTS:

(i) 2836 Kg/ha. (ii) 457.0 Kg/ha. (iii) None of the effects is significant (iv) Av. yield of grain in Kg/ha.

N_0=3131, N_1=2702, N_2=2707 and N_3=2674Kg/ha.

	P_1	P_2	P_3	L_1	L_2	L_3	M_1	M_2	M_3	mean
F_0	2804	2684	2739	2730	2582	2914	2693	2795	2738	2742
F_1	2979	2841	3053	2868	3080	2926	2702	3136	3036	2958
mean	2891	2762	2896	2799	2831	2920	2697	2965	2887	2850
M_1	2739	2490	2862	2702	2767	2622				
M_2	3080	3007	2808	2924	2997	2974				
M_3	2854	2789	3018	2770	2729	3163				
L_1	2933	2509	2955							
L_2	2887	2960	2649							
L_3	2853	2818	3088							

Crop :- Wheat (*Rabi*). **Ref :- U.P. 63 to 65(M.A.E.)**

Site :- M.A.E. Centre; Bichpur. **Type :- 'M'.**

Object : Type X : To study the effect of various levels of N, P and Green manure on the yield of Wheat.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) and (c) 'As per treatments' (ii) Light loam (iii) 23.10.63 ; 13.11.64; N.A. (iv) (a) to (c) N.A. (v) Nil (vi) Pb –591 (vii) Irrigated (viii) and (ix) N.A. (x) 17.4.64; 17.4 65; N.A.

2. TREATMENTS:

All combinations of (1), (2) and (3)+an Extra treactment(T)

(1) 3 levels of N as A/S : N_0=0, N_1=17.5 and N_2=35.0Kg/ha.

(2) 3 levels of P_2O_5 as Super : P_0=0, P_1=35.0 and P_2=70.0Kg/ha.

(3) 3 levels of Green manuring : G_0=0, G_1=Sannhemp with 35.0Kg/ha. of P_2O_5 and G_2=Sannhamp with 70.0Kg/ha. of P_2O_5.

Details of extra treatment N.A.

3. DESIGN

(i) 3^3 confd.+1 extra treatment in each block (ii) (a) 3 blocks/replication and 10 plots/block. (b) N.A (iii) 2 (iv) (iv) and (v) N.A. (vi) Yes.

4. GENERAL:

(i) and (ii) N.A. (iii) Yield of grain (iv) (a) 1963—66 (b) N.A. (c) Nil (v) Pura, Pantnagar and Varanasi (vi) N.A. (vii) Results as available have been presented under 5. Results.

5. RESULTS:

1963

(i) 2223Kg/ha (ii) 290.9Kg/ha (iii) Main effect of N alone is highly significant (iv) Av. yield of grain in Kg/ha.

T=2495Kg/ha

Treatment :	N_0	N_1	N_2	P_0	P_1	P_2	G_0	G_1	G_2
Av. Yield :	1866	2155	2377	2112	2118	2169	2085	2089	2224

C.D. for N marginal means=1991Kg/ha.

1964

(i) 1382Kg/ha (ii) 362.4Kg/ha (iii) None of the effects is significant (iv) Av. yield of grain in Kg/ha.

T=1331Kg/ha.

Treatment :	N_0	N_1	N_2	P_0	P_1	P_2	G_0	G_1	G_2
Av. yield :	1291	1529	1377	1395	1403	1399	1299	1399	1499

1965

(i) 468Kg/ha (ii) 87.2Kg/ha (iii) None of the effects is significant (iv) Av. yield of grain in Kg/ha.

T=443Kg/ha.

Treatment :	N_0	N_1	N_2	P_0	P_1	P_2	G_0	G_1	G_2
Av. Yield :	482	491	455	445	496	487	466	468	493

Crop :- Wheat (*Rabi*). **Ref :- U.P. 63 to 65(M.A.E.)**

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

Object : Type XI : To study the effect of micro-nutrients on the yield of Wheat.

1. BASAL CONDITIONS:

(i) (a) to (c) N.A. (ii) Light loam (iii) 21.10.63 ; 28.10.64 ; N.A. (iv) (a) to (e).N.A. (v) N.A. (vi) Pb.—591 (vii) Irrigated (viii) and (ix) N.A. (x) 15.4.64 ; 23.4.65; N.A.

2. TREATMENTS :

15 micro-nutrient treatments : T_0=Control, T_1=NPK to soil, T_2=Spartin at 370 Kg/ha, T_3=Mn as Manganese Sul. at 60Kg/ha. as soil application, T_4=Zn. as Zinc Sul. at 30Kg/ha. as soil application, T_5=Cu as Copper Sul. at 30Kg/ha. as soil application, T_6=Boron as Borax at 17.5Kg/ha. as soil application, T_7=Molybdenum as Sodium Molybdate at 1.25Kg/ha. as soil application, T_8=Mixture of all above micro-nurients as soil application, T_9=Mn as Manganese Sulphate at 17.5Kg/ha. as foliar application, T_{10}=Zn. as Zinc Sul. at 12.5Kg/ha. as foliar application, T_{11}=Cu as Copper Sul. at 12.5 Kg/ha. as foliar application, T_{12}=Boron as Borax at 6.2Kg/ha. as foliar application, T_{13}=Molybdenum as Sodium Molybdate at 0.06Kg/ha. as foliar application and T_{14}=Mixture of all micro-nutrients by foliar application.

Note :—NPK=33.6Kg/ha. of N as A/S+33.6Kg/ha. of P_2O_5 as Super+33.6Kg/ha. of K_2O as Pot. Sul. applied to all treatments except control.

3. DESIGN:

(i) R.B.D. (ii) (a) 15 (b) N.A. (iii) N.A. (iv) (a) and (b) N.A. (v) N.A. (vi) Yes.

4. GENERAL:

(i) and (ii) N.A. (iii) Yield of grain (iv) (a) 1963—1966 (b) N.A. (c) Nil (v) Masodha, Pusa, Pantnagar and Varanasi (vi) N.A. (vii) Nil.

5. RESULTS

1963

(i) 1656Kg/ha. (ii) 224.2Kg/ha. (iii) None of the effects is 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	T_8	T_9	T_{10}
Av. yield :	1050	1683	1742	1661	1637	1704	1748	1711	1711	1692	1735

T_{11}	T_{12}	T_{13}	T_{14}
1516	1704	1865	1680

1964

(i) 695Kg/ha. (ii) 171.5Kg/ha. (iii) None of the effects is 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	T_8	T_9	T_{10}
Av. Yield :	555	648	697	672	691	734	746	746	777	685	556

T_{11}	T_{12}	T_{13}	T_{14}
654	820	796	654

1965

(i) 1213Kg/ha (ii) N.A (iii) N A. (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	T_8	T_9	T_{10}
Av. yield :	979	1243	1375	1541	1267	1084	1437	1319	1340	1056	1146

	T_{11}	T_{12}	T_{13}	T_{14}
	1084	1181	1125	1014

Crop : Wheat (*Rabi*) **Ref :- U.P. 63 to 65(M.A.E.)**

Site :- M.A.E. Centre ; Bichpuri **Type :- 'M'.**

Object : Type XII : To study the effect of different fertilizer treatments and their methods of application on the yield of Wheat.

1. BASAL CONDITIONS:

(i) (a) to (c) N.A. (ii) Light loam (iii) to (v) N.A. (vi) Pb.—591 (vii) Irrigated (viii) to (x) N.A.

2. TREATMENTS:

Main-plot treatments :

4 Fertilizer treatments : F_1=Nitrogen, F_2=Phasphate, F_3=Nitrogen and phosphate and F_4=Nitrogen, Phasphate and Potash.

Sub-plot treatments :

8 methods of application of fertilizer treatments : C_0=Absolute Control, C_1=Water spray, $L_1M_1=\frac{1}{2}$ dose as soil application, L_2M_1=Full dose at soil application, L_1M_2=1/4 dose as foliar spray, L_2M_2= 1/2 dose as foliar spray, L_1M_2=1/4 dose as soil application and 1/4 dose as foliar spony and $L_2M_2=\frac{1}{2}$ dose as soil application and 1/2 dose as foliar spory.

Note : Full dose of Fertilizers : Nitrogen @ 44.8Kg/ha. Phosphate @ 22.4Kg/ha and Potash@22.4Kg/ha, In unirrigated expriments Nitrogen was applied @22.4Kg/ha.

3. DESIGN :

(i) Split-plot (ii) (a) 4 main-plots/replication ; 8 sub-plots/main plot (b) N.A. (ii) 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) 1963—65 (b) N.A. (c) Nil. (v) Masodha and Varanasi (vi) N.A. (vii) Nil.

5. RESULTS:

1963

(i) 1407Kg/ha (ii) (a) N.A. (b) N.A. (iii) N.A. (iv) Av. yield of grain in Kg/ha.

C_0=1086 and C_1=1135Kg/ha

	L_1M_1	L_2M_1	L_1M_2	L_2M_2	L_1M_3	L_2M_3	mean
F_1	1688	1985	1447	1438	1828	2171	1759
F_2	927	1070	1144	1014	1082	1144	1064
F_3	1308	1784	1280	1360	1404	1892	1505
F_4	1664	2078	1255	1546	1614	2022	1697
mean	1397	1729	1282	1340	1482	1807	1506

C.D, for F marginal means= 210Kg/ha.

C.D. for LM marginal means=173Kg/ha.

1964

(i) 781Kg/ha (ii) (a) N.A. (b) N.A. (iii) N.A. (iv) Av. yield of grain in Kg/ha.

C_0=740 and C_1=605Kg/ha

	L_1M_1	L_2M_1	L_1M_2	L_2M_2	L_1M_3	L_2M_3	mean
F_1	651	1336	648	833	728	920	853
F_2	450	845	620	604	716	617	642
F_3	901	796	685	858	827	1092	860
F_4	1030	907	629	814	1006	1095	914
mean	758	971	645	777	819	931	817

C.D. for F means=119 Kg/ha.

C.D. for LM marginal means=154Kg/ha.

1965

(i) 1219Kg/ha (ii) (a) N.A. (b) N.A. (iii) N.A. (iv) Av. yield of grain in Kg/ha.

C_0=1140 and C_1=1103Kg/ha.

	L_1M_1	L_2M_1	L_1M_2	L_2M_2	L_1M_3	L_2M_3	mean
F_1	1427	1395	1027	1236	1204	1239	1255
F_2	1145	1274	1166	1111	1076	1097	1145
F_3	1284	1295	1291	1121	1305	1319	1269
F_4	1440	1465	1298	993	1215	1597	1335
mean	1324	1357	1196	1115	1200	1313	1251

C.D. for LM means= 154Kg/ha

Crop :- Wheat (*Rabi*). **Ref :-U.P. 64, 65 (M.A.E.)**

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

Object : Type V (a) : To study the effect of different methods of placement of Nitrogen.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Loam (iii) 20.11.64 ; N.A. for 65. (iv) (a) to (e) N.A. (v) 33.6Kg/ha of P_2O_5 as Super (vi) N.P. 7:0 (vii) Irrigated (viii) and (ix) N.A. (x) 22.4.65 ; N.A. for 65.

2. TREATMENTS:

Combinations of (1) and (2) + one control.

(1) 3 Methods of placement of N : M_1 =Broadcast at sowing, M_2=Drilled 6.4cm below the seeed and M_3=Side band placement at about 5 to 7cm on either side.

(2) 3 levels of Nitrogen : N_1=33.6, N_2=50.4 and N_3=67.2Kg/ha.

3. DESIGN:

(i) R.B.D. (ii) (a) 10 (b) N.A. (iii) to (v) N.A. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of grain (iv) (a) 1964—66 (b) N.A. (c) Nil (v) Pura, Varanasi, Pantnagar (vi) N.A. (vii) Results as available have been presented under 5. Results.

5. RESULTS:

1964

(i) 1258Kg/ha (ii) 322.2Kg/ha (iii) None of the effects is significant (iv) Av. yield of grain in Kg/ha.

Control=855Kg/ha

Treatment :	M_1	M_2	M_3	N_1	N_2	N_3
Av. yield :	1269	1280	1359	1287	1247	1373

1965

(i) 1877Kg/ha (ii) N.A. (iii) Main effect of N is significant (iv) Av. yield of grain in Kg/ha.

Control=1382Kg/ha.

Treatment :	M_1	M_2	M_3	N_1	N_2	N_3
Av. yield :	1895	1988	1913	1825	1957	2012

C.D. for N means=82Kg/ha

Crop :- Wheat (*Rabi*). **Ref :- U.P. 64, 65(M.A.E.)**

Site :- M.A.E. Centre ; Masodha **Type :- 'M'.**

Object : Type XI ; To study the effect of micro-nutrients on the yield of Wheat.

1. BASAL CONDITION:

(i) (a) to (c) N.A. (ii) Loam (iii) to (v) 21.11.64 ; N.A. (vi) NP 710 (vii) Irrigated (viii) and (ix) N.A. (x) 8.4. 65 ; N.A.

2. TREATMENTS :

Same as in Expt. No. 63 to 65 (M.A.E.) Conducted at M.A.E. Centre, Bichpuri and presented on page No. 425

3. DESIGN :

(i) R.B.D. (ii) (a) 15 (b) N.A. (iii) N.A. (iv) (a) and (b) N.A. (v) N.A. (vi) Yes.

4. GENERAL:

(i) and (il) N.A. (iii) Yield of grain (iv) (a) 1964–66 (b) N.A. (c) Nil (v) Bichpuri, Pura, Varanasi and Pantnager (vi) N.A. (vii) Nil.

5. RESULTS :

1964

(i) 1869Kg/ha (ii) 116.1Kg/ha (iii) N.A. (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	T_8	T_9	T_{10}
Av. yield :	1089	1982	1980	1833	1817	1991	2036	1898	1851	1861	1826

T_{11}	T_{12}	T_{13}	T_{14}
1970	1974	1964	1964

1965

(i) 2110Kg/ha (ii) N.A. (iii) N.A. (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	T_8	T_9	T_{10}
Av. yield :	1698	2145	2574	2130	2173	2179	2064	2089	2080	2105	2139

T_{11}	T_{12}	T_{13}	T_{14}
2173	2017	2008	2070

Crop :- Wheat (*Rabi*). **Ref :- U.P. 65((M.A.E.)**

Site :- M A.E. Centre ; Masodha **Type :- 'M'**

Object : Type XII : To study the effect of different fertilizer treatments and their methods of application on the yield of Wheat.

1. BASAL CONDITION :

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

2. TREATMENTS and 3. DESIGN :

Same as in Expt. No. 63 to 65 (M.A.E.) Conducted at M.A.E. Centre, Bichpuri and presented on page No. 426

4. GENERAL:

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

5. RESULTS:

(i) 939Kg/ha (ii) (a) N A. (b) N.A. (iii) N.A. (iv) Av. yield of grain in Kg/ha.

C_0=766 and C_1=785Kg/ha.

	L_1M_1	L_2M_1	L_1M_2	L_2M_2	L_1M_3	L_2M_3	mean
F_1	983	1054	852	994	1032	1069	997
F_2	957	942	780	825	814	870	865
F_3	1077	1227	878	983	1062	1129	1059
F_4	1118	1201	825	988	1058	1182	1054
mean	1034	1106	834	935	991	1063	994

C.D. for F marginal means=77 Kg/ha.
C.D. for LM marginal means=95Kg/ha.

Crop :- Wheat (*Rabi*). **Ref :- U.P. 64** (M.A.E.)

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

Object: Type II : To study the effect of N, P,K and F.Y.M. on Wheat.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Loam (iii) 24.11.64 (iv) (a) to (e) N.A. (v) Nil (vi) NP—710 (vii) Unirrigated (viii) and (ix) N.A. (x) 7.5.65.

2. TREATMENTS:

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

(1) 3 levels of N as A/S : N_0=0, N_1=22.4 and N_2=44.8Kg/ha.

(2) 3 levels of P_2O_5 as Super : P_0=0, P_1=22.4 and P_2=44.8Kg/ha.

(3) 3 levels of K_2O as Pot. Sul. : K_0=0, K_1=22.4 and K_2=44.8Kg/ha.

(4) 2 levels of F.Y.M. F_0=0 and F_1=56.04Q/ha.

3. DESIGN :

(i) $3^3 \times 2$. fact. confd. (ii) (a) 6 blocks/replication, 9 plots/block (b) N.A. (iii) 1 (iv) and (v) N.A. (vi) Yes.

4. GENERAL :

(i) to (ii) N.A- (iii) Yield of grain (iv) (a) 1964—only (b) — (c) — (v) Bichpuri (vi) and (vii) N.A.

5. RESULTS :

(i) 1122Kg/ha (ii) 300.9Kg/ha (iii) Main effect of N alone is highly significant (iv) Av. yield of grain in Kg/ha.

	N_0	N_1	N_2	P_0	P_1	P_2	K_0	K_1	K_2	mean
F_0	904	1056	1365	1048	1099	1178	1091	1102	1132	1108
F_1	737	1211	1458	1143	1173	1089	1161	1246	999	1135
mean	821	1134	1411	1096	1136	1134	1126	1174	1066	1122
K_0	790	1174	1414	1122	1039	1217				
K_1	863	1150	5509	1131	1362	1029				
K_2	809	1077	1311	1034	1008	1155				
P_0	712	1115	1461							
P_1	937	1203	1268							
P_2	813	1084	1504							

C.D. for N marginal means=207.5Kg/ha

Crop :- Wheat (*Rabi*).

Site :- M.A.E. Centre, Pantnagar

Ref:- U.P. 63 to 65 (M.A.E.)

Type :- 'M'.

Object : Type V (a) : To study the effect of different methods of placement of Nitrogen.

1. BASAL CONDITIONS:

(i) (a) to (c) N.A. (ii) Loam (iii) 26.11.63 ; 11.11.64 ; N.A. (iv) (a) to (e) N.A. (v) 33.6Kg/ha of P_2O_5 as Super (vi) NP—718 (vii) Unirrigated (viii) and (ix) N.A. (x) 20.4.64 ; 22.4.65 ; N.A.

2. TREATMENT and 3. DESIGN. :

Same as in Expt. No. U.P. 64, 65 (M.A.E.) Conducted at M.A.E. Centre, Masodha and presented on page No. 428

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of grain (iv) (a) 1963—66 (b) N.A. (c) Nil (v) Masodha. (vi) N.A. (vii) Results as available have been presented under 5. Results.

5. **RESULTS:**

1963

(i) **732 Kg/ha.** (ii) **139.5** Kg/ha. (iii) Main effects of M and N are significant. (iv) Av. yield of grain in Kg/ha.

Control=636Kg/ha.

Treatment :	M_1	M_2	M_3	N_1	N_2	N_3
Av. yield :	659	757	812	689	732	808

C.D. for M or N means=117Kg/ha.

1964

(i) 152Kg/ha (ii) 252.2Kg/ha (iii) None of the effects is significant (iv) Av. yield of grain in Kg/ha.

Control=1203Kg/ha.

Treatment :	M_1	M_2	M_3	N_1	N_2	N_3
Av. yield :	1630	1636	1641	1456	1749	1702

1965

(i) 1938Kg/ha (ii) N.A. (iii) Main effect of N is significant (iv) Av. yield of grain in Kg/ha.

Control=1990Kg/ha

Treatment:	M_1	M_2	M_3	N_1	N_2	N_3
Av. yield :	1975	1949	1873	2049	1762	1984

C.D. for N means=250Kg/ha.

Crop :- Wheat (R*abi*). **Ref :- U.P. 63, 64** (M.A.E.)

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

Object : Type X : To study the effect of various levels of N, P and Green manure on the yield of Wheat.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) and (c) 'As per treatments' (ii) Loam (iii) 21.11.63 ; 30.10.64. (iv) (a) to (e) N.A. (v) Nil (vi) NP—718 (vii) Unirrigated (viii) and (ix) N.A. (x) 11.4.64 ; 20.4.65.

2. TREATMENTS:

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

(1) 3 levels of N as A/S : $N_0=0$, $N_1=17.5$ and $N_2=35.0$Kg/ha.

(2) 3 levels of P_2O_5 as Super : $P_0=0$, $P_1=35.0$ and $P_2=70.0$Kg/ha.

(3) 2 levels of Green manuring : $G_0=0$, G_1=Sann with 35.0Kg/ha of P_2O_5 and G_2=Sann with 70.0Kg/ha of P_2O_5.

Details of extra treatment N.A.

3. DESIGN :

(i) 3^3 confd. +1 extra treatment in each block (ii) (a) 3 blocks/replication, 10 plots/qlock, (b) N.A. (iii) 2 (iv) and (v) N.A. (vi) Yes.

4. GENERAL:

i) and (ii) N.A. (iii) Yield of grain (iv) (a) 1963—64 (b) N.A. (c) Nil (v) Bichpuri, Masodha, Pura and Varanasi. (vi) N.A. (vii) Nil.

5. RESULTS:

1963

(i) 2120Kg/ha (ii) 189·2Kg/ha(iii)Main effect of G alone is highly significant(iv)Av. yield of grain in Kg/ha.

T=2284Kg/ha

Treatment :	N_0	N_1	N_2	P_0	P_1	P_2
Av. yield:	2092	2117	2097	2039	2129	2138

G_0	G_1	G_2
1880	2219	2208

C.D. for G marginal means=129Kg/ha

1964

(i) 1542Kg/ha (ii) 404·2Kg/ha (iii) None of the effects is significant (iv) Av. yield of grain in Kg/ha.

T=1644Kg/ha

Treatment :	N_0	N_1	N_2	P_0	P_1	P_2
Av. yield:	1532	1491	1502	1469	1584	1472

G_0	G_1	G_2
1522	1558	1445

Crop :-Wheat (*Rabi*). **Ref :- U.P. 63 to 65 (M.A.E).**

Site :- M.A.E. Centre ; Pantnagar. **Type :- 'M'.**

Object : Type XI : To study the effect of micro-nutrients on the yield of Wheat.

1. BASAL CONDITIONS:

(i) (a) to (c) N.A. (ii) Loam (iii) to (v) N.A. (vi) NP—718 (vii) Unirrigated. (viii) to (x) N.A.

2. TREATMENTS:

Same as in Expt. No. 63 to 65 (M.A.E.) conducted at M.A.E. Centre, Bichpuri and presented on Page No. 425.

3 DESIGN

(i) R.B.D. (ii) (a) 15 (b) N.A. (iii) N.A. (iv) (a) and (b) N.A. (v) N.A. (vi) Yes.

4 GENERAL:

(i) and (ii) N.A. (iii) Yield of grain (iv) (a) 1963—66 (b) N.A. (c) Nil. (v) Pura, Varanasi, Masodha and Bichpuri (vi) N.A. (vii) Nil.

5. RESULTS:

1963

(i) 1656Kg/ha (ii) and (iii) N.A. (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	T_8	T_9	T_{10}
Av. yield :	1050	1683	1742	1662	1637	1704	1747	1710	1710	1692	1735

T_{11}	T_{12}	T_{13}	T_{14}
1517	1704	1865	1680

1964

(i) 1726Kg/ha (ii) 343·2Kg/ha (iii) N.A. (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	T_8	T_9	T_{10}
Av. yield :	1010	1939	1922	1848	1634	1665	1435	2018	1857	1676	1911

T_{11}	T_{12}	T_{13}	T_{14}
1996	1822	1597	1565

1965

(i) 2314Kg/ha (ii) and (iii) N.A. (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	T_8	T_9	T_{10}
Av. yield :	2631	2596	1933	2500	2434	2350	2196	1937	2512	2434	2353

T_{11}	T_{12}	T_{13}	T_{14}
1996	2400	2250	2190

Crop :- Wheat (*Rabi*) **Ref :- U.P. 63 to 65 (M.A.E,).**

Site.-M.A.E. Centre Pantnagar. **Type :- 'M'.**

Object : Type XII : To study the effect of different fertilizer treatments and their methods of application on the yield of Wheat.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Loam. (iii) 9.11.63 ; 19.11.64 ; N.A. (iv) and (v) N.A. (vi) NP—718 (vii) Unirrigated (viii) and (ix) N.A. (x) 18.4.64; 24.4.65; N.A.

2. TREATMENTS & 3. DESIGN:

Same as in Expt. No. 63 to 65 (M.A.E.) conducted at M.A.E. Centre, Bichpuri and presented on page No. 426.

4. GENERAL

(i) and (ii) N.A. (iii) Yield of grain (iv) (a) 1963—66 (b) N.A. (c) Nil (v) Bichpuri, Masodha and Varanasi (vi) N.A. (vii) Nil.

5. RESULTS:

1963

(i) 906Kg/ha (ii) (a) and (b) N.A. (iii) N.A. (iv) Av. yield of grain in Kg/ha.

C_0=787 and C_1=825Kg/ha.

	L_1M_1	L_2M_1	L_1M_2	L_2M_2	L_1M_3	L_2M_3	mean
F_1	824	848	894	1016	898	782	877
F_2	1310	1264	1324	876	1363	880	1170
F_3	786	1011	810	668	643	681	767
F_4	1065	874	1115	897	786	934	945
mean	996	999	1036	864	922	819	940

C.D. for LM marginal means=174Kg/ha

1964

(i) 918Kg/ha (ii) (a) and (b) N.A. (iii) N.A. (iv) Av. yield of grain in Kg/ha.

C_0=699 and C_1=913Kg/ha.

	L_1M_1	L_2M_1	L_1M_2	L_2M_2	L_1M_3	L_2M_3	mean
F_1	832	1252	832	875	754	1146	949
F_2	804	875	783	911	861	1093	884
F_3	1039	1238	953	989	1046	1210	1079
F_4	975	1195	660	889	761	982	910
mean	913	1140	807	916	856	1103	956

C.D. for F marginal means=182 Kg/ha.
C.D. for LM marginal means=156 Kg/ha.

1965

(i) 2344Kg/ha (ii) (a) and (b) N.A. (iii) N.A. (iv) Av. yield of grain in Kg/ha.

C_0=2290 and C_1=2243Kg/ha

	L_1M_1	L_2M_1	L_1M_2	L_2M_2	L_1M_3	L_2M_3	mean
F_1	2462	2487	2312	2412	1925	2025	2270
F_2	2237	2450	2500	2337	2375	2412	2385
F_3	2362	2650	2150	2487	2487	2475	2475
F_4	2237	2337	2312	2625	2450	2387	2391
mean	2325	2481	2318	2465	2309	2325	2370

Crop :- Wheat (*Rabi*). **Ref :-U.P. 57 to 65 (M.A.E.).**

Site :- M.A.E. Centre; Pura. **Type :-'M'.**

Object : Type IV : To study the effect of phosphatic manuring of legumes and their residual effect on the succeeding Wheat manured with Nitrogen.

1. BASAL CONDITIONS:

(i) (a) to (c) As per treatments (ii) Loamy soil (iii) 15.11.60; 19.11.61; N.A. for others (iv) (a) 4-5 ploughings & 1—2 harrowings (b) Behind *Deshi* plough (c) 92Kg/ha (d) Rows 23cm apart (e) — (v) Nil (vi) Pb. 591 for 60 and 61.; N.A. for others (vii) Irrigated (viii) Weeding (ix) N.A. (x) 22.4.61 ; 20.4.62 ; N.A. for others.

2. TREATMENTS:

Main-plot treatments:

All combinations of (1) and (2)+a control (L_0P_0).

(1) 2 previous legumes: L_1=Moong and L_2=Cowpea.

(2) 3 levels of P_2O_5 as Super applied to previous crop : P_0=0, P_1=44·8 and P_2=89.6Kg/ha.

Sub-plot treatments :

3 levels of N as A/S applied to Wheat : N_0=0, N_1=16·8 and N_2=33·6Kg/ha.

3. DESIGN:

(i) Split-plot (ii) (a) 7 main-plots/replication ; 3 sub-plots/main-plot (b) N.A. (iii) 3 (iv) (a) 9·14m×5·54m (b) 8·23m.×4.90m. (v) 91cm×32cm (vi) Yes.

4. GENERAL:

(i) Satisfactory (ii) N.A.(iii) Yield of grain and straw (iv) (a) 1957-65 (b) Yes (c) Pooled results presented under 5. Results (v) Bichpuri and Varanasi (vi) and (vii) Nil.

5. RESULTS:

(i) 1765Kg/ha (ii) (a) and (b) N.A. (iii) Main effects of L P and N are significant (iv) Av. yield of grain in Kg/ha.

	L_0P_0	L_1P_0	L_1P_1	L_1P_2	L_2P_0	L_2P_1	L_2P_2	mean
N_0	1227	1494	1532	1709	1472	1645	1706	1541
N_1	1536	1690	1847	1957	1686	1883	2022	1803
N_2	1731	1824	2001	2103	1810	2014	2175	1951
mean	1498	1669	1793	1923	1656	1847	1968	1765

C.D. for LP marginal means=87Kg/ha

C.D. for N marginal means=41Kg/ha.

Crop :- Wheat (*Rabi*). **Ref:-U.P. 60, 61 (M.A.E.).**

Site :- M.A.E. Centre; Pura. **Type :- 'M'.**

Object : Type V : To study the effect of different times of application of N on the yield of Wheat.

1. BASAL CONDITIONS:

(i) (a) N.A. (b) *Dhaincha* (c) N.A.(ii) Loamy soil (iii) 19.11.60 ; 28.11.61 (iv) (a) 7 ploughings; 5 ploughings with *Deshi* plough and 2 harrowings with tractor (b) Sown in lines; Behind *Deshi* plough (c) 92Kg/ha (d) 23cm. between rows (e)— (v) 22·4Kg/ha. of P_2O_5 drilled below the soil surface ; *Dhaincha* for G.M. (vi) Pb. S-91 (vii) Irrigated (viii) 2 Weedings; Weeding (ix) N.A. (x) N.A. ; 22.4.62.

2. TREATMENTS:

All combinations of (1), (2) and (3) +a control plot in each block.

(1) 2 levels of N : N_1=22·4 and N_2=44·8Kg/ha.

(2) 3 sources of N: S_1=A/S, S_2=A/N and S_3=Urea.

(3) 3 times of application : T_1=At sowing, T_2=At first irrigation and T_3=1/2 at sowing+1/2 at first irrigation.

3. DESIGN:

(i) $3^2\times2+1$ confd. (ii) (a) 7 plots/block; 3 blocks/replication (b) N.A. (iii) 4 (iv) (a) 7.22m.×7.01m; 7.32m.×6.91m. (b) 6.33m.×6.40m.; 6.40m.×6.30m. (v) 46cm.×30cm. (vi) Yes.

4. GENERAL:

(i) and (ii) N.A. (iii) Yield of grain (iv) (a) 1956—61 (b) N.A. (c) Nil (v) Varanasi (vi) and (vii) Nil.

5. **RESULTS :**

1960

(i) and (ii) N.A. (iil) None of the effects is significant (iv) Av. yield of grain in Kg/ha.

Control=1918Kg/ha

Treatment:	T_1	T_2	T_3	S_1	S_2	S_3.
Av. yield:	2213	2213	2102	2185	2167	217o

Treatment :	N_1	N_2
Av. yield :	2102	2268

1961

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

Control=1080Kg/ha

Treatment:	T_1	T_2	T_3	S_1	S_2	S_3
Av. yield:	1580	1640	1690	1630	1620	1670

Treatment :	N_1	N_2
Av. yield:	1440	1820

C.D. for N marginal means=134Kg/ha.

Crop :- Wheat (*Rabi*). **Ref :- U.P. 62 to 65 (M.A.E.).**

Site :- M.A.E. Centre; Pura. **Type :- 'M'.**

Object : Type (v) a : To study the effect of different methods of placement of Nitrogen.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Loam (iii) 3.11.63; 12.11.64; N.A. for 65 (iv) (a) to (e) N.A. (v) 33·6Kg/ha of P_2O_5 as Super (vi) Pb. 591 for 63; N.P. 710 for 64; N.A. for 65 (vii) Irrigated (viii) and (ix) N.A. (x) 13.4.64; 21.4.65; N.A. for 65.

2. TREATMENTS AND 3. DESIGN :

Same as in Expt. No. 64,65 (M.A.E.) conducted at M.A.E. Centre, Masodha and presented on Page No. 428

4. GENERAL:

(i) and (ii) N.A. (iii) Yield of grain (iv) (a) 1962-66 (b) N.A. (c) Nil (v) Masodha, Pantnagar and Varanasi (vi) N.A. (vii) Nil.

5. RESULTS :

1962

(i) 1815Kg/ha (ii) N.A. (iii) None of the effects is significant. (iv) Av. yield of grain in Kg/ha.

Control=1660Kg/ha

Treatment :	M_1	M_2	M_3	N_1	N_2	N_3
Av. yield :	1761	1873	1861	1882	1863	1751

1963

(i) 2390Kg/ha (ii) 134·8Kg/ha (iii) Main effects of M and N are significant. (iv) Av. yield of grain in Kg/ha.

Control=2063Kg/ha

Treatment :	M_1	M_2	M_3	N_1	N_2	N_3
Av. yield :	2316	2474	2489	2329	2404	2546

C.D. for M or N marginal means=113Kg/ha

1964

(i) 2250Kg/ha (ii) 272.8Kg/ha (iii) None of the effects is significant. (iv) Av. yield of grain in Kg/ha.

Control=1628Kg/ha.

Treatment :	M_1	M_2	M_3	N_1	N_2	N_3
Av. yield :	2313	2294	2351	2250	2254	2454

1965

(i) 2538Kg/ha (ii) N.A. (iii) Main effect of M alone is significant. (iv) Av. yield of grain in Kg/ha.

Control=2079Kg/ha

Treatment :	M_1	M_2	M_3	N_1	N_2	N_3
Av. yield :	2691	2686	2391	2511	2731	2524

C.D. for M marginal means=240Kg/ha

Crop :- Wheat (*Rabi*). **Ref :- U.P. 60, 61 (M.A.E.).**

Site :- M.A.E. Centre; Pura. **Type :- 'M'.**

Object: Type IX (b) : To compare Nitrophosphate by O.D.D.A. and P.E.C. process at different levels and different methods of application.

1. BASAL CONDITIONS:

(i) (a) Dhaincha—Wheat (♂) *Dhaincha*. (c) Nil (ii) Loamy soil (iii) 21.11.60; 26.11.61 (iv) (a)a ploughings ; 4 ploughings with *Deshi* plough and 2 harrowings with tractor (b) Sown in lines (c) 92·2Kg/h (d) Rows 23cm. apart (e) — (v) *Dhaincha* for G.M. (vi) Pb. 591 (vii) Irrigated (viii) Weeding (ix) N.A. (x7) 13.4.61; 24.4.62.

2 TREATMENTS :

Same as in the Expt. No. 61 (M.A.E.) conducted at M.A.E. centre, Bichpuri and presented on page No. 422.

3. DESIGN:

(i) $3^3 \times 2$ split-plot confounded+4 Extra treatments (ii) (a) 6 blocks/replication, 13 plots/block and 3 blocks receiving F_0 and others 3 blocks receiving F_1 Treatment (b) N.A. (iii) 1 (iv) (a) 7.62m. × 5.89m. ; 8.53m. × 5,28m. (b) 7.32m. × 5.54m. ; 8.28m. × 4.88m. (v) 15cm. × 18cm ; 13cm. × 20cm. (vi) Yes.

4. GENERAL:

(i) and (ii) N.A. (iii) Yield of grain (iv) (a) 1960–61 (b) N.A. (c) Nil (v) Bichpuri (vi) N.A. (vii) Nil.

5. RESULTS:

1960

(i) 1909Kg/ha (ii) 295·1Kg/ha (iii) Main effect of P and M are significant (iv) Av. yield of grain in Kg/ha.

N_0=1563, N_1=1683, N_2=1817 and N_3=1771Kg/ha.

Treatment :	P_1	P_2	P_3	M_1	M_2	M_3	L_1	L_2	L_3	F_0	F_1
Av. yield :	2182	2038	1776	2080	2085	1831	1868	2015	2113	1919	2078

C.D. for M or P marginal means=198Kg/ha.

1961

(i) 1277Kg/ha (ii) 217·5Kg/ha (iii) Main effects of P, L are highly significant. Main effect of M and extra treatments are significant. (iv) Av. yield of grain in kg/ha.

N_0=752, N_1=978, N_2=1337 and N_3=1480Kg/ha.

Treatment :	P_1	P_2	P_3	M_1	M_2	M_3	L_1	L_2	L_3
Av. yield :	1425	1402	1190	1208	1420	1388	1070	1338	1609

C.D. for P, L or M marginal means=145Kg/ha.

C.D. for extra treatments=253Kg/ha.

Crop :- Wheat (*Rabi*) **Ref :- U.P. 62 to 65 (M.A.E.)**

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

Object : Type X : To study the effect of various levels of N, P and green manure on the yield of Wheat.

1. BASAL CONDITIONS :

(i)(a) to (c) As per treatments (ii) Loam (iii) N.A. ; 9.11.63 ; 10.11.64 ; N.A. (iv) (a) to (e) N.A. (v) Nil (vi) Pb.—591 (vii) Irrgated (viii) and (ix) N.A. (x) N.A.; 15.4.64; 18.4.65 ; N.A.

2. TREATMENTS and 3. DESIGN:

Same as in Expt. No. 63, 64 (M.A.E.) conducted at M.A.E. centre, Pantnagar and presented on page No. 432.

4. GENERAL:

(i) and (ii) N.A. (iii) Yield of grain (iv) (a) 1962—66 (b) N.A. (c) Nil (v) Bichpuri, Varanasi and Pantnagar (vi) N.A. (vii) Nil.

5. RESULTS:

1962

(i) N.A. (ii) 172.8Kg/ha (iii) Main effects of G,N and P are highly significant (iv) Av. yield of grain in Kg/ha.

T=2765Kg/ha.

Treatment :	N_0	N_1	N_2	P_0	P_1	P_2	G_0	G_1	G_2
Av. yield :	2063	2242	2434	1875	2231	2287	1875	2167	2264

C.D. for N,P or G marginal means=117Kg/ha.

1963

(i) N.A. (ii) 134·0Kg/ha (iii) Main effects of N, G and P are highly significant (iv) Av. yield of grain in Kg/ha.

T=2917Kg/ha.

Treatment :	N_0	N_1	N_2	P_0	P_1	P_2	G_0	G_1	G_2
Av. yield :	2256	2507	2617	1874	2072	2461	1874	2127	2613

C.D. for N, P or G marginal means=91Kg/ha.

1964

(i) N.A. (ii) 295·7Kg/ha (iii) Main effects of G and N are highly significant and that of P is significant (iv) Av. yield of grain in Kg/ha.

T=3131Kg/ha.

Treatment :	N_0	N_1	N_2	P_0	P_1	P_2	G_0	G_1	G_2
Av. yield :	2189	2497	2570	1919	2127	2080	1919	2229	2615

C.D. for N, P or G marginal means=200Kg/ha

1965

(i) N.A. (ii) 263·2Kg/ha (iii) Main effects of N, P and G are significant (iv) Av. yield of grain in Kg/ha.

T=2149Kg/ha

Treatment :	N_0	N_1	N_2	P_0	P_1	P_2	G_0	G_1	G_2
Av. yield :	2191	2353	2238	1903	2257	2470	1903	2273	2397

C.D. for N, P or G marginal means=178Kg/ha

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Crop :- Wheat (*Rabi*). **Ref. :- U.P. 64, 65 (M A.E).**

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

Object :Type XI : To study the effect of micronutrients on the yield of Wheat.

1. BASAL CONDITIONS:

(i) (a) to (c) N.A. (ii) Sandy loam (iii) 7.11.64; N.A. (iv) and (v) N.A. (vi) Pb. 591 ;(vii) Irrigated (viii) and (ix) N.A. (x) 18.4.65; N.A.

2. TREATMENTS:

Same as in expt. No. 63 to 65 (M.A.E.) conducted at M.A,E. Centre, Bichpuri and presented on page No. 425.

3. DESIGN :

(i) R.B.D. (ii) (a) 15 (b) N.A. (iii) N.A. (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 –66 (b) N.A. (c) Nil (v) Bichpuri, Pantnagar, Masodha and Varanasi (vi) N.A. (vii) Nil.

5. RESULTS:

1964

(i) 2602Kg/ha (ii) 226·4Kg/ha (iii) N.A. (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	T_8	T_9	T_{10}
Av. yield:	2400	2815	2555	2627	2555	2670	2449	2454	2837	2786	2649

T_{11}	T_{12}	T_{13}	T_{14}
2659	2572	2530	2471

1965

(i) 724Kg/ha (ii) and (iii) N.A. (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	T_8	T_9	T_{10}
Av. yield :	115	776	1407	733	760	715	638	741	736	564	772

T_{11}	T_{12}	T_{13}	T_{14}
616	828	766	699

Crop :- Wheat (*Rabi*). **Ref :- U.P. 58 to 65 (M.A.E.).**

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

Object : Type IV : To study the effect of phosphatic manuring of legumes and their residual effect on the succeeding Wheat, manured with Nitrogen.

1. BASAL CONDITIONS:

(i) (a) to (c) As per treatments (ii) Alluvial (iii) **1.11.60; 3.11.61; N.A.** for others (iv) (a) 4 ploughings and 1 harrowing (b) By seed—drill (c) 92 Kg/ha (d) **Rows 23cm. apart** (e) — (v) Nil (vi) N.52 for 60 and 61; N.A. for others (vii) **Irrigated** (viii) One **weeding** (ix) **N.A.** (x) **19.4.61; 14.4.62; N.A. for others.**

2. TREATMENTS:

Main-plot treatments :

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

(1) 2 previous legumes : L_1=*Lobia* and L_2=*Moong*.

(2) 3 levels of P_2O_5 as Super applied to legumes : P_0=0, P_1=44.8 and P_2=89·6Kg/ha.

Sub-plot treatments :

3 levels of N as A/S applied to Wheat : N_0=0, N_1=16.8 and N_2=33·6Kg/ha.

3. DESIGN:

(i) Split-plot (ii) (a) 7 main-plots/replication; 3 sub-plots/main—plot (b) N.A. (iii) 3 (iv) (a) 4.88.m×9.75m. (b) 4.19m.×9.14m. (v) 23cm×30em. (vi) Yes.

4. GENERAL:

(i) Good (ii) N.A. (iii) Yield of grain and straw (iv) (a) **1958—65** (b) **Yes** (c) Pooled results presented under 5. Results (v) Pura and Bichpuri (vi) N.A. (vii) Nil.

5. RESULTS:

(i) 1305Kg/ha (ii) (a) N.A. (b) N.A. (iii) Main effects of **LP and N are significant** (iv) Av. yield of grain in Kg/ha.

	L_0P_0	L_1P_0	L_1P_1	L_1P_2	L_2P_0	L_2P_1	L_2P_2	mean
N_0	741	993	1058	1041	972	971	1007	969
N_1	1164	1414	1442	1378	1281	1358	1358	1342
N_2	1502	1616	1650	1654	1572	1600	1625	1603
mean	1136	1341	1383	1358	1275	1310	1330	1305

C.D. for L P marginal means=85Kg/ha.

C.D. for N marginal means=39Kg/ha.

Crop :- Wheat (*Rabi*). **Ref :- U.P. 60, 61 (M.A.E).**

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

bject : Type V :—To study the effect of different times of application of N on the yield of Wheat.

1. BASAL CONDITIONS:

(i) (a) N.A. (b) *Lobia* for fodder ; Moong (c) Nil (ii) Alluvial soil (iii) 7.11.60 ; 31.10.61 (iv) (a) 3 to 4 ploughings (b) Drilling (c) 92Kg/ha (d) 23cm. between rows (e) — (v) 560Q/ha of F.Y.M.+22·4Kg/ha. of P_2O_5 as Super ; 56Q/ha. of compost. (vi) N.P. 52 (vii) Irrigated (viii) weeding (ix) N.A. (x) 24.4.61; 15.4.62.

2. TREATMENTS:

All combinations of (1), (2) and (3)+one control plot in each block.

(1) 3 sources of N : S_1=A/S, S_2=Urea and S_3=C/A/N.

(2) 3 times of application of N : T_1=At sowing, T_2=At first irrigation. and T_3=1/2 at sowing+1/2 at first irrigation.

(3) 2 levels of N : N_1=22·4 and N_2=44·8Kg/ha.

3. DESIGN :

(i) $3^3 \times 2$ Confd. (ii)(a) 3 blocks/replication; 7 plots/block (b) N.A. (iii) 4 (iv)(a) 9.75m.×4.88m. (b) 9.14m.×4.19m (v) 35cm.×35cm. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Nil. (iii) Yield of grain and straw (iv) (a) 1956—61 (b) N.A. (c) Nil. (v) Pura (vi) and (vii) Nil.

5. RESULTS:

1960

(i) 1486Kg/ha (ii) 232·4Kg/ha (iii) Main effect of N alone is significant. (iv) Av. yield of grain in Kg/ha.

Control=1144Kg/ha.

Treatment :	T_1	T_2	T_3	S_1	S_2	S_3	N_1	N_2
Av. yield :	1526	1626	1477	1578	1466	1586	1439	1648

C.D. for N marginal means=190Kg/ha.

1961

(i) 1290Kg/ha. (ii) 149·4Kg/ha. (iii) Main effects of S and N are significant. (iv) Av. yield of grain in Kg/ha.

Control=563Kg/ha.

Treatment:	T_1	T_2	T_3	S_1	S_2	S_3	N_1	N_2
Av. yield :	1402	1430	1402	1498	1337	1398	1174	1648

C.D. for S marginal means=136Kg/ha.

C.D. for N marginal means=172Kg/ha.

Crop :- Wheat (*Rabi*). **Ref :- U.P. 62 to 65 (M.A.E.).**

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

Object : Type V (a) . To study the effect of different methods of placement of Nitrogen.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Sandy loam (iii) 5.11.63; 2.11.64; N.A. for others (iv) (a) to (e) N.A. (v) 33.6Kg/ha of P_2O_5 as Super (vi) N.P. 710 (vii) Irrigated (viii) to (x) —

2. TREATMENTS & 3. DESIGN:

Same as in Expt. No. 64,65 (M.A.E.) conducted at M.A.E. Centre, Masodha and presented on page No. 428

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of grain (iv) (a) 1962—66 (b) N.A. (c) Nil. (v) Masodha, Pantnagar and Pura. (vi) N.A. (vii) Nil.

5. RESULTS :

1962

(i) 1733Kg/ha (ii) 159·3Kg/ha (iii) Main effects of M and N are significant. (iv) Av. yield of grain in Kg/ha.

Control=910Kg/ha.

Treatment :	M_1	M_2	M_3	N_1	N_2	N_3
Av. yield :	1731	1879	1864	1630	1796	2048

C.D. for M or N marginal means=59Kg/ha

1963

(i) 1960Kg/ha (ii) 241·1Kg/ha (iii) Main effect of N alone is significant (iv) Av. yield of grain in Kg/ha.

Control=1219Kg/ha

Treatment :	M_1	M_2	M_3	N_1	N_2	N_3
Av. yield :	1908	2040	2178	1892	1907	2327

C.D. for N marginal means=351Kg/ha

1964

(i) 1821Kg/ha (ii) N.A. (iii) Main effect of N alone is significant (iv) Av. yield of grain in Kg/ha.

Control=711Kg/ha.

Treatment :	M_1	M_2	M_3	N_1	N_2	N_3
Av. yield :	1919	2017	1896	1662	1915	2255

C.D. for N marginal means=166Kg/ha

1965

(i) 1885Kg/ha (ii) N.A. (iii) Main effects of M and N are significant (iv) Av. yield of grain in Kg/ha.

Control=928Kg/ha

Treatment :	M_1	M_2	M_3	N_1	N_2	N_3
Av. yield :	1991	2074	1908	1756	2010	2206

C.D. for M or N marginal means=98Kg/ha.

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Crop :- Wheat (*Rabi*). **Ref :- U.P. 60 (M.A.E.).**

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

Object : Type VI : To study the effect of different methods of application of types and levels of phosphates on the yield of Wheat.

1. BASAL CONDITIONS:

(i) (a) N.A. (b) Lobia for fodder in Kharif (c) Nil (ii) Gengetic alluvium (iii) 6.11.60 (iv) (a) 4 ploughings (b) By seed drill (c) 92·2Kg/ha (d) 23cm. between rows (e) — (v) 33·6Kg/ha of N as A/S. broadcast before sowing (vi) N.P. 52; 5 months and 16 days duration (vii) Irrigated (viii) One weeding (ix) N.A. (x) 22.4. 61.

2. TREATMENTS:

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

(1) 2 types of phosphates : S_1=Super and S_2=Ammo. Phos.

(2) 2 levels of P_2O_5 : P_1=22·4 and P_2=44·8Kg/ha.

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

3. DESIGN:

(i) R.B.D. (ii) (a) 13 (b) N.A. (iii) 3 (iv) (a) 4.88m.×9.75m. (b) 4.19m.×9.14 m. (v) 35cm.×30cm. (vi) Yes.

4. GENERAL:

(i) Good (ii) Nil (iii) Yield of grain and straw (iv) (a) 1956—60 (b) No. (c) Nil (v) Bichpuri. (vi) and (vii) Nil.

5. RESULTS:

(i) 1296Kg/ha (ii) 196·4Kg/ha (iii) Main effect of P alone is significant. (iv) Av. yield of grain in Kg/ha

Control=1319Kg/ha.

	M_1	M_2	M_3	S_1	S_2	mean
P_1	1328	1162	1180	1208	1238	1223
P_2	1319	1328	1448	1356	1374	1365
mean	1323	1245	1314	1282	1306	1294
S_1	1273	1273	1301			
S_2	1375	1217	1326			

C.D. for P marginal means=135·1Kg/ha.

Crop :-Wheat (*Rabi*). **Ref :- U.P. 61 (M.A.E.).**

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

Object : Type IX (a) :—To compare Nitrophosphate by O.D.D.A. and P.E.C. process at different levels and different methods of application on Wheat.

1. BASAL CONDITIONS:

(i) (a) N.A. (b) *Dhaincha* in *Kharif* (c) Nil (ii) Alluvial (iii) 31.10.61 (iv) (a) 3 ploughings (b) By seed drill (c) 92.2Kg/ha (d) 23cm. between rows (e) — (v) Nil (vi) N.P. 52; 5 months 11 days duration (vii) Irrigated (viii) 2 weedings (ix) N.A. (x) 15, 16.4.62.

2. TREATMENTS:

All combinations of (1), (2) and (3)+4 extra treatments in each block.

(1) 3 types of phosphate : P_1=Super, P_2=O.D.D.A. and P_3=P.E.C.

(2) 3 levels of manuring : L_1=13·4Kg/ha. of N+11·8Kg/ha of P_2O_5, L_2=26·9Kg/ha. of N+22·5Kg/ha. of P_2O_5 and L_3=53·8Kg/ha. of N+47·1Kg/ha of P_2O_5.

(3) 3 methods of application : M_1=Broadcast. M_2= 6·3 cm. below seeds in bands and M_3=Band placement

Extra treatments : N_0=0, N_1=13·4, N_2=269 and N_3=53·8Kg/ha. of N as A/S.

3. DESIGN:

(i) 3^3 confd. fact.+4 extra treatments in each block (ii) (a) 3 blocks/replication, 13 plots/ block. (b) N.A, (iii) 2 (iv) (a) 9.75m.×4.88m. (b) 9.14m.×4.19m. (v) 30cm.×35cm. (vi) Yes.

4. GENERAL:

(i) Good (ii) Heavy attack of rats; cyno gas sprinkled twice (iii) Yield of grain and straw (iv) (a) 1961—only (b) and (c)—. (v) Bichpuri (vi) and (vii) N.A.

5. RESULTS:

(i) 1706Kg/ha (ii) 309·9Kg/ha (iii) Main effect of L and extra treatments are highly significant. (iv) Av. yield of grain in Kg/ha.

N_0=1098, N_1=1531, N_2=1835 and N_3=2084Kg/ha.

	L_1	L_2	L_3	M_1	M_2	M_3	mean
P_1	1310	1992	2158	1697	1891	1872	1820
P_2	1319	1752	1983	1632	1642	1781	1685
P_3	1430	1725	1964	1918	1706	1494	1706
mean	1353	1823	2035	1749	1746	1716	1737
M_1	1374	1743	2130				
M_2	1328	1789	2121				
M_3	1357	1937	1854				

C.D. for L marginal means=207·6Kg/ha,

C.D. for extra treatments=359·8Kg/ha

Crop :- Wheat (*Rabi*) **Ref :- U.P. 62 to 65 (M.A.E.).**

Site :- M.A.E. Centre Varanasi. **Type :- 'M'**

Object : Type ; X :—To study the effect of various levels of N, P and green manure on the yield of Wheat.

1. BASAL CONDITIONS:

(i) (a) to (c) As per treatment.s (ii) Alluvial (iii) to (vi) N.A. (vii) Irrigated (viii) and (ix) N.A. (x) N.A.; 15.4.64; 20.4.65; N.A.

2- TREATMENTS & 3 DESIGN :

Same as in Expt. No. 63,64 (M.A.E.) Conducted at M.A.E. Centre, Pantnagar and presented on page No. 432.

4. GENERAL:

(i) and (ii) N.A. (iii) Yield of grain (iv) (a) 1952—56 (b) N.A. (c) Nil (v) Bichpuri, Pura and Pantnagar vi) N.A. (vii) Nil.

5. RESULTS :

1962

(i) to (iii) N.A. (iv) Av. yield of grain in Kg/ha,

T=1516Kg/ha

Treatment :	N_0	N_1	N_2	P_0	P_1	P_2	G_0	G_1	G_2
Av. yield :	925	1354	1555	1353	1343	1425	925	1299	1092

1963

(i) to (iii) N.A. (iv) Av. yield of grain in Kg/ha.

T=1506Kg/ha

Treatment :	N_0	N_1	N_2	P_0	P_1	P_2	G_0	G_1	G_2
Av. yield :	946	1313	1595	1295	1356	1511	946	1217	1298

1964

(i) to (iii) N.A. (iv) Av. yield of grain in Kg/ha.

T=2085Kg/ha

Treatment :	N_0	N_1	N_2	P_0	P_1	P_2	G_0	G_1	G_2
Av. yield :	911	1313	1657	1533	1667	1596	911	1403	1474

1965

(i) to (iii) N.A. (iv) Av. yield of grain in Kg/ha.

T=2313Kg/ha

Treatment ;	N_0	N_1	N_2	P_0	P_1	P_2	G_0	G_1	G_2
Av. yield:	1621	2107	2263	2174	2078	2105	1621	2035	2014

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Crop :- Wheat (*Rabi*). **Ref :- U.P. 63 to 65 (M.A.E.)**

Site :- M.A E. Centre; Varanasi. **Type :- 'M'.**

Object : Type XI : To study the effect of micro-nutrients on the yield of Wheat.

1. BASAL CONDITIONS:

(i) (a) to (c) N.A. (ii) Loam (iii) to (v) N.A. (vi) N.A. (vii) Irrigated (viii) to (x) N.A.

2. TREATMENTS:

Same as in Expt No. 63 to 65 (M.A.E.) conducted at M.A.E. Centre, Bichpuri and presented on page No. 425.

3. DESIGN:

(i) R.B.D. (ii) (a) 15 (b) N.A. (iii) N.A. (iv) (a) and (b) N.A. (v) N.A. (vi) Yes.

4. GENERAL:

(i) and (ii) N.A. (iii) Yield of grain (iv) (a) 1963—66 (b) N.A. (c) Nil (v) Bichpuri, Pantnagar, Masodha and Pura (vi) N.A. (vii) Nil.

5. RESULTS:

1963

(i) 1389Kg/ha (ii) 213·2Kg/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	T_8	T_9	T_{10}
Av. yield:	984	1522	1292	1529	1360	1513	1345	1382	1427	1442	1433

T_{11}	T_{12}	T_{13}	T_{14}
1262	1448	1484	1399

1964

(i) 2244Kg/ha (ii) 350·2Kg/ha (iii) N.A. (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	T_8	T_9	T_{10}
Av. yield :	1440	2188	2305	2304	2303	2078	2243	2314	2369	2305	2296

T_{11}	T_{12}	T_{13}	T_{14}
2517	2306	2164	2534

1965

(i) 1219Kg/ha (ii) N.A. (iii) N.A. (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	T_8	T_9	T_{10}
Av. yield :	575	1290	1943	1425	1070	1155	1272	983	1264	1161	1231

T_{11}	T_{12}	T_{13}	T_{14}
1185	1408	1189	1136

Crop :- Wheat (*Rabi*). **Ref :- U.P. 63 to 65 (M.A.E.)**

Site :- M.A.E. Centre; Varanasi. **Type :- 'M'.**

Object : Type : XII : To study the effect of different fertilizer treatments and their methods of application on the yield of Wheat.

1. **BASAL CONDITIONS :**

(i) (a) to (c) N.A. (ii) Alluvial (iii) to (v) N.A. (vi) NP—52 (vii) Irrigated (viii) to (x) N.A.

2. **TREATMENTS & 3 DESIGN :**

Same as in Expt. No. 63 to 65 (M.A.E.) conducted at M.A.E. Centre, Bichpuri and presented on page No. 426.

4. **GENERAL:**

(i) and (ii) N.A. (iii) Yield of grain (iv) (a) 1963—66 (b) N.A. (c) Nil (v) Bichpuri and Masoda (vi) N.A. (vii) Nil.

5. **RESULTS:**

1963

(i) 783Kg/ha (ii) (a) and (b) N.A. (iii) N.A. (iv) Av. yield of grain in Kg/ha.

C_0=589 and C_1=697Kg/ha

	L_1M_1	L_2M_1	L_1M_2	L_2M_2	L_1M_3	L_2M_2	mean
F_1	837	990	759	942	867	1072	911
F_2	589	676	621	612	619	738	643
F_3	767	995	802	889	971	1088	919
F_4	753	1030	693	908	811	892	848
mean	737	922	719	838	817	948	830

C.D. for F marginal means=112 Kg/ha.
C.D. for M marginal means= 103Kg/ha.

1964

(i) 1021Kg/ha (ii) (a) and (b) N.A. (iii) N.A. (iv) Av. yield of grain in Kg/ha.

C_0=680 and C_1=694Kg/ha

	L_1M_1	L_2M_1	L_1M_2	L_2M_2	L_1M_3	L_2M_3	mean
F_1	1261	1615	718	1137	1095	1366	1199
F_2	683	850	761	814	822	681	769
F_3	1298	1662	1028	1155	1209	1416	1295
F_4	1151	1728	957	1087	1207	1474	1267
mean	1098	1464	866	1049	1083	1234	1132

C.D. for F marginal means=192Kg/ha.
C.D. for M marginal means=142Kg/ha.

1965

(i) 688Kg/ha (ii) (a) and (b) N.A. (iii) N.A. (iv) Av. yield of grain in Kg/ha.

C_0=441 and C_1=464Kg/ha.

	L_1M_1	L_2M_1	L_1M_2	L_2M_2	L_1M_3	L_2M_3	mean
F_1	823	1141	608	660	924	1063	870
F_2	528	436	401	419	372	398	426
F_3	949	1183	569	823	803	1188	919
F_4	849	1229	522	598	785	1122	851
mean	787	997	525	625	721	943	766

C.D. for F marginal means=126Kg/ha,
C.D. for M marginal means =118Kg/ha.

Crop :-Wheat (*Rabi*). **Ref :- U.P. 60 (S.F.T.) for Varanasi, Jaiupur, 60, 61 (S.F.T.) for Pilibhit, Lakhimpur Kheri Kanpur, Farrukhabad, Allahabad, Fatehpur, Gorakhpur. Deoria, Muzaffarnagar, Meerut Bulandshahr, Moradabad, Rampur, Aligarh, and 61 (S.F.T.) for others.**

Site :- District : Pilibhit, Lakhimpur Kheri, Kanpur, Farrukhabad, Allahabad, Fatehpur, Varanasi, Jaunpur, Gorakhpur, Deoria, Muzaffarnagar, Meerut, Bulandshahr, Moradabad, Rampur, Aligarh, Bareilly, Hardoi, Lucknow, Shahjahanpur, Sitapur, Unnao, Barabanki, Basti, Faizabad, Gonda, Pratapgarh, Rae-Bareli, Sultanpur, Bijnor, Saharanpur, Agra, Banda, Etah, Etawah, Jalaun, Jhansi, Mainpuri and Mathura. Type :- 'M'

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

1. BASAL CONDITIONS :

(i) to (vi) N.A. (vii) Irrigated (viii) to (x) N.A.

2. TREATMENTS :

8 Manurial treatments :
O=Control (no manure),
N=22·4Kg/ha. of N,
P=22·4Kg/ha. of P_2O_5,
K=22·4Kg/ha. of K_2O,
NP =22·4Kg/ha. of N+22·4Kg/ha. of P_2O_5,
NK=22·4Kg/ha. of N+22·4Kg/ha. of K_2O,
PK=22·4Kg/ha. of P_2O_5+22·4Kg/ha. of K_2O and
NPK=22·4Kg/ha. of N+22·4Kg/ha. of P_2O_5+22·4Kg/ha. of K_2O.

3. DESIGN :

(i) and (ii) The district has been divided into four agriculturally homogenous 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) 1/98·8 ha. (b) 1/197·7ha. (iv) Yes.

4. GENERAL:

(i) and (ii) N.A. (iii) Yield of grain (iv) (9) 1960—only for Varanasi, Jaunpur; 1960—61 for Pilibhit, Lakhimpur Kheri, Kanpur, Farrukhabad, Allahabad, Fatehpur, Gorakhpur, Deoria, Muzaffarnagar, Meerut, Bulandshahr, Moradabad, Rampur, Aligarh, 1961—only for others. (b) and (c) Nil. (v) to (vii) Nil.

5. RESULTS:

60 (S.F.T.)

District	No. of trials	Control yield in Kg/ha	Av. response in Kg/ha								
			N	P	K	S.E.	NP	NK	PK	NPK	S.E.
Pilibhit	23	1140	370	190	130	14·0	—20	0	20	50	8·0
Lakhimpur Kheri	24	1000	390	170	70	16·0	30	0	10	0	6·0
Kanpur	24	1620	320	260	110	18·0	0	20	40	40	15·0
Farrukhabad	24	1530	410	340	240	30·0	60	40	40	40	23·0
Allahabad	24	1510	310	160	100	18·0	20	—20	20	40	18·0
Fatehpur	24	1510	210	110	90	26·0	0	—40	10	30	16·0
Varanasi	24	1110	420	170	130	27·0	20	40	0	0	17·0
Jaunpur	24	1250	310	180	70	18·0	40	—10	20	20	9·0
Gorakhpur	24	1170	370	190	110	20·0	10	—10	40	30	10·0
Deoria	24	1460	470	260	110	15·0	50	—10	60	30	10·0
Muzaffarnagar	24	1350	340	240	120	11·0	—10	30	10	0	11·0
Meerut	24	1460	400	330	250	18·0	50	70	100	60	18·0
Bulandshahar	24	1510	420	240	70	21·0	—70	—20	0	40	15·0
Moradabad	23	1290	570	170	180	24·0	20	—20	40	90	19·0
Rampur	24	1300	280	170	70	17·0	—20	0	0	20	11·0
Aligarh	23	1600	280	250	30	27·0	50	0	—40	—40	26·0

61 (S.F.T.)

Pilibhit	3	1480	180	120	0	73·0	—120	0	—30	70	43·0
Lakhimpur Kheri	16	1230	420	220	70	20·0	40	10	0	20	8·0
Kanpur	23	1580	320	190	110	24·0	70	0	40	0	14·0
Farrukhabad	24	1410	440	260	220	26·0	30	—40	40	70	18·0
Allahabad	24	1440	460	140	50	22·0	20	0	30	10	11·0
Fatehpur	18	1340	380	180	80	22·0	10	30	20	50	16·0
Gorakhpur	24	1250	470	250	110	26·0	20	—10	0	30	12·0

Deoria	18	1280	410	200	100	24·0	—10	0	—10	70	18·0
Muzaffarnagar	18	1580	420	200	10	16·0	40	—10	0	0	12·0
Meerut	21	1440	440	320	190	22·0	80	80	90	60	18·0
Bulandshahr	23	1650	520	290	100	24·0	—10	30	0	20	16·0
Moradabad	21	1470	370	150	130	80·0	20	10	—30	30	18·0
Rampur	3	1180	400	120	30	49·0	30	—80	60	0	36·0
Aligarh	65	1440	340	290	100	12·0	—20	—20	0	40	8·0
Bareilly	9	1070	320	190	170	18·0	50	—20	—20	40	20·0
Hardoi	14	1300	210	130	150	16·0	10	50	30	30	14·0
Lucknow	12	1220	220	100	80	18·0	20	0	0	20	12·0
Shahjahanpur	22	960	220	160	80	12·0	20	—10	20	20	14·0
Sitapur	22	1300	390	220	120	22·0	10	10	10	50	12·0
Unnao	18	1310	210	100	60	18·0	0	—30	20	20	14·0
Barabanki	24	1450	600	320	160	14·0	0	40	80	20	18·0
Basti	23	1560	300	180	150	30·0	0	20	0	20	20·0
Faizabad	24	1450	240	140	200	34·0	50	—40	60	70	26·0
Gonda	17	1190	480	210	0	42·0	—20	—80	—30	80	32·0
Pratapgarh	6	1480	100	60	40	7·0	50	40	40	30	7·0
Rae-Bareli	23	1240	320	280	170	28·0	20	0	—30	80	20·0
Sultanpur	24	1350	440	190	80	36·0	10	30	—10	80	26·0
Bijnor	9	1760	360	280	140	22·0	60	80	—40	—40	20·0
Saharanpur	10	1790	580	400	140	69·0	0	—30	60	10	53·0
Agra	24	1470	460	220	180	30·0	—20	0	20	40	24·0
Banda	5	570	100	50	10	20·0	10	0	10	30	8·0
Etah	20	1220	210	120	80	34·0	—10	—60	0	50	30·0
Etawah	24	1530	410	220	120	36·0	10	—40	—10	30	32·0
Jalaun	9	1240	500	310	200	37·0	150	60	—10	30	32·0
Jhansi	9	1370	450	300	120	30·0	—30	—20	10	30	42·0
Mainpuri	23	1500	320	170	40	32·0	—10	40	10	20	28·0
Mathura	23	1490	280	250	180	16·0	0	30	50	40	14·0

Crop :- Wheat (*Rabi*). **Ref :- U.P. 61 (S.F.T.)**

Site :- District : Allahabad, Faizabad, Bijnore, Moradabad, Muzaffarnagar, Rampur, Saharanpur, Bareilly, Hardoi, Lakhimpur Kheri, Pilibhit, Shahjahanpur, Bauda, Etah and Jaluan. Type :- 'M'

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

1. **BASAL CONDITIONS:**

(i) to (vi) N.A. (vii) Un-irrigated (viii) to (x) N.A.

2. **TREATMENTS & 3. DESIGN :**

Same as in Type A conducted under irrigated conditions on Wheat crop and presented on page No. 451.

4. **GENERAL :**

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

5. **RESULTS:**

District	No. of trials	Control yield in Kg/ha.	Av. response in Kg/ha.								
			N	P	K	S.E.	NP	NK	PK	NPK	S.E.
Allahabad	2	580	160	80	50	43.0	90	20	—20	100	45.0
Faizabad	2	450	10	0	—40	52.0	—60	60	—30	—60	57.0
Bijnor	15	1610	320	20	130	15.0	10	—10	40	40	13.0
Moradabad	3	1270	530	140	50	52.0	20	20	—30	10	20.0
Muzaffarnagar	6	1500	440	140	80	51.0	—20	60	—10	—20	18.0
Rampur	9	1120	320	190	70	22.0	20	0	10	20	25.0
Saharanpur	4	1250	240	190	240	68.0	40	10	50	0	48.0
Bareilly	15	1100	280	160	120	18.0	60	30	0	30	15.0
Hardoi	10	1230	260	160	150	23.0	—30	30	40	20	18.0
Lakhimpur Kheri	2	850	190	120	110	43.0	—40	—10	0	20	14.0
Pilibhit	12	1070	400	220	90	38.0	60	—10	0	120	20.0
Shahjahanpur	2	1090	50	20	40	14.0	—20	60	—20	—10	42.0
Banda	13	760	260	140	110	26.0	—20	—30	20	20	15.0
Etah	4	870	170	70	100	46.0	40	—30	40	120	47.0
Jalaun	3	1160	380	110	70	62.0	30	0	0	0	26.0

Crop :- Wheat (*Rabi*). **Ref :- U.P. 60 (S.F.T.) for Allahabad, Fatehpur, Varanasi, Jaunpur, Deoria, Aligarh, Muzaffarnagar, Meerut, Bulandshahr, Moradabad, Rampur, Pilibhit, Lakhimpur Kheri, Kanpur, Farrukhabad ; 61 (S.F.T.) for Barabanki, Partapgarh and Sultanpur, 60, 61 (S.F.T.) for Gorakhpur.**

District :-Allahabad, Fatehpur, Varanasi, Jaunpur, Gorakhpur, Deoria, Aligarh, Muzaffarnagar, Meerut, Bulandshahr, Moradabad, Rampur, Pilibhit, Lakhimpur Kheri, Kanpur, Farrukhabad, Barabanki, Pratapgarh and Sultanpur. **Type :- 'M'.**

Object : Type B :--To investigate the relative efficiency of different N fertilizers at different doses,

1. **BASAL CONDITIONS:**

(i) to (vi) N.A. (vii) Irrigated (viii) to (x) N.A.

2. **TREATMENTS:**

7 manurial treatments :
O=Control (no manure),
N_1=22.4Kg/ha. of N as A/S,
N_2=44.8Kg/ha. of N as A/S,
N_1'=22.4Kg/ha. of N as Urea,
N_2'=44.8Kg/ha. of N as Urea,
N_1''=22.4Kg/ha. of N as A/S/N and
N_2''=44.8Kg/ha. of N as A/S/N.

3. **DESIGN :**

Same as in Type A conducted under irrigated conditions on Wheat crop nnd presented on page No. 451

4. **GENERAL :**

(i) and (ii) N.A. (iii) Yield of grain (iv) (a) 1960—61 for Gorakhpur 1961—only for Barabanki, Pratapgarh and Sultanpur and 1960—only for others. (b) and (c) Nil. (v) to (vii) N.A.

5. **RESULTS :**

60 (S.F.T.)

District	No. of trials	Control yield in Kg/ha	Av. response in Kg/ha N_1	N_2	N_1'	N_2'	N_1''	N_2''	S.E.
Allahabad	24	1480	280	450	310	500	320	540	31.0
Fatehpur	24	1360	240	420	210	420	300	470	26·0
Varanasi	24	1060	300	710	240	650	320	660	43.0
Jaunpur	24	1260	320	640	300	620	290	550	38.0
Gorakhpur	24	1220	300	650	310	700	350	760	43.0
Deoria	23	1440	320	630	360	640	420	770	30.0
Aligarh	23	1660	300	580	280	530	290	620	42.0
Muzaffarnagar	24	1350	360	700	300	690	350	700	29.0
Meerut	24	1480	300	700	310	650	340	660	20.0
Bulandshahar	24	1650	480	960	530	950	540	970	38,0
Moradabad	24	1270	510	720	540	850	560	810	49.0
Rampur	23	1330	300	500	310	520	300	570	36.0
Pilibhit	18	1140	490	760	440	680	490	740	38.0
Lakhimpur Kheri	24	900	280	530	260	480	330	550	30.0
Kanpur	24	1660	260	480	370	550	430	650	39.0
Farrukhabad	24	1540	390	890	400	840	500	910	41.0
61 (S.F.T.)									
Gorakhpur	6	1360	240	650	470	720	260	690	105.0
Barabanki	6	1270	510	900	460	750	410	830	36.0
Pratapgarh	6	1500	70	120	250	360	70	140	47.0
Sultanpur	6	930	130	620	470	640	600	750	49.0

Crop :- Wheat (*Rabi*). **Ref. :- U.P. 61 (S.F.T.).**

District : Basti, Deoria, Faizabad, Gonda, Gorakhpur, Sultanpur, Lakhimpur Kheri, Pilibhit, Shahjahnpur and Sitapur. **Type :- 'M'**

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

1. BASAL CONDITIONS:

(i) to (vi) N.A. (vii) Irrigated (viii) to (x) N.A.

2. TREATMENTS:

7 manurial treatments:

O=Control (no manure),

N_1=22.4Kg/ha. of N as Urea.

N_2=44.8Kg/ha. of N as Urea.

N_1'=22 4Kg/ha. of N as A/S/N,

N_2'=44.8Kg/ha. of N as A/S/N,

N_1''=22.4Kg/ha. of N as C/A/N and

N_2''=44.8Kg/ha. of N as C/A/N.

3. DESIGN:

Same as in Type A Conducted under irrigated conditions an Wheat crop and presented on page No. 452

4. GENERAL:

(i) and (ii) N.A. (iii) Yield of grain (iv) (a) 1961—only (b) and (c) Nil. (v) to (viii) N.A.

5. RESULTS;

District	No. of trials	Control yield in Kg/ha.	Av. response in Kg/ha						
			N_1	N_2	N_1'	N_2'	N_1''	N_2''	S.E.
Basti	23	1480	280	510	380	580	310	540	49.0
Deoria	17	1050	340	730	400	690	290	560	61.0
Faizabad	24	1610	300	570	280	590	170	430	57.0
Gonda	17	1160	410	700	560	870	670	1050	61.0
Gorakhpur	18	1300	370	800	340	730	340	750	36.0
Sultanpur	18	1170	370	800	750	1070	480	810	99.0
Lakhimpur Kheri	13	1180	400	660	450	650	410	700	42.0
Pilibhit	2	1150	370	590	330	490	430	540	130.0
Shahjahanpur	18	1180	380	600	280	580	370	750	55.0
Sitapur	22	1120	300	550	390	570	320	590	42.0

Crop :- Wheat (*Rabi*). **Ref :- U P. 61 (S.F.T.).**

District :- Lakhimpur, Kheri, Pilibhit and Shahjanpur. **Type :- 'M'.**

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

1. BASAL CONDITIONS:

(i) (a) to (c) N.A. (ii) *Tarai* (iii) to (vi) N.A. (vii) Un-irrigated (viii) to (x) N.A.

2. TREATMENTS:

7 manurial treatments :

O=Control (no manure),

N_1=22.4Kg/ha. of N as Urea,

N_2=44.8Kg/ha. of N as Urea,

N_1'=22.4Kg/ha. of N as A/S/N,

N_2'=44.8Kg/ha. of N as A/S/N,

N_1''=22.4Kg/ha. of N as C/A/N and

N_2''=44.8Kg/ha. of N as C/A/N.

3. DESIGN :

Same as in Type A conducted under irrigated conditions on Wheat crop and presented on page No. 451

4. GENERAL :

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

5. RESULTS :

District	No. of trials	Control yield in Kg/ha	Av. response in Kg/ha. N_1	N_2	N_1'	N_2'	N_1''	N_2''	S.E.
Lakhimpur Kheri	4	1000	350	500	330	490	370	530	91.0
Pilibhit	16	1020	200	390	230	420	290	510	49.0
Shahjahanpur	6	580	60	90	190	260	110	170	89.0

—

Crop :- Wheat (*Rabi*). **Ref :- U.P. 61 (S.F.T.).**

District :-Allahabad, Bara banki, Fatehpur, Rai-Bareli, Bareilly, Farrukhabad, Hardoi, Kanpur, Lucknow, and Unnao. **Type :- 'M'**

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

1. BASAL CONDITIONS:

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

2. TREATMENTS:

7 manurial treatments :
O=Control (no manure),
N_1=22.4Kg/ha. of N as A/S,
N_2=44.8Kg/ha. of N as A/S,
N_1'=22.4Kg/ha. of N as Urea,
N_2'=44.8Kg/ha. of N as Urea,
N_1''=22.4Kg/ha. of N as C/A/N and
N_2''=44.8Kg/ha. of N as C/A/N.

3. DESIGN:

Same as in Type A conducted under irrigated conditions on Wheat crop and presented on page No. 451

4. GENERAL:

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

5. RESULTS :

District	No. of trials	Control yield in Kg/ha.	Av. response in Kg/ha. N_1	N_2	N_1'	N_2'	N_1''	N_2''	S.E.
Allahabad	24	1550	300	570	240	560	740	600	45.0
Barabanki	17	1500	550	1000	490	870	510	1000	45.0
Fatehpur	18	1390	400	640	320	580	400	630	27.0
Rai-Bareli	24	1310	330	580	340	570	410	650	38.0
Bareilly	10	1160	380	580	460	620	480	720	51.0
Farrukhabad	24	1370	450	870	410	750	400	850	36.0
Hardoi	15	1380	110	260	190	350	360	500	51.0
Kanpur	24	1640	280	470	300	420	370	670	47.0
Lucknow	10	1290	170	390	210	390	290	450	20.0
Unnao	18	1340	200	350	170	330	150	370	45.0

Crop :- Wheat (*Rabi*). **Ref :- U.P. 61 (S.F.T.).**

District :-Bijnor, Muzaffarnagar, Rampur, Saharanpur, Bareily, Hardoi, Lucknow, Banda and Mathura. **Type :- 'M'**

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

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Alluvial and *Tarai* (iii) to (vi) N.A. (vii) Un-Irrigated (viii) to (x) N.A.

2. TREATMENTS :

7 Manurial treatments :
O=Control (no manure),
N_1=22.4Kg/ha. of N as A/S,
N_2=44.8Kg/ha. of N as A/S,
N_1'=22.4Kg/ha. of N as Urea,
N_2'=44.8Kg/ha. of N as Urea,
N_1''=22.4Kg/ha. of N as C/A/N and
N_2''=44.8Kg/ha. of N as C/A/N.

3. DESIGN :

Same as in Type A conducted under irrigated conditions on Wheat crop and presented on page No. 451

4. GENERAL :

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

5. RESULTS :

District	No. of trials	Control yield in Kg/ha.	Av. response in Kg/ha. N_1	N_2	N_1'	N_2'	N_1''	N_2''	S.E.
Bijnor	6	1190	100	220	140	270	130	250	22.0
Muzaffarnagar	6	1000	130	320	130	320	120	340	53.0
Rampur	3	950	240	320	300	370	210	320	61.0
Saharanpur	6	890	70	270	80	290	280	430	73.0
Bareilly	13	770	180	350	180	330	210	400	30.0
Hardoi	9	1090	180	260	270	390	340	410	48.0
Lucknow	2	990	120	440	280	410	350	480	—
Banda	11	680	360	600	340	910	290	480	36.0
Mathura	2	1550	170	300	170	430	150	420	69.0

Crop :- Wheat (*Rabi*). **Ref :- U.P. 62 to 65 (S.F.T.) for Muzaffarnagar, Agra, Bulandshahar, Bareily, Bijnor, Etawah, Farrukhabad, Mathura, Moradabad, Mainpuri, Meerut, Rampur, Shahjahanpur, Aligarh, Jhansi, Jalaun, Allahbad. Barabanki, Fatehpur, Faizabad, Hardoi, Kanpur, Lucknow, Pratapgarh, Rai-Bareli, Sitapur, Sultanpur, Unnao, Basti, Gonda, Gorakhpur, and Saharanpur; 63 to 65 (S.F.T.) for Bahraich, Badaun and Hamirpur ; 62 to 64 (S.F.T.) for Lakhimpur Kheri, Pilibhit, Band & Deoria.**

District : Muzafarnagar, Agra, Bulandshahar, Bareilly, Bijnor, Etawah, Etah, Farukhabad, Lakhimpur Kheri, Mathura, Moradabad, Mainpuri, Meerut, Pilibhit, Rampur, Shahjahapur, Aligarh, Banda, Jhansi, Jalaun, Allahabad, Barabanki, Fatehpur, Faizabad, Hardoi, Kanpur, Lucknow, Pratapgarh, Rae Bareli, Sitapur, Sultanpur, Unnao, Basti, Deoria, Gonda, Gorakhpur, Saharanpur, Bahraich, Badaun and Hamirpur. **Type :- 'M'.**

Object : Type A : To study the response curves of important cereal, cash and oil seed crops to N, applied singly and in combination with other nutrients.

1. BASAL CONDITIONS :

(i) to (vi) N.A. (vii) Irrigated (viii) to (x) N.A.

2. TREATMENTS :

8 Manurial treatments : O—Control (no manure),
N_1=35Kg/ha. of N.
N_2=70Kg/ha. of N,
P_1=35Kg/ha. of P_2O_5,
N_1P_1=35Kg/ha. of N+35Kg/ha. of P_2O_5,
N_2P_1=70Kg/ha. of N+35Kg/ha. of P_2O_5,
N_2P_2=70Kg/ha. of N+70Kg/ha. of P_2O_5 and
$N_2P_2K_1$=70Kg/ha. of N+70Kg/ha. of P_2O_5+35Kg/ha. of K_2O_5.

3. DESIGN:

(i) and (ii) A selected district is divided into four agriculturally homogeneous zones based on climate, soil, croping pattern, etc. In each zone 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) 1/100ha. (b) 1/200ha. (iv) Yes.

4. GENERAL:

(i) and (ii) N.A. (iii) Yield of grain (iv) (a) Expts conducted from 1962—65 as given under results. (b) and (c) N.A. (v) to (vii) N.A.

5. RESULTS :

Muzaffarnagar

62 (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.	422	719	115	637	885	1194	1235	55.7

Control yield=1541Kg/ha.; No. of trials=12

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.	570	993	244	829	1215	1645	1722	80.6

Control yield=1723Kg/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.	409	874	144	652	960	1333	1380	54.2

Control yield=1809Kg/ha.; No. of trials=16

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.	400	725	129	618	867	1003	1056	47.1

Control yield=1448Kg/ha.; No. of trials=16

Agra

62 (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.	769	963	303	906	1021	1134	1216	48·2

Control yield=1471Kg/ha.; No. of trials=24

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.	481	946	239	746	1024	1252	1319	88·0

Control yield=1508Kg/ha.; No. of trials=20

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.	604	794	364	801	923	1103	1225	70·7

Control yield=1596Kg/ha ; No. of trials=17

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.	496	689	160	544	743	968	1004	64·5

Control yield=1087Kg/ha.; No. of trials=23

Bulandshahar

62 (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.	284	439	144	347	467	530	762	81·2

Control yield=1653Kg/ha.; No. of trials=15

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.	305	621	138	501	652	838	858	56·5

Control yield=1503Kg/ha.; No. of trials=15

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.	497	784	154	596	861	10.00	10.32	45·2

Control yield=1656Kg/ha.; No. of trials=16

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.	437	703	192	571	749	962	1009	39·0

Control yield=1897Kg/ha.; No. of trials=16

Bareilly

62 (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.	266	413	106	379	580	681	796	70·2

Control yield=1379Kg/ha.; No. of trials=12

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.	235	441	88	302	509	651	744	34·1

Control yield=1339Kg/ha.; No. of trials=15

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.	333	644	139	463	703	854	925	57·5

Control yield=1871Kg/ha.; No. of trials=16

65 (T.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.	311	558	139	442	659	763	840	21·3

Control yield=1604Kg/ha.; No. of trials=15

Bijnor

62 (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.	238	417	111	411	534	643	770	43·4

Control yield=1632Kg/ha.; No. of trials=11

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.	329	469	176	509	649	748	936	45·3

Control yield=1495Kg/ha.; No. of trials=16

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.	440	656	191	663	865	1013	1229	46·4

Control yield=1820Kg/ha.; No. of trials=16

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.	315	450	124	424	620	798	944	35·3

Control yield=1847Kg/ha.; No. of trials=16

Etawah

62 (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.	311	702	305	607	892	998	1095	146·8

Control yield = 1961 Kg/ha.; No. of trials = 15

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.	372	645	4	581	804	1040	1041	85·2

Control yield = 1835 Kg/ha.; No. of trials = 16

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.	388	655	269	603	857	1032	1191	58.6

Control yield = 1897 Kg/ha.: No. of trials = 16.6

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.	558	897	341	843	1162	1393	1619	78·4

Control yield = 1964 Kg/ha.; No. of trials = 16

Etah

62 (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.	796	1021	582	1127	1403	1116	1266	186·4

Control yield = 1785 Kg/ha.; of trials = 16

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.	384	508	114	462	462	613	756	91.7

Control yield = 824 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.	369	535	93	432	585	727	786	76·1

Control yield = 1247 Kg/ha.; No. of trials = 16

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.	491	792	220	597	840	885	1027	70·5

Control yield = 1536 Kg/ha.; No. of trials = 15

Farrukhabad

62 (S.F.T.)

Treatmen:	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.	565	725	355	695	918	1138	1216	51·1

Control yield=1357Kg/ha.; No. of trials=24

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.	440	768	234	788	944	1101	1218	69·0

Control yield=1413Kg/ha.; No. of trials=20

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.	580	875	163	783	1047	1176	1273	55·7

Control yield=1504Kg/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.	398	622	149	506	754	992	1071	39·1

Control yield=1761Kg/ha.; No. of trials=20

Lakhimpur Kheri

62 (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.	276	570	20	433	784	980	1085	124·8

Control yield=1545Kg/ha.; No. of trials=9

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.	271	473	115	396	473	550	647	24·3

Control yield=1360Kg/ha.; 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 grain in Kg/ha.	353	658	92	356	538	830	876	75·7

Control yield=1396Kg/ha.; No. of trials=8

Mathura

62 (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.	269	383	281	516	637	849	1042	41·2

Control yield =1662Kg/ha.: No. of trials=24

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.	391	662	256	519	754	941	981	51·8

Control yield=1550Kg/ha.; No. of trials=19

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.	374	646	197	495	785	984	1026	42·6

Control yield=1795Kg/ha.; No. of trials=23

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.	559	904	286	715	1063	1277	1370	39·8

Control yield=1869Kg/ha.; No. of trials=24

Moradabad

62 (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.	283	485	167	396	554	704	758	43·2

Control yield=1470Kg/ha.; No. of trials=15

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.	332	528	95	433	566	738	786	61·6

Control yield=1507Kg/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.	303	602	125	457	750	941	1021	29·9

Control yield=1537Kg/ha.;No. of trials=16

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.	282	522	134	396	622	762	789	39·9

Control yield=1580Kg/ha.; No. of trials=11

Mainpuri

62 (S.F.T.)

Treotment	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.	199	346	129	332	369	516	526	52·2

Control yield=1580Kg/ha.; No. of trials=21

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.	260	393	121	304	409	952	680	37·7

Control yield=1443Kg/ha.; No. of trials=20

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.	261	541	201	339	621	819	802	59·4

Control yield=1714Kg/ha.; No. of trials=24

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.	298	568	192	501	627	773	920	43·0

Control yield=1705Kg/ha.; No. of trials=20

Meerut

62 (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.	378	572	93	504	747	896	963	8·32

Control yield=1673Kg/ha.; No. of trials=16

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.	345	632	133	432	780	882	797	6·57

Control yield=1595Kg/ha.; No. of trials=16

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.	401	545	180	647	813	1084	1210	97·5

Control yield=2137Kg/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.	591	948	170	809	1178	1295	1329	54·8

Control yield=1768Kg/ha.; No. of trials=16

Pilibhit

62 (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.	503	560	161	493	620	699	902	104·9

Control yield=1271Kg/ha.; No. of trials=10

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.	751	475	42	324	523	728	866	74·3

Control yield=1522Kg/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. reponse of grain in Kg/ha.	300	498	43	336	546	639	684	32·5

Control yield=1688Kg/ha.; No. of trials=11

Rampur

62 (S.F.T.)

Trcatment	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.	226	391	58	326	498	595	991	55·6

Control yield=1296Kg/ha.; No. of trials=4

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.	319	517	206	420	613	781	1025	51·8

Control yield=1241Kg/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.	326	619	138	448	698	836	892	52·3

Control yield=1284Kg/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 grain in Kg/ha.	361	512	86	432	609	752	797	34·6

Control yield=1429Kg/ha.; No. of trials=13

Shahjahanpur

62 (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.	322	452	121	380	500	552	621	35·3

Control yield=1384Kg/ha.; No. of trials=13

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.	270	522	111	361	614	718	793	41·8

Control yield=1140Kg/ha.; No. of trials=14

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.	360	614	199	500	791	961	10	20·4

Control yield=1567Kg/ha.; No. of trials=16

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.	352	462	75	299	577	619	647	31·4

Control yield=1403Kg/ha.; No. of trals=12

Aligarh

62 (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.	396	581	252	498	664	873	955	52·9

Control yield=1421Kg/ha.; No. of trials=26

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.	481	946	239	746	1024	1259	1319	88·0

Control yield=1508Kg/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.	503	650	182	607	968	1037	947	122·4

Control yield=1630Kg/ha.; No. of trials=14

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.	512	931	31	688	1098	1085	1185	192·6

Control yield=1926Kg/ha.; No. of trials=12

Banda

62 (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.	246	439	195	502	600	667	752	39·0

Control yield=707Kg/ha.; No. of trials=16

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.	99	142	27	146	205	251	333	43·0

Control yield=459Kg/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.	315	461	71	325	490	657	671	36·8

Control yield=685Kg/ha.; No. of trials=23

Jhansi

62 (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.	356	715	148	551	930	1103	1117	94·5

Control yield=1985Kg/ha.; No. of trials=10

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.	282	518	150	454	592	737	705	89·3

Control yield=772Kg/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.	446	619	237	582	757	835	851	47·8

Control yield=881Kg/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 grain in Kg/ha.	297	367	161	332	500	560	576	56·5

Control yield=722Kg/ha.; No. of trials=6

Jalaun

62 (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.	308	631	231	583	821	972	1112	34·0

Control yield=1122Kg/ha.; No. of trials=10

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.	165	303	52	252	377	507	598	30·2

Control yield=839Kg/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.	164	296	77	245	397	491	547	24·0

Control yield=921Kg/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.	169	305	89	101	579	155	356	83·5

Control yield=1068Kg/ha.; No. of trials=5

Allahabad

62 (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.	383	641	53	437	730	780	815	67·9

Control yield=1343Kg/ha.; No. of trials=22

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.	298	600	244	481	687	694	671	104·5

Control yield=1277Kg/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.	373	453	75	416	494	653	714	121·9

Control yield=1686Kg/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	$N_2P_2K_1$	S.E.
Av. response of grain in Kg/ha.	35	213	117	276	443	380	453	130·9

Control yield=1244Kg/ha.; No. of trials=17

Barabanki

62 (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.	421	768	176	539	777	1033	1223	51·2

Control yield=1416Kg/ha.; No. of trials=20

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.	302	600	121	436	762	887	1034	23·2

Control yield=1217Kg/ha.; No. of trials=18

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.	324	579	114	486	742	917	1044	23·8

Control yield=1395Kg/ha.; No. of trials=23

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.	365	615	143	518	752	865	1021	34·4

Control yield=1326Kg/ha.; No. of trials=21

Fatehpur

62 (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.	237	420	155	478	506	586	657	57·2

Control yield=1241Kg/ha.; No. of trials=17

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.	348	574	198	451	544	720	672	60·6

Control yield=1149Kg/ha.; No. of trials=14

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.	442	783	179	755	907	1092	1186	59·5

Control yield=1226Kg/ha.; No. of 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.	354	481	162	505	618	700	705	99·7

Control yield=1610Kg/ha.; No. of trials=18

Faizabad

62 (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.	319	690	222	490	778	1072	1054	66·7

Control yield=1210Kg/ha.; No. of trials=17

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.	392	679	159	459	790	973	1071	60·6

Control yield=980Kg/ha.; No. of trials=14

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.	456	704	55	552	747	1098	1175	91·1

Control yield=1337Kg/ha.; No. of trials=13

65 (S.F.T.)

Treatmeat	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.	518	773	205	711	1016	1190	1282	72·1

Control yield=1156Kg/ha.; No. of trials=21

Hardoi

62 (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.	332	616	98	516	672	772	841	24·5

Control yield=1011Kg/ha.; No. of trials=18

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.	256	396	49	339	510	602	655	34·5

Control yield=1183Kg/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.	315	510	69	383	624	710	773	34·2

Control yield=1438Kg/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	$N_2P_2K_1$	S.E.
Av. response of grain in Kg/ha.	242	446	77	374	631	684	934	69·4

Control yield=1612Kg/ha.; No. of trials=11

Kanpur

62 (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.	253	397	211	333	518	691	801	60·2

Control yield=1460Kg/ha.; No. of trials=24

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.	338	627	136	462	689	821	891	26·8

Control yield=1563Kg/ha.; No. of trials=19

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.	333	616	132	450	697	813	947	23·0

Control yield=1567Kg/ha.; No. of trials=19

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.	263	473	116	378	602	735	805	24·0

Control yield=1611Kg/ha.; No. of trials=20

Lucknow

62 (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. reponse of grain in Kg/ha.	274	519	117	355	477	650	858	86·6

Control yield=1140Kg/ha.; No. of trials=12

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.	266	452	120	365	573	668	739	36·4

Control yield=1197Kg/ha.; No. of trials=15

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.	395	664	186	488	783	992	1082	50·0

Control yield=1494Kg/ha.; No. of 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.	210	376	127	271	451	590	584	47·0

Control yield=1335Kg/ha.; No. of trials=18

Pratapgarh

62 (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.	391	690	273	569	763	878	841	98·1

Control yield=1710Kg/ha.; No. of trials=12

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.	371	633	216	476	708	821	1007	94·4

Control yield=1584Kg/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 grain in Kg/ha.	285	525	188	429	649	781	968	36·0

Control yield=1653Kg/ha.; No. of trials=10

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.	367	574	267	537	706	858	1000	39·0

Control yield=1505Kg/ha.; No. of trials=18

Rae Bareli

62 (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.	309	504	172	421	621	735	934	50·1

Control yield=1339Kg/ha.; No. of trials=24

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.	341	601	208	481	741	887	1064	37·4

Control yield=1245Kg/ha.; No. of trials=15

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.	279	559	182	464	738	891	1054	27·4

Control yield=1559Kg/ha.; No. of trials=20

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.	233	453	120	380	591	760	867	27·9

Control yield=1609Kg/ha.; No. of trials=24

Sitapur

62 (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.	384	534	187	486	676	814	910	41·0

Control yield=1369Kg/ha.; No. of trials=15

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.	426	589	296	548	799	1002	1097	64·5

Control yield=1371Kg/ha.; No. of trials=14

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.	565	819	301	651	1024	1151	1266	61·1

Control yield=1670Kg/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.	350	626	212	482	760	901	1057	33·8

Control yield =1444Kg/ha.; No. of trials=16

Sultanpur

62 (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.	346	705	260	466	685	938	918	47·6

Control yield =1444Kg/ha.; No. of trials=20

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.	424	684	203	600	797	986	1047	53·8

Control yield=1167Kg/ha.; No. of trials=14

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.	235	348	144	358	498	587	660	26·6

Control yield=1420Kg/ha.; No. of trials=20

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.	254	408	154	462	674	864	1023	53·6

Control yield=1653Kg/ha.; No. of trials=10

Unnao

62 (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.	340	501	157	439	600	716	790	30·3

Control yield=1206Kg/ha.; No. of trials=19

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.	257	380	90	326	435	545	610	32·5

Control yield=1660Kg/ha.; No. of trials=14

64 (S.F.T.)

Treatmcnt	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	419	94	340	484	580	639	21·2

Control yield=2043Kg/ha.; No. of 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.	208	373	99	310	502	542	650	27·5

Control yield=1696Kg/ha.; No. of trials=21

Basti

62 (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.	155	462	123	344	597	746	837	39·0

Control yield=1267Kg/ha.; No. of trials=18

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.	245	507	130	328	597	733	783	30·6

Control yield=1064Kg/ha.; No. of trials=16

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.	460	837	222	482	959	1108	1144	67·9

Control yield=1438Kg/ha.; No. of trials=14

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.	389	698	193	501	824	977	1048	45·4

Control yield=1210Kg/ha.; No. of trials=17

Deoria

62 (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.	352	719	221	616	800	998	931	74·2

Control yield=1438Kg/ha.; No. of trials=12

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.	364	616	130	481	672	858	891	41·1

Control yield=1409Kg/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.	331	620	140	446	859	977	1058	45·5

Control yield=1665Kg/ha.; No. of trials=8

Gonda

62 (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.	488	718	161	483	794	881	1028	64·0

Control yield=885Kg/ha.; No. of trials=18

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.	317	558	104	346	572	781	794	36·9

Control yield=977Kg/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.	441	627	214	554	719	879	914	47·0

Control yield=1167Kg/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	$N_2P_2K_1$	S.E.
Av. response of grain in Kg/ha.	394	692	102	446	742	863	928	46·6

Control yield=1028Kg/ha.; No. of trials=12

Gorakhpur

62 (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	344	691	270	512	791	866	851	65·3

Control yield=1543Kg/ha.; No. of trials=18

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.	285	508	86	345	565	705	715	41·3

Control yield=1269Kg/ha.; No. of trials=17

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.	227	468	46	279	511	597	637	23·1

Control yield=1323Kg/ha.; No. of trials=13

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.	229	409	100	317	494	574	643	20·7

Control yield=1181Kg/ha.; No. of trials=20

Saharanpur

62 (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.	323	510	105	468	663	834	945	53·3

Control yield=1327Kg/ha.; No. of trials=14

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.	362	578	182	434	668	843	858	46·5

Control yield=1188Kg/ha.; No. of trials=17

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.	355	638	182	504	798	862	950	37·7

Control yield=1499Kg/ha.; No. of trials=16

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.	322	562	162	470	734	831	910	29·9

Control yield=1473Kg/ha.; No. of trials=16

Bahraich

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.	220	338	139	370	724	786	846	32·4

Control yield=1770Kg/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.	279	421	244	478	644	827	958	40·3

Control yield=1413Kg/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	$N_2P_2K_1$	S.E.
Av. response of grain in Kg/ha.	187	271	99	265	414	585	672	29·0

Control yield=1285Kg/ha.; No. of trials=12

Badaun

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.	382	726	305	535	913	1249	1453	96·1

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.	296	548	179	482	717	906	992	48·4

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.	300	458	180	406	542	655	775	49·7

Control yield=1648Kg/ha.; No. of trials=14

Hamirpur

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.	430	502	312	606	809	1045	1177	113·1

Control yield=1005Kg/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.	429	698	51	716	988	1095	1176	48·4

Control yeild=988Kg/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	$N_2P_2K_1$	S.E.
Av. response of grain in Kg/ha.	423	530	102	600	723	872	1078	102·2

Control yeild=1358Kg/ha.; No. of trials=11

Crop:- Wheat (*Rabi*). **Ref:- UP. 62(S.F.T.) for Bareilly, Bijnor, Lakhimpur Kheri, Rampur, 62, 63, 65 (S.F.T.) for Banda and 64(S.F.T.) for Pilibhit.**

Site :- District : Bareilly, Bijnor, Lakhimpur, Kheri, Rampur, Banda and Pilibhit. Type :- 'M'.

Object :—Type AI : To study the response curves of important cereal, cash and oil-seed crops to N, applied singly and in combination with other nutrients.

1. BASAL CONDITIONS:

(i) to (vi) N.A. (vii) Un-irrigated (viii) to (x) N.A.

2. TREATMENTS AND 3. DESIGN :

Same as in Type AI Conducted under irrigated conditions on Wheat crop and presented on page No. 451

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of grain (iv) (a) Expts. conducted from 1962—65 as given under results (b) and (c) N.A. (v) to (vii) N.A.

5. RESULTS :

Bareilly

62 (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.	374	602	101	563	714	790	921	94·3

Control yield=1083Kg/ha.; No. of trials=3

Bijnor

62 (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.	285	437	187	403	542	697	780	35·6

Control yield=1689Kg/ha.; No. of trials=5

Lakhimpur Kheri

62 (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.	340	603	209	485	772	928	1011	59·0

Control yield=1049Kg/ha.; No. of trials=3

Rampur

62 (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	300	99	305	407	502	693	119·0

Control yield=989Kg/ha.; No. of trials=2

Banda

62 (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.	149	347	183	598	766	729	834	84 6

Control yield=826Kg/ha.; No. of trials=2

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 o grain in Kg/ha.	99	142	27	146	205	251	333	43 0

Control yield=459Kg/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 grain in Kg/ha.	224	335	61	404	455	583	652	62·3

Control yield=620Kg/ha.; No. of trials=14

Pilibhit

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.	205	309	55	274	362	404	453	33·9

Control yield=1314Kg/ha.; No. of trials=9

Crop :- Wheat (*Rabi*). **Ref :- U.P. 62 to 65 (S.F.T.) for Aligarh, Agra, Etawah, Etah, Farukhabad, Bulandshahas, Bareilly Bijnor, Muzaffarnagar, Mathura, Moradabad, Mainpuri, Meerut, Pilibhit, Rampur, Saharanpur, Shahjahanpur, Jhansi, Jalaun, Sultanpur, Allahabad, Bara Bonki, Faizabad, Hardoi, Kanpur Lucknow, Pratapgarh, Rae-Bareli, Sitapur, Unnao, Basti, Deoria, Gorakhpur; 63 to 65(S.F.T.) for Badaun, Bahraich, Gonda & Hamirpur; 62 to 64 (S.F.T.) for Lakhimpur Kkeri, Banda & Fatehpur and 62 (S.F.T.) for Gorhwal.**

Site:-District: Aligarh, Agra, Etawah, Etah, Farukhabad, Bulandshahr, Bareilly, Bijnor, Lakhimpur Kheri, Muzaffarnagar, Mathura, Moradabad, Mainpuri, Meerut, Pilibhit, Rampur, Saharanpur, Shahjahanpur, Banda, Jhansi Jalaun, Sultanpur, Allahabad, Barabanki, Fatehpur, Faizabad, Hardoi, Kanpur, Lucknow,Pratapgarh,Rae-Bareli, Sitapur, Unnao, Basti, Deoria, Gorhwal, Gorakhpur Bodaun, Bahraich, Gonda and Hamirpur. **Type :- 'M'**

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

1. BASAL CONDITIONS :

(i) to (vi) N.A. (vii) Irrigated (viii) to (x) N.A.

2. TREATMENTS :

8 Manurial treatments :

O=Control (no manure),

N_1=35Kg/ha. of N,

P_1=35Kg/ha. of P_2O_5,

P_2=70Kg/ha. of P_2O_5,

N_1P_1=35Kg/ha. of N+35Kg/ha. of P_2O_5,

N_1P_2=35Kg/ha. of N+70Kg/ha. of P_2O_5,

N_2P_2=70Kg/ha. of N+70Kg/ha. of P_2O_5 and

$N_2P_2K_2$=70Kg/ha. of N+70Kg/ha. of P_2O_5+70Kg/ha. of K_2O.

3. DESIGN :

(i) and (ii) A selected district is divided into four agriculturally homogeneous zones based on climate, soil, croping pattern, etc. In each zone 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) 1/100ha. (b) 1/200ha. (iv) Yes.

4. GENERAL:

(i) and (ii) N.A. (iii) Yield of grain (iv) (a) Expts. conducted from 1962—65 as given under results. (b) and (c) N.A. (v) to (vii) N.A.

5. RESULTS :

Aligarh

62 (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.	437	222	381	528	637	974	1032	45·4

Control yield=1405Kg/ha.; No. of trials=25

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.	526	259	276	828	850	1304	1405	104.1

Control yield=1467Kg/ha.; No. of trials=16

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.	526	207	258	718	857	1108	1092	126·1

Control yield=1570Kg/ha.; No. of trials=15

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.	747	321	519	714	890	1125	1382	185·4

Control yield=1886Kg/ha.; No. of trials=12

Agra

62 (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.	724	211	557	826	919	1058	1181	49·3

Control yield=1411Kg/ha.; No. of trials=23

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.	561	199	244	629	734	881	1141	60·3

Control yield=1574Kg/ha.; No. of trials=20

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.	653	254	369	793	871	1161	1223	57·7

Control yield=1511Kg/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.	506	101	251	636	717	936	1060	53·5

Control yield=1621Kg/ha.; No. of trials=23

Etawah

62 (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.	331	209	303	419	506	738	940	70·0

Control yield=1509Kg/ha.; No. of trials=16

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.	415	70	310	585	698	1082	1123	96·4

Control yield=1776Kg/ha.; No. of trials=15

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.	440	240	391	673	792	1012	1233	53·9

Control yield=1722Kg/ha.; No. of trials=16

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.	495	235	407	996	997	1260	1537	71·4

Control yield=1866Kg/ha.; No. of trials=16

Etah

62 (S.F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_2P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of grain in Kg/ha.	726	408	379	840	1049	1349	1372	130·2

Control yield=1791Kg/ha.; No. of trials=16

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.	407	135	217	394	443	489	710	85·0

Control yield=889Kg/ha.; No. of trials=12

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.	420	142	180	473	525	788	794	62·5

Control yield=1219Kg/ha.; No. of trials=16

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.	464	269	249	575	674	905	1023	75·2

Control yield=1119Kg/ha.; No. of trials=16

Farukhabad

62 (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.	536	322	412	729	845	1087	1230	51·7

Control yield=1448Kg/ha.; No. of trials=24

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.	713	215	366	830	955	1238	1382	58·8

Control yield=1398Kg/ha.; No. of trials=19

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.	715	271	403	824	914	1146	1189	49·6

Control yield=1498Kg/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.	371	134	216	553	654	848	1011	39·5

Control yield=1757Kg/ha.; No. of trials=20

Buland Shahr

62 (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.	425	180	401	544	620	860	943	72·4

Control yield=1243Kg/ha.; No. of trials=16

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.	465	194	293	521	615	835	947	52·3

Control yield=1587Kg/ha.; No. of trials=16

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.	496	214	310	641	683	1020	1075	41·8

Control yield=1617Kg/ha.; No. of trials=16

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.	498	255	327	581	657	882	980	43·2

Control yield=1820Kg/ha.; No of trials=16

Bareilly

62 (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.	386	112	172	446	577	722	755	45 9

Control yield=1537Kg/ha.; No. of trials=10

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.	264	66	126	368	437	694	776	34.7

Control yield=1291Kg/ha.; No. of trials=15

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.	389	97	198	508	595	813	834	61.5

Control yield=1928Kg/ha.; No. of trials=16

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.	304	113	204	419	501	754	867	20·6

Control yield=1517Kg/ha.; No. of trials=16

Bijnor

62 (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.	363	130	237	425	515	641	775	47·7

Control yield=1695Kg/ha.; No. of trials=9

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.	366	161	295	543	632	787	969	36·2

Control yield=1529Kg/a.; No. of trials=16

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.	465	313	323	698	864	1011	1251	64·0

Control yield=1831Kg/ha.; No. of trials=16

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.	264	143	228	411	512	674	898	33·7

Control yield=1782Kg/ha.; No. of trials=16

Lakhimpur Kheri

62 (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	214	359	700	842	1271	1417	98·5

Control yield=1271Kg/ha.; No. of trials=11

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.	341	175	255	430	528	660	715	52·7

Control yield=1079Kg/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 grian in Kg/ha.	334	139	197	465	592	842	925	74·9

Control yield=1481 Kg/ha.; No. of trials=8

Muzaffarnagar

62 (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	98	229	610	723	1026	1090	44·7

Control yield=1408Kg/ha.; No. of trials=12

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.	619	191	355	844	948	1529	1625	61·1

Control yield=1738Kg/ha.; No. of trials=12

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.	451	117	240	664	631	1359	1098	176·7

Control yield=1566Kg/ha.; No. of trials=15

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.	294	103	154	451	540	797	905	40·5

Control yield=1362Kg/ha.; No. of trials=15

Mathura

62 (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.	351	335	488	535	728	937	1103	42·8

Control yield=1580Kg/ha.; No. of trials=24

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.	437	233	366	590	695	905	967	48·4

Control yield=1596Kg/ha.; No. of trials=20

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.	471	196	293	579	749	963	1060	43·6

Control yield=1751Kg/ha.; No. of trials=23

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.	608	268	377	799	918	1312	1410	39·9

Control yield=1843Kg/ha.; No. of trials=21

Moradabad

62 (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.	336	105	152	360	421	607	783	36·9

Control yield=1228Kg/ha.; No. of trials=16

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.	328	95	181	409	491	760	837	56·7

Control yield=1610Kg/ha.; No. of trials=12

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.	377	152	242	514	590	811	949	42·7

Control yield=1487Kg/ha.; No. of trials=16

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.	304	125	207	390	439	710	807	39·4

Control yield=1615Kg/ha.; No. of trials=16

Mainpuri

62 (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.	249	128	838	278	294	419	534	267·8

Control yield=1611Kg/ha.; No. of trials=23

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.	301	177	311	445	416	619	668	62·9

Control yield=1340Kg/ha.; No. of trials=20

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.	238	69	308	506	461	680	800	58·4

Control yield=1652Kg/ha.; No. of trials=23

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.	270	136	195	463	508	773	866	36·4

Control yield=1588Kg/ha.; No. of trials=22

Meerut

62 (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.	339	116	159	493	492	767	724	78·1

Control yield=1568Kg/ha.; No. of trials=16

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.	357	113	229	482	562	817	881	46·8

Control yield=1693Kg/ha.; No. of trials=16

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.	356	135	242	504	657	844	918	98·1

Control yield=1773Kg/ha.; No. of of trials=16

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.	467	181	332	677	788	1134	1294	51·0

Control yield=1821Kg/ha.; No. of trials=16

Pilibhit

(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.	551	263	413	614	722	827	1182	87·7

Control yield=1142Kg/ha.; No. of trials=11

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.	298	97	162	345	407	781	953	94·0

Control yield=1202Kg/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 grain in Kg/ha.	276	40	55	312	321	372	412	48·5

Control yield=1610Kg/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 grain in Kg/ha.	291	26	48	315	339	534	600	28·0

Control yield=1604Kg/ha.

Rampur

62 (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.	203	43	205	352	515	650	808	51·2

Control yield=1342Kg/ha.; No. of trials=7

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.	302	179	225	439	583	768	918	51·6

Control yield=1354Kg/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 grain in Kg/ha.	348	126	210	489	585	926	1065	44·7

Control yield=1237Kg/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.	319	79	132	399	464	700	783	37·8

Control yield=1415Kg/ha.; No. of trials=13

Saharanpur

62 (S.F.T.)

Treatment	N_1	P_1	P_2	N_1P_1	N_2P_2	N_2P_2	$N_2P_2K_2$	S.E.
Av. response of grain in Kg/ha.	387	122	325	521	644	848	926	44·0

Control yield=1208Kg/ha.; No. of trials=14

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.	437	157	293	574	627	902	878	39·6

Control yield=1762Kg/ha.; No. of trials=15

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.	320	105	210	408	501	758	818	39·4

Control yield=1385Kg/ha.; No. of trials=16

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	345	129	213	450	551	772	830	31·9

Control yield=1425Kg/ha.; No. of trials=16

Shahjahanpur

62 (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.	340	98	170	385	524	651	788	80·1

Control yield=1287Kg/ha.; No. of trials=15

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.	278	117	161	346	398	574	620	20·1

Control yield=1111Kg/ha.; No. of trials=16

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.	367	175	290	511	593	933	1104	32·5

Control yield=1573Kg/ha.; No. of trials=16

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/na.	242	95	124	378	408	602	638	50·0

Control yield=1304Kg/ha.; No. of trials=12

Banda

62 (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.	226	171	333	548	651	772	862	36·9

Control yield=622Kg/ha.; No. of trials=15

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.	238	261	293	549	460	862	936	64·5

Control yield=1151Kg/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.	307	81	155	402	442	666	632	40·2

Control yield=665Kg/ha.; No. of trials=23

Jhansi

62 (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.	392	207	291	536	635	1258	1600	288·2

Control yield=1923Kg/ha.; No. of trials=10

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.	186	112	319	449	449	536	613	106·2

Control yield=889Kg/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 grain in Kg/ha.	451	208	376	601	666	761	861	54·0

Control yield=857Kg/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 grain in Kg/ha.	437	246	291	511	596	720	591	119·5

Control yield=875Kg/ha.; No. of trials=6

Jalaun

62 (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.	281	142	236	472	582	895	1046	37·3

Control yield=1066Kg/ha.; No. of trials=10

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.	196	81	160	315	435	620	734	22·1

Control yield=837Kg/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 grain in Kg/ha.	164	62	149	310	388	538	654	19·6

Control yield=868Kg/ha.; No. of trials=12

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.	348	216	50	532	214	296	497	68·8

Contral yield=1303Kg/ha.; No. of trials=5

Sultanpur

62 (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.	365	224	537	480	498	916	996	75·4

Control yield=1428Kg/ha.; No. of trials=20

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.	424	147	290	520	525	820	921	51·5

Control yield=1304Kg/ha.; No. of trials=16

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.	230	118	122	323	433	552	682	45·6

Control yield=1395Kg/ha.; No. of trials=20

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.	348	117	215	507	637	843	1000	50·9

Control yield=1691Kg/ha.; No. of trials=10

Allahabad

62 (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.	467	54	63	540	499	694	686	55·3

Control yield=1102Kg/ha.: No. of trials=22

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.	421	211	232	583	679	797	913	108.4

Control yield=1368Kg/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.	360	33	107	546	530	689	787	100·4

Control yield=1612Kg/ha.; No. of trials=12

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.	264	195	282	372	364	392	501	108·1

Control yield=1099Kg/ha.; No. of trials=18

Barabanki

62 (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.	380	145	273	514	638	993	1197	33·8

Control yield=1414Kg/ha.: No. of trials=20

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.	346	130	255	474	588	900	1113	30.0

Control yield=1221Kg/ha.: No. of trials=18

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.	346	128	235	450	569	740	981	37·9

Control yield=1455Kg/ha.: No. of trials=23

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.	218	182	248	440	510	799	938	19·5

Control yield=1336Kg/ha.; No. of trials=23

Fatehpur

62 (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.	205	153	230	343	379	472	551	41·9

Control yield=1312Kg/ha.: No. of trials=16

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.	425	159	233	513	521	760	875	36·6

Control yield=1092Kg/ha.: No. of trials=15

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.	555	213	285	806	870	1082	1156	57·8

Control yield=1306Kg/ha.: No. of trials=18

Faizabad

62 (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.	398	147	317	525	675	1025	1081	61·4

Control yield=1293Kg/ha.: No. of trials=13

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.	357	106	184	379	440	731	840	52·7

Control yield=942Kg/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.	495	225	319	517	659	1047	1292	103·8

Control yield=1205Kg/ha.: No. of trials=15

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.	529	123	193	675	761	1052	1160	59.0

Control yield=1177Kg/ha.; No. of trials=21

Hardoi

62 (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 Kg/ha.	413	127	227	568	629	724	841	28.9

Control yield=1014Kg/ha.; No. of trials=17

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.	227	72	118	303	366	504	571	28.4

Control yield=1746Kg/ha.; No. of trials=12

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.	336	38	92	422	436	743	846	36.8

Control yisld=1485Kg/ha.; No. of trials=12

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.	284	65	155	393	487	673	844	19.6

Control yield=1583Kg/ha.; No. of trials=11

Kanpur

62 (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.	256	140	228	351	459	642	732	31.0

Control yield=1476Kg/ha.; No. of trials=22

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.	386	154	246	535	629	816	1036	47.2

Control yield=1563Kg/ha.; No. of trials=19

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.	334	122	218	457	535	761	873	19.5

Control yield=1629Kg/ha.; No. of trials=20

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.	355	92	179	475	565	811	898	31.5

Control yield=1627Kg/ha.; No. of trails=20

Lucknow

62 (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.	510	133	202	253	489	677	775	99.7

Control yield=975Kg/ha.; No. of trials=12

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.	295	115	215	344	423	663	685	33 6

Control yield=1120Kg/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.	459	216	338	501	605	942	1000	53.6

Control yield=1510Kg/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.	226	78	187	326	382	592	601	40.9

Control yield=1275Kg/ha.; No. of trials=18

Pratapgarh

62 (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.	439	292	367	543	585	729	888	33.9

Control yield=1730Kg/ha.; No. of trials=12

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.	375	248	299	461	524	679	793	59.2

Control yield=1521Kg/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 grain in Kg/ha.	298	166	327	468	541	677	840	37.3

Control yield=1694Kg/ha.; No. of trials=10

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.	326	203	248	460	597	777	956	36·8

Control yield=1487Kg/ha.; No. of trials=18

Rae-Bareli

62 (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.	329	210	265	413	523	848	999	48.7

Control yield=1319Kg/ha.; No. of trials=23

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.	387	252	376	545	660	875	1064	29.6

Control yield=1288Kg/ha.; No. of trials=15

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.	305	115	250	395	603	894	1033	37.3

Control yield=1392Kg/ha.; No. of trials=20

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.	238	104	213	379	440	700	859	28.7

Control yield=1518Kg/ha.; No. of trials=24

Sitapur

62 (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.	423	178	327	567	625	858	980	44.3

Control yield=1244Kg/ha.; No. of trials=15

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.	511	212	401	674	786	976	1210	69.7

Control yield=1372Kg/ha.; No. of trials=16

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.	611	254	399	717	913	1170	1455	54.8

Control yield=1682Kg/ha.; No. of trials=15

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.	451	247	348	557	645	868	1002	27.3

Control yield=1515Kg/ha.: No. of trials=16

Unnao

62 (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. rerponse of grain in Kg/ha.	304	152	203	463	541	689	830	27.5

Control yield=1144Kg/ha.: No. of trials=18

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.	299	121	170	376	443	523	638	23.8

Control yield=1535Kg/ha.: No. of the 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.	299	102	184	370	433	518	657	42.1

Control yield=2027Kg/ha.: No. of trials=17

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.	242	107	150	298	419	584	627	33.3

Control yield=1613Kg/ha.; No. of trials=21

Basti

62 (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.	249	107	265	347	474	711	798	47.9

Control yield=1205Kg/ha.: No. of trials=18

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.	308	113	214	404	481	729	810	36·1

Control yield=1105Kg/ha.: No. of trials=16

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.	502	304	404	586	766	1106	1195	80.8

Control yield=1335Kg/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.	529	244	342	661	818	1088	1223	38.9

Control yield=1243Kg/ha.: No. of trials=17

Deoria

62 (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	182	278	630	641	1116	1053	74.9

Control yield=1452Kg/ha.: No. of trials=12

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 of Kg/ha.	291	123	164	416	482	662	896	38.7

Control yield=1365Kg/ha.; No. of trials=12

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.	333	122	119	481	530	879	991	83.2

Control yield=1308Kg/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 grain in Kg/ha.	259	110	144	317	469	685	809	32.2

Control yield=1293Kg/ha.: No. of trials=12

Garhwal

62 (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.	453	152	289	485	541	706	863	44.1

Control yield=887Kg/ha.: No. of trials=18

Gorakhpur

62 (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.	409	222	372	581	570	781	834	44.5

Control yield=1400Kg/ha.; No. of trials=18

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.	338	113	191	413	518	623	667	36.2

Control yield=1306Kg/ha.: No. of trials=17

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	93	131	348	416	646	743	29.5

Control yield=1217Kg/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.	225	78	161	310	367	529	625	17.2

Control yield=1155Kg/ha.: No. of trials=20

Badaun

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.	404	161	277	591	721	1165	1308	73 3

Control yield=1216Kg/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 grain in Kg/ha.	310	129	161	396	464	857	951	58.4

Control yield=1114Kg/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.	265	123	206	357	454	683	763	56.5

Control yield=1566Kg/ha.: No. of trials=10

Bahraich

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.	236	109	280	401	469	684	805	38.8

Control yield=1779Kg/ha.: No. of trials=12

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.	404	193	346	567	677	819	970	47·4

Control yield=1474Kg/ha ; No. of trials=12

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.	300	130	232	342	392	504	662	36·5

Control yield=1319Kg/ha.; No. of trials=12

Gonda

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.	378	113	226	414	497	860	942	44·0

Control yield=793Kg/ha.: No. of trials=12

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.	402	222	256	468	564	793	876	33·4

Control yield=1306Kg/ha.: No. of trials=12

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.	447	179	292	525	598	816	944	26·1

Control yield=1087Kg/ha.; No. of trials=12

Hamirpur

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.	319	121	241	524	609	902	1070	57·4

Control yield=1022Kg/ha.: No. of trials=16

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.	446	130	108	631	771	1039	1154	53·1

Control yield=935Kg/ha.; No. of trials=12

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.	492	194	347	545	701	915	1024	119 9

Control yield=1164Kg/ha.; No. of trials=11

Crop :- Wheat (*Rabi*). **Ref :-U.P. 62(S.F.T.) for Bareilly, Bijnor and Saharanpur; 62, 63, 65 (S.F.T.) for Banda**

Site :- District : Bareilly, Bijnor, Saharanpur and Banda **Type :- 'M'.**

Object : Type A2: To study the response curves of important cereal, cash and oil seed crops to P, applied singly and in combinations with other nutrients.

1. BASAL CONDITIONS :

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

2. TREATMENTS & 3.DESIGN :

Same as in type A_2 Conducted under irrigated condition on Wheat crop and presented on page No.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of grain. (iv) (a) 1962—66 (expts. conducted from 62—65 as given as under) Results. (b) N.A. (c) Nil (v) to (vii) Nil.

5. RESULTS :

Bareilly

62 (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.	202	40	94	244	370	633	698	57·2

Control yield=976Kg/ha.: No. of trials=5

Bijnor

62 (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.	338	188	278	472	534	689	752	24·5

Control yield=1695Kg/ha.: No. of trials=7

Saharanpur

62 (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.	160	213	313	624	673	779	903	158·8

Control yield=1276Kg/ha.: No. of trials=2

Banda

62 (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.	211	183	357	460	534	703	794	60·5

Control yield=563Kg/ha.: No. of trials=3

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.	218	82	186	191	216	382	302	37.9

Control yield=559Kg/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.	257	57	155	360	440	573	634	34·3

Control yield=639Kg/ha : No. of trials=12

Crop :- Wheat (*Rabi*) **Ref :- U.P. 62 to 65 (S.F.T,) for Aligarh, Agra, Buland Shar, Bareilly, Bijnor, Etawah, Etah, Farukhabad, Muzaffarnagar, Mathura, Mainpuri, Meerut, Rampur, Saharanpur, Shahjahanpur, Basti, Deoria, Gonda, Gorakhpur, Lucknow, pratapgarh, Raibareilly, Faizabad, Hardoi, Kanpur, Allahabad, Barabanki, Fatehpur, Jhansi, Jalaun, Sitapur, Sultanpur, and Unnao, 62 to 64 (S.F.T.) for Lakhimpur Kheri, Moradabad and Banda, 63 to 65 (S.F.T.) for Badaun, Bahraich, Hamirpur and 62, 63, 65 (S.F.T.) for Pilibhit.**

Site:-District : Aligarh, Agra, Bulandshahar, Bareilly, Bijnor, Etawah, Etah, Farukhabad, Muzaffarnagar, Mathura, Mainpuri, Meerut, Rampur, Saharanpur, Sha jahanpur, Basti, Deoria, Gonda, Gorakhpur, Lucknow, Pratapgarh, Rai-Bareli, Faizabad Hordoi, Kanpur, Allahabad, Barabanki, Fatehpur, Jhansi, Jalaun, Sitapur, Sultanpur, Unnao, Lakhimpur Kheri, Moradabad, Banda, Badaun, Bahraich, Hamirpur and Pilibhit. **Type :- 'M'.**

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

1. BASAL CONDITIONS:

(i) to (vi) N.A. (vii) Irrigated (viii) to (x) N.A.

2. TREATMENT and 3. DESIGN.

8 manurial treatments:
O—Control (no manure),
N_1=35Kg/ha of N,
K_1=35Kg/ha of K_2O,
K_2=70Kg/ha of K_2O,
N_1K_1=35Kg/ha of N+35Kg/ha of K_2O,
N_1K_2=35Kg/ha of N+70Kg/ha of K_2O,
N_2K_2=70Kg/ha of N+70Kg/ha of K_2O,
$N_1P_1K_1$=35Kg/ha of N+35Kg/ha of P_2O_5+35Kg/ha of K_2O

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 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) 1/100ha. (b) 1/200ha. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A (iii) Yield of grain (iv) (a) Expts. conducted from 196_—65 as given under results (b) N.A. (c) Nil. (v) to (vii) N.A.

Aligarh

62 (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.	273	101	166	339	418	702	677	57.2

Control yield=1391Kg/ha.: No. of trials=23

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 gain in Kg/ha.	474	21	102	479	600	903	665	62.5

Control yield=1452Kg/ha.: No. of trials=16

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.	502	171	269	533	744	988	797	113.6

Control yield=1634Kg/ha.: No. of trials=14

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.	497	320	180	515	513	937	864	106.2

Control yield=1675Kg/ha.: No. of trials=12

Agra

62 (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.	685	264	462	716	819	984	904	48.7

Control yield=1346Kg/ha.: No. of trials=23

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.	399	57	156	406	526	684	623	47·5

Control yield=1470Kg/ha.: No. of trials=19

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.	671	208	272	634	773	951	962	61·8

Control yield=1413Kg/ha.: No. of trials=18

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.	465	106	189	531	537	909	788	45·8

Control yield=1588Kg/ha.: No. of trials=24

Buland shahr

62 (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.	371	161	197	426	549	774	732	77·8

Control yield=1191Kg/ha ; No. of trials=16

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.	486	173	256	544	512	974	742	62·4

Control yield=1402Kg/ha.: No. of trials=16

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.	459	130	206	474	545	984	664	53·4

Control yield=1652Kg/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.	512	104	167	621	640	904	678	32·8

Control yield=1590Kg/ha.: No. of trials=16

Bareilly

62 (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.	244	127	190	402	466	596	585	52·1

Control yield=1562Kg/ha.: No. of trials=10

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.	294	99	164	349	409	680	577	39.9

Control yield=1288Kg/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.	301	95	147	386	478	784	621	30.2

Control yield=1792Kg/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.	321	66	136	392	456	682	660	21.6

Control yield=1462Kg/ha.; No. of trials=16

Bijnor

62 (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.	337	143	233	419	491	666	687	26.9

Control yield=1445Kg/ha.: No. of trials=9

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.	409	166	194	526	575	674	715	41.0

Control yield=1459Kg/ha.: No. of trials=16

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.	444	130	226	575	700	922	920	40.9

Control yield=1829Kg/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.	303	72	192	456	488	654	701	60.3

Control yield=1587Kg/ha.; No. of trials=16

Etawah

62 (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.	377	261	293	524	677	925	749	86.8

Control yield=1696Kg/ha.: No. of trials=15

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.	632	254	372	582	793	1108	1002	84.5

Control yield=1759Kg/ha.: No. of trials=16

64 (S.F.T.)

Treatmant	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.	367	87	343	515	618	871	746	79.9

Control yield=1800Kg/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.	625	254	409	515	796	1130	966	51.5

Control yield=1870Kg/ha : No. of trials=16

Etah

62 (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.	932	171	325	787	1010	1033	1294	130.1

Control yield=1850Kg/ha.: No. of trials=16

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.	327	90	146	331	326	606	575	67.2

Control yield=1107Kg/ha.: No. of trials=12

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.	299	126	134	367	280	549	571	82.3

Control yield=1298Kg/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.	419	134	136	371	417	830	661	62.0

Control yield=1244Kg/ha.: No. of trials=15

Farukhabad

62 (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.	530	203	337	623	689	1004	965	43.6

Control yield=1360Kg/ha.: No. of trials=23

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.	644	209	351	723	858	1161	1184	40.2

Control yield=1485Kg/ha.: No. of trials=20

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.	586	223	281	727	852	1001	1006	36.4

Control yield=1539Kg/ha.; No. of trials=15

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.	426	136	225	504	610	829	747	35.2

Control yield=1704Kg/ha.; No. of trials=20

Lakhimpur Kheri

62 (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.	449	72	167	533	600	821	655	39.4

Control yield=1049Kg/ha.: No. of trials=8

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.	385	164	265	426	491	698	510	57.4

Control yield=1044Kg/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 grain in Kg/ha.	210	70	221	335	395	665	564	83.0

Control yield=1354Kg/ha.: No. of trials=8

Muzaffarnagar

62 (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.	404	50	102	460	516	757	704	33.1

Control yield=1307Kg/ha.: No. of trials=12

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.	558	51	100	649	684	1189	1049	63.2

Control yield=1877Kg/ha.; No. of trials=12

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.	424	00	21	465	480	889	803	33.3

Control yield=1418Kg/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.	339	24	45	421	474	783	689	30.2

Control yield=1327Kg/ha.; No. of trials=17

Mathura

62 (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.	307	98	195	453	505	744	801	30.0

Control yield=1620Kg/ha.: No. of trials=23

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.	438	112	196	493	553	786	621	48.3

Control yield=1543Kg/ha.: No. of trials=20

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.	503	101	136	572	622	886	714	45.9

Control yield=1705Kg/ha.: No. of trials=23

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.	610	142	182	719	795	1142	924	34.9

Control yield=1714Kg/ha.: No. of trials=24

Muradabad

62 (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.	324	120	173	341	448	579	555	29.3

Control yield=1284Kg/ha.: No. of trials=16

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.	283	77	49	369	368	647	452	53.2

Control yield=1561Kg/ha.: No. of trials=12

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.	335	133	180	407	474	742	516	30.7

Control yield=1529Kg/ha.; No. of trials=12

Mainpuri

62 (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.	254	128	212	324	420	487	448	42.2

Control yield=1454Kg/ha.; No. of trials=22

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.	387	119	278	454	499	810	665	44.9

Control yield=1348Kg/ha.; No. of trials=20

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.	461	147	325	563	550	769	766	56.3

Control yield=1621Kg/ha.; No. of trials=22

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.	288	94	198	389	561	793	638	42.3

Control yield=1144Kg/ha.; No. of trials=21

Meerut

62 (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.	276	41	99	445	480	734	697	76.4

Control yield=1424Kg/ha.; No. of trials=16

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.	386	50	143	466	530	834	684	42.6

Control yeild=1633Kg/ha.: No. of trials=16

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.	398	60	163	512	640	1012	859	52.7

Control yield=1958Kg/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	619	81	179	718	776	1100	962	54.5

Control yield=1733Kg/ha.: No. of trials=16

Pilibhit

62 (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	144	291	492	535	743	839	47.1

Control yield=1133Kg/ha.: No. of trials=11

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.	412	136	219	485	533	799	616	73.1

Control yield=1140Kg/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.	307	25	39	312	371	493	383	33.7

Control yield=1511Kg/ha.: No. of trials=12

Rampur

62 (S.F.T.)

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2K_2	N_1P_1K	S.E.
Av. response of grain in Kg/ha.	281	120	224	428	576	771	716	49.6

Control yield=1248Kg/ha.: No. of trials=6

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.	471	149	271	573	644	818	849	66.7

Control yield=1266Kg/ha.: No. of trials=8

(4 (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/h.	400	69	133	543	617	436	1057	37.8

Control yield=1299Kg/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.	400	80	106	452	496	823	566	47.6

Control yield=1460Kg/ha.: No. of trials=14

Saharanpur

62 (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.	381	135	221	478	541	828	871	59.6

Control yield=1107Kg/ha.: No. of trials=16

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.	527	135	211	500	562	836	756	42.2

Control yield=1044Kg/ha.: No. of trials=16

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.	290	33	74	291	330	648	511	44.3

Control yield=1215Kg/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.	367	97	160	429	500	770	645	32.0

Control yield=1429Kg/ha.: No. of trials=16

Shahjahanpur

62 (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.	399	112	147	381	457	696	584	52.5

Control yield=1298Kg/ha.: No. of trials=16

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.	289	95	119	331	349	585	516	29.4

Control yield=972Kg/ha.: No. of trials=16

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.	346	72	107	425	464	833	578	24.6

Control yield=1424Kg/ha.: No. of trials=14

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. responee of grain in Kg/ha.	288	52	78	326	345	545	358	24.5

Control yield=1280Kg/ha.; No. of trials=12

Basti

62 (S.F.T.)

Treatmeat	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.	234	65	188	288	324	625	570	40 5

Control yield=991Kg/ha.; No. of trials=18

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.	333	67	119	309	337	574	417	24 6

Control yield=872Kg/ha.: No. of trials=16

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.	470	175	257	559	611	990	793	54.2

Control yield=1313Kg/ha.; No. of trials=14

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.	487	178	237	530	660	905	664	31 9

Control yield=1199Kg/ha.; No. of trials=18

Deoria

62 (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.	507	43	130	682	668	840	794	75 4

Control yield=1157Kg/ha.; No. of trials=11

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.	282	3	9	393	387	631	496	53.4

Control yield=1372Kg/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.	280	68	81	332	371	762	486	41.7

Control yield=1431Kg/ha.; No. of trials=8

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.	336	73	78	411	438	828	535	29.5

Control yield=1232Kg/ha.: No. of trials=12

Gonda

62 (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.	440	75	136	469	464	749	646	53.1

Control yield=709Kg/ha.: No. of trials=18

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.	297	76	140	384	475	685	519	49.6

Control yield=778Kg/ha.: No. of trials=12

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.	511	213	273	512	545	775	649	41.0

Control yield=1191Kg/ha.: No. of trials=12

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.	440	176	265	550	592	871	631	31.2

Control yield=1048Kg/ha.: No. of trials=12

Gorakhpur

62 (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.	510	252	357	598	661	865	726	70.5

Control yield=1172Kg/ha.: No. of trials=17

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.	313	37	77	328	345	534	505	40·7

Control yield=1184Kg/ha.; No. of trials=17

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.	220	35	68	180	298	531	410	54·0

Control yield=1177Kg/ha.; No. of trials=18

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.	238	34	89	253	288	478	419	55·9

Badaun

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.	373	147	338	481	538	980	848	48·7

Control yield=1173Kg/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 grain in Kg/ha.	302	93	192	330	469	801	646	59·6

Control yield=1171Kg/ha.; No. of trials=8

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.	232	97	159	298	372	582	464	39·8

Control yield=1668Kg/ha.; No. of trials=14

Bahraich

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.	370	127	216	438	506	857	773	35·8

Control yield=1568Kg/ha.; No. of trials=12

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.	446	176	260	537	625	421	802	42·6

Control yield=1355Kg/ha.; No. of trials=12

65 (S.F.T.)

Treatment	N_1	K_1	K_2	N_1K_1	N_1K_2	N_2P_2	$N_1P_1K_1$	S.E.
Av. response of grain in Kg/ha.	343	71	148	352	415	607	477	21·2

Control yield=1152Kg/ha.; No. of trials=12

Hamirpur

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.	358	109	214	547	645	820	927	50·1

Control yield=897Kg/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 grain in Kg/ha.	420	82	136	556	642	809	900	43·7

Control yield=859Kg/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 grain in Kg/ha.	479	85	131	486	662	845	1115	10·8

Control yield=1174Kg/ha.; No. of trials=11

Lucknow

62 (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.	305	75	127	397	391	650	587	55·6

Control yield=1088Kg/ha.; No. of trials=12

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.	244	44	83	307	331	558	464	17·4

Control yield=1065Kg/ha.; of trials=15

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.	244	103	155	448	453	811	633	40·6

Control yield=1526Kg/ha.; No. of trials=17

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.	254	42	60	233	297	616	436	34·8

Control yield=1186Kg/ha.; No. of trials=18

Pratapgarh

62 (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.	402	138	221	495	536	714	782	47·1

Control yield=1619Kg/ha.; No. of trials=12

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.	358	140	201	400	516	648	655	56·0

Control yield=1368Kg/ha.; No. of trials=10

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.	284	80	133	363	430	593	535	29·1

Control yield=1714Kg/ha.; No. of trials=10

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.	263	89	151	357	457	716	682	38·5

Control yield=1526Kg/ha.; No. of trials=17

Rae-Bareli

62 (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.	289	109	189	344	391	685	686	38·8

Control yield=1256Kg/ha.; No. of trials=24

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.	344	146	306	457	551	858	723	34·0

Control yield=1111Kg/ha.; No. of trials=15

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.	278	105	227	421	528	930	817	54·5

Control yield=1380Kg/ha.; No. of trials=20

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.	219	85	173	356	432	650	557	32·4

Control yield=1488Kg/ha.; No. of trials=23

Faizabad

62 (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.	442	158	306	508	582	854	732	60·3

Control yield=1081Kg/ha.; No. of trials=16

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.	416	120	190	436	439	760	664	53.1

Control yield=895Kg/ha.: No. of trials=14

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.	394	87	100	355	388	756	803	170·4

Control yield=1201Kg/ha.; No. of trials=15

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.	623	125	192	655	679	1026	929	56·5

Control yield=1199Kg/ha.; No. of trials=21

Hardoi

62 (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.	398	257	218	393	579	772	690	21.2

Control yield=977Kg/ha.; No. of trials=16

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.	212	62	95	268	296	521	400	25·8

Control yield=1144Kg/ha.; No. of trials=14

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.	301	98	87	372	396	684	510	28·3

Control yield=1399Kg/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 grain in Kg/ha.	283	38	102	381	475	759	582	31·9

Control yield=1506Kg/ha.; No. of trials=11

Kanpur

62 (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	70	207	340	3o4	602	513	40·2

Control yield=1436Kg/ha.; No. of trials=23

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.	414	120	224	486	556	833	727	30·5

Control yield=1428Kg/ha.; No. of trials=20

64 (T.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.	370	112	194	478	524	814	665	28·1

Control yield=1530Kg/ha.; No. of trials=20

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.	331	101	158	464	521	775	657	25·0

Control yield=1629Kg/ha.; No. of trials=20

Allahabad

62 (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.	431	—10	—50	375	387	711	441	54·0

Control yield=1337Kg/ha.; No. of trials=21

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.	474	63	104	529	515	753	615	146·6

Control yield=1347Kg/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.	60	27	7	351	229	442	319	136·4

Control yield=1648Kg/ha.; No. of trials=12

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.	3	19	9	89	155	262	309	132.3

Control yield=1227Kg/ha.; No. of trials=18

Barabanki

62 (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.	439	195	355	623	685	1005	914	27.4

Control yield=1359Kg/ha;. No. of trials=20

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.	388	153	249	479	569	879	712	26.1

Control yield=1163Kg/ha.; No. of trials=18

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.	340	147	227	387	554	761	546	42.2

Control yield=1379Kg/ha.: No. of trials=23

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.	360	163	227	416	490	771	651	22.1

Control yield=1258Kg/ha.; No. of trials=21

Fatehpur

62 (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.	304	52	23	339	270	356	423	74.9

Control yield=1205Kg/ha.; No. of trials=16

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.	445	188	188	445	395	590	578	44.1

Control yield=977Kg/ha.; No. of trials=15

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.	518	155	185	616	637	866	846	65·6

Control yield=1219Kg/ha.; No. of trials=18

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.	447	174	282	410	469	772	711	102.4

Control yield=1373Kg/ha.; No. of trials=17

Banda

62 (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.	298	100	182	416	511	795	842	59·4

Control yield=585Kg/ha.; No. of trials=15

63 (S.F.T.)

Treatment	N_1	K_1	K_1	N_1K_1	N_1K_2	N_2K_2	$N_1P_1K_1$	S.E.
Av. response of grain in Kg/ha.	160	190	225	420	429	728	646	71.9

Control yield=832Kg/ha.; No. of trials=10

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.	384	122	201	402	472	698	539	35·4

Control yield=588Kg/ha.; No. of trials=23

Jhansi

62 (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.	345	112	159	451	530	872	575	46.5

Control yield=2079Kg/ha.; No. of trials=10

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.	265	167	209	306	384	508	583	55.0

Control yield=561Kg/ha.; No. of trials=6

64 (S.F.T.)

Traatment	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.	378	149	215	447	519	678	640	45.5

Control yield=762Kg/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 grain in Kg/ha.	354	187	235	428	465	591	605	46.0

Control yield=596Kg/ha.; No. of trials=6

Jalaun

62 (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.	249	71	196	492	575	833	670	25.0

Control yield=984Kg/ha.; No. of trials=10

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.	149	24	149	340	394	493	471	35.8

Control yield=845Kg/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.	171	55	128	267	372	519	454	16.7

Control yield=851Kg/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.	53	55	284	79	160	92	459	89.4

Control yield=1310Kg/ha.; No. of trials=5

Sitapur

62 (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.	439	124	249	561	591	811	739	45.5

Control yield=1178Kg/ha.; No. of trials=14

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.	425	175	313	584	671	940	701	48.8

Control yield=1260Kg/ha.; No. of trials=15

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.	558	228	323	714	807	1260	881	40.7

Control yield=1630Kg/ha.; No. of trials=15

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.	434	135	232	508	594	886	660	35.5

Control yield=1484Kg/ha.; No. of trials=16

Sultanpur

62 (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.	360	95	297	429	485	882	663	62.2

Control yield=1380Kg/ha.; No. of trials=19

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.	392	110	160	376	518	714	755	66.1

Control yield=1153Kg/ha.; No. of trials=14

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.	251	128	207	333	391	548	594	25.4

Control yield=1555Kg/ha.; No. of trials=20

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.	290	97	166	466	590	783	849	48.8

Control yield=1613Kg/ha.; No. of trials=10

Unnao

62 (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.	349	123	205	540	508	709	679	69.5

Control yield=1110Kg/ha.: No. of trials=17

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.	303	118	173	398	443	583	497	29.8

Control yield=1447Kg/ha.; No. of trials=14

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.	252	93	150	328	392	526	428	19.0

Control yield=1923Kg/ha.; No. of trials=18

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.	269	116	189	384	474	607	537	15.6

Control yield=1522Kg/ha.; No. of trials=18

Crop :- Wheat (*Rabi*). **Ref :- U.P. 62, 63, 65 (S.F.T.) for Banda. 62 (S.F.T.) for Hardoi and 64 (S.F.T.) for Pilibhit.**

Site :- District : Banda, Hardoi and Pilibhit. **Type :- 'M'.**

Object : Type A_1 : To study the response curves of important Cereals, Cash and Oil seed crops to K applied singly and in combination with other nutrients.

1. BASAL CONDITIONS:

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

2. TREATMENTS and 3. DESIGN :

Same as in Type A_2 Conducted under irrigated conditions on Wheat crop and presented on page No. 505

4. GENERAL:

(i) and (ii) N.A. (iii) Yield of grain (iv) (a) 1962 to 66 (Expts. Conducted from 1962—65 as given under 5. Results. Exp's. not conducted in 1956 in Hardoi and Pilibhit. (b) No (c) Nil (v) to (vii) N.A.

5. RESULTS:

Banda

62 (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.	60	57	137	452	546	741	897	83·4

Control yield=512Kg/ha.; No. of trials=3

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.	179	—3	101	88	186	333	250	73·6

Control yield=482Kg/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.	257	79	173	324	453	601	539	29·0

Control yield=539Kg/ha.; No. of trials=14

Hardoi

62 (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.	358	186	296	408	440	518	522	78·7

Control yield=1058Kg/ha.; No. of trials=2

Pilibhit

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.	169	8	14	183	186	263	212	30·0

Control yield=1332Kg/ha.; No. of trials=7

Crop :- Wheat (*Rabi*). **Ref :- U.P. 63 (675)**

Site :- Cotton Res. Stn., Bulandshahar. **Type :- 'MV'.**

Object : —To find out suitable combinations of Wheat Varieties and doses of N for optimum production of Wheat after Cotton.

1. BASAL CONDITION :

(i) (a) Cotton –Wheat. (b) Cotton (c) N.A. (ii) Sandy loam. (iii) 24—12—63 (iv) (a) 3 to 4 ploughings and pata (b) Behind the plough. (c) 86Kg/ha. (d) N.A. (e) — (v) 22.5Kg/ha. of P_2O_5 at sowing. (vi) As per treatments. (vii) Irrigated. (viii) Weeding and hoeing. (ix) N.A. (x) 25—4—64.

2. TREATMENTS :

All combinations of (1) and (2).

(1) 2 varieties: V_1=C 273 and V_2=N.P. 830.

(2) 3 levels of N: N_0=0, N_1=45 and N_2=90Kg/ha.

Note :—½ dose of N was given at sowing and ½ dose at flowering.

3. DESIGN :

(i) Fact. in R.B.D. (ii) (a) 6 (b) N.A. (iii) 4 (iv) (a) 8.23m.×3.66m. (b) 7.01m.×2.74m. (v) 61cm.×46cm. (vi) Yes.

4. GENERAL:

(i) Normal (ii) Very light attack of black rust (iii) Yield of grain (iv) (a) 1963– only (b) and (c) — (v) to (vii) Nil.

5. RESULTS:

(i) 1008Kg/ha. (ii) 196.8Kg/ha. (iii) Main effects of N and V are highly significant. Intraction N×V is significant. (iv) Av. yield of grain in Kg/ha.

	N_0	N_1	N_2	mean
V_1	682	919	806	802
V_2	827	1314	1501	1214
mean	754	1117	1153	1008

C.D. for V marginal means=171.1Kg/ha.
C.D. for N marginal means=209.7Kg/ha.
C.D. for body of table=296.5Kg/ha.

Crop :- Wheat (*Rabi*). **Ref :- U.P. 61(310), 62(334).**

Site :- Govt. Agri. Flood Res. Stn; Gograghat **Type :-'MV'.**

Object :—To find out the requirements of N for different varieties of Wheat.

1. BASAL CONDITIONS :

(i) (a) N.A.; Paddy –Wheat (b) N.A ; Paddy (ii) Sandy loam (iii) 16.12.61; 3.12.62 (iv)(a) 4 ploughings and pata (b) Line sowing behind the plough (c) 92Kg/ha (d) Row 23cm apart (e)—(v) Nil (vi) As per treatments (vii) Unirrigated (viii) N.A.: one hoeing by hoe (ix) 7.5cm; 4.4cm. (x) 27, 28.4.62; N.A.

2. TREATMENTS:

Main plot treatments :

3 levels of N as A/S: N_1=56.0, N_2=84.0 and N_3=112.1Kg/ha.

Sub-plot treatments :

12 vericties: V_1=K–65, V_2=K—67, V_3=K—68, V_4=K—64, V_5=N.P. 720, V_6=N.P. 792, V_7=N.P. 824, V_8=N.P. 830, V_9=N.P. 798, V_{10}=C. 13, V_{11}=C. 281 and V_{12}=C. 228.

A/S was applied as basal dressing before sowing.

3. DESIGN :

(i) Split-plot (ii) (a) 3 main plots/replication; 12 sub-plots/main plot (b) 14.02m×31.70m; 14.02m×38.10m. (iii) 4 (iv) (a) 4.57m×1.83m; 5.49m×1.83m. (b) 3.96m×1.37m; 4.88m×1.37m. (v) 30m×23m. (vi) Yes.

4. GENERAL:

(i) Good (ii) Rust; Brown and black rust and damaged by rats and birds (iii) Height of plants, germination % and yield of grain and straw (iv) (a) 1961—63 (Expt. failed in 63) (b) No. (c) Results of combined analysis have been presented under 5. Results. (v) and (vi) Nil (vii) Main-plot and sub-plot error variances are homogeneous. Main-plot treatments×years and sub-plot treatments×years interactions are absent.

5. RESULTS :

Pooled Results:

(i) 764Kg/ha. (ii) 373.0Kg/ha.(based on 14d.f. made up of pooled error and 'Treatments×years' intreaction) (b) 217.8Kg/ha. (based on 231 d.f. made up of pooled error and 'Treatments×years' interaction.) (iii) Main effect of V alone is highly significant (iv) Av. yield of grain in Kg/ha.

	V_1	V_2	V_3	V_4	V_5	V_6	V_7	V_8	V_9	V_{10}	V_{11}	V_{12}	mean
N_1	927	519	704	835	485	822	630	1150	919	646	602	657	741
N_2	1014	506	777	799	657	870	709	1498	862	720	634	740	816
N_3	1165	429	678	749	597	821	637	1079	831	659	620	566	736
mean	1035	485	720	794	580	838	659	1242	871	675	619	654	764

C.D. for V marginal means=123.2Kg/ha.

Individual results

Treatment	N_1	N_2	N_3	Sig.	V_1	V_2	V_3	V_4	V_5	V_6	V_7
Year											
1961	905	991	952	N.S.	1247	655	836	987	739	1123	780
1962	578	641	521	N.S.	824	315	604	606	422	552	539
Pooled	741	816	736	N.S.	1035	485	720	794	580	838	659

	V_8	V_9	V_{10}	V_{11}	V_{12}	Sig.	G.M.	S.E./main-plot	S.E./Sub-plot
1961	1378	1117	862	824	843	**	949	398.8	209.6
1962	1107	625	488	414	466	**	580	377.9	221.3
Pooled	1242	871	675	619	654	**	764	373.0	217.8

Crop :- Wheat (*Rabi*). **Ref :- U.P. 64 (399).**

Site:-Govt. Agri. Flood Res. Stn., Gograghat. **Type :- 'MV'.**

Object :—To find out suitable Wheat varieties for late sowing under different levels of N in the flood affected area.

1. BASAL CONDITIONS :

(i) (a) Paddy—Wheat (b) Paddy (c) N.A. (ii) Sandy loam (iii) 17—12—64 (iv) (a) 2 ploughings by S.T.P. and 1 ploughing by tractor and *deshi* pata (b) Behind *deshi* plough (c) 86Kg/ha. (d) Rows 23cm apart (e) — (v) Nil (vi) As per treatments (vii) Unirrigated (viii) Weeding (ix) 5.3cm (x) 20—4—65.

2. TREATMENTS

All combinations of (1) and (2)

(1) 4 levels of N as A/S: N_1=33.6, N_2=50.4, N_3=67.2 and N_4=84.1Kg/ha.

(2) 4 varieties : V_1=K65, V_2=M.P. Hyb. 65, V_3=N.P. 835 and V_4=N.P. 830
A/S broadcast on 17-12-64.

3. DESIGN:

(i) Fact. in R.B.D. (ii) (a) 16 (b) 9.60m×73.90m (iii) 4 (iv) (a) and (b) 8.84m×4.57m (v) Nil. (vi) Yes.

4. GENERAL:

(i) Good (ii) Damage by birds and rats (iii) Height of plant, No. of tillers and yield of grain and straw. (iv) (a) 1964—only (b) and (c) — (v) to (vii) Nil.

5. RESULTS:

(i) 667Kg/ha. (ii) 253.8Kg/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	mean
N_1	577	569	315	971	608
N_2	373	729	445	1342	723
N_3	262	711	619	662	564
N_4	518	798	625	1157	774
mean	433	702	501	1033	667

C.D. for V marginal means=180.6Kg/ha.

Crop :- Wheat (*Rabi*). **Ref :- U.P. 60 (126).**

Site :- Govt. Reg. Agri. Res. Stn., Hardoi **Type :- 'MV'**

Object : - To study the effect of fertilizers on the yield of different varieties of Wheat .

1. BASAL CONDITIONS:

(i) (a) Nil (b) and (c) N.A. (ii) Sandy loam (iii) 9—11—60. (iv) (a) N.A. (b) Line sowing (c) 99Kg/ha. (d) Rows 23cm. apart. (e) — (v) Nil. (vi) As per treatments (vii) and (viii) N.A. (ix) 3cm. (x) 18.4.61.

2. TREATMENTS :

Main-plot treatments:

4 Varieties : V_1=N.P. 710, V_2=N.P. 125, V_3=C—13 and V_4=Pb. 591.
Sub-plot treatments:

4 Mamurial treatments : M_0=Control (No manure), M_1=56.0Kg/ha. of N, M_2=44.8Kg/ha. of P_2O_5 and M_3=44.8Kg/ha. of K_2O.

3. DESIGN

(i) (a) Split-plot (ii) (a) 4 main-plots/replication. 4 sub-plots/main-plot. (b) N.A. (iii) 4 (iv) (a) and (b) 2.06m×7.31m (v) Nil (vi) Yes.

4. GENERAL :

(i) Good. (ii) N.A. (iii) Yield of grain. (iv) (a) 1959—60. (b) No (c) Nil (v) to (vii) Nil.

5. RESULTS :

(i) 3249Kg/ha. (ii) (a) 528.9Kg/ha. (b) 370.5 kg/ha (iii) None of the effects is significant (iv) Av. yield of grain in Kg/ha.

	M_0	M_1	M_2	M_3	mean
V_1	2917	3318	3218	3218	3167
V_2	3016	3520	3116	3016	3167
V_3	3116	3418	3116	3318	3242
V_4	3116	3620	3318	3620	3418
mean	3041	3469	3192	3293	3249

Crop :- Wheat (*Rabi*). **Ref :- U.P. 63(129).**

Site :-Govt. Reg. Agri. Res. Stn., Hardoi **Type :- 'MV'.**

Object :—To study the yield of Wheat varieties under high and low fertility levels.

1. BASAL CONDITIONS :

(i) (a) Nil (b) *Sanai* G.M. (c) Nil (ii) Sandy Loam. (iii) 3/4. 11.63 and 6.12.63. (iv) (a) 1 to 2 Ploughings by Victory plough followed by *Triphali* and pata (b) Line sowing behind the plough. (c) 92Kg/ha. (d) Rows 23cm. apart (e) — (v) *Sanai* G.M. (vi) As per treatments. (vii) Irrigated (viii) 1 hoeing (ix) 1cm. (x) 11 to 14.4.64.

2. TREATMENTS :

Main-plot treatments :

2 levels of fertility : F_1=44.5Kg/ha. of N+22.2Kg/ha. of P_2O_5 and $F_2=2F_1$.

Sub-plot treatments :

10 Varieties : V_1=C.13, V_2=C.273, V_3=C.281, V_4=K.67, V_5=K.68, V_6=N.P. 710, V_7=N.P. 718, V_8=N.P. 823, V_9=N.P. 824 and V_{10}=N.P. 830.

N as A/S, ½ dose applied as basal and ½ dose top dressed at 1st irrigation. P_2O_5 as Super. applied before sowing.

3. DESIGN:

(i) Split-plot (ii) (a) 2 main-plots/replication; 10 sub-plots/main-plot (b) N.A. (iii) 4 (iv) (a) and (b) 12.19m×3.20m. (v) Nil (vi) Yes.

4. GENERAL :

(i) Good (ii) Attack of rust and smut (iii) Yield of grain (iv) (a) to (c) No. (v) to (vii) Nil.

5. RESULTS :

(i) 2991Kg/ha. (ii) (a) 240.7Kg/ha. (b) 234.8Kg/ha. (iii) Main effects of F and V are highly significant. Interaction F×V is significant. (iv) Av. yield of grain in Kg/ha.

	V_1	V_2	V_3	V_4	V_5	V_6	V_7	V_8	V_9	V_{10}	mean
F_1	1859	2999	3025	2990	3390	2897	2589	2788	3134	2563	2823
F_2	2141	3448	3269	3163	3717	3281	2961	3301	2974	3333	3159
mean	2000	3224	3147	3076	3554	3089	2775	3044	3054	2948	2991

C.D. for F marginal means=171·2 Kg/ha.

C.D. for V marginal means=235.6 Kg/ha.

C.D. for V means at the same level of F=333.2Kg/ha.

C.D. for F means at the same level of V=353,0 Kg/ha.

Crop :- Wheat (*Rabi*). **Ref. :- U.P. 64 (119).**

Site :- Govt. Reg. Agri. Res. Stn., Hardoi. **Type :- 'MV'**

Object :—To study the yield of Wheat varieties under high and medium fertility levels.

1. BASAL CONDITIONS:

(i) (a) Nil. (b) Sanai G.M. (c) Nil (ii) Sandy loam. (iii) 29/30.10.64. (iv) (a) N.A. (b) Line sowing behind the plough. (c) 99Kg/ha. (d) Rows 23cm apart. (e) — (v) *Sanai* G.M. (vi) As per treatments (vii) Irrigated (viii) 1 hoeing (ix) 2cm. (x) 17 to 22—4—65.

2. TREATMENTS :

Main-plot treatments :

2 levels of fertility : F_1 = 44.8Kg/ha. of N + 22.4Kg/ha. of P_2O_5 + 22.4Kg/ha. of K_2O and F_2 = 67.2Kg/ha. of N + 44.8Kg/ha. of P_2O_5 + 33.6Kg/ha. of K_2O.

Sub-plot treatments :

14 Varieties : V_1 = K.64, V_2 = K.65, V_3 = K.68, V_4 = N.P. 824, V_5 = N.P. 839, V_6 = N.P. 852, V_7 = N.P. 862, V_8 = N.P. 872, V_9 = N.P. 876, V_{10} = Pb. C. 273, V_{11} = Pb.C. 281, V_{12} = Pb.C. 303, V_{13} = Sonora 63 and V_{14} = Sonora 64.

Sources and time and method of application N.A.

3. DESIGN :

(i) Split-plot (ii)(a) 2 main-plots/replication; 14 sub-plots/main-plot. (b) N.A. (iii) 4 (iv) (a) and (b) 10.67m. × 2.51m. (v) Nil (vi) Yes.

4. GENERAL :

(i) N.A. (ii) Spraying of 2, 4—D Sodium salt at 1.1Kg/ha. (iii) Yield of grain (iv) (a) to (c) No. (v) to (vii) Nil.

5. RESULTS :

(i) 3643Kg/ha. (ii) (a) 466.0Kg/ha. (b) 454·8Kg/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	V_8	V_9	V_{10}	V_{11}	V_{12}	V_{13}	V_{14}	mean
F_1	3635	3644	3653	3775	3831	3104	3178	3486	3299	3495	3635	3504	3821	3271	3524
F_2	3980	3812	4054	3933	4036	3309	3551	3924	3383	3514	3723	3858	3868	3728	3762
mean	3807	3728	3854	3854	3933	3206	3365	3705	3341	3504	3679	3681	3845	3500	3643

Crop :- Wheat (*Rabi*). **Ref :- U.P. 60**(77).

Site :- Govt. Res. Farm, Kanpur. **Type :- 'MV'.**

Object :—To find out the best variety of Wheat for very late sowing to follow late Paddy under different levels of N.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Paddy (c) N.A. (ii) Loam (iii) 29.12.60 (iv) (a) and (b) N.A. (c) 90Kg/ha. (d) Rows 23cm apart (e) N.A. (v) 44.8Kg/ha. of P_2O_5 as Super+44.8Kg/ha. of K_2O as Mur. pot. (vi) As per treatments (vii) Irrigated (viii) N.A. (ix) 6.3cm. (x) 2nd week of April, 61.

2. TREATMENTS :

All combinations of (1) and (2)

(1) 3 levels of N as A/S : N_1=56, N_2=84 and N_3=112Kg/ha.

(2) 12 Varieties : V_1=N.P. 798, V_2=N.P. 830, V_3=N.P.824, V_4=N.P. 792, V_5=N.P.720, V_6=K—64, V_7=K—65, V_8=K—67, V_9=K—68, V_{10}=C—13, V_{11}=C—228 and V_{12}=C—281.

3. DESIGN:

(i) Fact. in R.B.D. (ii) (a)36 (b)18.44m × 23.01m (iii) 4 (iv)(a)5.18m × 1.37m (b)4.57m × 0.91m (v)30cm × 23cm (vi) Yes.

4. GENERAL :

(i) N.A. (ii) Incidence of brown rust from 30% to 85% (iii) Yield of grain. (iv) (a) 1959—61 (Design changed in 61) (b) No. (c) Nil. (v) to (vii) N.A.

5. RESULTS :

(i) 1281Kg/ha (ii) 247.7Kg/ha. (iii) Main effects of N and V are highly significant (iv) Av. yield of grain in Kg/ha.

	V_1	V_2	V_3	V_4	V_5	V_6	V_7	V_8	V_9	V_{10}	V_{11}	V_{12}	mean
N_1	974	1455	1190	1118	980	1383	1335	1022	1100	1184	968	1214	1160
N_2	1214	1557	1509	1335	1262	1292	1395	1184	1485	1371	1004	1286	1324
N_3	980	1719	1455	1136	1064	1539	1593	1515	1347	1311	1130	1515	1359
mean	1056	1577	1385	1196	1102	1405	1441	1240	1311	1289	1034	1338	1281

C.D. for N marginal means=100.4Kg/ha.

C.D. for V marginal means=200.6Kg /ha.

Crop :- Wheat (*Rabi*). **Ref :- U.P. 61(82).**

Site :- Govt. Res. Farm, Kanpur **Type :- 'MV'**

Object :—To find out the best variety of Wheat for very late sowing to follow late Paddy under different levels of N.

1. BASAL CONDITIONS:

(i) (a) N.A. (b) Paddy (c) N.A. (ii) Loam (iii) 7.1.62 (iv) (a) and (b) N.A. (c) 89Kg/ha (d) Rows 23cm. apart. (e) — (v) 44.8Kg/ha. of P_2O_5 as Super + 44.8Kg/ha. of K_2O as Mur. Pot. applied in furrows between the seed rows (vi) As per treatments (vii) Irrigated (viii) N.A. (ix) 6.1cm. (x) 16 and 17.5.62.

2. TREATMENTS:

Main-plot treatments:

3 levels of N as A/S: N_1=56, N_2=84 and N_3=112Kg/ha.

Sub-plot treatments :

12 Varieties : V_1=N.P. 798, V_2=N.P. 830, V_3=N.P. 824, V_4=N.P. 792, V_5=N.P. 720, V_6=K—64, V_7=K - 65, V_8=K—67, V_9=K—68, V_{10}=C—13, V_{11}=C—228 and V_{12}=C—281.

A/S broadcasted at the time of sowing.

3. DESIGN :

(i) Split-plot (ii) (a) 3 main-plots/replication, 12 sub-plots/main-plot (b) 23.01m × 17.83m. (iii) 4 (iv) (a) 5.18m × 1.37m. (b) 4.57m × 0.91m. (v) 30cm. × 23cm. (vi) Yes.

4. GENERAL :

(i) N.A. (ii) Incidence of block and brown rusts. (iii) Yield of grain (iv) (a) 1959—51 (Design changed in 61) (b) No (c) Nil. (v) to (vii) Nil.

5. RESULTS:

(i) 888Kg/ha. (ii) (a) 262.4Kg/ha. (b) 129.2Kg/ha. (iii) Main effect of V alone is highly significant (iv) Av. yield of grain in Kg/ha.

	V_1	V_2	V_3	V_4	V_5	V_6	V_7	V_8	V_9	V_{10}	V_{11}	V_{12}	mean
N_1	676	1094	1052	783	652	861	885	903	975	921	843	909	880
N_2	652	1124	1100	819	765	855	957	861	903	855	825	861	881
N_3	652	1280	1136	759	700	801	1058	933	861	987	753	933	904
mean	660	1166	1096	787	706	839	967	899	913	921	807	901	888

C.D. for V marginal means=104.9Kg/ha.

Crop :- Wheat (*Rabi*). **Ref :- U.P. 62 (72), 63(79), 64(125)**

Site :- Govt. Res. Farm, Kanpur. **Type :- 'MV'**

Object :—To find out the best variety of Wheat for very late sowing to follow late Paddy under different levels of N.

1. TREATMENTS:

(i) (a) N.A. (b) Paddy (c) N.A. (ii) Loom (iii) 1.1.63; 2.1.64; 29.12,64 (iv) (a) 4 ploughings; N.A. for 63 and 64 (b) Line sowing behind the plough (c) 111Kg/ha. (d) Rows 23cm. apart (e) N.A. (v) 44.8Kg/ha of P_2O_5 as Super+44.8Kg/ha. of K_2O as Mur. Pot.; N.A.;44.8Kg/ha. of P_2O_5 as Super+44 8Kg/ha. of K_2O as Mur. Pot.+B.H C. @ 24.7Kg/ha. (vi) As per treatments (vii) Irrigated (viii) 2 Weedings and hoeings (ix) 6.0cm.; 7.0cm.; 3.0cm. (x) 7/8.5.63; 2.5.64; 28.4.65.

2. TREATMENTS :

Main-plot treatments:

3 levels of N as A/S : N_1=56, N_2=84 and N_3=112Kg/ha.

Sub-plot treatments ;

12 Varieties : V_1=Pb. C. 303, V_2=N.P. 834, V_3=Pb. C. 281, V_4=K–64, V_5=K–65, V_6=Pb. 591, V_7=K–68, V_8=N.P. 835, V_9=N.P. 825 V_{10}=N.P. 798, V_{11}=N P. 824 and V_{12}=N.P. 830.

3. DESIGN :

(i) Split-plot (ii) (a) 3 main-plots/replication; 12 sub-plots/main-plot, (b) 16.46m.×46.3m.; 46.9m.×17.83m; 15.24m.×21.95m. (iii) 3 for 62 and 63; 4 for 64 (iv) (a) 7.16m.×2.74m.; 7.16m.×2.97m.; 4.57m.×1.83m. b) 6.40m.×2.29m ; 6.55m.×2.51m ; 3.96m×1.37m. (v) 38cm.×23cm. for 62; 30cm.×23cm for others (vi) Yes.

4. GENERAL:

(i) N.A. (ii) Incidence of black and brown Rust. (iii) Yield of grain (iv) (a) 1962—64 (b) No (c) Nil. (v) and (vi) Nil (vii) As the snb-plot error variances are heterogeneous, the results of individual years have been presented under 5. Results.

5. RESULTS:

62 (72)

(i) 1247Kg/ha. (ii) (a) 447.7Kg/ha. (b) 219.4Kg/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	V_6	V_7	V_8	V_9	V_{10}	V_{11}	V_{12}	mean
N_1	1123	1346	1137	1068	793	1084	895	1617	1027	806	1305	1137	1112
N_2	1155	1374	1155	1030	1319	1314	1098	1957	1260	1128	1451	1221	1288
N_3	1497	1330	1078	1273	1171	1346	1169	1900	1175	1230	1335	1588	1341
mean	1258	1350	1123	1124	1094	1248	1054	1825	1154	1055	1364	1315	1247

C.D. for V marginal means=206.7Kg/ha.

63 (79)

(i) 1323Kg/ha. (ii) (a) 654.5Kg/ha. (b) 217.6Kg/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	V_7	V_8	V_9	V_{10}	V_{11}	V_{12}	mean
N_1	1408	1313	1337	1608	1450	1204	1171	1653	1299	1206	1262	1578	1374
N_2	1596	1284	1145	1133	1250	1157	1226	1460	1264	1268	1222	1545	1296
N_3	1507	1353	1238	1084	1323	1001	1398	1446	1256	1086	1341	1541	1298
mean	1504	1317	1240	1275	1341	1121	1265	1520	1273	1187	1275	1555	1323

C.D. for V marginal means=205.1Kg/ha.

64 (125)

(i) 1574Kg/ha. (ii) (a) 655.9Kg/ha. (b) 136.7Kg/ha. (iii) Main effect of V and interaction V×N are significant. (iv) Av. yield of grain in Kg/ha.

	V_1	V_2	V_3	V_4	V_5	V_6	V_7	V_8	V_9	V_{10}	V_{11}	V_{12}	mean
N_1	1545	1536	1408	1403	1394	1389	1164	1288	1113	1840	1379	1568	1419
N_2	1881	1550	1472	1486	1444	1251	1430	1449	1232	2130	1545	1725	1550
N_3	1785	1757	1895	2015	1968	1863	1431	1417	1334	2295	1596	1698	1754
mean	1737	1614	1592	1635	1602	1501	1342	1385	1226	2088	1507	1664	1574

C.D. for V marginal means=111.5Kg/ha.

C.D. for V means at the same level of N=193.3Kg/ha.

C.D. for N means at the same levels of V=374.6Kg/ha.

Crop :- Wheat (*Rabi*). **Ref :- U.P. 63 (83)**

Site :-Govt. Res. Farm, Kanpur. **Type :- 'MV'.**

Object : –To study the effect of levels of fertility on different varieties of Wheat.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) *Sanai* for G.M. (c) N.A. (ii) Loam. (iii) 10.11.63. (iv) (a) *Palewa*, 4 ploughings by *Deshi* plough and 1 ploughing by Soil turning plough and harrowing (b) Line sowing behind the plough (c) 92Kg/ha. (d) 23cm. between rows. (e) — (v) Nil (vi) As per treatments (vii) Irrigated (viii) Hoeing by hand hoe and weeding by *Khurpi* (ix) 1cm. (x) 24 to 27.4 64.

2. TREATMENTS:

Main-plot treatments :

3 levels of fertility : M_1=44.8Kg/ha. of N+22.4Kg/ha. of P_2O_5 as Super+22.4Kg/ha. of K_2O as Pot. Sul., $M_2=2M_1$ and $M_3=3M_1$.

Sub-plot treatments :

14 Varieties: V_1=N.P. 835, V_2=N.P. 839, V_3=N.P. 852, V_4=N.P. 862, V_5=N.P. 872, V_6=N.P. 876, V_7=N.P. 885, V_8=N.P. 886, V_9=N.P. 887, V_{10}=Pb. C–302, V_{11}=Pb. C=313, V_{12}=R.S. 31–1, V_{13}=Hyb. 4–4–6–5 and V_{14}=Hyb.–65.

In M_1, M_2 and M_3—33.6Kg/ha. of N given by *Sanai* G.M. (buried on 23.8.63) and rest of the dose of N as urea.

In all treatments, 11.2Kg/ha. of N as Urea broadcast on 9.11.63.

In M_2 and M_3—44.8Kg/ha. of N as urea applied with I irrigation on 6.12.63.

In M_4—44 8Kg/ha. of N as urea applied with II irrigation on 10.1.64. Super and Pot. Sul. applied in furrows between seed rows on 9.11.63.

3. DESIGN:

(i) Split –plot (ii) (a) 3 main-plots/replication; 14 Sub-plots/main-plot (b) 47.55m. × 36.80m. (iii) 4 (iv) (a) 7.32m. × 5 26m. (b) 6.71m. × 4.34m. (v) 30cm. × 46cm. (vi) Yes.

4. GENERAL :

(i) Good crop. 75% crop lodged in $M_3 V_{12}$. 5% to 45% crop lodged in V_7, V_9, V_{10}, V_{13} and V_{14} in M_2 and M_3. (ii) Incidence of smut in V_1; Incidence of brown and black Dusts. Dusting of Folidol (2% dust) and racking (iii) Yield of grain (iv) (a) 1963—only (b) and (c) —. (v) to (vii) Nil.

5. RESULTS :

(i) 2978Kg/ha. (ii) (a) 324.6Kg/ha. (b) 291.3Kg/ha. (iii) Main effects of M, V and interaction M × V are highly significant. (iv) Av. yield of grain in Kg/ha.

	V_1	V_2	V_3	V_4	V_5	V_6	V_7	V_8	V_9	V_{10}	V_{11}	V_{12}	V_{13}	V_{14}	mean
M_1	2043	3133	2773	3004	2833	2906	2824	2674	3082	2790	2395	2931	2871	2738	2786
M_2	2227	3562	3026	3657	3571	3682	3227	3163	3412	3236	2678	3047	2584	2635	3122
M_3	2476	3455	3421	3906	3751	3631	3309	3103	3030	2807	2429	2288	2300	2451	3026
mean	2249	3383	3073	3522	3385	3406	3120	2980	3175	2944	2501	2755	2585	2608	2978

C.D. for M marginal means = 150.0Kg/ha.

C.D. for V marginal means = 235.4Kg/ha.

C.D. for V means at the same level of M = 407.8Kg/ha.

C.D. for M means at the same level of V = 419.6Kg/ha.

Crop :- Wheat (*Rabi*). **Ref :- U.P. 64(127).**

Site :- Govt. Res. Farm, Kanpur. **Type :- 'MV'.**

Object :—To find out the best dose of N for different varieties of Wheat.

1. BASAL CONDITIONS :

(i) (a) Nil (b) *Jowar* for fodder and *Til*. (c) N.A. (ii) Light loam. (iii) 29.11.64 and 1.12.64 (iv) (a) N.A. (b) Line sowing behind the plough in furrows, (c) N.A. (d) Rows 25cm apart. (e) —. (v) 67.2Kg/ha. of P_2O_5 as Super + 44.8Kg/ha. of K_2O as Pot. Sul. applied at sowing with the last ploughing in furrows as placement behind the plough. (vii) Irrigated (viii) 2 weedings and hoeings (ix) 6cm. (x) 18.4.65.

2. TREATMENTS :

Main-plot treatments:

4 levels of N as A/S/N : $N_0 = 0$, $N_1 = 44.8$, $N_2 = 89.6$ and $N_3 = 134.4$Kg/ha.

Sub-plot treatments :

6 Varieties : V_1=Lerma Rajo 64, V_2=N.P. 876, V_3=N.P. 887, V_4=Sonora 63, V_5=Pb. C. 306 and V_6=Sonora 64.

Note : In N_1, N_2 and N_3 –22.4, 67.2 and 89.6Kg/ha. of N respectively applied at sowing and remaining dose applied as top dressing one month after sowing.

3. DESIGN :

(i) Split–plot (ii) (a) 4 main-plots/replication; 6 sub-plots/main plot (b) 31.20m×22.20m. (iii) 4 (iv) (a) 10. 0m.×2.50m. (b) 9.00m.×2.00m. (v) 50cm.×25cm. (vi) Yes.

4. GENERAL :

(i) Satisfactory. (ii) There was light rust in V_2, V_3, V_4 and V_5. 1% B.H.C. at 24.7Kg/ha. broadcasted after last ploughing to save plants from *Gunzia* and termites. (iii) Yield of grain (iv) (a) 1964—only (b) and (c) — (v) to (vii) Nil.

5. RESULTS :

(i) 1906Kg/ha. (ii) (a) 404.4Kg/ha. (b) 252.2Kg/ha. (iii) Main effects of N and V are highly significant (iv) Av. yield of grain in Kg/ha.

	V_1	V_2	V_3	V_4	V_5	V_6	mean
N_0	1168	980	1119	1133	1147	1022	1095
N_1	1692	1732	1689	1836	1692	1782	1737
N_2	2085	2221	1780	2530	2129	2244	2165
N_3	2450	2579	2225	3046	2589	2882	2628
mean	1849	1878	1703	2136	1889	1982	1906

C.D. for N marginal meanes=264 0Kg/ha.

C.D. for V marginal means=178.4Kg/ha.

Crop :- Wheat (*Rabi*). **Ref :- U.P. 64(126).**

Site :- Govt. Res. Farm, Kanpur. **Type :- 'MV'.**

Object :—To find out suitable varieties of Wheat for different levels of N.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) *Sanai* G.M. (c) Nil (ii) Light loam (iii) 18.11.64 (iv) (a) N.A. (b) Behind the plough in furrows (c) N.A. (d) Rows 23cm. apart (e) — (v) 67Kg/ha. of P_2O_5 as Super. and 45Kg/ha. of K_2O as Pot. Sul. applied on 18.11.64 in furrows behind the plough with last ploughing. (vi) As per treatments (vii) Irrigated (viii) Weeding and hoeing by hand *Khurpi* (ix) 6cm. (x) 23.4.65.

2. TREATMENTS :

Main-plot treatments :

2 levels of N : N_1=45 and N_2=90Kg/ha.

Sub-plot treatments:

16 Varieties : V_1=Hyb.—65, V_2=R.S. 31—1, V_3=Sonara 63, V_4=Pb. C - 303, V_5=N.P. 876, V_6=K—68, V_7=N.P. 852, V_8=N.P. 839, V_9=Pb. C—306, V_{10}=K—64, V_{11}=N.P. 887, V_{12}=Lerma Lojo—64,

V_{13}=N.P. 884, V_{14}=N.P. 862, V_{15}=Sonara 64 and V_{16}=N.P. 872.

In N_1, 11.5Kg/ha. of N as A/S/N applied at sowing. In N_2, 33.5Kg/ha. of N as A/S/N applied at sowing and 23Kg/ha. of N as A/S/N applied on 5.1.65 at Ist irrigation by broadcast. 33.5Kg/ha. of N applied in all treatments as *Sanai* (G.M.)

3. DESIGN :

(i) Split—plot (ii) (a) 2 main-plots/replication; 16 sub-plots/main-plot (b) 16.60m.×30.20m. (iii) 4 (iv) (a) 8.00m.×1.84m. (b) 7.00m.×1.38m. (v) 50cm.×23cm. (vi) Yes.

4. GENERAL :

(i) Good growth; There was lodging in some varieties. V_{10}, V_6, V_4 and V_2 badly lodged specially in N_2. (ii) There was some incidence of brown and black rusts. 10%B.H.C. at 14.6Kg/ha. broadcasted and mixed with soil before sowing and *Pata* to save seadhings from attack of termites and *gunjia* (iii) Yield of grain (iv) (a) 1964—only (b) and (c) —. (v) to (vii) Nil.

5. RESULTS:

(i) 2902Kg/ha. (ii) (a) 353.9Kg/ha. (b) 362.2Kg/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	V_6	V_7	V_8	V_9	V_{10}	V_{11}	V_{12}
N_1	2357	2618	3206	2652	3356	2670	2818	2585	2631	2693	2466	2750
N_2	2461	2582	3651	2717	3540	2538	2815	3007	2895	2458	2815	2994
mean	2409	2600	3429	2684	3448	2604	2817	2796	2763	2575	2641	2872

V_{13}	V_{14}	V_{15}	V_{16}	mean
2347	3014	3454	3262	2805
2621	3586	3969	3317	2998
2484	3300	3711	3292	2902

C.D. for V marginal means=360.4Kg/ha.

Crop :- Wheat (*Rabi*). **Ref:- U.P. 65 (416)**

Site :- Govt. Res. Farm, Kanpur. **Type :- 'MV'.**

Object: —To find out Suitable varieties of Wheat for different levels of N.

1. BASAL CONDITIONS :

(i) (a) *Jowar*—Wheat (b) *Jowar* (c) Nil (ii) Loamy soil (iii) 16.11.65 (iv) (a) N.A. (b) In furrows behind the plough (c) N.A. (d) Rows 23cm. apart (e) — (v) 67Kg/ha. of P_2O_5 as Super.+45Kg/ha. of K_2O as Pot. Sul. applied in furrows. (vi) As per treatments (vii) Irrigated (viii) 1 hoeing and earthing. (ix) 0.2cm. (x) 22.3 to 11.4.66.

2. TREATMENTS :

Main-plot treatments :

3 levels of N: N_0=0, N_1=67 and N_2=135Kg/ha.

Sub-plot treatments :

14 varieties : V_1=S 326, V_2=Sonora 63, V_3=PV—18, V_4= 307, V_5=S 503, V_6=S 227, V_7=Nadadores, V_8=Larma Rajo, V_9=Renjamo 62, V_{10}=S 305, V_{11}=S 331, V_{12}=S 308, V_{13}=C306 and V_{14}=Sonara 64. ½ N as A/S/N. borodcasted at sowing and ½ N as urea top dressed with Ist irrigation one month after sowing.

3. DESIGN :

(i) Split-plot. (ii) (a) 3 main-plots/replication; 14 sub-plots/main-plot. (b) 32.20m.×19.75m. (iii) 4 *(iv) (a)* 6.00m.×2.30m. (b) 5.00m.×1.84m. (v) 50cm×23cm. (vi) Yes.

4. GENERAL:

(i) Good (ii) Black and brown rusts (iii) Yield of grain (iv) (a) 1965—only (b) and (c) — (v) Nil (vi) There was draught. (vii) Nil.

5. RESULTS:

(i) 2298Kg/ha. (ii) (a) 815.5Kg/ha. (b) 351.1Kg/ha. (iii) Main effects of N and V are highly significant. Interaction N×V is significant. (iv) Av. yield of grain in Kg/ha.

	V_1	V_2	V_3	V_4	V_5	V_6	V_7	V_8	V_9	V_{10}	V_{11}	V_{12}	V_{13}	V_{14}	mean
N_0	772	731	753	772	666	818	434	690	1035	992	1070	842	834	801	801
N_1	2934	2728	2772	2967	2209	2856	2024	2370	2576	2519	2633	3081	2609	2584	2633
N_2	3475	3282	4182	3408	3155	3954	2201	3443	3511	3560	3584	3826	3299	3573	3461
mean	2394	2247	2569	2382	2010	2543	1553	2167	2374	2356	2429	2583	2247	2319	2298

C.D. for N marginal means=377.1Kg/ha.
C.D. for V marginal means=280.9Kg/ha.
C.D. for V means at the same level of N=486.6Kg/ha.
C.D. for N means at the same level of V=674.6Kg/ha.

Crop :- Wheat (*Rabi*). **Ref :- U.P. 63(82), 64(122), 65(413).**

Site :- Govt. Res. Farm, Kanpur. **Type :- 'MV'**

Object :—To study the effect of foliar application of nitrogenus fertilizer on Wheat.

1. BASAL CONDITIONS:

(i) (a) Nil (b) *Sanai* (G.M.) for 63 and 64 *Jowar* for 65 (c) Nil (ii) Loam (iii) 28.11.63; 16.11.64; 12.11.65. (iv) (a) 4 to 6 ploughings (b) Sown behind the plough (c) 91Kg/ha (d) Rows 23cm. apart (e) — (v) 44.8Kg/ha. of P_2O_5 applied with the last ploughing for 65 ; 22.4Kg/ha of N as *Sanai* G.M. for others(vi) As per treatments (vii) Irrigated(viii) 1 weeding (ix)1cm.; 6cm .; 0.2cm. (x) 5.5.64; 16.4.65; 7.4 66.

2. TREATMENTS:

Main-plot treatments :

2 Varieties : V_1=K-64 and V_2=K-65.

Sub-plot treatments :

7 levels of N : N_0=0, N_1=11.2Kg/ha of N as spray, N_2=11.2Kg/ha. of N through soil, N_3=28Kg/ha. (16.8Kg/ha of N through soil+11.2Kg/ha of N as spray), N_4=28Kg/ha. of N through soil, N_5=44 8Kg/ha. of N (33.6Kg/ha. of N through soil+11.2Kg/ha of N as spray and N_6=44.8Kg/ha of N through soil.

N applied in the form of urea both for soil and spray application. For spray, solution made in water (at 4%) and sprayed +674 litters/ha in 3 sprayings.

3. DESIGN :

(i) Split-plot (ii) (a) 2 main-plots/replication ; 7 sub-plots/main plot (b) 15.24m × 22.86m ; 17.07m × 18.06m; 8.23m × 36.27m. (iii) 4 (iv) (a) 7.32m×2.74m; 8.23m×2.06m ; 8.23m×2.06m. (b) 6.40m×2.29m; 7.32m×1.60m; 7.62m×1.60m. (v) 46cm×23cm for 63 and 64; 30cm.×23cm. for 65 (vi) Yes.

4. GENERAL:

(i) Good (ii) Black and brown rusts and smut in all years. Dusting of Folidol in 63; N.A. for others. (iii) Yield of grain (iv) (a) 1963—65 (b) No (c) Nil (v) and (vi) Nil. (vii) As the sub-plot error variances are hetrogeneous, the results of individual years have been presented under 5. Results.

5. RESULTS:

63 (82)

(i) 2472Kg/ha (ii) (a) 576.5Kg/ha. (b) 373.5Kg/ha. (iii) None of the effects is significant (iv) Av. yield of grain in Kg/ha.

	N_0	N_1	N_2	N_3	N_4	N_5	N_6	mean
V_1	2360	2243	2406	2467	2694	2392	2629	2456
V_2	2182	2660	2491	2580	2226	2546	2729	2488
mean	2271	2452	2448	2524	2460	2469	2679	2472

64 (122)

(i) 2850Kg/ha (ii) (a) 309.0Kg/ha.(b) 269.0Kg/ha. (iii)Main effect of N is highly significant (iv) Av. yield of grain in Kg/ha.

	N_0	N_1	N_2	N_3	N_4	N_5	N_6	mean
V_1	2999	2964	3195	2883	2798	3417	2465	2960
V_2	2924	2847	2674	2723	2749	2734	2524	2739
mean	2962	2906	2934	2803	2774	3076	2494	2850

C.D. for N marginal means=272.2Kg/ha

65 (413)

(i) 1926Kg/ha. (ii) (a) 649.1Kg/ha. (b) 238.8Kg/ha. (iii) Main effect of N is highly significant (iv) Av. yield of grain in Kg/ha.

	N_0	N_1	N_2	N_3	N_4	N_5	N_6	mean
V_1	1559	1952	1697	1881	1963	2291	2199	1935
V_2	1681	1640	1855	2004	1911	2322	2004	1917
mean	1620	1796	1776	1943	1937	2307	2102	1926

C.D. for N marginal means=241.7 Kg/ha.

Crop :- Wheat (*Rabi*). **Ref :- U.P. 63(80).**

Site :- Govt. Res. Farm, Kanpur. **Type :- 'MV'.**

Object :—*To find out the effect of levels of N on different varieties of Wheat under late sown conditions* after Groundnut crop.

1. BASAL CONDITIONS:

(i) (a) N.A. (b) Groundnut (c) N A. (ii) Loam (iii) 9.1.64. (iv) (a) 1 ploughing each by victory plough and *Deshi* plough. (b) Line sowing behind the plough. 1 application of *Pata* and 1 application of cultivator. (c) 111Kg/ha. (d) Rows 23cm. apart. (e) — (v) 44.8 Kg/ha. of P_2O_5 as Super+44.8Kg/ha. of K_2O as Pot Sul. applied in furrows between seed rows at sowing (vi) As per treatments. (vii) Irrigated (viii) Nil (ix) 1cm. (x) 11.5.64.

2. TREATMENTS :

Main-plot treatments :

3 levels of N : N_1=56, N_2=84 and N_3=112Kg/ha.

Sub-plot treatments:

12 Varieties : V_1=K.64, V_2=K.65, V_3=K.68, V_4=P.b.c.281, V_5=P.b.c.303, V_6=Pb.591, V_7=N.P.798, V_8=N.P.824, V_9=N.P.825, V_{10}=N.P.830, V_{11}=N.P.824 and V_{12}=N.P. 835.
N broadcasted at sowing.

3 DESIGN :

(i) Split-plot (ii) (a) 3 main-plots/replication; 12 sub-plots/main-plot (b) 13.40m.×4.31m. (iii) 3 (Effective replications 2) (iv) (a) 6.40m.×2.29m. (b) 5.49m.×1.98m. (v) 46cm.×15cm. (vi) Yes.

4. GENERAL :

(i) Good; No. lodging (ii) Negligable incidence of brown and black rusts. Dusting of B.H.C. on 31.1.64 and 1.2.64. (iii) Yield of grain. (iv) (a) 1963–66 (Modified every year) (b) and (c) —. (v) and (vi) Nil (vii) I replication rejected on account of uneven and poor growth.

5. RESULTS:

(i) 629Kg/ha. (ii) (a) 276.0Kg/ha. (b) 159.3Kg/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	V_6	V_7	V_8	V_9	V_{10}	V_{11}	V_{12}	mean
N_1	557	823	658	915	718	736	773	428	478	1058	561	751	703
N_2	653	552	552	695	414	547	363	409	492	695	446	488	526
N_3	713	759	860	598	957	515	501	331	373	938	469	897	659
mean	641	711	690	736	696	600	546	389	448	897	492	705	629

C.D. for V marginal means=187.1 Kg/ha.

Crop :- Wheat (*Rabi*). **Ref- U.P. 64 (124).**

Site :-Govt. Res. Farm, Kanpur. **Type :-'MV'.**

Object :--To find out the effect of levels of N on different varieties of Wheat under late sown conditions after Groundnut crop.

1. BASAL CONDITIONS:

(i) (a) N.A. (b) Groundnut (c) N.A. (ii) Sandy loam. (iii) 31.12.64/1.1.65. (iv) (a) N.A. (b) Line sowing behind the plough (c) 111Kg/ha. (d) Rows 23cm. apart (e) — (v) 44.8Kg/ha. of P_2O_5 as Super in furrows by placement +44.8Kg/ha. of K_2O as Mur. Pot. applied behind the plough at sowing (vi) As per treatments. (vii) Irrigated (viii) 2 weedings and hoeing (ix) 3.4cm. (x) 29.4.65.

2. TREATMENTS

Main-plot treatments:

3 levels of N as A/S/N : N_1=56, N_2=84 and N_3=112Kg/ha.

Sub-plot treatments:

12 Varieties : V_1=K64, V_2=K65, V_3=K68, V_4=Pb.c. 281, V_5=Pb.c. 303, V_6=N.P. 824, V_7=N.P. 830, V_8=N.P. 834, V_9=N.P. 835, V_{10}=N.P. 852, V_{11}=N.P. 862 and V_{12}=N.P. 876.

A/S/N applied by broadcast on 1.1.65.

3. DESIGN:

(i) Split-plot (ii) (a) 3 main plots/replication; 12 sub-plots/main-plot (b) 15.4m.×42.7m. (iii) 3 (iv) (a) 7.31m.×2.29m (b) 6.70m.×1.83m. (v) 30cm.×23cm. (vi) Yes.

4. GENERAL:

(i) Germination and crop growth good, No. lodging. (ii) There was attack of brown and black rusts. (iii) Yield of grain (iv) 1953—56 (modified every year) (b) and (c) —. (v) to (vii) Nil.

5. RESULTS:

(i) 1455Kg/ha. (ii) (a) 757.5Kg/ha. (b) 464.8Kg/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	V_8	V_9	V_{10}	V_{11}	V_{12}	mean
N_1	1280	1508	1588	1372	1433	1256	1566	1235	1372	1407	1390	1643	1421
N_2	1527	1559	1604	1258	1252	1421	1733	1168	1264	1566	1557	1619	1461
N_3	1665	1616	1172	1345	1299	1333	1812	1148	1616	1914	1490	1404	1484
mean	1491	1561	1455	1325	1328	1337	1704	1184	1417	1629	1479	1555	1455

Crop :- Wheat (*Rabi*). **Ref :- U.P. 65 (417).**

Site :- Govt. Res. Farm, Kanpur. **Type :-'MV'.**

Object : -To find out the effect of levels of N on different varieties of Wheat under late sown conditions after Groundnut crop.

1. BASAL CONDITIONS:

(i) (a) Nil (b) Groundnut. (c) N.A. (ii) Light loam soil (iii) 18.12.65 (iv) (a) N.A. (b) Drilling behind the plough. (c) 99Kg/ha. (d) Row 23cm. apart. (e) —. (v) 56Kg/ha. of P_2O_5 as Super+56Kg/ha. of K_2O of Mur. Pot. in furrows at sowing (vi) As per treatments. (vii) Irrigated (viii) 1 weding (ix) 0.2cm (x) 25.4.66.

2. TREATMENTS:

Main-plot treatments:

3 levels of N as urea : N_1=56, N_2=84 and N_3=112Kg/ha.

Sub-plot treatments :

14 varieties : V_1=K64, V_2=K65, V_3=K68, V_4=C281, V_5=C303, V_6=N.P. 824, V_7=N.P. 830, V_8=N.P. 834, V_9=N.P. 835, V_{10}=N.P. 852, V_{11}=N.P. 862, V_{12}=N.P. 876, V_{13}=Sonora 64 and V_{14}=Lermo Raja.

4/5 of N applied at sowing and rest as top dressing at 1st irrigation on 8.1.66 by broadcasting.

3. DESIGN:

(i) Split-plot (ii) (a) 3 main-plots/replication; 14 sub-plots/main plot (b) N.A. (iii) 3 (iv) (a) 9.45m×2.97m. (b) 8.53m.×2.51m. (v) 46cm×23cm. (vi) Yes.

4. GENERAL:

(i) Good. (ii) Incidence of rusts and smut; 5% Aldrin at 24.7Kg/ha. was broadcasted before sowing in liquid form to control the effects of termites. (iii) Yield of grain (iv) (a) 1963–66 (modified every year.) (b) and (c) —. (v) to (vii) Nil.

5. RESULTS:

(i) 2019Kg/ha. (ii) (a) 564.9Kg/ha (b) 349.0Kg/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	V_6	V_7	V_8	V_9	V_{10}	V_{11}	12	V_{13}	V_{14}	mean
N_1	2133	2102	1915	1790	1837	1884	1899	1728	1744	2289	1996	2366	2148	1775	1968
N_2	2055	2070	1759	1977	2008	1853	2475	1883	1775	2211	2289	2491	2102	2631	2113
N_3	2086	1775	1572	1930	1479	1775	2335	1541	1635	2148	2226	2460	2226	2460	1975
mean	2091	1982	1749	1899	1775	1837	2236	1718	1718	2216	2154	2439	2159	2289	2019

C.D. for V marginal means=322.5Kg/ha.

———

Crop :- Wheat (*Rabi*). **Ref :- U.P. 65 (96).**

Site :- Govt. Res. Agri. Stn., Meerut. **Type :- 'MV'.**

Object :—To study the effect of levels of N on the yield of different Varieties of Wheat.

1. BASAL CONDITIONS :

(i) (a) Nil (b) *Jowar* (c) Nil (ii) Loam (iii) 5.11.65 (iv) (a) 1 ploushing by soil turning plough and 3ploughings by *Deshi* plough. (b) Behind the plough (c) 86Kg/ha. (d) Rows 23cm. apart (e) — (v) 60Kg/ha. of P_2O_5+ 40Kg/ha. of K_2O (vi) As per treatments (vii) Irrigated (viii) Nil (ix) 3.5cm. (x) 30.3 to 18.4.66.

2. TREATMENTS :

Main-plot treatments :

3 levels of N as urea: N_0=0, N_1=60 and N_2=120Kg/ha.

Sub-plot treatments :

14 Varieties : V_1=Nadadors, V_2=S. 308, V_3=S. 307, V_4=S. 227, V_5=S. 326, V_6=S. 306, V_7=Sonaro. 64, V_8=C. 306, V_9=S. 503, V_{10}=Sonara 63, V_{11}=Panjamo 62, V_{12}=S. 331, V_{13}=P.V. 18 and V_{14}=Lerma Roja.

70% N applied as level 25% top dressed on 23.12. 65.

3. DESIGN :

(i) Split-plot (ii) (a) 3 main-plots/replication; 14 Sub-plots/main plot (b) 17.15m.×43.23m (iii) 4 (iv) (a) 5.30m.×2.67m. (b) 4.40m.×1.77m. (v) 45cm.×45cm (vi) Yes.

4. GENERAL:

(i) Not satisfactory (ii) Some attack of brown rust in V_4, V_6, V_8 and V_9 (iii) Yield of grain (iv) (a) 1965-only (b) and (c) —. (v) and (vi) Nil (vii) 2, 4-D sprayed for control of weeds on 21.12.65.

5. RESULTS :

(i) 3344Kg/ha. (ii) (a) 417.9Kg/ha (b) 515.9Kg/ha. (iii) Main effects of N and V are highly significant. (iv) Av. yield of grain in Kg/ha.

	V_1	V_2	V_3	V_4	V_5	V_6	V_7	V_8	V_9	V_{10}	V_{11}	V_{12}	V_{13}	V_{14}	mean
N_0	1187	2119	1380	1669	1284	1572	1830	1477	1509	1444	1605	1541	1284	1765	1548
N_1	2632	3756	3788	3499	3146	3210	4269	3531	2953	3371	3338	4109	3274	3916	3485
N_2	3820	5457	5200	5136	5136	4494	4911	4719	4719	4976	5393	5136	5329	5553	4994
mean	2546	3777	3456	3435	3189	3092	3670	3242	3060	3263	3445	3595	3296	3745	3344

C.D. for N marginal means=193.2Kg/ha.

C.D. for V marginal means=412.8Kg/ha.

Crop :- Wheat (*Rabi*). **Ref:- U.P. 60(154).**

Site :- Govt. Reg. Agri. Res. Stn., Nawabganj. **Type :- 'MV'.**

Object :—To find out response of Wheat varieties to different levels of N and P.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Paddy (c) N.A. (ii) Clay loam (iii) 28.11.60 (iv) (a) N.A. (b) Line sowing behind the plough (c) 92Kg/ha. (d) Rows 23cm. apart (e) — (v) Nil (vi) As per treatments (vii) Irrigated (viii) Hoeing and weeding (ix) 5.6cm. (x) 24.4.61.

2. TREATMENTS

Main-plot treatments :

All combinations of (1) and (2).

(1) 4 Varieties: V_1=Pb. 591, V_2=N.P. 720, V_3=N.P. 721 and V_4=C-13.

(2) 3 doses of N : N_1=22.4, N_2=44.8 and N_3=67Kg/ha.

Sub-plot treatments:

2 levels of P_2O_5 : P_1=28.0 and P_2=56.0Kg/ha.

3. DESIGN :

(i) Split-plot (ii) (a) 12 main-plot/replication; 2 sub-plots/main plot (b) N.A. (iii) 2 (iv) (a) 4.12m×12.19m. (b) 3.66m×10.97m. (v) 23cm×61cm. (vi) Yes.

4. GENERAL:

(i) Good (ii) Nil (iii) Yield of grain (iv) (a) 1960—only (b) and (c) Nil. (v) to (vii) Nil.

5. RESULTS:

(i)1277Kg/ha (ii) (a) 184.8Kg/ha. (b) 221.9Kg/ha. (iii) Main effect of N is highly signiucant. (iv) Av. yield of grain in Kg/ha.

	V_1	V_2	V_3	V_4	N_1	N_2	N_3	mean
P_1	1225	1259	1177	1264	1042	1322	1329	1231
P_2	1409	1390	1148	1346	1206	1340	1423	1323
mean	1317	1324	1162	1305	1124	1331	1376	1277
N_1	1037	1358	1061	1039				
N_2	1387	1358	1250	1330				
N_3	1525	1257	1176	1547				

C.D. for N marginal means=143.8Kg/ha.

Crop :- Wheat (*Rabi*). **Ref. :- U.P.65 (270).**

Site :-Govt. Reg. Agri. Res. Stn., Nawabgunj. Type :- 'MV'.

Object :—To study the response of high yielding varieties under Medium, high and very high levels of fertility.

1. BASAL CONDITIONS:

(i) (a) Paddy—Wheat *Berseem*. (b) Paddy (c) N.A. (ii) Clay loam. (iii) 22.11.65 (iv) (a) *Palewa*; 2 ploughings by S.T.P. and 9 ploughings by *Deshi* plough (b) Sown in lines behind *Deshi* plough (c) 125Kg/ha. (d) Rows 20cm. apart (e)— (v) Nil (vi) As per treatments (vii) Irrigated (viii) 1 weeding by *Kassi* (ix) 5.7cm. (x) V on 30.3.66 and others on 7/8.4.66.

2. TREATMENTS:

Main-plot treatments :

3 levels of fertility: F_1=40Kg/ha. of N+20Kg/ha. of P_2O_5+20Kg/ha. of K_2O, F_2=80Kg/ha. of N+40Kg/ha. of P_2O_5+40Kg/ha. of K_2O and F_3=120Kg/ha. of N+80Kg/ha. of P_2O_5+60Kg/ha. of K_2O.

Sub-plot treatments :

4 Varieties : V_1=Sonora 64, V_2=K.64, V_3=N.P.830 and V_4=Pb.281.

N applied as C/A/N; P_2O_5 as Super. and K_2O as Mur. Pot.

2/3 dose of N, Full dose of P_2O_5 and full dose of K_2O broadcasted as basal on 22.11.65, 1/3 dose of N top dressed on 2.1.66.

3. DESIGN :

(i) Split-plot (ii) (a) 3 main-plots/replication; 4 sub-plots/main-plot. (b) 12.20m.×42.25m. (iii) 3 (iv) (a) 10.00m.×3.40m. (b) 9.00m.×3.00m. (v) 50cm.×20cm. (vi) Yes.

4. GENERAL :

(i) Good; V_4 lodged in F_3 followed by V_2, V_1 did not lodge in any fertility level. (ii) N.A. (iii) Yield of grain (iv) (a) 1965—only (b) and (c) —. (v) to (c) Nil.

5. RESULTS:

(i) 2573Kg/ha. (ii) (a) 304.5Kg/ha. (b) 175.4Kg/ha. (iii) Main effect of F is significant. and that of V and interaction F×V are highly significent (iv) Av. yield of grain in Kg/ha.

	V_1	V_2	V_3	V_4	mean
F_1	2537	2456	1828	2011	2208
F_2	3358	2716	2253	2636	2741
F_3	3865	2654	2278	2272	2767
mean	3253	2609	2120	2306	2573

C.D. for F marginal means=345.1Kg/ha.

C.D. for V marginal means=173.7Kg/ha.

C.D. for V means at the same level of F=300.9Kg/ha.

C.D. for F means at the same level of V=458.0Kg/ha.

Crop :- Wheat (*Rabi*). **Ref :- U.P. 65 (273).**

Site :- Govt. Reg. Agri. Res. Stn., Nawabgunj. **Type :- 'MV'.**

Object :—To find out high yielding Variety of Wheat at different fertility levels.

1. BASAL CONDITIONS:

(i) (a) Nil (b) Paddy (c) N.A. (ii) Clay loam (iii) 7.11.65 (iv) (a) 3 ploughings by S.T.P. and 1 ploughing by wooden plough. (b) Sown in lines behind the plough (c) 99Kg/ha (d) Rows 23cm apart (e) — (v) Nil (vi) as per treatments (vii) Irrigated (viii) Nil (ix) 5.7cm. (x) 3.4.66.

2. TREATMENTS:

Main-plot treatments:

2 levels of fertility : F_1=46.6Q/ha. of F.Y.M.+20Kg/ha. of N+20Kg/ha of P_2O_5 and F_2=93.3Q/ha. of F.Y.M.+40Kg/ha. of N+40Kg/ha. of P_2O_5.

Sub-plot treatments :

12 Varieties : V_1=K64, V_2=K65, V_3=K68, V_4=K.N. 5, V_5=C. 281, V_6=C. 286, V_7=Pb. C. 303; V_8=N.P 865, V_9=N.P. 871, V_{10}=V.L. 60, V_{11}=Sowora—63 and V_{12}=Sonora—64.

N applied as C./A./N. and P_2O_5 as Super : Full F.Y.M, ½ dose of N and full dose of Super. applied as basal on 5.11.65. ½ dose of N top dressed on 24.12.65.

3. DESIGN:

(i) Split—plot. (ii) (a) 2 main-plots/replication; 12 sub-plots/main-plot. (b) 18.60m.×41.38m. (iii) 3 (iv) (a) and (b) 9.05m.×2.99m. (v) Nil (vi) Yes.

4. GENERAL:

(i) Good (ii) Nil (iii) Yield of grain and straw. (iv) (a) 1965—control. (b) No. (c) Nil (v) to (vii) Nil.

5. RESULTS:

(i) 2409Kg/ha. (ii) (a) 491.8Kg/ha. (b) 359.4Kg/ha (iii) Main effect of V is highly significant. Interaction F×V is significant. (iv) Av. yield of grain in Kg/ha.

	V_1	V_2	V_3	V_4	V_5	V_6	V_7	V_8	V_9	V_{10}	V_{11}	V_{12}	mean
F_1	2205	2350	2315	2241	2186	1578	2593	2764	2488	1706	2857	1903	2266
F_2	2373	2407	2631	2147	2414	2158	2669	2386	2759	1726	3584	3375	2552
mean	2289	2379	2473	2193	2300	1868	2631	2575	2624	1716	3221	2642	2409

C.D. for V marginal means=418.4Kg/ha.

C.D. for V means at the same level of F=591.7Kg/ha.

C.D. for F means at the same level of V=1065.9Kg/ha.

Crop :- Wheat (*Rabi*). **Ref :- U.P. 64** (473).

Site :- Pant G.B. University of Agri. & Technology, Pantnagar. **Type :- 'MV'**

Object :—To see the response of different Varieties of Wheat to different levels of N.

1. BASAL CONDITIONS:

(i) (a) to (c) N.A. (ii) Clay loam (iii) 11/12.11.64 (iv) (a) One ploughing, 2 harrowings and levelling (b) Line sowing behind the plough (c) 95Kg/ha. (d) Rows 25cm. apart (e) — (v) 67Kg/ha. of P_2O_5 as Super+ 45Kg/ha. of K_2O as Pot. Chloride before sowing (vi) As per treatments (vii) Irrigated (viii) Weeding (ix) 10.4cm. (x) 11, 12.4.65.

2. TREATMENTS:

Maint-plot treatments :

4 levels of N as A/S: N_0=0, N_1=45, N_2=90 and N_3=135Kg/ha.

Sub-plot treatments :

6 Varieties: V_1=Sonora 63, V_2=Sonora 64, V_3=Lerma Rojo V_4=C. 306, V_5=N.P. 876 and V_6=N.P. 887.

In N_1, N_2 and N_3 22.5, 65.0 and 90.0Kg/ha. of N respectively was applied at sowing and 22.5, 25.0 and 45.0Kg/ha. of N respectively was applied as top dressing at Ist. irrigation.

3. DESIGN:

(i) Split-plot (ii) (a)4main-plots/replication; 6 sub-plots/main-plots (b) 66.0m.×24m. (iii) 4 (iv) (a) 10.00m× 5.00m. (b) 9.00m.×4.00m. (v) 50cm.×50cm. (v)) Yes.

4. GENERAL:

(i) and (ii) N.A. (iii) Yield ofGrain and straw (iv) (a) 1964—only (b) and (c) — (v) to (vii) Nil.

5. RESULTS :

(i) 2939Kg/ha (ii) (a) 540.5Kg/ha. (b) 651.9Kg/ha. (iii) Main effects of N, V and interaction N×V are highly significant. (iv) Av. yield of grain in Kg/ha.

	V_1	V_2	V_3	V_4	V_5	V_6	mean
N_0	2170	2372	1735	2034	1590	1617	1920
N_1	3232	3565	3889	2730	2736	2606	3126
N_2	4266	4585	4774	2765	2897	2444	3622
N_3	3935	4156	4085	2032	2412	1919	3090
mean	3401	3669	3621	2390	2409	2146	2939

C.D. for N marginal means=352.9Kg/ha.
C.D. for V marginal means=461.0Kg/ha.
C.D. for V means at the same level of N=921.8Kg/ha.
C.D. for N means at the same level of V=911.9Kg/ha.

Crop :- Wheat (*Rabi*). **Ref :-U.P. 65 (667).**

Site :- Govt. Cotton Res. Stn., Raya. **Type :-'MV'.**

Object :—To find out the effect of different levels of N on the yield of Wheat Varieties.

1. BASAL CONDITIONS:

(i) (a) Cotton—Wheat (b) Cotton (c) N.A. (ii) Sandy loam (iii) 19.11.65. (iv) (a) 1 palewa; and 3 ploughings (b) Line sowing behind the plough. (c) 93Kg/ha. (d) Rows 23cm. apart. (e) — (v) 25Kg/ha. of P_2O_5 (iv) As per treatments (vii) Irrigated (viii) Weeding and hoeing (ix) 50.3cm. (x) 17 to 19.2.66.

2. TREATMENTS

All combinations of (1) and (2).

(1) 2 doses of N as A/S : N_1=50 and N_2=75Kg/ha.

(2) 2 Variaties: V_1=N-P-830 and V_2=K—68.

3. DESIGN:

(i) Fact. in R.B.D. (ii) (a) 4 (b) 55.0m.×10.0m. (iii) 4 (iv) (a) and (b) 10.00m.×5.00m. (v) Nil (vi) Yes.

4. GENERAL

(i) Good (ii) Brown Rust (iii) Yield of grain (iv) (a) 1965—only (b) and (c) —. (v) to (vii) Nil.

5. RESULTS

(i) 2268Kg/ha. (ii) 233.2Kg/ha. (iii) Main effect of N is highly significant (iv) Av. yield of grain in Kg/ha.

	N_1	N_2	mean
V_1	2055	2405	2230
V_2	2149	2465	2307
mean	2102	2435	2268

C.D. for N marginal means=263.7Kg/ha.

Crop :-Wheat (*Rabi*). **Ref :- U.P. 64 (178)**

Site :- Govt. Reg. Agri. Res. Stn., Varanasi. **Type :- 'MV'.**

Object :—To study the effect of high and medium fertility levels on different varieties of Wheat.

1. BASAL CONDITIONS :

(i) (a) Nil (b) and (c) N.A. (ii) Loam (iii) 28.10.64 (iv) (a) N.A. (b) In rows behind *Deshi* plough (c) 90Kg/ha. (d) Rows 23cm. apart (e) — (v) N.A. (vi) As per treatments (vii) Irrigated (viii) Nil (ix) 5.1cm (x) N.A.

2. TREATMENTS :

Main-plot treatments :

2 fertility levels : F_1=67.2Kg/ha. of N+44.8Kg/ha. of P_2O_5+33.6Kg/ha. of K_2O, F_2=44.8Kg/ha. of N+22.4Kg/ha. of P_2O_5+22.4Kg/ha. of K_2O.

Sub-plot treatments:

16 Varieties : V_1=N.P. 781, V_2=N.P. 798, V_3=N.P. 824, V_4=N.P. 839, V_5=N.P. 852, V_6=N.P. 862, V_7=N.P. 874, V_8=N.P. 887, V_9=Pb.c.—281, V_{10}=Pb.c.—303, V_{11}=Pb.c,—306, V_{12}=Sonara - 63, V_{13}=Sonara—64, V_{14}=K. 61, V_{15}=K.65 and V_{16}=K. 68.

3. DESIGN.

(i) Split-plot (ii) (a) 2 Main-plot/replication; 16 sub-plots/Main plot (b) N.A. (iii) 4 (iv) (a) and (b) 5.4m.×3.6m. (v) Nil. (vi) Yes.

4. GENERAL:

(i) Good (ii) Nil (iii) Yield of grain (iv) (a) 1964—only (b) and (c) —. (v) to (vii) Nil.

5. RESULTS :

(i) 1745Kg/ha. (ii) (a) 63.62Kg/ha. (b) 74.8Kg/ha. (iii) Main effects of F, V and interaction F×V are highly significant. (iv) Av. yield of grain in Kg/ha.

	V_1	V_2	V_3	V_4	V_5	V_6	V_7	V_8	V_9	V_{10}	V_{11}	V_{12}	V_{13}	V_{14}	V_{15}	V_{16}	mean
F_1	1911	1690	2305	1880	1932	1752	1568	1754	2219	1942	2151	1685	999	1692	1877	2216	1848
F_2	1851	1653	1942	1541	1912	1548	1247	1521	2087	1322	1938	1387	985	1475	1809	2044	1641
mean	1881	1671	2123	1710	1922	1650	1408	1638	2153	1632	2045	1536	992	1583	1843	2130	1745

C.D. for F marginal means=35.8Kg/ha.

C.D. for V marginal means=74.4Kg/ha.

C.D. for V means at the same level of F=105.2Kg/ha.

C.D. for F means at the same level of V=107.7Kg/ha.

Crop :- Wheat (*Rabi*). **Ref :- U.P. 65 (56)**

Site :- Govt. Reg. Agri. Res. Stn., Varanasi. **Type :- 'MV'.**

Object :—To see the effect of levels of N on different Varieties of Wheat.

1. BASAL CONDITIONS:

(i) (a) *Sanai*-Wheat (b) *Sanai* (c) Nil (ii) Loam (iii) Ist Week of Nov., 65 (iv) (a) 2 ploughings (b) Line sowing behind the plough (c) 92Kg/ha. (d) Rows 23cm. apart (e) — (v) 40Kg/ha. of P_2O_5+40Kg/ha. of K_2O+*Sanai* G.M. (vi) As per treatments (vii) Irrigated (viii) Hoeing by hand hoe (ix) 3.7cm. (x) IInd week of April, 66.

2. TREATMENTS:

Main-plot treatments:

4 levels of N : N_1=40, N_2=60, N_3=80 and N_4=100Kg/ha.

Sub-plot treatments :

9 Varieties of Wheat : V_1=H.D. 1303, V_2=H.b. 205-8-1, V_3=H.D. 310-624, V_4=C-13, V_5=Pb.c.-306, V_6=Rs. 31-1, V_7=M.P. Hyb. 65, V_8=N.P. 862 and V_9=K. 68.

3. DESIGN :

(i) Split-plot (ii) (a) 4 Main-plots/replication; 9 sub-plots/main plot (b) N.A. (iii) 3 (iv) (a) and (b) 6 10m×1.03m (v) Nil (vi) Yes.

4. GENERAL :

(i) Good except in V_8 (ii) Nil (iii) Yield of grain (iv) (a) 1965—only (b) and (c) — (v) to (vii) Nil.

5. RESULTS :

(i) 3660Kg/ha. (ii) (a) 1132.9Kg/ha. (b) 417 2Kg/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	V_6	V_7	V_8	V_9	mean
N_1	2902	2987	3449	2626	2849	2982	3566	2211	3938	3056
N_2	3311	3455	4098	3476	3439	3731	4162	3699	4465	3759
N_3	3359	3465	4486	3439	3242	3811	4178	3386	4257	3736
N_4	3890	3742	4528	3710	3380	4146	4077	4693	4629	4088
mean	3366	3412	4140	3312	3227	3667	3995	3497	4312	3660

C.D. for V marginal means=340.6Kg/ha.

Crop :- Wheat (*Rabi*) **Ref :- U.P. 63 (488), (64 590)**

Site :- Govt. Reg. Agri. Res. Stn., Varanasi. **Type :- 'MV'.**

Object :—To study the effect of levels of N on different varieties of Wheat.

1. BASAL CONDITIONS:

(i) (a) to (c) N.A. (ii) Loam (iii) 11.12.63; 2.12.1964 (iv) (a) 1 ploughing by mould board, plough, 3 ploughings by *Deshi* plough each followed by planking (b) Sown behind the plough (c) 148.2Kg/ha.; 123.6Kg/ha. (d) Rows 23cm. apart (e) — (v) Nil (vi) As per treatments (vii) Irrigated (viii) Weeding by *Khurpi* and hoeing (ix) 2.7cm; 5.9cm. (x) 22.4.64; 27.4.65.

2. TREATMENTS:

Main-plot treatments :

6 levels of N as A/S : N_0=0, N_1=24.7, N_2=49.4, N_3=74.1, N_4=98.8 and N_5=123.6Kg/ha.

Sub-plot treatments:

4 Varieties : V_1=N.P. 52, V_2=N.P. 710, V_3=N.P. 825, V_4=Hyb. 65.
½N applied as basal on 11.12.63 and 1/2N top dressed on 22.1.64 for 63; 1/2N applied at sowing on 2.12.64 as basal and 1/2N top dressed on 2.1.65 for 64.

3. DESIGN:

(i) Split-plot (ii) (a) 6 main-plots/replication; 4 sub-plots/main-plot (b) 42.97m.×2.74m.; 34.75m.×2.74m. (iii) 4 (iv) (a) 2.74m.×0.91m. (b) 2.13m.×0.68m. (v) 30cm.×12cm. (vi) Yes.

4. GENERAL:

(i) Satisfactory (ii) Nil (iii) Yield of grain (iv) (a) 1963—64 (b) No. (c) Nil. (v) Nil (vi) Nil (vii) As the main-plot error variances are heterogenecus and main-plot treatments×years interaction is absent, results of individual years have been presented under 5. Results.

5. RESULTS:

63 (488)

(i) 1833Kg/ha (ii) (a) 523.7Kg/ha. (b) 298.9Kg/ha. (iii) Main effect of N is highly significant. Interaction V×N is significant (iv) Av. yield of grain in Kg/ha.

	N_0	N_1	N_2	N_3	N_4	N_5	mean
V_1	969	1508	1829	2050	2077	2045	1746
V_2	695	1457	1790	2101	2038	2474	1759
V_3	658	1695	1865	2386	2548	2248	1900
V_4	746	1343	1852	2098	2515	2999	1925
mean	767	1501	1834	2158	2294	2442	1833

C.D. for N marginal means=394.5Kg/ha.
C.D. for N means at the same level of V=538.6Kg/ha.
C.D. for V means at the same level of N=424.1Kg/ha.

64 (590)

(i) 1797Kg/ha. (ii) (a) 263.9Kg/ha. (b) 272.7Kg/ha. (iii) Main effects of N and V are highly significant. Interaction V×N is significant (iv) Av. yield of grain in Kg/ha.

	N_0	N_1	N_2	N_3	N_4	N_5	mean
V_1	685	1401	1775	2180	2211	1924	1696
V_2	642	1238	1766	2214	2761	2443	1844
V_3	787	1006	1536	1783	1922	2358	1565
V_4	811	1278	2125	2569	2716	2998	2083
mean	731	1230	1801	2186	2402	2431	1797

C.D. for N marginal means=198.8Kg/ha.
C.D. for V marginal means=157.9Kg/ha.
C.D. for N means at the same level of V=389.5Kg/ha.
C.D. for V means at the same level of N=387.0Kg/ha.

Crop :- Wheat (*Rabi*). **Ref :- U.P. 65 (449).**

Site :- Govt. Reg. Agri. Res, Stn., Varanasi. **Type :- 'MV'**

Object: —To study the response of Varieties to different levels of N.

1. BASAL CONDITIONS:

(i) (a) to (c) N.A. (ii) Loam. (iii) N.A. (iv) (a) 3 ploughings (b) Behind the plough. (c) 100Kg/ha. (d) Rows 23cm. apart (e) — (v) 60Kg/ha. of P_2O_5+40Kg/ha. K_2O (vi) As per treatments (vii) Irrigated (viii) 1 to 2 weedings and hoeings (ix) 7.5cm. (x) N.A.

2- TREATMENTS :

Main-plot treatments :

3 levels of N as A/S : N_0 =0, N_1=60 and N_2=120Kg/ha.

Sub-plot treatments :

14 Varieties : V_1=Sonara 63, V_2=S. 305, V_3=Nadadores, V_4=C. 306, V_5=P.V.14, V_6=S. 307, V_7=S. 503, V_8=S. 331, S_9=Lerma Rojo, V_{10}=S. 308, V_{11}=S. 227, V_{12}=Penjamo 62, V_{13}=S. 326, and V_{14}=Sonara 64. 1/2 N as basal and 1/2 N top dressed.

3. DESIGN :

(i) Split-plot (ii) (a) 3 main-plots/replication; 14 sub-plots/ main-plot (b) N.A. (iii) 4 (iv) (a) 4.88m. × 1.83m. (b) 4.27m × 1.60m. (v) 30cm × 12cm. (vi) Yes.

4. GENERAL :

(i) Normal (ii) Nil (iii) Yield of grain (iv)(a) 1965-Contd. (contd. in modified form) (b) No. (c) Nil. (vii) Nil

5. RESULTS :

(i) 2540Kg/ha. (ii) (a) 448.5Kg/ha (b) 331.0Kg/ha. (iii) Main effects of N, V and interaction N × V are highly significant. (iv) Av. yield of grain in Kg/ha.

	V_1	V_2	V_3	V_4	V_5	V_6	V_7	V_8	V_9	V_{10}	V_{11}	V_{12}	V_{13}	V_{14}	mean
N_0	1390	1339	699	1661	1647	1566	1164	1570	1588	1112	1394	1555	1076	1325	1363
N_1	3304	2847	1712	2576	3129	3011	2250	2748	2733	2957	3125	3340	2667	2766	2797
N_2	3524	3699	1870	2196	3945	3817	3297	3582	3666	3758	4032	3656	3619	3776	3460
mean	2739	2629	1427	2144	2907	2798	2237	2633	2662	2609	2850	2850	2454	2622	2540

C.D. for N marginal means=207.4Kg/ha.

C.D. for V marginal means=267.9Kg/ha.

C.D. for V means at the same level of N=464.2Kg/ha.

C.D. for N means at the same level of V=491.4Kg/ha.

Crop :- Wheat (*Rabi*) **Ref :- U.P. 64 (363)**

Site.-Res. Farm, College of Agri., B.H.U., Varanasi, **Type :- 'MV'.**

Object :—To see the effect of forms of N on the growth, yield and quality of two Wheat Varieties.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Fallow (c) Nil (ii) Loam (iii) 10.11.64 (iv) (a) 2 ploughings followed by discing (b) Seed dibbled behind the plough (c) 90Kg/ha. (d) 23cm. between rows (e) — (v) 22.4Kg/ha. of P_2O_5 as Super+ 22.4Kg/ha. of K_2O as Mur. Pot prior to sowing. (vi) As per treatments (vii) Irrigated (viii) Weeding and hoeing (ix) 5.1cm. (x) April, 65.

2. TREATMENTS :

All combinations of (1) and (2).

(1) 2 Varieties : V_1=H. 65, and V_2=N.P. 798.

(2) 5 forms of N : F_1=A/S at 67.2Kg/ha, F_2=A/S/N, F_3=A/C, F_4=C/A/N and F_5=Urea.

1/3rd dose of N applied at sowing and the remaining dose with I and II irrigations.

3. DESIGN:

(i) Fact. in R.B.D. (ii) (a) 10 (b) N.A. (iii) 4 (iv) (a) 6.09m.×4.57m. (b) 5.49m.×3.96m. (v) 30cm×30cm. (vi) Yes.

4. GENERAL :

(i) Good (ii) Nil (iii) Grain and straw yield, (iv) (a) 1964—only (b) and (c) — (v) to (vii) Nil.

5. RESULTS:

(i) 3183Kg/ha. (ii) 579.6Kg/ha. (iii) None of the effects is significant (iv) Av. yield of grain in Kg/ha.

	F_1	F_2	F_3	F_4	F_5	mean
V_1	3620	3404	3036	3390	3243	3339
V_2	3358	3036	2990	2714	3036	3027
mean	3489	3220	3013	3052	3139	3183

Crop :-Wheat (*Rabi*) **Ref :-U.P. 65(536)**

Site :-Allahabad Agri. Instt., Allahabad. **Type :-'C'**

Object :—To study the effect of different cultural operations for bed preparation on the yield of Wheat.

1. BASAL CONDITIONS :

(i) (a) Nil (b) Maize (c)56Kg/ha. of N+54—Kg/ha. of P_2O_5+55Kg/ha. of K_2O (ii)Sandy loam (iii) 9.11.65. (iv) (a) As per treatments (b) Sown by a bullock—drawn seed—drill. (c) and (d) N.A. (e)— (v) 14.4Kg/ha. N as G.M.+28.8Kg/ha. of P_2O_5+72Kg/ha. of K_2O, 45.0Kg/ha of N as Urea top dressed 6 weeks after sowing (vi) C—13 (vii) Irrigated (viii) N.A. (ix) 22.5cm. (x) N.A.

2. TREATMENTS:

8 Cultural treatments : C_1=Field cultivator run 4 times, C_2=Field cultivator run 8 times, C_3=Field cultivator run 12 times, C_4=One ploughing and 2 disc harrowings, C_5=One ploughing and 3disc harrowings. C_6=2 ploughings and 3 disc harrowings, C_7=One *roto* tilling and C_8=1 ploughing.

3. DESIGN:

(i) R.B.D. (ii) (a) 8 (b) N.A. (iii) 3 (iv) (a) 12.2m.×6.1m. (b) N.A. (v) N.A. (vi) Yes.

4. GENERAL:

(i) Lodging up to 40% (ii) N.A. (iii) Yield of grain (iv) (a) 1965 –only (b) and (c)—. (v) and (vi) Nil (vii) In order to control weeds *Atrazine* was sprayed 3 days before topdressing at 0.5Kg/ha. Plot-wise yield data N.A.

5. RESULTS:

(i) 1437Kg/ha. (ii) N.A. (iii) Treatment differences are not significant (iii) Av. yield of grain in Kg/ha.

Treatment :	C_1	C_2	C_3	C_4	C_5	C_6	C_7	C_8
Av. yield :	1397	1397	1602	1454	1314	1274	1643	1415

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Crop :- Wheat (*Rabi*). **Ref :- U.P. 65 (535).**

Site :-Allahabad Agri. Instt., Allahabad. **Type :- 'C'.**

Object :—To find the minimum tillage requirement for Wheat crop.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Sandy loam (iii) 9, 10.11.65 (iv) (a) As per treatments (b) N.A. (c) 75Kg/ha. (d) Rows 23cm. apart. (e) — (v) 62.5Kg/ha. N as C/A/N. (vi) N.A. (vii) Irrigated (viii) N.A. (ix) 22.5cm. (x) N.A.

2. TREATMENTS :

3 Cultural treatments : C_1=4 ploughings with disc plough and each followed by planking, C_2=1 ploughing with mouldboard plough, 3 disc harrowings and each followed by planking and C_3=1 ploughing with mouldboard plough followed by planking.

3. DESIGN :

(i) R.B.D. (ii) (a) 3 (b) N.A. (iii) 4 (iv) (a) 13.41m×11.88m. (b) 12.50m×11.88m. (v) 46cm on other side along length (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (ii) Yield of grain (iv) (a) 1965 –only (b) and (c) — (v) to (vii) Nil.

5. RESULTS :

(i) 1429Kg/ha. (ii) 181.4Kg/ha. (iii) Treatment differences are not significant (iv) Av. yield of grain in Kg/ha.

Treatment :	C_1	C_2	C_3
Av. yield :	1292	1561	1433

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Crop :- Wheat (*Rabi*). **Ref :- U.P. 60(412), 61(433), 62(492),**

Site :- Govt. Reg. Agri. Res. Stn., Amrukh. **63(612). Type :- 'M'**

Object :—To study the effect of inter—culture on Wheat.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) *Kabar* and *Parwa* (iii) 10—10—60; 28—10—61; 20—10—62; 4—11—63 (iv) (a) 2 to 3 ploughings (b) Line sowing behind the plough (c) 92-2Kg/ha. (d) Rows 30cm. apart (e)— (v) Nil for 60 and 61; *Soaai* (G.M.) for 62 and 22.4Kg/ha. of N+22.4Kg/ha. of P_2O_5 for 63. (vi) Pb. 591 (vii) Irrigated (viii) As per treatments (ix) 1cm. 8 for 63; N.A. for others. (x) N.A.; 1.5.62; 23.7.62; 16/17.4.64.

2. TREATMENTS :

5 Cultural treatments : T_0=Control (No hoeing), T_1=One hoeing with *Deshi* plough, T_2=One hoeing with plough and another with *Khurpi*. T_3=Hoeing with hoe, and T_4=Hoeing with hoe and another with *Khurpi*.

3. DESIGN :

(i) R.B.D. (ii) (a) 5 (b) N.A. (iii) 6 for 60, and 4 for others. (iv) (a) and (b) 5.49m.×9.14m. for 60 and 61; 10.97m×9.14m 62 and 63 (v) Nil (vi) Yes.

4. GENERAL:

(i) Good.(ii) Nil (iii) Yield of grain (iv) (a) 1960—63 (b) No (c) Results of combined analysis have been presented under 5. Results. (v) and (vi) Nil. (vii) Error variances are homogeneous and treatments×years interaction is absent.

5. RESULTS :

Pooled results :

(i) 934Kg/ha. (ii) 160.3Kg/ha. (based on 68 d.f. made up of pooled error and treatments×years interaction) (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 :	853	958	883	1038	938

C.D.=106.6Kg/ha

Individual Results :

	T_0	T_1	T_2	T_3	T_4	Sig.	G.M.	S.E./plot
1960	546	716	643	821	728	N.S.	691	181.4
1961	947	1246	1096	1296	1096	N.S.	1136	184.6
1962	792	718	603	817	797	N.S.	746	103.0
1963	1281	1272	1308	1328	1237	N.S.	1285	135 9
Pooled	853	958	883	1038	938	*	934	160.3

Crop :- Wheat (*Rabi*). **Ref:-U.P. 61 (255), 62(295).**

Site :- R.B.S. College, Bichpuri **Type :- "C.**

Object :—To see the effect of different methods and dates of planting on the yield of Wheat.

1. BASAL CONDITIONS :

(i) (a) Nil (b) *Sorghum* (fodder); Fallow (c) N.A; Nil (ii) Sandy loam (iii) As per treatments (iv) (a) 1 ploughing, levelling and harrowing (b) As per treatments (c) 86Kg/ha. (d) 23cm × 11cm.(e)As per treatments (v) 44.8Kg/ha. of P_2O_5 as Super before sowing+67.2Kg/ha. of N as A/S broadcasted just before sowing (vi) Pb. 591 (vii) Irrigated (viii) Weeding and roughing (ix) 6.3cm; 1.2cm. (x) 26.4.62; 19.4.63.

2. TREATMENTS :

All combinations of (1) and (2).

(1) 5 methods of sowing : M_1=By drilling (Cultivators method), M_2=Dibbling (one seed per hole), M_3=Dibbling (2 seeds per hole), M_4=Transplanting (one plant per hole) and M_5=Transplanting (2 plants per hole).

(2) 2 dates of sowing ; D_1=31 Oct., and D_2=20th Nov.

3. DESIGN :

(i) Fact. in R.B.D. (ii) (a) 10 (b) N.A. (iii) 4 (iv) (a) 10.06m. × 6.40m.; 10.06m. × 4.57m. (b) 9.14m. × 5.49m.; 9.14m. × 3.66m. (v) 46cm × 46cm. (vi) Yes.

4. GENERAL :

(i) Good (ii) Pest (T. *Indicus*) noticed. 10% B.H.C. dusting dose at 23Kg/ha. (iii) Yield of grain (iv) (a) 1961—62 (b) and (c) — (v) and (vi) Nil (vii) Raw data N.A.

5. RESULTS:

61 (255)

(i) 2820Kg/ha (ii) 295·6Kg/ha (iii) Main effect of D is significant (iv) Av. yield of grain in Kg/ha.

Treatment :	M_1	M_2	M_3	M_4	M_5	D_1	D_2
Av. yield :	2600	2790	2692	3013	2947	2944	2697

C.D. for D marginal means=192.1Kg/ha

62 (295)

(i) 2726Kg/ha (ii) 272.7Kg/ha. (iii) Main effect of D is highly significant and that of M is significant (iv) Av. yield of grain in Kg/ha.

Treatment :	M_1	M_2	M_3	M_4	M_5	D_1	D_2
Av. yield :	2413	2838	2656	2733	2990	2855	2597

C.D. for D marginal means=176.9Kg/ha

C.D. for M marginal means=279.7Kg/ha.

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Crop :- Wheat (*Rabi*). **Ref :- U.P. 60 (400)**

Site :- State Soil Cons. Res. Demons. & Trg. Farm, Chhalesar. **Type :- 'C'.**

Object: —To determine the optimum seed —rate and spacing for Wheat under irrigated conditions.

1, BASAL CONDITIONS:

(i)(a)Wheat Fallow—Wheat(b)Fallow (c) Nil (ii) Sandy loam. (iii) N.A. (iv) (a) 2 tractor ploughings 2 T.D. ploughings, one ploughing by *Deshi* plough and 2 planfaings (b) Line sewing (c) and (d) As per treatments (e) — (v) 150Q/ha. of compost (vi) Pb. 591 (vii) Irrigated (viii) 1 weeding (ix) 9.7cm (x) N.A.

2. TREATMENTS:

All combinations of (1) and (2).

(1) 3 seed-rates : R_1=56.7, : R_2=68.0 and R_3=79.4Kg/ha.

(2) 3 spacings between rows : S_1=23cm, S_2=30cm. and S_3=37cm.

3. DESIGN :

(i) Fact. in R.B.D. (ii) (*a*) 9 (b) N.A. (iii) 4 (iv) (a) 7.92m×5.18m (b) 7.32m×4.57m. (v) 30cm×30cm. (vi) Yes.

4. GENERAL :

(i) Good (ii) Nil (iii) Yield of grain (iv) (a) 1958—60 (b) Yes (c) Nil (v) to (vii) Nil.

5. RESULTS :

(i) 1542Kg/ha (ii) 157.4Kg/ha (iii) Interaction R ×S alone is significant (iv) Av. yield of grain in Kg/ha.

	R_1	R_2	R_3	mean
S_1	1346	1591	1755	1564
S_2	1586	1586	1298	1490
S_3	1629	1424	1665	1572
mean	1520	1534	1573	1542

C.D. for means in the body of table=229.7Kg/ha.

Crop :- Wheat (*Rabi*). **Ref :- U.P. 63(603).**

Site :- State Soil Cons. Res. Demons. & Trg. Farm, Chhalesai. **Type :- 'C'.**

Object :—To determine the optimum seed—rate and spacing for Wheat under unirrigated conditions.

1. BASAL CONDITIONS:

(i) (a) Wheat-Fallow-Wheat (b) Fallow (c) — (ii) Sandy loam. (iii) 4/5.11.63 (iv) (a) 3 discharrowings and 2 ploughings by *Deshi* plough. (b) Line sowing (c) and (d) As per treatments (e) – (v) N.A. (vi) Pb. 591 (vii) Unirrigated. (viii) N.A. (ix) 0.56cm. (x) 4.12.64.

2. TREATMENTS:

All combinations of (1) and (2).

(1) 3 seed-rates: R_1=69.1, R_2=80.2 and R_3=91Kg/ha.

(2) 4 spacings between rows: S_1=22.5, S_2=30.0, S_3=37.5 and S_4=45.0cm.

3. DESIGN:

(i) Fact in R.B.D. (ii) (a) 12 (b) N.A. (iii) 3 (iv) (a) 5.49m×4.88m (b) 4.88m×4.27m (v) 30cm×30cm (vi) Yes.

4. GENERAL:

(i) Good (ii) Nil (iii) Yield of grain (iv) (a) 1963—only (b) and (c) — (v) to (vii) Nil.

5. RESULTS:

(i) 550Kg/ha. (ii) 322.6Kg/ha (iii) None of the effects is significant (iv) Av. yeild of grain in Kg/ha.

	S_1	S_2	S_3	S_4	mean
R_1	557	773	417	702	612
R_2	628	532	621	395	544
R_3	406	553	613	403	494
mean	530	619	550	500	550

Crop :- Wheat (*Rabi*). **Ref :- U.P. 60(373), 62 (411), 63 (491),**

Site :- State Usar Reclamation Farm, **64 (604), 65 (457).**

Dhakauni. **Type :- 'C'**

Object :—To study the effect of leaching with water in the re-clamation of saline—alkali soils.

1. BASAL CONDITIONS :

(i) (a) *Dhaincha*. (G.M.)—Wheat (b) *Dhaincha* (G.M.) (c) Nil (ii) Saline—Alkali soil (iii) 30.10.60; 1.11.62; 15.11.63; 12.11.64; 18.11.65 (iv) (a) 4 ploughings (b) By seed-drill (c) 99Kg/ha (d) Rows 15cm. apart (e) — (v) G.M. *Dhaincha* (vi) N.P. 710 (vii) Irrigated (viii) Weeding (ix) 9cm; 3cm; Nil; 13cm; 3cm. (x) 18.4.61; 8.4.63; 15.4.64; 23.4.65; 3.5.66.

2. TREATMENTS :

2 leaching treatments :

T_0=Control (vnteated) T_1=Leachad with water.

3. DESIGN :

(i) R.B.D. (ii) (a) 2 (b) N.A. (iii) 8 (iv) (a) N.A. (b)=1/4.9ha. (v) N.A. (vi) Yes.

4. GENERAL :

(i) Normal (ii) Nil (iii) Yield of grain (iv) (a) 1952-Contd. (Data for 61 N.A.) (b) Yes. (c) Nil (v) N.A. (vi) Nil (vii)Plot-wise yield for 1964 N.A., As the experiment is continued beyond 1965, results of individual years have been presented under 5. Results.

5. RESULTS :

60 (373)

(i) 709Kg/ha. (ii) 149.3Kg/ha. (iii) Treatment difference is not significant (iv) Av. yield of grain in Kg/ha.

Treatment :	T_0	T_1
Av. yield :	484	934

62 (411)

(i) 704Kg/ha. (ii) 28.0Kg/ha. (iii) Treatment difference is not significant (iv) Av. yield of grain in Kg/ha.

Treatment :	T_0	T_1
Av. yield :	381	1028

63 (491)

(i) 731Kg/ha. (ii) 136.9Kg/ha. (iii) Treatment difference is not significant (iv) Av. yield of grain in Kg/ha.

Treatment :	T_0	T_1
Av. yield :	409	1053

64 (604)

(i) 742Kg/ha (ii) and (iii) N.A. (iv) Av. yield of grain in Kg/ha.

Treatment :	T_0	T_1
Av. yield :	424	1060

65 (457)

(i) 344Kg/ha (ii) 43.7Kg/ha. (iii) Treatment difference is not significant (iv) Av. yield of grain in Kg/ha.

Treatment :	T_0	T_1
Av. yield :	270	418

Crop :- Wheat (*Rabi*). **Ref :-U.P. 60(374), 62 (412), 63 (492), 64 (605), 65 (458)**

Site :- State Usar Reclamation Farm, Dhakauni. **Type :- 'C'.**

Object :—To study the effect of leaching with water in the re-clamations of saline-alkali soils.

1. BASAL CONDITIONS :

(i) (a) Dhaincha (G.M.)—Wheat (b) Dhaincha (G.M.) (c) N.A. (ii) Saline alkali soils. (iii) 30.10.60; 1.11.62; 15.11.63; 12.11.64; 18.11.65 (iv) (a) 4 ploughings (b) By seed-drill (c) 98.8Kg/ha. (d) Rows 15cm. apart (e) — (v) G.M. by *Dhaincha* (vi) N.P. 718 in 60.; N.P. 710 in others. (vii) Irrigated (viii) Weeding (ix) 9.0cm.; 3.0cm.; Nil; 13.0cm: 3.0cm. (x) 18.4.61; 8.4.63; 15.4.64; 23.4.65; 3.5.66.

2. TREATMENTS:

2 leaching treatments : T_1=Control (untreated) and T_2=Leached with water only.

3. DESIGN :

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

4. GENERAL:

(i) Normal (ii) Nil (iii) Yield of grain (iv) (a) 1951-contd. (Data for 61N.A.) (b) Yes (c) Nil (v) and (vi) Nil (vii) Plot-wise yield data for 1964 N.A. As the expriment is continued beyound 1965, results of individual years have been presented under 5. Results.

5. RESULTS:

60 (374)

(i) 675Kg/ha (ii) 103.2Kg/ha (iii) Treatment difference is not significant (iv) Av. yield of grain in Kg/ha.

Treatment :	T_0	T_1
Av. yield :	330	1020

62 (412)

(i) 230Kg/ha (ii) 29.5Kg/ha (iii) Treatment difference is not significant (iv) Av. yield of grain in Kg/ha.

Treatment :	T_0	T_1
Av. yield :	123	336

63 (492)

(i) 259Kg/ha (ii) 37.5Kg/ha (iii) Treatment difference is not significant (iv) Av. yield of grain in Kg/ha.

Treatment :	T_0	T_1
Av. yield :	146	373

64 (605)

(i) 698Kg/ha (ii) and (iii) N.A. (iv) Av. yield of grain in Kg/ha.

Treatment:	T_0	T_1
Av. yield :	460	936

65 (458)

(i) 336Kg/ha (ii) 52.5Kg/ha. (iii) Treatment difference is not significant (iv) Av. yield of grain in Kg/ha.

Treatment :	T_0	T_1
Av. yield :	308	364

Crop :- Wheat (*Rabi*). **Ref. :-U.P. 61(428)**

Site :- Govt. Agri. Farm, Girthan. **Type :-'C'.**

Object :—To study the effect of inter-culture on Wheat crop in *Mar* soil of Bundelkhand region.

1. BASAL CONDITIONS:

(i) (a) to (c) N.A. (ii) *Mar* soil (iii) 1.12.61 (iv) (a) 2 to 3 ploughings *Bukhar* plough and pataing (b) Line sowing behind *Nari* plough (c) 92Kg/ha. (d) Rows 30cm. apart (e) N.A. (v) Nil (vi) Pb.—591 (vii) Irrigated (viii) As per treatments. (ix) N.A. (x) 11.2.62.

2. TREATMENTS:

5 Cultural treatments:

T_0=No hoeing (control), T_1=Hoeing with *deshi* plough, T_2=Hoeing with *deshi* plough and hoeing with *Khurpi*, T_3=Hoeing with hoe and T_4=Hoeing with hoe and hoeing with *Khurpi*.

3. DESIGN:

(i) R.B.D. (ii) (a) 5 (b) N.A. (iii) 4 (iv) (a) and (b) 1/197.6ha. (v) Nil (vi) Yes.

4. GENERAL:

(i) Good (ii) Nil (iii) Yield of grain (iv) (a) 1961—only (b) and (c) —. (v) to (vii) Nil.

5. RESULTS:

(i) 797Kg/ha (ii) 102.9Kg/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 :	809	939	704	809	726

Crop :-Wheat (*Rabi*). **Ref :- U.P. 60 (130), 61(137), 62(116).**

Site:- Jute Res. Stn., Gograghat. **Type :- 'C'.**

Object:—To test certain improved agronomic practices to find out whether the soil after Jute crop improves to a certain extent under edpho-climatic conditions.

1. BASAL CONDITIONS:

(i) (a) Jute-Wheat (b) Jute J.R.O. 632 (c) Nil (ii) Sandy soil (iii) 4.11.60; 14.11.61; 4.11.62 (iv) (a) 5 ploughings and 1 application of pata (b) Line sowing behind the plough (c) 69Kg/ha. for 60 and 61; 92Kg/ha. for 62 (d) Rows 23cm. apart. (e) — (v) Nil for 60 and 61; 33.6Kg/ha of N as A/S+22.4Kg/ha of P_2O_5 as Super for 62. (vi) N.P. 760 for 60 and 61; C—281 for 62 (vii) Unirrigated (viii) 1 hoeing and 1 weeding (ix) 0.3cm; 6.0cm.; 4.0 cm (x) 29.3.61; 6/7.4.62; 27.3.63.

2. TREATMENTS:

4 Cultural treatments:

T_0=No Jute, T_1=Jute grown as usual but tops and non-fibre producing branches not returned, T_2=Jute grown as usual but tops and non-fibre producing branches returned and T_3=Jute grown as usual but tops and non-fibre producing branches of the plots under this treatment and treatment T_1 returned.

3. DESIGN:

(i) R.B.D. (ii) (a) 4 (b) 24.99m.×22.56m. (ii) 6 (iv) 10.97m.×12.19m. (b) 9.75m.×10.97m. (v) 61cm.×61cm. (vi) Yes.

4. GENERAL :

(i) Good (ii) Dusting with gammaxine against attack of weevil for 60; N.A. for others (iii) Yield of grain (iv) (a) 1960—62 (b) Yes (c) Nil (v) and (vi) Nil. (vii) As the error variances are heterogeneous and Treatments × years interaction is absent, results of individual years have been presented under 5. Rusults.

5. RESULTS :

60 (130)

(i) 1226Kg/ha (ii) 158.9Kg/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 :	759	1262	1409	1474

C.D.=195.4Kg/ha.

61 (137)

(i) 794Kg/ha. (ii) 120.6Kg/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 :	444	888	910	935

C.D.=148.6Kg/ha.

62 (116)

(i) 1010Kg/ha (ii) 256.1Kg/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 :	838	1045	1107	1049

Crop. :- Wheat (*Rabi*). **Ref. :- U.P. 60(71), 61(78)**

Site :- Govt. Res. Farm, Kanpur **Type :- 'C'**

Object :—To study the effect of North-South *Vs.* East-West sowings of Wheat under irrigated conditions.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Loam (iii) 19.10.60; 20.11.61 (iv) (a) N.A.; (b) Line sowing behind the plough (c) 90Kg/ha. (d) Rows 23cm. apart; (e)— (v) 44.8Kg/ha. of N as A/S; N.A. (vi) C—13 (medium) (vii) Irrigated (viii) 1 inter-culturing; N.A. (ix) 6.3cm.; 6.9cm. (x) 12.4.61; 5.5.62.

2. TREATMENTS :

2 Directions of sowing : D_1=North-South and D_2=East—West sowing.

3. DESIGN :

(i) R.B.D. (ii) (a) 2 (b) 11.89m. × 5.49m.; N.A. (iii) 7;8 (iv) (a) 5.49m. × 5.49m. (b) 4.88m. × 4.88m. (v) 30cm × 30cm (vi) Yes.

4. GENERAL :

(i) Satisfactory (ii) Incidence of black rust (iii) Yield of grain (iv) (a) 1960–61 (b) No. (c) Results of combined analysis have been presented under 5. Results. (v) and (vi) Nil. (vii) The error variances are homogeneous and Treatment × years interaction is absent.

5. RESULTS :

Pooled results :

(i) 1503Kg/ha (ii) 154.0Kg/ha (based on 14 d.f. made up of pooled error and Treatments × years interaction) (iii) Treatment difference is not significant (iv) Av. yield of grain in Kg/ha.

Treatment :	D_1	D_2
Av. yield :	1505	1501

Individual results :

Treatment	D_1	D_2	Sig.	G.M.	S.E./plot
Years					
1960	1736	1742	N.S.	1739	111.8
1961	1303	1290	N.S.	1297	191.4
Pooled	1505	1501	N.S.	1503	154 0

Crop :- Wheat (*Rabi*). **Ref :- U.P. 60(72), 61(79),**

Site :- Govt. Res. Farm, Kanpur. **Type :- 'C'**

Object :—To study the effect of North-South *Vs.* East-West sowings under unirrigated conditions.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Loam (iii) 20.11.60; 24.11.61 (iv) (a) N.A. (b) Line sowing behind the plough (c) 90Kg/ha (d) 23cm. apart (e) — (v) Nil (vi) C–13 (medium) (vii) Unirrigated (viii) N.A. (ix) 6.3cm; 6.9cm. (x) 24.4.61; N.A.

2. TREATMENTS :

2 Directions of sowings : D_1 = North – South and D_2 = East – West sowing.

3. DESIGN :

(i) R.B.D. (ii) (a) 2 (b) N.A. (iii) 7. (iv) (a) 5.49m × 5.49m (b) 4.88m × 4.88m (v) 30 cm × 30 cm (vi) Yes.

4. GENERAL :

(i) Satisfactory (ii) Incidence of blacks brown results. (iii) Yield of grain (iv) (a)1958—61 (b) No, (c) Results of combined analyses have been presented under 5. Results. (v) and (vi) Nil (vii) Error variances are heterogeneous and Treatment × years interaction is present. Expts. No. 58 (214) and 59 (226) have also been included while combining the results.

5. RESULTS :

Pooled results :

(i) 1405Kg/ha (ii) 277.3Kg/ha (based on 3 d.f. made up of Treatment × years interaction) (iii) Treatment differences are not significant (iv) Av. yield of grain in Kg/ha.

Treatment :	D_1	D_2
Av. yield :	1379	1430

Individual results :

Treatment	D_1	D_2	Sig.	G.M.	S.E./plot
years					
1960	1013	869	N.S.	941	154.7
1961	1982	2162	N.S.	2072	201.4
Pooled	1379	1430	N.S.	1405	277.3

Crop :- Wheat *(Rabi)*, **Ref :- U.P. 63(75)**

Site :- Govt. Res. Farm, Kanpur. **Type :- 'C'.**

Object :—To study the effect of earthings at different times on the yield of Wheat.

1. BASAL CONDITIONS:

(i) (a) N.A. (b) Maize (c) N.A. (ii) Loam (iii) 3.12.63; resowing on 17.12.63 (iv) (a) 1 ploughing by spring harrow, cornors digging, 1 *palewa*, 1 ploughing by Victory plough, 1 ploughing by *deshi* plough and *pata* (b) Line sowing behind the plough (c) 91Kg/ha. (d) Rows 23cm. apart (e) — (v) 22.4Kg/ha. of N as F.Y.M. applied on 28.9.63, 44.8Kg/ha of N as A/S applied befor 1st irrigation and 44.8Kg/ha. of N applied as urea before hoeing (vi) N.P. 830 (Early) (vii) Irrigated (viii) As per treatments (ix) 1cm. (x) 1.5.64.

2. TREATMENTS :

4 Cultural treatments: C_0 = Control (no earthing), C_1 = Earthing up after I irrigation, C_2 = Earthing up after II irrigation and C_3 = Earthing up after I and II irrigations.

3. DESIGN :

(i) R.B.D. (ii) (a) 4 (b) 9.14m × 4.57m (iii) 4 (iv) (a) 4.57m. × 1.83m. (b) 3.66m. × 1.37m. (v) 46cm. × 23cm. (vi) Yes.

4. GENERAL :

(i) Good germination (ii) B.H.C. dusting on 18.12.63 as a preventive measure. (iii) Yield of grain (iv) (a) 1963—only (b) and (c) — (v) to (vii) Nil.

5. RESULTS :

(i) 2842Kg/ha (ii) 344.1Kg/ha (iii) Treatment differences are not significant (iv) Av. yield of grain in Kg/ha.

Treatment :	C_0	C_1	C_2	C_3
Av. yield :	2890	2845	2736	2895

Crop :-Wheat (*Rabi*). **Ref:-U.P. 60(70), 61(77), 62(71).**

Site :-Govt. Res. Farm, Kanpur. **Type :-'C'**

Object :—To study the effect of different seed—rates on the yield of Wheat.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Loam (iii) 18.11.60; 20.11.61; 9.11.62 (iv) (a) N.A. (b) Line sowing behind the plough (c) As per treatments (d) Rows 23cm. apart (e) Nil (v) N.A. (vi) C—13 (medium) (vii) Irrigated (viii) N.A. (ix) 6.3cm.; 6.9cm.; 5.6cm. (x) 18.4.61; 5.5.62; 1.5.63.

2. TREATMENTS:

4 Seed-rates ; S_1=89, S_2=133, S_3=178 and S_4=222Kg/ha.

3. DESIGN:

(i) R.B.D. (ii) (a) 4 (b) 6.10m×10.97m for 60; 10.97m×9.14m for others (iii) 6 (iv) (a) 6.10m×2.29m for 60; 10.97m×1.83m for others. (b) 5.49m×1.83m; 10.06m×1.37m.; 9.75m×1.37m. (v) 30cm. at each end; 46cm.×23cm.; 61cm.×23cm. (vi) Yes.

4. GENERAL :

(i) Satisfactory (ii) Incidence of black and brown rusts (iii) Yield of grain(iv) (a) 1960—62 (b)No. (c)Results of combined analysis have been presented under 5. Results. (v) and (vi) Nil (vii) Error Variances are homogenous and Treatment×years interaction is present.

5. RESULTS:

Pooled results :

(i) 2109Kg/ha (ii) 577.8Kg/ha (based on 6 d.f. made up of Treatment×years interaction) (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 :	2138	2123	2152	2021

Individual results :

Treatment	S_1	S_2	S_3	S_4	Sig.	G.M.	S.E./plot
Years							
1960	2727	2718	2455	2326	N.S.	2556	303.9
1961	1365	1389	1722	1802	**	1570	222.3
1962	2323	2261	2280	1935	N.S.	2200	359.3
Pooled	2138	2123	2152	2021	N.S.	2109	577.8

Crop :- Wheat (*Rabi*). **Ref. :-U.P. 60(48)**

Site :-Instt. of Crop Physiology, Dilkusha; Lucknow. **Type :-'C'**

Object :—To study the effect of transplanting and dibbling on the yield of Wheat.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Sandy loam to loam (iii) As per treatments (iv) (a) N.A. (b) As per treatments (c) N.A. (d) 23cm×11cm (e) N.A. (v) N.A. (vi) N.P. 710 (vii) Irrigated (viii) 3 interculturings (ix) 2.8cm. (x) N.A.

2. TREATMENTS :

4 Cultural practices : C_1=Direct sown by dibbling on 12.11.60, C_2=Transplanting on 26.11.60 at the age of 15 days, C_3=Transplanting on 11.12.60 at the age of 30 days and C_4=Direct sown by dibbling on 11.12.60 i.e. at the time of II transplanting.

Note : Nursery sown on 12.11.60.

3. DESIGN :

(i) R.B.D. (ii) (a) 4 (b) N.A. (iii) 3 (iv) (a) N.A. (b) 3.05m×3.05m (v) N.A. (vi) Yes.

4. GENERAL :

(i) and (iii) N.A. (iii) Yield of grain (iv) 1960—only (b) and (c) — (v) to (vii) Nil.

5. RESULTS :

(i) 2150Kg/ha. (ii) 705.2Kg/ha. (iii) Treatment differences are not significant (iv) Av. yield of grain in Kg/ha.

Treatment :	C_1	C_2	C_3	C_4
Av. yield :	2595	2344	2302	1360

Crop:- Wheat (*Rabi*). **Ref:- UP. 60 (235).**

Site :- Govt. Reg. Agri. Res. Stn., Meerut. **Type :- 'C'.**

Object :—To see the effect of Wheat transplanted against Wheat sown behind the plough.

1. BASAL CONDITIONS :

(i) (a) Nil (b) *Dhaincha* G.M. (c) Nil (ii) Loam (iii) 1.11.60 and 1.12.60 (iv) (a) 1 ploughing by soil turning plough and 4 to 5 ploughings by *deshi* plough (b) As per treatments (c) 69.2Kg/ha for M_1 and M_3 (d) Rows 23cm. apart for M_1 and M_3 and 23cm. ×10cm for M_2 (e) 1 in M_2 (v) *Dhaincha* G.M. (vi) Pb. 591 (vii) Irrigated (viii) 1 weeding (ix) 0.4cm (x) 16.5.61.

2 TREATMENTS :

3 methods of sowing:

M_1=Sown behind the plough (normal sowing), M_2=Seedlings transplanted by dibbler (30 days old seedlings) and M_3=Sown behind the plough on the same date as Wheat transplanted in M_2.

3. DESIGN :

(i) R.B.D. (ii) (a) 3 (b) 13.7m×12.8 n (iii) 8 (iv) (a) 13.0 n.×3.60m. (b) 12.80m.×2.74m. (v) 45cm×45cm. (vi) Yes.

4. GENERAL:

(i) Good (ii) Nil (iii) Yield of grain (iv) (a) 1959–60 (b) No. (c) Nil. (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 1813Kg/ha. (ii) 375.3Kg/ha. (iii) Treatment differences are not significant (iv) Av. yield of grain in Kg/ha.

Treatment:	M_1	M_2	M_3
Av. yield :	1746	2028	1664

Crop :- Wheat (*Rabi*). **Ref :- U.P. 62(247).**

Site :- Govt. Reg. Agri. Res. Stn., Meerut. **Type :- 'C'**

Object:—To study the residual effect of intercropping of Maize and Urd on Wheat.

1. BASAL CONDITIONS:

(i) (a) Nil (b) Maize and Urd as per treatments (c) N.A. (ii) Loam (iii) 1.11.62 (iv) (a) One ploughing by S.T P. and 3 to 4 ploughings by *deshi* plough (b) Line sowing behind the plough (c) 86Kg/ha (d) Rows 23cm. apart (e) Nil. (v) 13 :.5Kg/ha of A/S top dressed (vi) P.b. 591 (vii) Irrigated (viii) Nil (ix) 5.2cm (x) 13 and 15.4.63.

2. TREATMENTS :

7 previous crops:

C_1=Maize alone, C_2=Urd alone, C_3=One row of Maize and one row of Urd, C_4=Two rows of Maize and one row of Urd, C_5=Two rows of Maize and two rows of Urd, C_6=One row of Maize and two rows of Urd and C_7=Maize and Urd mixed and sown in limes.

3. DESIGN:

(i) R.B.D. (ii) (a) 7 (b) 53.9m×12.2m. (iii) 4 (iv) (a) 12.19m×7.32m. (b) 11.28m×6.40m. (v) 46cm×46cm. (vi) Yes.

4. GENERAL:

(i) Good (ii) Incedence of smut, roughing done (iii) Yield of grain (iv) (a) 1961–62 (Data for 1961 N.A.) (b) and (c) Ntl (v) to (vii) Nil.

5. RESULTS :

(i) 2596Kg/ha. (ii) 351.8Kg/ha. (iii) Treatment differences are not significant (iv) Av. yield of grain in Kg/ha.

Treatment:	C_1	C_2	C_3	C_4	C_5	C_6	C_7
Av. yield :	2615	2643	2851	2425	2595	2574	2467

Crop :-Wheat (*Rabi*). **Ref.:-U.P. 62(245), 63(260)**

Site :-Govt. Reg. Agri. Res. Stn., Meerut. **Type:-'C'**

Object :—To see the residual effect of Urd, Moong and Lobia inter-sown in Maize on the yield of Wheat.

1. BASAL CONDITIONS:

(i) (a) Nil (b) As per treatments (c) N.A. (ii) Loam (iii) 1.11.62; 3.11.63 (iv) (a) 4 to 5 ploughings (b) Line sowing behind the plough (c) 35Kg/ha. (d) Rows 23cm. apart (e) — (v) 22.4Kg/ha. of N top dressed; 22.4Kg/ha of N and 36.9Q/ha. of F.Y.M applied before sowing (vi) Pb. 591 (vii) Irrigated (viii) Hoeing (ix) 5.2cm; 0.9cm (x) 12.4.63; 16.4.64.

2. TREAMENTS:

4 inter—crops: T_1=Maize alone T_2=Maize+Urd, T_3=Maize+Moong and T_4=Maize+Lobia.

3. DESIGN :

(i) R.B.D. (ii) (a) 4 (b) 6.10m×45.70m. (iii) 6 (iv) (a) 10.97m×6.10m (b) 10.06m×5.18m. (v) 46cm×46cm (vi) Yes.

4. GENERAL:

(i) Good (ii) Incidence of smut for which roughing done (iii) Yield of grain (iv) (a) 1962 - 63 (b) No (c) Nil. (v) No (vi) Nil. (vii) As the error variances are heterogeneous and Treatments×years interaction is absent, the results of individual years, have been presented under 5. Results.

5. RESULTS :

62 (245)

(i) 2530Kg/ha (ii) 137.8Kg/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 :	2558	2526	2574	2462

63 (260)

(i) 2280Kg/ha. (ii) 338.6Kg/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 :	2174	2053	2430	2462

Crop :- Wheat (*Rabi*). **Ref :-U.P. 60(23), 61(35), 62 (19).**

Site :- State Soil Cons. Res, Demons and Trg. Centre, Rehmankhera. **Type :-'C'.**

Object :—To study the best time and method of cultivation of fields for Wheat.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Loamy sand (iii) 1.11.60; 5, 6.11.61; N.A. (iv) (a) As per treatments (b) Sown behind the plough (c) 92 Kg/ha. (d) Rows 23cm. apart (e) — (v) N.A. for 60; 33.6Kg/ha of P_2O_5 applied 12.5cm deep with last ploughing+44.8Kg/ha of N as C/A/N for 61; 33.6Kg/ha of P_2O_5 as Super for 62 (vi) N.P. 710. (vii) Irrigated (viii) 2 hoeings for 60; N.A. for others (ix) N.A. (x) 2.4.61; 24 to 30.4.62; N.A.

2. TREATMENTS :

Main-plot treatments:

Ploughings by soil turning plough : S_1 =All ploughings by *deshi* plough, S_2=One ploughing in July by soil turning plough, rest by *deshi* plough, S_3=One ploughing in August by soil turning plough rest by *deshi* plough and S_4=One ploughing each in July and August by soil turning plough and rest by *deshi* plough.

Sub-plot treatments :

Ploughings by *deshi* plough : P_1=Ploughings during every gap in rains right from the start of rains, P_2=Ploughings during every gap in rains from Ist August, P_3=Ploughings during every gap in rains from Ist September and P_4=Ploughings during every gap in rain from 15th September.

3. DESIGN :

(i) Split-plot (ii) (a) 4 main plots/replication; 4 sub-plots/main-plot (b) 55.50m×64.90m, (iii) 3 (iv) (a) 15.09m×13.41m (b) 13.87m×12.19m. (v) 61cm×61cm (vi) Yes.

4. GENERAL :

(i) Very poor crop and infested with Hiram Khuri (Convoloulous arvesies) for 60.; Germination was poor due to lack of moisture at sowing for 62; Satisfactory for 61(ii)Incidence of rust for 61; N.A. for others (iii) Yield of grain and straw (iv) (a) 1959—62 (b) Yes (c) Results of combined analysis have been presented under 5. Results. (v) No (vi) Nil (vii) Main-plot and sub-plot, error variances are homogeneous and Main-plot treatments×years and sub-plot treatments×years interactions are absent. Expt No.59 (111) has also been included while giving combined results.

5. RESULTS :

Pooled results :

(i) 925Kg/ha. (ii) (a) 262.8Kg/ha. (based on 33 d.f. made up of pooled error and treatment×years intraction) (b) 283.6 Kg/ha. (based on 132 d.f. made up of pooled error and Treatment×years interaction) (iii) Main effect of S and P are highly significant Interaction P×S is significant (iv) Av. yield of grain in Kg/ha.

	P_1	P_2	P_3	P_4	mean
S_1	1207	732	814	767	880
S_2	1259	1014	1056	921	1062
S_3	869	879	667	1014	857
S_4	1001	1095	790	712	899
mean	1084	930	832	853	925

C.D. for S marginal means=109.1Kg/ha.

C.D. for P marginal means=114.6Kg/ha.

C.D. for P means at the same level of S=229.3Kg/ha.

C.D. for S means at the same level of P=226.3Kg/ha.

Induvidual results:

Treat-ment	S_1	S_2	S_3	S_4	Sig.	P_1	P_2	P_3	P_4	Sig.	G.M.	S.E. Main-plot	S.E. Sub-Plot
Year													
1960	478	557	306	356	*	532	413	337	415	N.S.	424	151 3	305.3
1961	1484	1605	1491	1511	N.S.	1668	1472	1459	1492	N.S.	1523	269.2	238.9
1962	1225	1561	1400	1416	*	1706	1488	1243	1166	**	1401	207.2	382.6
Pooled	880	1125	857	899	**	1084	930	894	853	**	925	262.8	283.6

Crop :- Wheat (*Rabi*) **Ref :- U.P. 63(6), 64(6), 65(600).**

Site :- State Soil Cons. Res., Demons. and Trg. Centre, Rehmankhera. **Type :- 'C'**

Object :—To study the best time and method of cultivation of fields for Wheat.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Loamy sand (iii) 25/26. 10.63; 30.10.64; 7.11.65 (iv) (a) As per treatments (b) Sown in rows behind *deshi* plough (c) 92Kg/ha. (d) Rows 23cm apart (e)— (v) 33.6Kg/ha. of P_2O_5 as Super placed 10cm. deep. 22.4Kg/ha of N as C/A/N. broadcasted at sowing and 22.4Kg/ha as C/A/N top dressed at 2nd irrigation of N. (vi) N.P 710 for 63 and 64; K68 for 65 (vii) Irrigated; (viii) N.A. (ix) 1.4cm.; N.A. for others(x) 12—14.4.64; N.A.; N.A.

2. TREATMENTS :

Main-plot treatments :

Ploughings by soil turning plough=S_1=All ploughings by cultivator, S_2=One ploughing in July by soil turning plough, rest by cultivator, S_3=One ploughing in August by soil turning plough, rest by cultivator and S_4=One ploughing in July and August by soil turning plough, rest by cultivator.

Sub-plot treatments :

Ploughings by cultivator : P_1=Ploughigs during every gap in rains right from the start of the rains, P_2=Ploughings durning every gap in rains from first of August. P_3=Ploughings durning every gap in rains from first of September and P_4=Ploughings during every gap in rains from 15th of September.

Note :—All treatments in sub-plots are subject to provision of ploughings by soil turning plough made in the main plots.

3. DESIGN :

(i) Split—plot (ii) (a) 4 main-plots/replication and 4 sub-plots/main plot (b) 55.47m×64.92m (iii) 3 (iv) (a) 15.09m×13.41 m. (b) 13.87m×12.19m (v) 61cm×61cm (vi) Yes.

4. GENERAL :

(i) Poor germination due to lack of moisture in 63 and 64.; Good for 65. (ii) Crop damaged by birds in 64.; N.A. for others. (iii) Yield of grain and straw. (iv) (a) 1963—Cantd. (b) Yes (c) Nil (v) No (vi) Nil (vii) As the experiment is continued beyond 1965, results of individual years have been presented under 5. Results.

5. RESULTS:

63 (6)

(i) 1226Kg/ha. (ii) (a) 480.6Kg/ha. (b) 249.6Kg/ha. (iii) None of the effects is significant (iv) Av. yield of grain in Kg/ha.

	P_1	P_2	P_3	P_4	mean
S_1	1252	1157	830	946	1046
S_2	1603	1425	1394	1220	1410
S_3	927	1163	881	1142	1028
S_4	1321	1352	1577	1427	1419
mean	1276	1274	1171	1184	1226

64 (6)

(i) 1418Kg/ha. (ii) (a) 342.6Kg/ha. (b) 197.0Kg/ha. (iii) Main effect of P is highly significant (iv) Av. yield of grain in Kg/ha.

	P_1	P_2	P_3	P_4	mean
S_1	1439	1382	1051	1000	1218
S_2	1865	1569	1209	1274	1479
S_3	1459	1488	909	1362	1304
S_4	2007	1778	1542	1350	1669
mean	1692	1554	1178	1246	1418

C.D. for P marginal means=165.9Kg/ha,

65 (500)

(i) 1592Kg/ha. (ii) (a) 289.8Kg/ha. (b) 180.7Kg/ha. (iii) Main effect of S is significant and that of P is highly significant (iv) Av. yield of grain in Kg/ha.

	P_1	P_2	P_3	P_4	mean
S_1	1455	1429	1252	917	1263
S_2	1962	1772	1516	1494	1686
S_3	1701	1782	1394	1668	1636
S_4	1737	1975	1829	1589	1783
mean	1714	1739	1498	1417	1592

C.D. for S marginal means=289.5Kg/ha.

C.D. for P marginal means=152.3Kg/ha.

Crop:-Wheat (*Rabi*). **Ref.:-U.P. 60(13), 61(6), 62(17)**

Site:-State Soil Cons. Res., Demos. & Trg. centre,

Rehman Khera. **Type :-'C'**

Object :—To study the effect of intercultivation on Wheat Crop.

1. BASAL CONDITIONS:

(i) (a) N.A. (b) *Sanai* for 62; N.A. for others. (c) N.A. (ii) Loamy sand (iii) N.A. 29/30.10.61; 31.10.62 (iv) (a) 3 to 4 ploughings (b) Sown behind the plough (c) 92Kg/ha (d) Rows 23cm apart (e) — (v) *Sanai* for 62; N.A. for others (vi) N.P.—718 (vii) Irrigated (viii) As per treatments (ix) N.A. (x) 4 to 7.5.61; N.A. for others.

2. TREATMENTS :

7 Cultural treatments :

C_0=No hoeing (control), C_1=One hoeing with *Khurpi* before Ist irrigation, C_2=One hoeing with tooth-peg harrow before Ist irrigation, C_3=One hoeing by *Khurpi* after Ist irrigation, C_4=One hoeing by tooth-peg harrow after Ist irrigation, C_5=Two hoeings with *Khurpi* before and after Ist irrigation and C_6=Two hoeings with tooth-peg harrow before and after Ist irrigation.

3. DESIGN :

(i) R.B.D. (ii) (a) 7 (b) 20.12m×74.07m (iii) 4 (iv) (a) 20.12m×10.06m (b) 18.90m×8.84m (v) 61cm×61cm (vi) Yes.

4. GENERAL ;

(i) Faulty germination for 62; Crop growth satisfactory for others. (ii) N.A. (iii) Yield of grain and straw (iv) (a) 1960 –62 (b) Yes (c) Results of combined analysis have been presented under 5. Results. (v) and (vi) Nil (vii) Crop infested with *Bathua* and *Convolvulous*, arvensis for '60 and' 61; 2-4, D sprayed in 61. Error Variances are homogeneous and Treatment and years interation is absent.

5. RESULTS:

Pooled results :

(i) 1523Kg/ha. (ii) 283.1Kg/ha (based on 66 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:	C_0	C_1	C_2	C_3	C_4	C_5	C_6
Av. yield :	1548	1519	1473	1463	1474	1756	1425

Individual results :

Treatment	C_0	C_1	C_2	C_3	C_4	C_5	C_6	Sig.	G.M.	S.E./plot
year 1960	1451	1536	1502	1476	1508	1808	1523	N.S.	1543	263.9
1961	1157	1291	1242	1265	983	1647	1024	*	1230	248.7
1962	2035	1729	1675	1649	1929	1814	1729	N.S.	1794	318.3
Pooled	1548	1519	1473	1463	1474	1756	1425	N.S.	1523	283.1

Crop :- Wheat (*Rabi*). **Ref :-U.P. 60 (305).**

Site :- Govt. Reg. Agri. Res. Stn., Rudrapur. **Type :- 'C'.**

Object :—To study the effect of previous crops on the yield of Wheat.

1. BASAL CONDITIONS:

(i) (a) and (b) As per treatments (c) N.A. (ii) Clay to clay loam (iii) 5.12.60 (iv) (a) 1 ploughing by victory plough and 3 to 4 ploughings by Jullundur plough and planking (b) Behind the plough (c) 92Kg/ha. (d) Rows 23cm apart (e) — (v) Nil (vi) N.P. 720 (vii) Nil (viii) N.A. (ix) N.A. (x) 1/2.5.61.

2. TREATMENTS :

5. previous crops: C_0=Fallow, C_1=*Sanai* (G.M.), C_2=Lobia (G.M.) C_3=*Dhaincha* (G.M.) and C_4=Paddy.

3. DESIGN :

(i) R.B.D. (ii) (a) 5 (b) 5.66m × 20.73m (iii) 4 (iv) (a) and (b) 20.73m × 6.40m (v) Nil (vi) Yes.

4. GENERAL:

(i) Good (ii) Nil (iii) Yield of grain (iv) (a) 1960—only (b) and (c) — (v) to (vii) Nil.

5. RESULTS :

(i) 950Kg/ha (ii) 205.9Kg/ha (iii) Treatment differences are not significant (iv) Av. yield of grain in Kg/ha.

Treatment:	C_0	C_1	C_2	C_3	C_4
Av. yield :	882	950	1154	946	818

———

Crop :- Wheat. (*Rabi*). **Ref :-U.P. 62(353), 63(404), 64(443).**

Site :- Govt. Reg. Agri. Res. Stn., Rudrapur. **Type :- 'C'.**

Object :—To select the best rotation crop in *Kharif* for Wheat in Rabi for the region.

1. BASAL CONDITIONS:

(i) (a) and (b) As per treatments (c) Nil (ii) Clay to clay loam. (iii) 25.10.62; 6.11.63; 9.11.64 (iv) (a) 4 ploughings and one planking followed by rolling (b) Behind the plough (c) 92Kg/ha for 62 and 63 and 99Kg/ha for 64 (d) 25cm between rows (e) — (v) Nil (vi) N.P. 824 (vii) Irrigated for 62 and 63; Unirrigated for 64 (viii) Nil for 62; One weeding for 63 and 64 (ix) N.A. (x) 13.4.63; 15.4.64; 14.4.65.

2. TREATMENTS:

4 Previous crops : C_0=Fallow, C_1=*Sanai* G.M., C_2=*Dhaincha* G.M. and C_3=Paddy T—21.

3. DESIGN :

(i) R.B.D. (ii) (a) 4 (b) N.A. (iii) 6 for 62 and 4 for others (iv) (a) 10.00m×9.00m for 62; 10.00m×5.00m for others (b) 10.00m×9.00m; 10.00m×5.00m; 9.40m×4.50m (v) Nil for 62 and 63; 30cm×25cm. for 64 (vi) Yes.

4. GENERAL:

(i) Good (ii) Nil (iii) Yield of grain (iv) (a) 1962—64 (b) No. (c) Results of combined analysis have been presented under 5 Results. (v) and (vi) Nil. (vii) Error variances are homogeneous and Treatments×years interaction is absent.

5. RESULTS :

Pooled results :

(i) 1302Kg/ha (ii) 205.5Kg/ha (based on 39 d.f. made up of pooled error and Treatment×years interaction (iii) Treatment differences are not significant (iv) Av. yield of grain in Kg/ha.

Treatment :	C_0	C_1	C_2	C_3
Av. yield :	1256	1342	1346	1263

Individual results :

Treatment	C_0	C_1	C_2	C_3	Sig.	G.M.	S.E./plot
years							
1962	1528	1542	1583	1521	N.S.	1544	252.5
1963	980	1255	1100	1075	N.S.	1102	167.0
1964	1123	1129	1235	1064	N.S.	1138	185.7
Pooled	1256	1342	1346	1263	N.S.	1302	205.5

Crop :- Wheat (*Rabi*). **Ref :- U.P. 60(365).**

Site:-Central Soil Cons. Res. Stn., Selakui. **Type:-'C'**

Object :—To compose the effectiveness of increasing Wheat yield by different ways of adding Maize residue in soil.

1. BASAL CONDITIONS:

(i) (a) Maize—Wheat (b) Maize (c) 94Kg/ha. of P_2O_5+140.1Kg/ha. of N (ii) Sandy loam (iii) 26.10.60 (iv) (a) 1 ploughing by disc plough, 2 horrowings and 2 plankings (b) By seed-drill (c) 67Kg/ha (d) 18cm apart (e) — (v) 44.8Kg/ha. of P_2O_5+44.8Kg/ha of N (vi) N.A. (vii) Unirrigated (viii) Earthing and weeding (ix) 30.0cm (x) 11.3.61

2. TREATMENTS :

4 Cultural treatments: T_0=Clean cultivation of Maize, T_1=Maize residues ploughed in, T_2=Maize residues left on the surface and seed-bed prepared by sub-surface tillage and T_3=Maize stubbles left on surface and seed-bed prepared by sub-surface tillage.

3. DESIGN:

(i) R.B.D. (ii) (a) 4 (b) 15.24m×22.60m. (iii) 6 (iv) (a) and (b) 7.31m×9.14m (v) Nil (vi) Yes.

4. GENERAL :

(i) Normal (ii) Damage by rats, fungation by cymag done on 28.3.61 (iii) Yield of grain (iv) (a) 1958-60 (b) Yes (c) Nil (v) Nil (vi) N.A. (vii) Nil.

5. RESULTS :

(i) 1079Kg/ha. (ii) 341.9Kg/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 :	1105	1186	909	1115

Crop :- Wheat (*Rabi*). **Ref :- U.P. 60(369), 61(378), 62(404), 63(476), 64(579), 65(424).**

Site :- Central Soil Cons. Res. Stn., Selakui. **Type :- 'C'.**

Object .—To evolve suitable spacifications of channel terraces in respect of vertical interval and channel grade and to study the performance of broad-based and narrow—based bunds from maintenance point of view.

1. BASAL CONDITIONS :

(i) (a) Maize—Wheat for 60 to 64; Nil for 65 (b) Moong for 65; Maize for others (c) 45Kg/ha of P_2O_5 for 65; 115Kg/ha of N+96Kg/ha of P_2O_5 for others (ii) Silty loam; Silty clay loam; loam; clay loam; silty loam (iii) 29/30.10.60; 29.10.61; 2.11.62; 29.10.63; 30/31.10.64; 2.11.65 (iv) (a) 1 to 2 ploughings by disc plough, 2 to 4 harrowings and 2 to 4 plankings (b)Sown by seed-drill in lines (c)70Kg/ha for 60; 62Kg/ha for others. (d) Rows 15cm. apart (e) — (v) 44.8Kg/ha of N as A/S/N+44.8Kg/ha of P_2O_5 as super, $\frac{1}{2}$ N as basal+$\frac{1}{2}$N top dressed 1 month after sowing. P_2O_5 applied as basal for 60; 48Kg/ha of N as A/S+58Kg/ha of P_2O_5 as Super, $\frac{1}{2}$N as basal and $\frac{1}{2}$ top dressed one month after sowing for 61 to 65. *Moong* also turned in for 65 (vi) N.P. 720 for 62 and 63, G—281 in others (vii) Unirrigated (viii) Nil (ix) 27.6cm; 29.9cm; 11.6cm; 12.0cm; 34.6cm; 87.5cm. (x) 4.5.61; 3.5.62; 10 to 27.4.63; 15 to 25.4.64; 21 to 25.9.65; 22 to 26.4.66.

2. TREATMENTS :

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

(1) 2 Terrace spacings (vertical Interval): A_1=S/2+2 and A_2=S/2+3, where S is slope %.

(2) 2 Terrace sections : B_1=Broad—based (cross section 0.68 sq.m.) B_2=Narrow—based (cross section 0.69 sq.m.)

(3) 2 channel grades : C_1=0.12m/30.5m and C_2=1.83m/30.5m.

3. DESIGN :

(i) 2^3 confd. (ABC confd.) (ii) (a) 4 plots/block; 2 blocks/replication (iii) 1 (iv) (a) and (b) Different plot sizes from 0.69ha. to 1.11ha. (v) Nil (vi) Yes.

4. GENERAL

(i) Good, Lodging in 61 and 64 (ii) Damage by rats, fumigations done on 15.1.61, yellow rust and loose smut, Roguing done for 1960; Nil in 1961 Rats—funigation. done. Brown rust for 62; Nil for 63, yellow rust for 1964 Nil for 1965. (iii) Yield of grain (iv) (a) 1958—contd. (b) Yes (c) Nil. (v) Nil (vi) Hail-storm and rain on 18.3.65. (vii) Growth of weeds was a serious problem in 61; one 2,4-D spraying @ 2.5Kg/ha. in 75 gallons of water every year. As the expt. is continued beyond 65, results of individual years have been presented under 5. Results.

5. RESULTS:

60 (369)

(i) 969Kg/ha (ii) 325.5Kg/ha (iii) None of the effects is significant (iv) Av. yield of grain in Kg/ha.

Treatment:	A_1	A_2	B_1	B_2	C_1	C_2
Av. yield :	938	1000	942	996	1188	750

61 (378)

(i) 858Kg/ha. (ii) 244.4Kg/ha (iii) Main effect of C is significant (iv) Av. yield of grain in Kg/ha.

Treatment :	A_1	A_2	B_1	B_2	C_1	C_2
Av. yield :	931	784	1024	691	574	1141

C.D. for C marginal means=549.9Kg/ha.

62 (404)

(i) 734Kg/ha (ii) 336.0Kg/ha. (iii) None of the effects is significant (iv) Av. yield of grain in Kg/ha.

Treatment :	A_1	A_2	B_1	B_2	C_1	C_2
Av. yield :	905	564	793	676	673	794

63 (476)

(i) 597Kg/ha (ii) 100.1Kg/ha (iii) None of the effects is significant (iv) Av. yield of grain inKg/ha.

Treatment :	A_1	A_2	B_1	B_2	C_1	C_2
Av. yield :	651	544	589	606	569	626

64 (579)

(i) 659Kg/ha (ii) 303.1Kg/ha (iii) None of the effects is significant (iv) Av. yield of grain in Kg/ha.

Treatment :	A_1	A_2	B_1	B_2	C_1	C_2
Av. yield :	726	593	610	709	663	656

65 (424)

(i) 571Kg/ha (ii) 27.6Kg/ha (iii) Main effects of A, B and C are significant (iv) Av. yield of grain in Kg/ha.

Treatment :	A_1	A_2	B_1	B_2	C_1	C_2
Av. yield :	530	612	608	535	608	535

C.D. for A, B or C marginal means=62.1Kg/ha.

Crop :- Wheat (*Rabi*). **Ref :- U.P. 60(76), 61(83).**

Site :- Govt. Res. Farm, Kanpur. **Type :- 'CV'.**

Object :—To study the effect of seed—soaking in water for drought resistance of Wheat.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Loam (iii) 21.11.60; 24.11.61 (iv) (a) N.A. (b) Line sowing behind the plough (c) 90Kg/ha. (d) Rows 23cm. apart (e) — (v) N.A. (vi) As per treatments (vii) and (viii) N.A. (ix) 6.3cm.; 6.8cm. (x) 28.4.61; 4.5.62.

2. TREATMENTS :

All combinations of (1) and (2)

(1) 4 Varieties : V_1=N.P. 710, V_2=Pb. 591, V_3=C 13 and V_4=N.P. 775.

(2) 7 seed—soaking treatments : S_0=Control, S_1=4 hours soaking—sun dried, S_2=4 hours soaking—shade dried, S_3=8 hours soaking—sun dried, S_4=8 hours soaking—shade dried, S_5=12 hours soaking-sun dried and S_6=12 hours soaking—shade dried.

3. DESIGN :

(i) Fact. in R.B.D. (ii) (a) 28 (b) N.A.; 11.43m×15.54m. (iii) 4 (iv) (a) 5.49m×0.69m (b) 4.88m×0.69m, (v) 30 cm. at each end along length (vi) Yes.

4. GENERAL :

(i) N.A. (ii) Incidence of brown rust (iii) Yield of grain (iv) (a) 1960—61 (b) No (c) Results of combined analysis have been presented under 5. Results. (v) and (vi) Nil (vii) Error vaiances are homogeneous and Treatments×years interaction is present.

5. RESULTS :

Pooled results :

(i) 2213Kg/ha (ii) 456.9Kg/ha. (based on 27 d.f. made up of Treatments×years interaction) (iii) None of the effects is significant (iv) Av. yield of grain in Kg/ha.

	S_0	S_1	S_2	S_3	S_4	S_5	S_6	mean
V_1	2030	2160	2073	1971	2197	2138	2238	2116
V_2	2242	2060	2079	2302	2424	2216	2350	2239
V_3	2302	2205	2732	2413	2383	2171	2394	2372
V_4	2134	2090	2015	2338	2119	2038	2145	2126
mean	2177	2129	2225	2256	2281	2141	2282	2213

Individual results:

Treatment	V_1	V_2	V_3	V_4	Sig.	S_0	S_1	S_2	S_3	S_4	S_5	S_6	Sig	G.M.	S.E./plot
Year															
1960	1002	1428	1277	1087	**	1180	1108	1266	1212	1220	1103	1301	N.S.	1199	378.1
1961	3231	3051	3466	3165	**	3174	3150	3187	3300	3343	3180	3263	N.S.	3228	342.4
Pooled	2116	2239	2372	2126	N.S.	2177	2129	2226	2256	2281	2141	2282	N.S.	2213	456.9

Crop :- Wheat (*Rabi*). **Ref :- U.P. 62(73)**

Site :- Govt. Res. Farm, Kanpur. **Type :- 'CV'.**

Object :—To study the effect of seed-soaking in water for drought resistance of Wheat.

1. BASAL CONDITINS :

(i) (a) N.A. (b) *Sanai* for G.M. (c) N.A. (ii) Loam. (iii) 17.11.62 (iv) (a) 4 ploughings after green manuring (b) Line sowing behind the plough. (c) 91Kg/ha. (d) Rows 23cm. apart (e) — (v) *Sanai* G.M.+compost 28.5Kg of Super applied on 15.11.62 and 121.3Kg. of C. Cake applied on 14.11.62. (vi) As per treatments (vii) N.A. (viii) Weeding by *Khurpi* (ix) 2.9cm (x) 9.4.63.

2. TREATMENTS :

Main-plot treatments :

4 Varieties : V_1=C 13, V_2=Pb. 591, V_3=N.P. 710 and V_4=N.P. 775.

Sub-plot treatments :

7 seed soaking treatments : S_0=Control, S_1=4 hours soaking—sun dried, S_2=4 hours soaking—shade dried, S_3=8 hours soaking—sun dried, S_4=8 hours soaking—shade dried, S_5=12 hours soaking—sun dried and S_6=12 hours soaking—shade dried.

3. DESIGN :

(i) Split—plot (ii) (a) 4 main-plots/replication; 7 sub-plots/main-plot (b) 18.90m×15.09m (iii) 4 (iv) (a) and (b) 7.32m×0.91m (v) Nil (vi) Yes.

4. GENERAL :

(i) No lodging (ii) Incidence of brown rust (iii) Yield of grain (iv) (a) 1962—only (b) and (c) Nil (v) to (vii) Nil.

5. RESULTS :

(i) 1730Kg/ha (ii) (a) 769.9Kg/ha (b) 248.2Kg/ha (iii) None of the effects is significant (iv) Av. yield of grain in Kg/ha.

	S_0	S_1	S_2	S_3	S_4	S_5	S_6	mean
V_1	1872	1951	1768	1585	1850	2033	1869	1847
V_2	1760	1925	2003	1794	1955	1641	2071	1878
V_3	1506	1843	1529	1529	1615	1562	1611	1599
V_4	1573	1431	1592	1413	1570	1816	1768	1595
mean	1678	1788	1723	1580	1747	1763	1830	1730

Crop :-Wheat (*Rabi*). **Ref :-U.P. 60(411), 61(432).**

Site :- Govt. Reg. Agri. Res. Stn., Amrukh. **Type :-'CM'**

Object :—To find out suitable time of sowing, levels of fertility and seed-rate for Wheat crop.

1. BASAL CONDITIONS:

(i) (a) to (c) N.A. (ii) *Kabar* and *Parwa* (iii) As per treatments (iv) (a) 2 to 3 ploughings by *bakhar* plough and Pata (b) Line sowing behind the plough (c) As per treatments (d) Rows 30cm. apart (e) — (v) Nil (vi) Pb. 591 (vii) Irrigated (viii) Weeding (ix) N.A. (x) 11.4.61; 8.5.62.

2. TREATMENTS :

Main-plot treatments :

All combinations of (1) and (2).

(1) 2 levels of fertility : F_1=56Kg/ha of N+44.8Kg/ha of P_2O_5 and F_2=28Kg/ha of N+22.4Kg/ha of P_2O_5

(2) 3 times of sowing : T_1=1st week of Nov..T_2= 2nd week of Nov. and T_3=3rd week of Nov.

Sub-plot treatments :

3 seed-rates : S_1=46, S_2=69 and S_3=92Kg/ha.

3. DESIGN :

(i) Split-plot (ii) (a) 6 main plots/replication, 3 sub-plots/main plot (b) N.A. (iii) 4 (iv) (a) and (b) 6.40m × 7.92m. (v) Nil (vi) Yes.

4. GENERAL :

(i) Good (ii) Nil (iii) Yield of grain (iv) (a) 1960—61 (b) No. (c) Results of combined analysis have been presented under 5. Results (v) and (vi) Nil (vii) Main-plot and sub-plot error variances are homogenous main-plot treatments × years and sub-plot treatments × years interactions are present.

5. RESULTS :

Pooled results :

(i) 1392Kg/ha (ii) (a) 919.3Kg/ha (based on 5 d.f. made up of Treatments × years interaction). (b) 638.6 Kg/ha. (based on 8 d.f. made up of treatments × years interactions, (iii) None of the effects is significant (iv) Av. yield of grain in Kg/ha.

	T_1	T_2	T_3	S_1	S_2	S_3	mean
F_1	1441	1481	1391	1372	1450	1491	1438
F_2	1369	1368	1303	1302	1400	1333	1347
mean	1405	1425	1347	1337	1425	1415	1392
S_1	1291	1372	1349				
S_2	1469	1441	1364				
S_3	1954	1461	1329				

Individual results :

Treatment	F_1	F_2	Sig.	T_1	T_2	T_3	Sig.	S_1	S_2	S_3	Sig.
Year											
1960	1233	1281	*	1466	1275	1030	N.S.	1239	1274	1259	N.S.
1961	1643	1413	**	1344	1575	1664	N.S.	1436	1577	1570	N.S.
Pooled	1438	1347	N.S.	1405	1425	1347	N.S.	1337	1425	1415	N.S.

G.M.	S.E./main plot	S.E./Sub-plot
1257	452.4	280.4
1528	313.5	216.8
1392	919.3	638.6

Crop :- Wheat (*Rabi*). **Ref :- U.P. 60(274).**

Site :- R.B.S. College, Bichpuri. **Type :- 'CM'**

Object :—To study the effect of different methods of application of N on Wheat.

1. BASAL CONDITIONS :

(i) (a) Nil (b) Fallow (c) Nil (ii) Sandy loam (iii) 31.10.60 (iv) (a) 3 ploughings (b) Behind the plough (c) 90Kg/ha (d) Rows 23cm apart (e) — (v) 56.0Kg/ha of P_2O_5 as Super (vi) Pb. 591 (vii) Irrigated (viii) Weeding by *Khurpi* (ix) 7.7cm. (x) 26.4.61.

2. TREATMENTS:

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

(1) 2 doses of N as Urea : N_1=44.8 and N_2=67.2Kg/ha.

(2) 6 methods of application.

T_1=Broadcasting (at sowing), T_2=Top dressing (at Ist irrigation), T_3=Leaf sprayings (after 5, 7, 9 and 11 weeks of sowing), $T_4=\frac{1}{2}$ as broadcasting+$\frac{1}{2}$ as top dressing, $T_5=\frac{1}{2}$ as broadcasting+$\frac{1}{2}$ as leaf sprayings (after 7 and 11 weeks of sowing) and $T_6=\frac{1}{2}$ as top dressing (at Ist irrigation)+$\frac{1}{2}$ as leaf spraying (at 7 and 11 weeks of sowing).

3. DESIGN:

(i) Fact. in R.B.D. (ii) (a) 13 (b) N.A. (iii) 4 (iv) (a) N.A. (b) 10.97m×4.57m (v) N.A. (vi) Yes.

4. GENERAL :

(i) Good (ii) Nil (iii) Yield of grain (iv) (a) 1960—only (b) and (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 2515Kg/ha (ii) 244.4Kg/ha (iii) Main effects of N and T are significant (iv) Av. yield of grain in Kg/ha.

Treatment :	N_0	N_1	N_2	T_1	T_2	T_3	T_4	T_5	T_6
Av. yield :	2515	2425	2605	2400	2310	2642	2442	2744	2550

C.D. for N marginal means=143.3Kg/ha,

C.D. for T marginal means =248.1Kg/ha.

Crop :- Wheat (*Rabi*). **Ref :- U.P. 60(259).**

Site :- R.B.S. College, Bichpuri. **Type :- 'CM'.**

Object: —To study the residual effects of *Sorghum* on the succeeding crop of Wheat grown with varying levels of N applied at different times with and without picking of stubbles.

1. BASAL CONDITIONS:

(i) (a) Nil (b) *Jowar* (c) Nil (ii) Sandy loam (iii) 10.11.60 (iv) (a) 3 ploughings (b) with *Nai* plough (c) 80.7Kg/ha. (d) Rows 23cm. apart (e) — (v) 44.8Kg/ha. of P_2O_5 as Super at sowing (vi) Pb 591 (vii) Irrigated (viii) Nil (ix) 7.7cm (x) 27.4.61.

2. TREATMENTS:

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

(1) 3 levels of N as A/S : N_1=44.8, N_2=67.2 and N_3=89.6Kg/ha.

(2) 2 times of application of N : T_1=1/4 dose at Ist ploughing after the harvesting of *Sorghum* +3/4 dose at sowing of Wheat and T_2=Full dose at sowing of Wheat.

(3) 2 picking of *Sorghum* stubbles : S_0=Control and S_1=Picking of *Sorghum* stubbles

3. DESIGN:

(i) Fact. in R.B.D. (ii) (a) 12 (b) N.A. (iii) 4 (iv) (a) 8.53m×6.71m (b) 7.32m×5.49m (v) 60cm×60cm vi) Yes.

4. GENERAL:

(i) Good (ii) Nil (iii) Yield of grain (iv) (a) 1960—only (b) and (c) — (v) to (vii) Nil

5. RESULTS:

(i) 2637Kg/ha (ii) 333.3Kg/ha. (iii) None of the effects is significant (iv) Av. yield of grain in Kg/ha.

Treatment:	N_1	N_2	N_3	T_1	T_2	S_0	S_1
Av. yield:	2528	2701	2681	2558	2716	2651	2622

Crop :- Wheat (*Rabi*). **Ref :- U.P. 64(325).**

Site :- R.B.S. College, Bichpuri. **Type :- 'C'.**

Object:—To study the effect of different dates of sowing, seed-rates and levels of N and P on growth, yield and quality of Wheat.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Maize (c) N.A. (ii) Sandy loam (iii) As per treatments (iv) (a) 4 ploughings and harrowings followed by planking. (b) Behind the plough (c) As per treatments (d) 25cm between rows (e)— (v) Nil (vi) K. 68 (vii) Irrigated (viii) One weeding (ix) 1.2cm (x) 24.4.65.

2. TREATMENTS :

Main-plot treatments :

All combinations of (1) and (2).

(1) 3 dates of sowing : D_1=15th October, D_2=30th October and D_3=15th Nov., 64.

(2) 3 seed rates : S_1=56, S_2=78.4 and S_3=100.8Kg/ha.

Sub-plot treatments :

All combinations of (3) and (4).

(3) 3 levels of N as A/S : N_0=0, N_1=22.4 nnd N_2=44.8 Kg/ha.

(4) 3 levels of P_2O_5 as Super : P_0=0, P_1=22.4 and P_2=44.8Kg/ha.

3. DESIGN :

(i) Split-plot (ii) (a) 9 main-plots/replication; 9 sub-plots/main-plot (b) N.A. (iii) 2 (iv) (a) N.A. (b) 4.00m×9.00m (v) N.A. (vi) Yes.

4. GENERAL :

(i) Good (ii) Nil (iii) Yield of grain (iv) (a) 1964—only (b) and (c) Nil (v) to (vii) Nil.

5. RESULTS :

(i) 824Kg/ha (ii) (a) 184.1Kg/ha (b) 201.5Kg/ha (iii) Main effect of N is highly significant. Interactions D×S, N×P and N×D are significant. (iv) Av. yield of grain in Kg/ha.

	S_1	S_1	S_3	N_0	N_1	N_2	mean
D_1	754	857	688	740	785	773	766
D_2	772	887	858	766	941	810	839
D_3	897	837	863	780	855	963	866
mean	808	860	803	762	860	849	824

	P_0	P_1	P_2	mean
N_0	793	672	821	762
N_1	920	831	829	860
N_2	787	843	917	849
mean	833	782	856	824

C.D. for N Marginal means=77.4Kg/ha

C.D. for the body of D×S table=141.6Kg/ha

C.D. for the body of N×P table=134.1Kg/ha.

C.D. for N means at the same level of D=134.1Kg/ha.

C.D. for D means at the same level of N=109.8Kg/ha.

Crop :- Wheat (*Rabi*). **Ref :- U.P. 60 (147),61(152).**

Site :- Govt. Reg. Agri. Res. Stn., Hardoi. **Type :- 'CM'.**

Object :—To find out suitable combinations of dates of sowing, levels of manuring and seed-rates on the yield of Wheat.

1. BASAL CONDITIONS :

(i) (a) Nil (b) Fallow (c) Nil (ii) Sandy loam ((iii) As per treatments (iv) (a) N.A. (b) Line sowing behind the plough (e) As per treatments (d) Rows 23cm. apart (e)— (v) Nil (vi) NP-710 (vii) Irrigated (viii) weeding by *Khurpi*; 3 manurings (ix) 6.0cm ;4.0cm (x) 3 to 5.4.61; 1, 9 and 10.4.62.

2. TREATMENTS :

Main-plot treatments :

3 sowing-dates: D_1=Last week of October, D_2=2nd week of November and D_3=Third week of November.

Sub-plot treatments :

All combinations of (1) and (2).

(1) 2 levels of manuring: M_1=56.0Kg/ha. of N+44.8Kg/ha. of P_2O_5 and M_2=28.0Kg/ha of N+22.4Kg/ha. of P_2O_5.

(2) 3 seed-rates : S_1=69, S_2=92 and S_3=115Kg/ha.

3. DESIGN:

(i) Split-plot (ii) (a) 3 main-plots/replication: 6 sub-plots/main-plot (b) N.A (iii) 4 (iv) (a) and (b) 7.32m × 6.10 m (v) Nil (vi) Yes.

34. GENERAL:

(i) Good (ii) Nil (iii) Yield of grain (iv) (a) 1960–61 (b) Yes (c) Results of combined analysis hav been presented under 5. Results. (v) Amrukh and Meerut (vi) Nil (vii) Main-plot error variances are hetero genous and Treatments × years interation is present. Sub-plot error variances are homogeneous and Treatments × years interaction is present.

5. RESULTS:

Pooled results:

(i) 2881Kg/ha (ii) (a) 1082.1 Kg/ha. (based on 2 d.f. made up of Treatments × years interaction) (b) 294.2Kg/ha (based on 11 d.f. made up of Treatments × years intraction) (iii) Main effect of M is highly significant. (iv) Av. yield of grain in Kg/ha.

	D_1	D_2	D_3	S_1	S_2	S_3	mean
M_1	3106	3162	2667	2897	3018	3020	2978
M_2	2825	2968	2556	2756	2798	2795	2783
mean	2965	3066	2611	2826	2908	2907	2881
S_1	2861	3067	2551				
S_2	3019	3071	2635				
S_3	3016	3058	2648				

C.D. fot M marginal means = 107.9Kg/ha

Treatment	D_1	D_2	D_3	Sig.	M_1	M_2	Sig	S_1	S_2	S_3	Sig	G.M.
years												
1960	3132	3051	2908	N.S.	3190	2870	**	2954	3107	3030	**	3030
1961	2799	3080	2315	**	2767	2695	**	2699	2710	2785	**	2731
Pooled	2965	3066	2611	N.S.	2978	2784	**	2826	2908	2907	N.S.	2881

S.E./main-plot	S.E./Sub-plot
294.7	122.1
80.7	100.9
1082.1	294.2

Crop :- Wheat (*Rabi*) **Ref :- U.P. 61(84).**

Site :- Govt. Reg. Agri. Res. Stn., Kanpur. **Type :- 'CM'.**

Object :—To study the effect of shrivelled seeds sown at different seed-rates under varying levels of N on the yield of Wheat.

1. BASAL CONDITIONS:

(i) (a) to (c) N.A. (ii) Loam (iii) 1.12.61 (iv) (a) N.A. (b) Line sowing behind the plough (c) As per treatments (d) Rows 23cm. apart (e) N.A. (v) 22.4Kg/ha. of P_2O_5 as Super applied in furrows. (vi) C 13 (medium) (vii) Irrigated (viii) Interculture by *Khurpi* (ix) 6.9cm. (x) 11.5 62.

2. TREATMENTS :

Main-plot treatments :

3 levels of N as A/S : N_1=28, N_2=56 and N_3=84Kg/ha

Sub-plot treatments :

6 seed rates : S_1=Plump seed at normal seed rate (90Kg/ha.), S_2=Shrivelled seed at normal seed rate (90Kg/ha), S_3=½ plump seed at normal seed rate+½ shrivelled seed at normal seed rate, S_4=Plump seed adjusted on 1000 grain weight, S_5=Shrivelled seed adjusted on 1000 grain weight and S_6=1/2 plump seed adjusted on 1000 grain weight+1/2 shrivelled seed adjusted on 1000 grain weight.

3. DESIGN :

(i) Split-plot (ii) (a) 3 main-plots/replication; 6 sub-plots/main-plot (b) 7.01m×8.53m. (iii) 4 (iv) (a)3.05m×0.91m. (b) 2.44m.×0.91m. (v) 30cm on either side along breadth. (vi) Yes.

4. GENERAL :

(i) N.A. (ii) Incidence of black and brown rust (iii) Yield of grain (iv) (a) 1961—only (b) and (c) Nil (v) to (vii) Nil.

5. RESULTS :

(i) 2080Kg/ha. (ii) (a) 639.3Kg/ha (b) 323.8Kg/ha (iii) Main effect of S alone is significant (iv) Av. yield of grain in Kg/ha.

	S_1	S_2	S_3	S_4	S_5	S_6	mean
N_1	2074	1715	2097	2299	1626	1985	1966
N_2	2242	2153	2130	2130	1682	2097	2072
N_3	2411	2186	2287	2411	1839	2074	2201
mean	2242	2018	2171	2280	1716	2052	2080

C.D. for S marginal means=266.5Kg/ha

Crop :- Wheat (*Rabi*). **Ref :- U.P. 60 (428), 61(405).**

Site :- Govt. Reg. Agri. Res. Stn., Majhera. **Type :- 'CM'**

Object :—To determine the best-seed-rate, sowing date and level of fertility for Wheat crop.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) N.A.; Sandy loam (iii) As per trea tments (iv) (a) N.A.; 2 ploughings (b) Line sowing (c) As per treatments (d) N.A.; Row 23cm. apart (e) N.A. (v) N.A. (vi) N.P. 770; N.A. (vii) N.A.; Irrigated (viii) N.A.; 1 weeding (ix) N.A. (x) 24.4.61; 15 to 17.5.62.

2. TREATMENTS:

Main-plot treatments:

All combination of (1) and (2).

(1) 3 dates of sowing : D_1=4th week of October, D_2=First week of November and D_3=2nd week of December.

(2) 2 fertility levels : F_1=28.0Kg/ha. of N+22.4Kg/ha. of P_2O_5 and F_2=56.0Kg/ha. of N+44.8Kg/ha. of P_2O_5.

Sub-plot treatments :

3 seed-rates : R_1=57.6, R_2=92.2 and R_3=115.2Kg/ha.

3. DESIGN :

(i) Split-plot (ii) (a) 6 main-plots/replication; 3 sub-plots/main-plot (b) 25.76m×12.49m; 22.10m×12.50m (iii) 4 (iv) (a) and (b) 3.66m×2.74m (v) Nil (vi) Yes.

4. GENERAL :

(i) Normal (ii) Nil (iii) Yield of grain (iv) (a) 1960–61 (b) No. (c) Results of combined analysis have been presented under 5. Results. (v) Anrukh, Meerut and Hardoi (vi) Nil (vii) Main-plot and sub-plot error variances are homogenous. Main-plot Treatments×years interaction is present and sub-plot treatments×years interaction is absent.

5. RESULTS :

Pooled results :

(i) 1481Kg/ha (ii) (a) 937.6Kg/ha (based on 5 d.f. made up of Treatments×years intraction) (b) 213.0Kg/ha (based on 80 d.f. made up of pooled error and Trearments×years interaction) (iii) None of the effects is significant (iv) Av. yield of grain in Kg/ha.

	D_1	D_2	D_3	R_1	R_2	R_3	mean
F_1	1450	1433	1386	1438	1388	1443	1423
F_2	1652	1563	1404	1517	1523	1579	1540
mean	1551	1498	1395	1478	1455	1511	1481
R_1	1596	1480	1357				
R_2	1472	1472	1421				
R_3	1584	1541	1406				

Individual results :

Treatment	F_1	F_2	Sig.	D_1	D_2	D_3	Sig.	R_1	R_2	R_3	Sig.
year 1960	1120	1091	N.S.	1378	1087	852	**	1080	1085	1153	N.S.
1961	1726	1988	**	1524	1909	1938	N.S.	1876	1826	1869	N.S.
Pooled	1423	1540	N.S.	1551	1498	1395	N.S.	1478	1455	1511	N.S.

G.M.	S.E./main-plot	S.E./sub-plot
1106	313.4	189.4
1857	329.1	236.7
1481	937.6	213.0

Crop :- Wheat (*Rabi*). **Ref : U.P. 60(230), 61(230).**

Site :- Govt. Reg. Agri. Res. Stn., Meerut. **Type :- 'CM'.**

Object:—To study the effect of different dates of sowing, levels of fertility and seed-rates on the yield of Wheat.

1 BASAL CONDITIONS :

(i) (a)Nil (b)*Dhaincha* for G.M; *Guar* fodder (c)Nil (ii) Sandy loam (iii)As per treatments (iv) (a)1 ploughing by S.T.P. and 4 to 5 ploughings by *Deshi* plough (b) Line sowing behind the plough (c) As per treatments (d)Rows 23cm apart (e)—(v) *Dhaincha* (G.M.); Nil (vi) Pb. 591; N.P. 718 (vii) N.A.; Irrigated (viii)1 hoeing; N.A. (ix) 6.3cm; 4.9cm (x) 1.5.61; 25.4.62.

2. TREATMENTS :

Main-plot treatments :

All combinations of (1) and (2).

(1) 3 dates of sowing: T_1=1st week, T_2=2nd week and T_3=4th week of November.

(2) 2 levels of fertility : L_1=28Kg/ha. of N as A/S +22.4Kg/ha. of P_2O_5 as Super and L_2=2 L_1.

Sub-plot treatments :

3 seed-rates : S_1=46.1, S_2=69.2 and S_3=92.2Kg/ha.

3. DESIGN :

(i) Split-plot (ii) (a) 6 main-plots/replication; 3 sub-plots/main-plot (b) 19.20m×48.92m; 20.12m×49.23m. (iii) 4 (iv) (a) 7.39m×6.10m. (b) 6.48m×5.18m. (v) 46cm×46cm (vi) Yes.

4. GENERAL:

(i) Good (ii) Nil (iii) Yield of grain (iv) (a) 1960—61 (b) Yes (c) Results of combined analysis have been presented under 5—Results (v) Nawabganj, Amrukh and Hardoi (vi) Nil (vii) Main-plot and sub-plot error variances are homogeneous and main-plot Treatments×years and sub-plot treatments×years intractions are absent.

5. RESULTS:

Pooled results :

(i) 2112Kg/ha. (ii) (a) 39 2.5Kg/ha (based on 32 d.f. made up of pooled error and 'Treatments×years' interaction) (b) 281.4 Kg/ha. (based on 78 d.f. made up pooled error and Treatments×years intraction (iii) Main effects of L and T are highly significant and interaction S×L is significant. (iv) Av. yield of grain in Kg/ha.

	T_1	T_2	T_3	S_1	S_2	S_3	mean
L_1	2451	2199	2003	2160	2116	2378	2218
L_2	2023	2057	1940	1983	2053	1984	2007
mean	2237	2128	1972	2071	2084	2181	2112
S_1	2182	2046	1986				
S_2	2254	2142	1857				
S_3	2276	2195	2073				

C.D. for L marginal means=133.3Kg/ha.

C.D. for T marginal means=163.3Kg/ha.

C.D. for S means at the same level of L=161.9Kg/ha.

C.D. for L means at the same level of S=187.1Kg/ha.

Individual results :

Trsatment	L_1	L_2	Sig.	T_1	T_2	T_3	Sig	S_1	S_2	S_3	Sig.
years											
1960	2357	2053	**	2257	2161	2197	N.S.	2116	2197	2302	N.S.
1961	2079	1961	N.S.	2213	2095	1747	**	2027	1972	2061	N.S.
Pooled	2218	2007	N.S.	2237	2128	1972	N.S.	2071	2084	2181	N.S.

G.M.	S.E./main-plot	S.E./sub-plot
2205	404.7	262.9
2020	403.8	270.0
2112	391.6	258.8

Crop :- Wheat (*Rabi*). **Ref :- U.P. 60(151).**

Site :- Govt. Reg. Agri. Res. Stn., Nawabganj. **Type :- 'CM'.**

Object :—To determine the best seed-rate and time of sowing under and high fertility conditions.

1. BASAL CONDITIONS :

(i) (a) Nil (b) Early paddy (c) N.A (ii) Clay loam (iii) As per treatments (iv) (a) N.A. (b) Line sowing behind the plough (c) As per treatments (d) Rows 23cm. apart (e) — (v) Nil (vi) Pb. 591 (vii) Irrigated (viii) N.A. (ix) 5.6cm. (x) 1.5.61.

2. TREATMENTS :

Main-plot treatments :

All combinations of (1) and (2)

(1) 2 levels of fertility : F_1=28.0 Kg/ha. of N+22.4Kg/ha of P_2O_5 and F_2=56.0Kg/ha. of N+44.8Kg/ha. of P_2O_5.

(2) 3 Dates of Sowing : D_1=8.11.60, D_2=18.11.60 and D_3=28.11.60.

Sub-plot treatments :

3 seed rates : S_1=46, S_2=81 and S_3=115Kg/ha.

3. DESIGN :

(i) Split-plot (ii) (a) 6 main-plots/replication, 3 sub-plots/main-plot (b) N.A. (iii) 4 (iv) (a) and (b) 5.94m × 6.55m (v) Nil (vi) Yes.

4. GENERAL :

(i) Good (ii) Nil (iii) Yield of grain (iv) (a) 1960—only (b) and (c) Nil (v) Hardoi (vi) and (vii) Nil.

5. RESULTS:

(i) 1220Kg/ha, (ii) (a) 263.1Kg/ha. (b) 169.8Kg/ha. (iii) Main effect of S alone is highly significant. (iv) Av. yield of grain in Kg/ha.

	F_1	F_2	S_1	S_2	S_3	mean
D_1	1295	1324	1215	1243	1471	1310
D_2	1122	1275	1084	1216	1295	1198
D_3	1243	1061	1029	1129	1297	1152
mean	1220	1220	1109	1196	1354	1220
S_1	1134	1084				
S_2	1188	1204				
S_3	1338	1371				

C.D. for S marginal means=99.5Kg/ha.

Crop :-(*Rabi*). **Ref** :- **U.P. 61(193).**

Site :- **Govt. Reg. Agri. Res. stn., Nawabganj.** **Type** :- **'CM'.**

Object :—To see the effect of dates of sowing and seed-rates on the yield of Wheat under high and low fertility levels.

1. BASAL CONDITIONS :

(i) (a) Nil (b) and (c) N.A. (ii) Clay loam (iii) As per treatments (iv) (a) N.A. (b) Line sowing behind the plough (c) As per treatments (d) Rows 23cm apart (e) — (v) Nil (vi) Pb. 591 (vii) Irrigated (viii) Nil (ix) 10.6cm. (x) 23.4.62.

2. TREATMENTS :

Main-plot treatments :

2 fertility levels : F_1=28Kg/ha. of N+22.4Kg/ha. of P_2O_5 and F_2=56Kg/ha of N+44.8Kg/ha. of P_2O_5.

Sub-plot treatments :

3 sowing dates : D_1=10.11.61, D_2=20.11.61 and D_3=30.11.61.

Sub-sub-plot treatments :

3 seed-rates S_1=45, S_2=78 and S_3=112Kg/ha.

3. DESIGN :

(i) Split-plot (ii) (a) 2 main-plots/replication; 3 sub-plots/main-plot; 3 sub-sub-plots/sub-plot (b) N.A. (iii) 4 (iv) (a) 6.40m×7.77m (b) 5.94m×6.55m (v) 23cm×61cm (vi) Yes.

4. GENERAL :

(i) Good (ii) Nil (iii) Yield of grain (iv) (a) 1961—only (b) and (c) Nil (v) to (vi) Nil.

5. RESULTS :

(i) 1018Kg/ha. (ii) (a) 171.6Kg/ha. (b) 333.0Kg/ha (c) 138.7Kg/ha. (iii) Main effect of S alone is significant (iv) Av. yield of grain in Kg/ha.

—	D_1	D_2	D_3	S_1	S_2	S_3	mean
F_1	1089	1061	1050	973	1123	1104	1067
F_2	954	1082	873	946	1006	958	970
mean	1021	1072	962	959	1065	1031	1018
S_1	1033	953	892				
S_2	1008	1210	976				
S_3	1023	1053	1017				

C.D. for S marginal means=81.2Kg/ha.

Crop :- Wheat (*Rabi*). **Ref :- U.P. 61(197), 62(197), 63(193)**

Site :- Govt. Reg. Agri. Res. Stn., Nawabganj, **Type :- 'CM'**

Object :—To study the effect of seed-rate, seed size and fertility level on Wheat crop.

1. BASAL CONDITIONS :

(i) (a) Nil (b) Paddy (c) N.A. (ii) Clay loam (iii) N.A. for 61 and 62 ; 3.12.63 (iv) (a) N.A. (b) Line sowing behind the plough (c) As per treatments (d) Rows 23cm. apart (e) — (v) N.A. (vi) C—13 (vii) Irrigated (viii) N.A. for 61, 62; Nil (ix) 10.6cm; 3.0cm; 0.7cm. (x) 22.4.62; 18.4.63; 21.4.64.

2. TREATMENTS :

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

(1) 3 seed-rates : R_1=45, R_2=78, R_3=112Kg/ha.

(2) 2 types of seed : S_1=Plan seed and S_2=Shrivelled seed.

(3) 2 fertility levels: F_1=28Kg/ha of N+22.4Kg/ha. of P_2O_5 and F_2=36Kg/ha. of N+44.8Kg/ha of P_2O_5.

3. DESIGN:

(i) Fact. in R.B.D. (ii) (a) 12 (b) N.A. (iii) 4 (iv) (a) 6.40m×3.66m (b) 6.40m×3.66m (v) Nil (vi) Yes.

4. GENERAL:

(i) Good (ii) Nil (iii) Yield of grain (iv) (a) 1961—63 (b) Yes (c) Nil (v) and (vi) Nil (vii) Since the error variances are heterogeneous and Treatments × years interaction is absent, the results of individual years have been presented under 5. Results.

5. RESULTS:

61 (197)

(i) 1217Kg/ha (ii) 249 8Kg/ha (iii) None of the effects is significant (iv) Av. yield of grain in Kg/ha.

	S_1	S_2	F_1	F_2	mean
R_1	1153	1116	1046	1223	1134
R_2	1292	1153	1281	1164	1223
R_3	1313	1276	1324	1265	1295
mean	1253	1182	1217	1217	1217
F_1	1224	1210			
F_2	1281	1153			

62 (197)

(i) 1247Kg/ha (ii) 310.4Kg/ha (iii) Main effect of R is significant and that of F is highly significant. (iv) Av. yield of grain in Kg/ha.

	S_1	S_2	F_1	F_2	mean
R_1	1018	1172	932	1258	1095
R_2	1320	1193	1146	1367	1256
R_3	1428	1353	1276	1506	1391
mean	1255	1239	1118	1377	1247
F_1	1069	1167			
F_2	1441	1312			

C.D. for R marginal means=223.3Kg/ha.
C.D. for F marginal means=182.4Kg/ha.

63 (193)

(i) 1174Kg/ha. (ii) 164 0 Kg/ha. (iii) Main effects of R and S are highly significant (iv) Av. yield of grain in Kg/ha.

	S_1	S_2	F_1	F_2	mean
R_1	998	745	827	916	871
R_2	1409	1110	1319	1201	1260
R_3	1479	1303	1399	1383	1391
mean	1295	1053	1182	1167	1174
F_1	1349	1014			
F_2	1242	1091			

C.D. for R marginal means=118.1Kg/ha.

C.D. for S marginal means=96.3Kg/ha.

Crop :- Wheat (*Rabi*). **Ref :-U.P. 63(419).**

Site:- G.B. Pant University of Agri. & Technology,

Pantnagar. **Type :- 'CM'.**

Object :—To study the effect of crop stubbles at varying phosphate levels on the performance of unirrigated Wheat and on soil properties.

1. BASAL CONDITIONS :

(i) (a) Maize—Wheat (b) Maize (c) N.A. (ii) Sandy loam (iii) 12.11.63 (iv) (a) One ploughing, four harrowings and 2 times roller operations (b) Behind *Deshi* plough (c) 74Kg/ha (d) Rows 25cm apart (e) — (v) 56Kg/ha. of N as A/S broadcasted before sowing (vi) N.P. 824 (vii) Unirrigated (viii) Breaking of crust due to rain—3 days after sowing (ix) 4.5cm (x) 18.4.64.

2. TREATMENTS :

All Combinations of of (1) & (2).

(1) 2 levels of Jowar Stubble : S_0=No. stubble and S_1=Stubble application @ 31.1 Q/ha.

(2) 4 levels of P_2O_5 : P_0=0, P_1=22.4, P_2=44.8 and P_3=67.2Kg/ha.

All the Maize stubbles were picked up from the experimental area and Jowar stubbles were applied in the plots and stubbles were mixed in soil with spade.

3. DESIGN:

(i) Fact. in R.B.D. (ii) (a) 8 (b) 25.00m.×23.20m (iii) 4 (iv) (a) 12.20m×5.80m (b) 10.98m×4.58m (v) 61cm×61cm (vi) Yes.

4. GENERAL:

(i) Good (ii) Nil (iii) Yield of grain (iv) (a) 1963—only (b) and (c) Nil (v) to (vii) Nil.

5. RESULTS:

(i) 1177Kg/ha (ii) 85.4Kg/ha (iii) Main effect of P alone is highly significant (iv) Av. yield of grain in Kg/ha.

	P_0	P_1	P_2	P_3	mean
S_0	933	1084	1345	1509	1218
S_1	787	1014	1240	1505	1137
mean	860	1049	1292	1507	1177

C.D. for P marginal means=86.8 Kg/ha.

Crop :- Wheat (*Rabi*). **Ref :- U.P. 62(437), 63 (596), 64 (698).**

Site :- State usar Reclamation Farm, Rahimabad. **Type :-'CM'.**

Object :—To compare the effectiveness of gypsum with bulky organic matter like paddy straw in reclamation of saline—alkali soils both under leached and unleached conditions.

1. BASAL CONDITIONS:

(i) (a) Nil (b) *Dhaincha* (c) Nil (ii) Clay loam (iii) N.A.; 17/18.11.63; 8 to 10.11.64 (iv) (a) 4 ploughings by *Deshi* plough/Meston plough followed by *Pataing* and levelling by bullock *Karh a* (b) Behind the plough in lines. (c) 111Kg/ha (d) Rows 18 to 23 cm apart (e)—(v) *Dhaincha* G.M. 276.8Kg/ha. of Super, 79.1Kg/ha. of urea, 111.2Kg/ha of A/S/N; for 62, *Dhaincha* G.M. 197.7Kg/ha. of Super; 74.1Kg/ha. of N as A/S; for 63 *Dhaincha* G.M. 197.7Kg/ha of Super, 74Kg/ha of N as A/S for 64 (vi) N.P. 710 (vii) Irrigated (viii) One weeding (ix) 2.8cm; 0.8cm; 8.1cm (x) April/May in each year.

2. TREATMENTS :

Main-plot treatments :

4 manurial treatments : T_0=Control, T_1=251.1Q/ha. of paddy-straw for 3 years T_2=125.5Q/ha. of Gypsum applied once and $T_3=T_1+T_2$.

Sub-plot treatments :

2 levels of leaching : L_0=Unleached and L_1=Leached with water.
Gypsum applied in 1957 and Paddy straw applied in 1957, 1958 and 1959. Leaching done only in 1957.

3. DESION:

(i) Split-plot (ii) (a) 4 main plots/replication, 2 sub-plots/main-plot (b) 50.29m.×86.87m. (iii) 4 (iv) (a) 50.29m×10.06m (b) 49.07m×8.84m. (v) 61cm×61cm (vi) Yes.

4. GENERAL:

(i) and (ii) N.A. (iii) Yield of grain (iv) (a) 1962–64 (b) Yes (c) Results of combined analysis have been presented under 5. Results. (v) Nil (vi) There was complete failure of winter rains in 1963. Winter rains uncertain in 1964. (vii) In 1960 and 1961 expts. conducted on paddy. In Rabi 1961 expt. conducted on Oats. Main-plot and Sub-plot error variances are homogeneous and both main-plot and sub-plot. Treatments × years interaction are absent.

5. RESULTS:

Pooled results :

(i) 988Kg/ha, (ii) (a) 439.6Kg/ha. (based on 33 d.f. made up of pooled error and years × treatments interaction) (b) 198.7Kg/ha (based on 44 d.f. made up of pooled error and Treatment × years interaction) (iii) Main effects of T, L and interaction T × L are highly significant (iv) Av. yield of grain in Kg/ha.

	T_0	T_1	T_2	T_3	mean
L_0	310	861	869	1059	774
L_1	513	1481	1426	1392	1203
mean	411	1171	1147	1125	988

C.D. for T marginal means=258.4Kg/ha.

C.D. for L marginal means=81.8Kg/ha.

C.D. for T means at the same level of L=400.3Kg/ha.

C.D. for L means at the same level of T=163.6Kg/ha.

Individual results :

Treatments	T_0	T_1	T_2	T_3	Sig.	L_0	L_1	Sig.	G.M.	S. E. per main/plot	S. E. per Sub-plot
Year											
1962	317	1027	945	1141	**	649	1064	**	857	444.5	177.3
1963	449	1318	1223	1347	**	445	1318	**	1083	486.1	216.5
1964	467	1168	1275	1190	**	796	1252	**	1024	497.0	250.1
Pooled	411	1171	1147	1225	**	774	1203	**	988	439.6	198.7

Crop :- Wheat (*Rabi*) **Ref :- U.P. 65 (595)**

Site :- State usar Reclamation Farm, Rahimabad. **Type :- 'CM'.**

Object :—To compare the effectiveness of gypsum with bulky organic matter like paddy—straw in reclamation of saline—alkali soils both under leached and unleached conditions.

1. BASAL CONDITIONS:

(i) (a) Paddy – Wheat (b) Paddy (c) Nil (ii) Clay loam (iii) Nov., 1965 (iv) (a) 4 ploughings by *Deshi* plough/Meston plough followed by *Pataing*, Levelling by bullock *Karha*. (b) Behind the plough in lines (c) 111Kg/ha (d) 18 to 23cm. apart (e) — (v) N A. (vi) K68 (vii) Irrigated (viii) 1 weeding (ix) 1.9cm. (x) 15.5.66.

2. TREATMENTS:

Main-plot treatments:

4 manurial treatments : T_0=Control, T_1=251.1Q/ha. of paddy straw for 3 years (1957, 1958 and 1959) + 123.6Q/ha. of paddy straw in Kharif, 65, T_2=125.5Q/ha. of Gypsum applied once in 1957+61.8Q/ha of Gypsum in Kharif, 1965 and $T_3=T_1+T_2$.

Sub-plot treatments:

2 levels of leaching: L_0=Unleached and L_1=Leached with water.

3. DESIGN:

(i) Split—plot (ii) (a) 4 main plots/replication and 2 Sub-plots/main plot (b) 50.29m×86.87m. (iii) 4 (iv) (a) 50.29m×10 06m. (b) 49.07m.×8.84m. (v) 61cm.×61cm. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of grain (iv) (a) 1965—Contd. (b) Yes (c) Nil (v) and (vi) Nil (vii) In 1960 and 1961 expt. conducted on Paddy. In *Rabi*, 1961 expt. conducted on oats. In 1962, 1963, and 1964 expt. conducted on Wheat. In Kharif, 1965 expt. conducted on Paddy.

5. RESULTS :

(i) 354 Kg/ha. (ii) (a) 309.2Kg/ha. (b) 134.9 Kg/ha. (iii) Main effect of L is highly significant and interaction T×L is significent (iv) Av. yield of grain in Kg/ha.

	T_0	T_1	T_2	T_3	mean
L_0	177	244	233	462	279
L_1	242	332	654	490	430
mean	209	288	444	476	354

C.D. for L marginal means=103.9Kg/ha.

C.D. for L means at the same level of T=207.8Kg/ha.

C.D. for T means at the same level of L=435.7Kg/ha.

Crop :- Wheat (*Rabi*).

Site :- State Soil Cons. Res., Demons. and Trg. Centre, Rehmankhera.

Ref :- U.P. 60(80), 61(87), 62(77), 63(86), 64 (72).

Type :- 'CM'

Object :—To study the effect of shallow and deep ploughings, different seed-rates and doses of N and P on the yield of Wheat.

1. BASAL CONDITIONS

(i) (a) *Sanai* (G.M.)—Wheat (b) *Sanai* (G.M.) (c) Nil (ii) Loamy sand (iii) N.A.; 1, 2.11.61; 3.11.62; 29.10.63; 27, 28.10.64 (iv) (a) As per treatments (b) Behind the *desi* plough (c) As per treatments (d) Row 23cm. apart (e) — (v) *Sanai* (G.M.) turned in dusing August (vi) N.P. 718 (vii) Irrigated (viii) 1 to 2 weedings (ix) N.A. (x) 10, 15.4.63 for 62; 15,17.4.64 for 63; N.A. for others.

2. TREATMENTS:

Main-plot treatments

2 methods of cultivation : C_1=Shallow ploughing (10cm. deep) with country plough, and cultivator and =Deep ploughing (20cm deep) with soil inverting plough and tractor harrow.

Sub-plot treatments :

3 seed rates : S_1=46, S_2=92 and S_3=138Kg/ha.

Sub-sub-plot treatments :

3 levels of N : N_0=0, N_1=33.6 and N_2=67.2Kg/ha.

Sub-sub-sub-plot treatments :

2 levels of P_2O_5 as Super : P_0=0 add P_1=44.8Kg/ha. N applied as A/S in 60, as A/S/N in 61 and C/A/N for others. Fertilizers applied at the time of sowing with the last ploughing Super applied behind the plough and placed at about 12.5cm deep along the rows and Nitrogenous fertilizers broadcasted and mixed.

3. DESIGN:

(i) Split-plot(ii)(a)2 main-plots/replication, 3sub-plots/main-plot, 3 sub-sub-plots/sub-plot and 2 sub-sub-sub-plots/sub-sub-plot (b) 32.0m×42.1m (iii) 3 (iv) (a) 10.05m×6.40m (b) 9.45m×5.79m (v) 30cm×30cm (vi) Yes.

4. GENERAL:

(i) Growth not satisfactory due to lack of moisture in 62; Satisfactory for others. (ii) N.A. (iii) Yield of grain (iv) (a) 1960—64 (b) Yes (c) Results of combined analysis have been presented under 5. Results. (v) No. (vi) Nil (vii) Main-plot, sub-plot, sub-sub-plot and sub-sub-sub-plot error variances are homogeneous. Only sub-sub-sub-plot treatments×years interaction is present.

5. RESULTS :

Pooled results :

(i) 1358Kg/ha (ii) (a) 857.2Kg/ha. based on (14 d.f. made up of pooled error and Treatment×years interaction) (b) 484.1Kg/ha (based on 56 d.f. made up of pooled error and Treatment×years interaction) (c) 284.2Kg/ha (based on 152 d.f. made up of pooled error and Treatment×years interaction) (d) 427.7Kg/ha. (based on 24 d.f. made up of Treatment×years interaction) (iii) Main effects of N.P. interactions N×C and C×S are highly significant (iv) Av. yield of grain in Kg/ha.

	C_1	C_2	S_1	S_2	S_3	N_0	N_1	N_2	mean
P_0	1016	915	909	1026	960	873	1002	1020	965
P_1	1798	1703	1683	1788	1781	1580	1765	1907	1751
mean	1407	1309	1296	1407	1370	1227	1383	1463	1358
N_0	1209	1245	1156	1294	1230				
N_1	1488	1279	1321	1467	1362				
N_2	1525	1402	1410	1461	1520				
S_1	1357	1234							
S_2	1561	1254							
S_3	1304	1438							

C.D. for N marginal means=58.6Kg/ha.

C.D. for P marginal means=75.9Kg/ha.

C.D. for N means at the same level of C=83.1Kg/ha.

C.D. for C means at the same level of N=172.0Kg/ha.

C.D. for S means at the same level of C=144.8Kg/ha.

C.D. for C means at the same level of S=197.3Kg/ha.

Individual years results :

Treatment	C_1	C_2	Sig.	S_1	S_2	S_3	Sig.	N_0	N_1	N_2	Sig.
Year 1960	1170	1150	N.S.	1184	1146	1160	N.S.	1031	1131	1318	**
1961	1638	1464	N.S.	1557	1556	1540	N.S.	1428	1571	1654	**
1962	1613	1381	N,S.	1456	1564	1471	N.S.	1311	1535	1645	**
1963	1144	1096	N.S.	850	1299	1211	**	1036	1153	1171	*
1964	1471	1453	N S.	1432	1472	1482	N.S.	1328	1528	1530	*,
Pooled	1407	1309	N.S.	1296	1407	1370	N.S.	1227	1383	1463	**

P_0	P_1	Sig.	G.M.	S.E./main plot	S.E./sub-plot	S.E./sub-sub plot	S.E./sub-sub-sub-plot
875	1445	**	1160	1130.5	637.1	257.7	220.4
1056	2046	**	1557	1387.4	472.7	266.6	357.3
1048	1946	**	1497	1001.3	473.0	292.9	290 2
728	1512	**	1120	824.7	467.9	214.6	286.2
1119	1805	**	1462	252.6	301.7	360.9	339.2
965	1751	**	1358	857.2	484.1	284.2	427.7

Crop :- Wheat (*Rabi*). **Ref :- U.P. 63 (480).**

Site :-Central Soil Conservation Res. Stn., Selakui. **Type :- 'CM'.**

Object :—To study the residual effect of micro-nutrients applied to grasses on Wheat.

1. BASAL CONDITIONS :

(i) (a) Grasses from 59 to 62—fallow—(Rabi 62). Maize-Wheat—(63) (b) Maize (c) Nil (ii) Loam (iii) 21.10.63 (iv) (a) 1 ploughing by disc plough, 2 horrowing and 2 ploughings (b) By Seed drill (c) 75Kg/ha. (d) Rows 15cm. apart (e) — (v) Nil (vi) N.P. 720 (vii) Unirrigated (viii) Nil (ix) 13.6cm. (x) 16.4.64 and 20.4.64.

2. TREATMENTS :

All combinations of (1) and (2).

(1) 3 grasses : G_1=Chloris gayana (Rhodes grass), G_2=Bracharia mutica (Para grass) and G_3=Cynodon plactostachyum (Giant star grass).

(2) 10 micro-nutrient treatments :

T_0=No fertilizer, T_1=Basal dose of 45Kg/ha N+67.5kg/ha of P_2O_5, T_2=T_1+all micronutrients (Cu, M_0, Zn, B, Mn, Mg), T_3=T_1+all micronutrients except Cu, T_4=T_1+all micronutrients except Mo, T_5=T_1+all micronutrients except Zn, T_6=T_1+all micronutrients except B, T_7=T_1+micronutrients except Mn, T_8=T_1+all micronutrients except Mg and T_9=T_1+Mo only.

The micro-nutrients were applied Cu at 22.5Kg/ha. as copper sul Mo at 40Kg/ha as Ammonium Molybdate, Zn at 11.25Kg/ha as Zinc Sul. B at 2.25Kg/ha as Borax, Mn at 5.5Kg/ha. as Manganese sul, Mg at 28.1Kg/ha as Magnesium sul. The micro-nutrient broadcasted to grasses in 1969 only.

3. DESIGN:

(i) Fact. in R.B.D. (ii) (a) 30 (b) N.A. (iii) 3 (iv) (a) and (b) 14.63m×5.49m. (v) Nil (vi) Yes.

4. GENERAL:

(i) Good (ii) Nil (iii) Yield of grain (iv) (a) 1959—63 In *Rabi*, 63 only, the residual effect tested on Wheat. (b) Yes (c) Nil (v) to (vii) Nil.

5. RESULTS:

(i) 484Kg/ha (ii) 136.8Kg/ha (iii) None of the effects is significant. (iv) Av. yield of grain in Kg/ha

	T_0	T_1	T_2	T_3	T_4	T_5	T_6	T_7	T_8	T_9	mean
G_1	519	502	448	593	473	552	456	510	515	432	510
G_2	527	373	610	531	527	581	311	485	423	369	474
G_3	560	295	461	340	519	506	452	340	589	622	469
mean	535	390	506	521	506	546	406	445	509	474	484

Crop :- Wheat (*Rabi*). **Ref. :- U.P.60 (367), 61 (376).**

Site :-Central Soil Cons. Res. Stn., Selakui. **Type :- 'CM'.**

Object :- To study the effect of various legumes on the succeeding crop of Wheat.

1. BASAL CONDITIONS:

(i) (a) As per treatments—Wheat (b) and (c) As per treatments (ii) Loam (iii) 20.10.60; 25.11.61 (iv) (a) 1 ploughing by disc plough, 2 harrowings and 2 plankings (b) By seed-drill (c) 99Kg/ha (d) Rows 15cm. apart (e) — (v) 134.5Kg/ha. of A/S/N +32Kg/ha of P_2O_5 as Super (vi) C--281; N.A. (vii) Unirrigated (vii) 2 weedings; Nil (ix) 33.1cm; 32.4cm (x) 20.4.61; 7.5.62.

2. TREATMENTS:

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

(1) 2 doses of fertilizer: F_1=44.9 C.L./ha. of F.Y.M. and F_2=F_1+44.8Kg/ha. of P_2O_5 as Super.

(2) 12 legume crops : L_1=*Cowpea*, L_2=Soyabean, N_3=*Dhaincha*, L_4=Ground nut, L_5=*Sann hemp*, L_6=*Moong*, L_7=*Urd*, L_8=*Kulthi*, L_9=*Dolichos*, L_{10}=Velvet bean, L_{11}=French bean and L_{12}=*Moth*.

Control plot was not taken in 1960.

3. DESIGN:

(i) R.B.D ii) (a) 24;25 (b) 29.56 m×57.30 m (iii) 4 (iv) (a) and (b) 10.97m×5.18m. (v) Nil (vi) Yes.

4. GENERAL:

(i) N.A. (ii) Nil (iii) Yield of grain (iv) (a) 1960—52 (b) Yes (c) Nil (v) and (vi) Nil (vii) Control plot not taken in 1960 and expt. failed in 1962.

5. RESULTS:

1960

(i) 1492Kg/ha (ii) 525·5Kg/ha (iii) None of the effects is significant (iv) Av. yield of grain in Kg/ha.

	L_1	L_2	L_3	L_4	L_5	L_6	L_7	L_8	L_9	L_{10}	L_{11}	L_{12}	mean
F_1	1403	1398	1176	1291	1891	1460	1301	1877	1372	961	1658	1477	1439
F_2	1504	1513	1714	1790	1480	1499	1524	1671	1482	1640	1141	1517	1546
mean	1453	1455	1485	1540	1685	1480	1413	1774	1427	1300	1399	1497	1492

1961

(i) 1717Kg/ha. (ii) 335.1Kg/ha. (iii) None of the effects is significant (iv) Av. yield of grain in Kg/ha.

Control=1694Kg/ha.

	L_1	L_2	L_3	L_4	L_5	L_6	L_7	L_8	L_9	L_{10}	L_{11}	L_{12}	mean
F_1	1830	1470	1329	1773	1683	1864	1604	1852	1702	1663	1900	2046	1726
F_2	1757	1859	1703	1766	1464	1595	1803	1760	1925	1765	1415	1702	1709
mean	1794	1664	1516	1770	1574	1730	1703	1806	1814	1714	1658	1874	1718

Crop :- Wheat (*Rabi*). **Ref:-U.P. 63 (481)**

Site :- Central Soil Cons. Res. Stn., Selakui. **Type :- "CM.**

Object :—To study the effect of various legumes on the following Wheat crop.

1. BASAL CONDITIONS :

(i) (a) Nil (b) and (c) As per treatments (ii) N.A. (iii) 9.11.63 (iv) (a) 1 ploughing by disc plough, 2 harrowings. 2 plankings (b) By seed-drill (c) 99Kg/ha. (d) Rows 15cm apart (e)—(v) Nil (vi) N.P. 720 (vii) Unirrigated (viii) Nil (ix) 15.8cm (x) 2.5.64.

2. TREATMENTS :

All combinations of (1) and (2)

(1) 2 levels of P_2O_5 applied to *Kharif* legumes : P_0=0 and P_1=28.0Kg/ha.

(2) 6 *Kharif* legumes : L_1= *Cospea*, L_2=Ground nut, L_3=Frenk-bean, L_4=*Dolichos*, L_5=Soya-bean and V_6=Velvet-bean.

3. DESIGN :

(i) Fact. in R.B.D. (ii) (a) 12 (b) 39.01m.×30.17m. (iii) 6 (iv) (a) and (b) 12.80m.×7.32m. (v) Nil (vi) Yes.

4. GENERAL :

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

5. RESULTS:

(i) 351Kg/ha (ii) 117.3Kg/ha. (iii) None of the effects is significant. (iv) Av. yield of grain in Kg/ha.

	L_1	L_2	L_3	L_4	L_5	L_6	mean
P_0	429	425	324	313	404	333	371
P_1	373	286	470	349	270	332	330
mean	401	355	347	331	337	332	351

Crop :- Wheat (*Rabi*) **Ref :- U.P. 63 to 65 (M.A.E.).**

Site :- M.A.E. Centre; Bichpuri. **Type :- 'CM'**

Object :—Type VIII :—To study the optimum requirements of seed-rates, time of sowing in combination with fertilizer doses for Wheat.

1. BASAL CONDITIONS:

(i) (a) to (c) N.A. (ii) Alluvial (iii) As per treatments (iv) (a) 5 ploughings (b) Behind the plough (c) As per treatment (d) 23cm between sowing (e) – (v) N.A. (vi) Pb. 591 (vii) Irrigated (viii) One weeding (ix) and (x) N.A.

2- TREATMENTS :

Main-plot treatments :

All combinations of (1) and (2).

(1) 3 Seedrates : S_1=56.0, S_2=78.4 and S_2=100.8Kg/ha.

(2) 3 Dates of sowing : D_1=15-10—63, D_2=30—10—63 and for 63 D_3=15—11—63.

Dates of sowing for 64 are D_1=16.10.64, D_2=1.11.64 and D_3=16.11.64 Dates of sowing for 65 are D_1=21.10.65, D_2=5.11.65 and D_3=19.11.65.

Sub-plot treatments :

All combinations of (1) and (2).

(1) 3 levels of N as A/S : N_0=0, N_1=22.4 and N_2=44.8Kg/ha.

(2) 3 levels of P_2O_5 as Super : P_0=0, P_1=22.4 and P_2=44.8Kg/ha.

3. DESIGN :

(i) Split-plot (ii) (a) 9 main-plots/replication; 9 sub-plots/main-plot (b) N.A. (iii) 2 (iv) (a) and (b) N.A. (v) Nil (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of grain (iv) (a) 1963—1965 (b) N.A. (c) Nil. (v) Pura and Varanasi (vi) N.A. (vii) Nil.

5. RESULTS :

1963

(i) 1597Kg/ha. (ii) (a) N.A. (b) N.A. (iii) Main effects of D and N are significant. (iv) Av. yield of grain in Kg/ha.

Treatment :	S_1	S_2	S_3	D_1	D_2	D_3
Mean yield :	1640	1511	1640	1787	1447	1557

C D.=275Kg/ha

Treatment:	N_0	N_1	N_2	P_0	P_1	P_2
Mean yield :	1100	1620	2072	1571	1593	1628

C.D.=149Kg/ha.

1964

(i) 814Kg/ha. (ii) (a) and (b) N.A. (iii) Main effect of N is significant (iv) Av. yield of grain in Kg/ha:

Treatment :	S_1	S_2	S_3	D_1	D_2	D_3
Mean yield :	769	831	842	792	863	788

Treatment:	N_0	N_1	N_2	P_0	P_1	P_2
Mean yield :	725	875	843	813	777	853

C.D.=79Kg/ha.

1965

(i) 1736Kg/ha. (ii) (a) and (b) N.A. (iii) Main effect of S is significant (iv) Av. yield of grain in Kg/ha

Treatment :	S_1	S_2	S_3	D_1	D_2	D_3
Mean yield :	1481	1786	1940	1947	1641	1619

C.D.=355Kg/ha.

Treatment :	P_0	P_1	P_2	N_0	N_1	N_2
Mean yield :	1710	1740	1757	1693	1793	1720

Crop :- Wheat (*Rabi*) **Ref :- U.P. 60, 62 (M.A.E.)**

Site.-M.A.E. Centre; Pura. **Type :- 'CM'.**

Object : –Type VIII : To study the optimum requirements of seed-rate, time of sowing in combination with fertilizers doses for Wheat.

1. BASAL CONDITIONS:

(i) (a) to (c) N.A. (ii) Alluvial (iii) As per treatment (iv) (a) 3 ploughings with meston plough and 7 with *deshi* plough (b) Line sowing (c) As per treatments (d) 23 between rows (e)— (v) Nil (vi) Pb. 591 (vii) Irrigated (viii) Weeding (ix) N.A. (x) 11, 20 and 81.4.61; N.A.

2. TREATMENTS:

Main-plot treatments :

All combinations of (1) and (2)

(i) 3 seed rates: S_1=56.0, S_2=78.4 and S_3=100.8Kg/ha.

(2) 3 dates of sowing for 60 : D_1=4—11—60, D_2=19—11—60 and D_3=5—12—60.

3 Dates of sowing for 62 : D_1=12—10—62, D_2=26—10—62 and D_3=13—11—62.

Sub-plot treatments :

All combinations of (1) and (2).

(1) 3 levels of N as A/S : N_0=0, N_1=22.4 and N_2=44.8Kg/ha.

(2) 3 levels of P_2O_5 as Super : P_0=0, P_1=22.4 and P_2=44.8Kg/ha

3. DESIGN:

(i) Split-plot (ii) (a) 9 main-plots/replication; 9 Sub-plots/main-plot (b) N.A. (iii) 2 (iv) (a) and (b) 10.06m × 5.01 & 9.14m × 4.40 (v) 46cm × 30cm. (vi) Yes.

4. GENERAL:

(i) and (ii) N.A. (iii) Yield of grain (iv) (a) 1957–1962 (61 N.A.) (b) N.A. (c) Nil (v) Bichpuri and Varanasi (vi) N.A. (vii) Nil.

5. RESULTS:

1960

(i) 2012Kg/ha. (ii) (a) and (b) N.A. (iii) Main effects of D, N and P are significant (iv) Av. yield of grain in Kg/ha.

Treatment:	S_1	S_2	S_3	D_1	D_2	D_3
Mean yield:	2036	1999	2001	2349	2054	1633

C.D.=235Kg/ha.

Treatment;	N_0	N_1	N_2	P_0	P_1	P_2
Mean yield:	1909	2032	2095	1408	2183	2445

C.D.=150Kg/ha. C.D.=150Kg/ha.

1962

(i) 1823Kg/ha. (ii) (a) and (b) N.A. (iii) Main effects of N and P are significant. (iv) Av. yield of grain in Kg/ha.

Treatment:	S_1	S_2	S_3	D_1	D_2	D_3
Mean yield:	1714	1917	1838	1775	1809	1885

Treatment:	N_0	N_1	N_2	P_0	P_1	P_2
Mean yield:	1753	1821	1895	1510	1935	2024

C.D.=99Kg/ha. C.D.=99Kg/ha

Crop :- Wheat (*Rabi*). **Ref :- U.P. 60 to62 (M.A.E.).**

Site :- M.A.E. Centre; Varanasi. **Type :- 'CM'.**

Object :—Type VIII : To study the optimum requirements of seed-rate, time of sowing in combination with fertilizer doses for Wheat.

1. BASAL CONDITIONS:

(i) (a) to (c) N.A. (ii) Gangetic alluvium (iii) As per treatments (iv) (a) 5 ploughings (b) Behind the plough (c) As per treatment (d) 23cm between rows (e) — (v) N.A. (vi) N.P. 52 (vii) Irrigated (viii) One weeding (ix) and (x) N.A.

2. TREATMENTS:

Main-plot treatments

All combinations of (1) and (2)

(1) 3 seed-rates : S_1=56.0, S_2=78.4 and S_3=100.8Kg/ha.

(2) 3 dates of sowing for 60 : D_1=13—10—60, D_2=28 – 10—60 and D_3=12—11—60.

3 Dates of sowing for 61 : D_1=25—10—51, D_2=10—11—61 and D_3=26—11—61.

3 Dates of sowing for 62 are D_1=16—10—52, D_2=30—10—62 and D_3=15—11—62.

Sub-plot treatments :

All combinations of (1) and (2)

(1) 3 levels of N as A/S : N_0=0. N_1=22.4 and N_2=44.8Kg/ha.

(2) 3 levels of P_2O_5 as Super : P_0=0, P_1=22.4 and P_2=44.8Kg/ha.

3. DESIGN:

(i) Split-plot (ii) (a) 9 Main-plots/replication; 9 sub-plots/Main plot (b) N.A. (iii) 2 (iv) (a) 10.36m.×4.88m. (b) 9.75m×4.19m. (v) 30cm×35cm (vi) Yes.

4. GENERAL:

(i) and (ii) N.A. (iii) Yield of grain (iv) (a) 1957–1962 (b) N.A. (c) Nil. (v) Bichpuri and Pura (iv) N.A. (vii) Nil.

5. RESULTS :

1960

(i) 1527Kg/ha (ii) (a) and (b) N.A. (iii) Main effects of S, D and N are significant (iv) Av. yield of grain in Kg/ha.

Treatment :	S_1	S_2	S_3	D_1	D_2	D_3
Mean yield :	1660	1374	1546	1282	1513	1786

C.D.=250Kg/ha C.D.=250Kg/ha

Treatment :	N_0	N_1	N_2	P_0	P_1	P_2
Mean yield :	1236	1485	1860	1469	1547	1565

C. D.=129 kg./ha

1961

(i) 1570Kg/ha. (ii) (a) and (b) N.A. (iii) Main effects of D, N and P are significant (iv) Av. yield of grain in Kg/ha.

Treatment :	S_1	S_2	S_3	D_1	D_2	D_3
Mean yield :	1525	1506	1679	1464	1700	1546

C.D.=159Kg/ha

Treatment :	N_0	N_1	N_2	P_0	P_1	P_2
Mean yield :	1032	1592	2084	1525	1562	1623

C.D.=75Kg/ha. C.D.=75Kg/ha.

1962

(i) 1317Kg/ha (ii) (a) and (b) N.A. (iii) Main effects of D, N and P are significant (iv) Av. yield of grain in Kg/ha.

Treatment :	S_1	S_2	S_3	D_1	D_2	D_3
Main yield :	1298	1328	1326	1151	1375	1426

C.D.=175Kg/ha.

Treatment:	N_0	N_1	N_2	P_0	P_1	P_2
Mean yield :	871	1306	1775	1274	1334	1343

C.D.=69Kg/ha C.D.=69Kg/ha

Crop :-Wheat (*Rabi*) **Ref :-U.P. 64(341)**

Site :-R.B.S. College, Bichpuri **Type :-'CMV'**

Object:—To study the effect of different levels of N, P, K and dates of sowing on differeni Varieties of Wheat.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Fallow (c) Nil (ii) Sandy loam (iii) As per treatments (iv) (a) Ploughings and Planking harrowing (b) Behind the plough (c) 80Kg/ha. (d) Rows 23 apart (e) — (v) Nil (vi) As per treatments (vii) Irrigated (viii) 3 weedings (ix) 1.21cm. (x) 6 to 8.5.65.

2. TREATMENTS

Main-plot treatments :

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

(1) 3 dates of sowing : D_1=17.10.64, D_2=2 11.64 and D_3=17.11.64.

(2) 3 Varieties : V_1=Pb. 591, V_2=N.P. 830 and V_3=N.P. 824

(3) 3 levels of N as compost : N_0=0, N_1=44.8 and N_2=89.6Kg/ha.

Sub-plot treatments: All combinations of (4) and (5).

(4) 2 levels of P_2O_5 as Super : P_0=0 and P_1=67.2Kg/ha.

(5) 2 levels of K_2O : as Maur. Pot. : K_0=0 and K_1=44.8Kg/ha.

P & K applied at sowing and N applied before Ist ploughing.

3. DESIGN :

(i) Split-plot confd. (ii) (a) 3 blocks/replication, 9 main-plots/block and 4 sub-plots main-plot (b) 60.0m × 32.0m (iii) 1 (iv) (a) 8.8m × 4.0m (b) N.A. (v) N.A. (vi) Yes.

4. GENERAL :

(i) Good (ii) Nil (iii) Yield of grain (iv) (a) 1964—only (b) and (c) Nil. (v) to (vi) Nil (vii) Only the results are presented under 5. Results are available.

5. RESULTS :

(i) 1300 Kg/ha. (ii) (a) 478.2 Kg/ha. (b) 241.7 Kg/ha. (iii) Main effect of D alone is significant (iv) Av. yield of grain in Kg/ha.

Treatment :	D_1	D_2	D_3	V_1	V_2	V_3	N_0	N_1	N_2	P_0	P_1	K_0	K_1
Av. yield :	1218	1555	1126	1385	1202	1313	1198	1374	1327	1239	1361	1302	1298

C.D. for D marginal means=275.8 Kg/ha.

Crop :- Wheat (*Rabi*). **Ref :- U.P. 63(301), 64(339).**

Site :- R.B.S. College, Bichpuri. **Type :-'CMV'.**

Object –To see the response of seed-rates and levels of N to different varieties of Wheat.

1. BASAL CONDITIONS:

(i) (a) Nil (b) *Jowar*; Maize (c) N.A. (ii) Sandy loam (iii) 1/2.11.63; 7/8.11.64 (iv) (a) 4 to 5 harrowings (b) Behind *deshi* plough (c) As per treatments (d) Rows 25cm apart (e) — (v) 50Kg/ha of P_2O_5 as Super (vi) As per treatments (vii) Irrigated (viii) Weedings (ix) 0.8cm; 1.2cm. (x) 14.4.64; 21.4.65.

2. TREATMENTS:

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

(1) 4 Varieties : V_1=Pb.–591, V_2=K— 68, V_3=Pb.C. 281 and V_4=Pb.C. 303.

(2) 2 seed rates: S_1=50 and S_2=75Kg/ha.

(3) 3 levels of N : N_1=14, N_2=56 and N_3=88Kg/ha.

3. DESIGN:

(i) Fact. in R.B.D. (ii) (a) 24 (b) N.A. (iii) 4 (iv) (a) 11.00m×6.00m (b) 10.00m×5.00m (v) 50cm×50cm (vi) Yes.

4. GENERAL:

(i) Good (ii) Nil (iii) Yield of grain. (iv) (a) 1963—64 (b) No. (c) Nil. (v) N.A. (vi) Nil (vii) Only the results presented under 5. Results are available.

5. RESULTS:

63(301)

(i) 1879Kg/ha (ii) 437.1Kg/ha. (iii) Main effects of V and N are significant (iv) Av. yield of grain in Kg/ha.

Treatment :	V_1	V_2	V_3	V_4	S_1	S_2	N_1	N_2	N_2
Av. yield	2099	1769	1661	1988	1864	1893	1693	1912	2032

C.D. for N marginal means=100.4Kg/ha.

C.D. for V marginal means=200.6Kg/ha.

64 (339)

(i) 1231Kg/ha (ii) 473.5Kg/ha. (iii) Main effects of V and S are significant (iv) Av. yield of grain in Kg/ha.

Treatment:	V_1	V_2	V_3	V_4	S_1	S_2	N_1	N_2	N_3
Av. yield :	1350	958	1196	1418	1132	1330	1148	1284	1260

C.D. for V marginal means=273.0Kg/ha

C.D. for S marginal means=193.0Kg/ha.

Crop :- Wheat (*Rabi*). **Ref :- U.P. 63(81).**

Site :-Govt. Res. Farm, Kanpur. **Type :- 'CMV'.**

Object :—To study the effect of quality of seed and levels of fertility on different varieties of Wheat.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) *Sanai* for G.M. (c) N,A. (ii) Loam. (iii) 27.11.63. (iv) (a) 1 *Palewa*, 4 Ploughings by *deshi* plough, 1 ploughing by soil Turning plough and 1 harrowing (b) Line sowing behind the plough. (c) Adjusted to 1000 grain (d) Rows 23cm. apart (e) N.A. (v) Nil. (vi) As per treatments. (vii) Irrigated (viii) Hand weeding by *Khurpi* (ix) 1.3cm. (x) 6.5.64.

2. TREATMENTS :

Main-plot treatments :

2 levels of fertility : M_1=33.6Kg/ha. of N+16.8Kg/ha. of P_2O_5 as Super and M_2=56Kg/ha. of N+28Kg/ha. of P_2O_5 as Super.

Sub-plot treatments :

All combinations of (1) and (2).

(1) 2 Varieties : V_1=C13 (medium) and V_2=Pb. 591 (late).

(2) 2 quality of seed : S_1=Thick seed and S_2=Thin seed.

In both M_1 and M_2 33.6Kg/ha. of N was supplied by *Sanai* (G.M.) (buried on 26). In M_2 22.4Kg/ha. of N was supplied by urea, which was broadcasted on 27.11.63. Super applied in furrows behind the plough on 27.11.63.

3. DESIGN:

(i) Split-plot (ii) (a) 2 main-plots/replication; 4 sub-plots/main-plot (b) 9.90m×13.26m. (iii) 4 (iv) (a) 4.57m×2.74m. (b) 3.96m.×2.29m. (v) 30cm×23cm (vi) Yes.

4. GENERAL :

(i) Satisfactory; Plants lodged in same plots in II fortnight of Feb. (ii) Smutted plants observed in II fortnight of Feb., 64 in Incidence of brown and black Rusts was more in V_1 than dusting with Folidol on 17.12.63. (iii) Yield of grain (iv) (a) 1963—only (b) and (c) Nil. (v) and (vi) Nil (vii) The seed-rate was adjusted on 1000 grain wt basis. This is very important where seed size varies considerably. This procedure keeps the number of plants/foot almost constant and larger seeded ones do not suffer from any disadvantage.

5. RESULTS ;

(i) 1740Kg/ha. (ii) (a) 137.4Kg/ha. (b) 190.2Kg/ha. (iii) Only the interaction M×V is highly significant. (iv) Av. yield of grain in Kg/ha.

	V_1	V_2	S_1	S_2	mean
M_1	1847	1584	1775	1656	1716
M_2	1690	1838	1822	1706	1764
mean	1768	1711	1798	1681	1740
S_1	1866	1731			
S_2	1671	1691			

C.D. for V means at the same levels of M=199.8Kg/ha.
C.D. for M means at the same level of V=204.8Kg/ha.

Crop :- Wheat (*Rabi*). **Ref :- U.P. 63 (195)**

Site :- Govt. Reg. Agri. Res. Stn., Nawabganj. **Type :- 'CMV'.**

Object :—To see the residual effect of N, P and K applied to Paddy on the yield of Wheat.

1. BASAL CONDITIONS :

(i) (a) Nil (b) Paddy (c) As per treatments (ii) Clay loam (iii) 10.12.63 (iv) (a) N.A. (b) Line sowing behind plough (c) 100Kg/ha. (d) Rows 23cm. apart (e) — (v) Nil (vi) N.A. (vii) Irrigated (viii) N.A. (ix) 72cm. (x) 24 to 26.4.64.

2. TREATMENTS :

Main-plot treatments :

All combinations of (1) and (2)

(1) 3 Varieties of Paddy : V_1=K.22, V_2=T.3 and V_3=T.21.

(2) 3 types of spacing : S_1=23cm.×23cm., S_2=15cm.×15cm. and S_3=12cm×12 cm

Sub-plot treatments :

All combinations of (3), (4) and (5)

(3) 3 levels of N : N_1=34, N_2=68 and N_3=101.8Kg/ha.

(4) 3 levels of P_2O_5 : P_1=16.8, P_2=33.6 and P_3=50.4Kg/ha.

(5) 3 levels of K_2O : K_1=16.8, K_2=33.6 and K_3=50.4Kg/ha.

3. DESIGN:

(i) (a) Split-plot confd. (ii) (a) 3 blocks/replication, 9 main-plots/block., 9 sub-plots/main-plot. (b) N. A. (iii) 1 (iv) (a) and (b) 4.57m×5.49m (v) Nil (vi) Yes.

4. GENERAL :

(i) Good. (ii) Nil (iii) Yield of grain. (iv) (a) 1963—only. (b) and (c) Nil (v) to (vii) Nil.

5. RESULTS :

(i) 654Kg/ha. (ii) (a) 290.6Kg/ha. (b) 133.1 kg/ha (iii) None of the effects is significant (iv) Av. yield of grain in Kg/ha.

	N_1	N_2	N_3	K_1	K_2	K_3	V_1	V_2	V_3	S_1	S_2	S_3	mean
P_1	602	627	655	642	599	643	704	565	615	649	611	624	628
P_2	627	641	698	650	638	677	731	624	610	689	678	598	655
P_3	677	677	680	673	655	706	735	658	641	673	666	696	678
mean	635	648	678	655	631	675	723	616	622	670	652	639	654
S_1	667	659	684	662	670	678	758	655	597				
S_2	647	655	654	683	621	652	718	588	650				
S_3	591	630	696	620	602	695	693	605	619				
V_1	678	747	744	752	661	756							
V_2	638	592	618	610	594	644							
V_3	589	605	672	603	638	625							
K_1	673	612	680										
K_2	603	654	636										
K_3	629	678	718										

Crop :-Wheat (*Rabi*). **Ref :-U.P. 62(311).**

Site :- Res. Farm. College of Agri., B.H.U., Varanasi. **Type ;-'CMV'**

Object :—To study the effect of different plant population and urea application on different varieties of Wheat.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) *Jowar* (c) N.A. (ii) Loam (iii) 3.11.62 (iv) (a) One ploughing with soil turning plough, six ploughings by *desi* plough followed by planking (b) Behind the plough (c) As per treatments (d) Rows 23cm apart (e)— (v) 112.1Kg/ha. of P_2O_5 as Super+44.8Kg/ha. of K_2O as Mur. Pot. (vi) As per treatments (vii) Irrigated (viii) 1 weeding followed by hoeing (ix) 5.5cm. (x) 3.4.63.

2. TREATMENTS :

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

(1) 2 Varieties : V_1=Pb. 591 and V_2=N.P. 792.

(2) 2 Foliar applications of urea : F_1=22.4 and F_2=44.8Kg/ha.

(3) 2 Basal application of urea : B_1=22.4 and B_2=44.8Kg/ha. of N as urea.

(4) 2 Seed-rates S_1=89.7 and S_2=134. 5Kg/ha. of seed.

3. DESIGN :

(i) 2^4 Fact. R.B.D. (ii) (a) 16 (b) 39.32 m.×26.21m. (iii) 4 (iv) (a) 9 .14m.×5.1m. (b) 8.53 m.×4.57m. (v) 30cm×30cm. (vi) Yes.

4. GENERAL:

(i) Good (ii) Nil (iii) Yield of grain (iv) (a) 1962—only (b) and (c) Nil (v) to (vii) Nil.

5. RESULTS:

(i) 2793Kg/ha. (ii) 263.9Kg/ha. (b) 303.9Kg/ha. (iii) Main effects of V and F are highly significant. Main effect of S is significant (iv) Av. yield of grain in Kg/ha.

	V_1	V_2	B_1	B_2	S_1	S_2	mean
F_1	2842	2449	2575	2717	2629	2663	2646
F_2	3124	2760	3047	2836	2787	3097	2942
mean	2983	2604	2811	2776	2708	2880	2793
S_1	2893	2524	2711	2705			
S_2	3073	2684	2911	2847			
B_1	3019	2603					
B_2	2947	2605					

C.D. for V,F or S marginal means=153.1Kg/ha.

Crop :- Wheat (*Rabi*). **Ref :- U.P. 64(362).**

Site :- Res. Farm, College of Agri. B.H.U. Varanasi. **Type :- 'CMV'**

Object :—To see the effect of levels of N, dates of sowing on the yield of different varieties of Wheat.

1. BASAL CONDITIONS:

(i)(a) N.A. (b) Fallow (c) N.A. (ii) Light loam. (iii) As per treatment (iv)(a) 2ploughings followed by discing other 2by *Deshi* plough. (b) Seed dibbled behind the plough. (c) N.A. (d) Rows 23cm. (e) 2 to 3 (v) 22.4Kg/ha. of P_2O_5+22.4Kg/ha. of K_2O. (vi) As per treatments (vii) Irrigated (viii) hoeing and weeding (ix) 5.1cm. (x) April, 65.

2. TREATMENTS:

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

(1) 2 Varieties : V_1=N.P. 798 and V_2=N.P. 824

(2) 3 Forms of N : F_1=A/S, F_2=Urea and F_3=C/A/N.

(3) 2 dates of sowing : D_1=12.11.64 and D_2=27.11.64.

3. DESIGN :

(i) Fact. in R.B.D. (ii) (a) 12 (b) 7.62m×17.07m (iii) 3 (iv) (a) 3.05m×1.83m (b) 2.44m×1.22m (v) 30cm×30cm. (vi) Yes.

4. GENERAL:

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

5. RESULTS :

(i)3869Kg/ha (ii) 1501.6Kg/ha. (iii) None of the effects is significant. (iv) Av. yield of grain in Kg/ha.

	F_1	F_2	F_3	D_1	D_2	mean
V_1	3845	3605	8267	3909	3236	3572
V_2	4662	4230	3605	4646	3685	4166
mean	4253	3918	3436	4278	3460	3869
D_1	4758	4326	3748			
D_2	3748	3508	3123			

Crop :- Wheat (*Rabi*). **Ref :- U.P. 65(163).**

Site :- Res. Farm, College of Agri, B.H.U. Varanasi **Type :- 'CMV'.**

Object :—To study the effect of different methods of application and levels of N on the yield of different varieties of Wheat.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) *Jowar* (c) Nil (ii) loam (iii) 9.11.65 (iv) (a) 4 to 5 ploughings by discing (b) Dibbling (c) 90Kg/ha. (d) 23cm×10cm (e)—(v) 44.8Kg/ha. of P_2O_5 as Super+22.4 Kg/ha. of K_2O as Mur. Pot. (vii) As per treatments (viii) Weeding and hoeing (ix) 4.5cm. (x) April, 66

2. TREATMENTS :

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

(1) 3 Varieties : V_1=S.64, V_2=H.65 and V_3=C.303.

(2) 3 levels of N as urea : N_1=33.6, N_2=67.2 and N_3=100.2Kg/ha.

(3) 2 methods of fertilizer application : M_1= Basal and M_2=Folio application.

M_1=Top dressing of urea was done in two split doses of drilling and jointing stages of plant growth prior to irrigation.

3. DESIGN :

(i) Fact. in R.B.D. (ii) (a) 18 (b) 31.39m.×18.44m. (iii) 4 (iv) (a) 4.88m×4.88m. (b) 4.27m×4.27m. (v) 30cm×30cm. (vi) Yes.

4. GENERAL:

(i) Good (ii) Nil (iii) Yield of grain (iv) (a) 1960—only (b) and (c) Nil. (v) to (vii) Nil.

5. RESULTS:

(i) 3724Kg/ha. (ii) 189.2Kg/ha. (iii) Main effects of V,M,N, interactions V×N and N×M are highly significant (iv) Av. yield of grain in Kg/ha.

	N_1	N_2	N_3	M_1	M_2	mean
V_1	3496	4264	5217	4186	4466	4326
V_2	3168	4055	3388	3453	3621	3537
V_3	2948	3623	3359	3263	3357	3310
mean	3204	3981	3988	3634	3815	3724
M_1	3205	3867	3830			
M_2	3203	4095	4147			

C.D. for V or N marginal means=109.7Kg/ha

C.D. for M marginal means=89.6Kg/ha

C.D. for body of V×M or M×N tables=155.2Kg/ha

C D. for the body of V×N table=190.1Kg/ha

Crop :- Wheat (*Rabi*). **Ref:- U.P. 63 to 65 (M.A.E.)**

Site :- M.A.E. Centre; Bichpuri. **Type :- 'CMV'.**

Object :—Type XIII : To study the effect of N,P,K levels with different dates of sowing on Wheat varieties.

1. BASAL CONDITIONS:

(i) (a) to (c) N.A. (ii) Light loam (iii) 2.11.63; 3.11.64; N.A. (iv) (a) to (v) Nil (vi) As per treatments (vii) Irrigated (viii) to (x) N.A.

2. TREATMENTS :

Main-plot treatments :

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

(1) 3 levels of N as A/S : N_0=O, N_1=50 and N_1=100Kg/ha.

(2) 3 Varieties : V_1=Local, V_2=NP—718 and V_3=NP 824.

(3) 3 Dates of sowing : D_1=1st Nov. D_2=12th Nov. D_3=25th Nov.

Sub-plot treatments:

All combinations of (4) and (5)

(4) 2 levels of P_2O_5 as Super: P_0=0 and P_1=70Kg/ha.

(5) 2 levels of K_2O as sul. of Potash : K_0=0 and K_1=50Kg/ha.

3. DESIGN :

(i) $3^3 \times 2^2$ *Split-plot confd.* (ii) (a) 9 *main-plots/block*, 3 *blocks/replication*, 4 sub-plots/main-plot (b) N.A. (iii) 1 (iv) (a) to (v) N.A. (vi) Yes.

4. GENERAL:

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

5. RESULTS:

1963

(i) 1804Kg/ha. (ii) (a) 457.8Kg.ha. (b) 217.8Kg/ha. (iii) Main effect of D alone is highly significant (iv) Av. yield of grain in Kg/ha.

Treatment:	V_1	V_2	V_3	D_1	D_2	D_3	N_0	N_1	N_2	P_0	P_1	K_0	K_1
Mean yield:	1822	1780	1810	1700	1828	1884	1059	1884	2369	1667	1971	1783	1825

C.D. for D means=264Kg/ha.

1964

(i) 1155Kg/ha. (ii) (a) 319.1Kg/ha. (b) 240.5Kg/ha. (iii) Main effect of N, P and interaction N×P are highly significant (iv) Av. yield of grain in Kg/ha.

Treatment:	V_1	V_2	V_3	D_1	D_2	D_3	N_0	N_1	N_2	P_0	P_1	K_0	K_1
Mean yield:	1227	1081	1157	1085	1378	1002	1067	1216	1182	1113	1197	1144	1166

C.D. for N means=184Kg/ha.

C.D. for P means=95Kg/ha.

1965

(i) N.A. (ii) (a) 445.64Kg/ha (b) 179.8Kg/ha. (iii) N.A. (iv) Av. yield of grain in Kg/ha.

Treatment:	V_1	V_2	V_3	D_1	D_2	D_3	N_0	N_1	N_2	P_0	P_1	K_0	K_1
Mean yield:	841	1039	1104	820	1215	936	868	986	825	868	1106	995	986

Crop :- Wheat (*Rabi*). **Ref :- U.P. 64, 65 (M.A.E.)**

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

Object':—Type XIII: To study the effect of N,P,K levels with different dates of sowing on Wheat Varieties.

1. BASAL CONDITIONS:

(i) (a) to (c) N.A. (ii) Alluvial (iii) to (v) N.A. (vi) As per treatments (vii) Irrigated (viii) to (x) N.A.

2. TREATMENTS: & 3. DESIGN:

Same as in the Expt. No. U. P. 63 to 65 (M.A.E.)—Type XIII—Conducted at centre, Bichpuri and presented on page No. 614.

4. GENERAL:

(i) and (ii) N.A. (iii) Yield of grain (iv) (a) 1964–66 (b) N.A. (c) Nil. (v) Bichpuri and Varanasi (vi) N.A. (vii) Nil.

5. RESULTS:

(i) N.A. (ii) (a) 225.4 Kg/ha. (b) 200.0Kg/ha. (iii) N.A. (iv) Av. yield of grain in Kg/ha.

Treatment:	V_1	V_2	V_3	D_1	D_2	D_3	N_0	N_1	N_2	P_0	P_1	K_0	K_1
Mean yield:	1640	1215	1380	1835	1640	1602	1467	1455	1805	1257	1580	1750	1821

1965

(i) 2546 Kg/ha. (ii) (a) 301.7Kg/ha (b) 86.1Kg/ha. (iii) N.A. (iv) Av. yield of grain in Kg/ha.

Treatment:	V_1	V_2	V_3	D_1	D_2	D_3	N_0	N_1	N_2	P_0	P_1	K_0	K_1
Mean yield:	1910	1795	1568	1393	1810	1550	1218	1701	1817	1430	1739	1590	1579

Crop :- Wheat (*Rabi*). **Ref :-U.P. 65 (M.A.E.).**

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

Object :—To study the effect of N,P,K levels with different dates of sowing of Wheat Varieties.

1. BASAL CONDITIONS:

(i) (a) to (c) N.A. (ii) Alluvial (iii) to (v) N.A. (vi) As per treatments (vii) Irrigated (viii) to (x) N.A.

2. TREATMENTS 3. DESIGN:

Same as in the Expt. No. U.P. 63 to 65 (M.A.E.)—Type XIII—Conducted at M.A.E. Centre, Bichpuri and presented on page No. 614.

4. GENERAL:

(i) and (ii) N.A. (iii) Yield of grain (iv) (a) 1963—66 (b) N.A. (c) Nil (v) Bichpuri and Masodha (vi) N.A. (vii) Nil.

5. RESULTS :

(i) 1946 Kg/ha (ii) (a) 416.2 Kg/ha (b) 154.5Kg/ha. (iii) N.A. (iv) Av. yield of grain in Kg/ha.

Treatment:	V_1	V_2	V_3	D_1	D_2	D_3	N_0	N_1	N_2	P_0	P_1	K_0	K_1
Mean yield:	2072	1908	1857	1838	2108	1831	1372	2199	2266	1922	1969	1912	1990

Crop :-Wheat (*Rabi*). **Ref :- U.P. 62 (482)**

Site :- Govt. Agri. Farm, Dhanauri. **Type :- 'I'.**

Object :—To determine the optimun time and depth of Irrigation for maximum yield by irrigation applications at different stages of plants growth.

1. BASAL CONDITIONS:

(i) (a) G.M.—Wheat (b) *Dhaincha* (c) Compost at 55.3Q/ha. (ii) Mixture of silt clay and sandy loam (iii) 14 to 20.11.62 (iv) (a) Ploughings with country plough and land levelling operations were carried out 10 times (b) Line sowing behind the plough (c) 69Kg/ha. (d) 23cm. (e)–(v) Compost at 55.3Q/ha before sowing+Super 92.2Kg/ha. before sowing+A/S/N in two stages at the time of sowing and at the jointing stage at 86Kg/ha. (vi) C—273 (medium) (vii) As per treatments (viii) 2 weedings (ix) 9.8cm (x) 16 to 27 4 63.

2. TREATMENTS:

8 Irrigational treatments: I_0=Control, I_1=Irrigation at jointing stage, I_2=Irrigation at booting stage I_3=Irrigation at grain filling stage, $I_4=I_1+I_2$, $I_5=I_1+I_3$, $I_6=I_2+I_3$ and $I_7=I_1+I_2+I_3$.

3. DESIGN:

(i) R.B.D. (ii) (a) 16 (each treatment has two plots in a repl.) (b) 81.69m×21.94m (iii) 6 (iv) (a) 21.94m×5.28m. (b) 20.11m×4.37m (v) 91cm×46cm. (vi) Yes.

4. GENERAL:

(i) Good (ii) Nil (iii) Yield of grain (iv) (a 1962—only (b) and (c) Nil (v) and (vii) Nil.

5. RESULTS:

(i) 2071Kg/ha. (ii) 427.8Kg/ha (iii) Treatment differences are highly significant. (iv) Av. yield of grain in Kg/ha.

Treatment:	I_0	I_1	I_2	I_3	I_4	I_5	I_6	I_7
Av. yield:	1780	2091	2021	1908	2181	2170	2311	2105

C.D.=347.8Kg/ha.

Crop :- Wheat (*Rabi*). **Ref :- P. 63(565).**

Site :- Govt. Agri. Farm. Dhanauv. **Type - 'I'**

Object :—To derive total water use for the maximum yield of Wheat by the soil moisture deficit approach.

1. BASAL CONDITIONS:

(i) (a) G.M. Wheat (b) *Dhaincha* (c) Compost at 55.3Q/ha (ii) Silt clay and Sandy loam (iii) 19 to 26.11.63 (iv) (a) Ploughing and levelling by *deshi* plough ten times before sowing (b) Line sowing behind the plough (c) 69Kg/ha (d) 23cm. (e)—(v) Compost at 55.3Q/ha. before sowing Super at 92Kg/ha. before sowing. A/S/N at 30 Kg/ha at time of sowing (vi) C—273 (Medium) (vii) As per treatment (viii) 2 weedings (ix) 1.4cm. (x) 21 to 30.4.64.

2. TREATMENTS:

All combinations of (1) and (2)

(1) 4 levels of soil moisture depletion: S_1=20, S_2=30, S_3=40 and S_4=50%.

(2) 4 water application efficiency : E_1=70, E_2=80, E_3=90 and E_4=100%.

3. **DESIGN :**

(i) Fact. in R.B,D. (ii) (a) 16 (b) 111.00m×20.44m (iii) 5 (iv) (a) 12.35m×10.22m (b) 11.43m×8.39m. (v) 46cm×91cm (vi) Yes.

4. **GENERAL:**

(i) Good (ii) Nil (iii) Yield of grain (iv) (a) 1963—only (b) No (c) Nil (v) to (vii) Nil.

5. **RESULTS:**

(i) 2259Kg/ha (ii) 232.9Kg/ha (iii) Main effect of S alone is highly significant (iv) Av. yield of grain in Kg/ha.

	E_1	E_2	E_3	E_4	mean
S_1	2505	2534	2405	2306	2437
S_2	2325	2357	2302	2275	2315
S_3	2252	2010	2271	2188	2180
	2184	1956	2173	2111	2106
mean	2316	2214	2288	2220	2259

C.D. for S marginal means=147.2Kg/ha.

Crop :- Wheat (*Rabi*). **Ref :- U.P. 64(1685), 65 (1566).**

Site :- Govt. Agri. Farm, Dhanauri. **Type :- 'I'**

Object :—To derive the optimum time and depth of irrigation for maximum yield of Wheat by soil moisture deficit apprach.

1. TREATMENTS:

(i) (a) G.M. Wheat (b) *Sanai; Dhaincha* (c) Compost at 55.3Q/ha (ii) Mixture of clay, silt and Sandy loam (iii) 12 to 19.11.64; 5 to 11.11.65 (iv) (a) Ploughings and levellings 10 times before sowing (b) Line sowing behind the plough; Dibbling (c) 74Kg/ha; 30Kg/ha. (d) 23cm between rows; 23cm×11cm (e)— (v) Compost at 55.3Q/ha. before sowing+Super at 92Kg/ha before sowing + A/S/N applied in two stages at 39.5Kg/ha. (vi) C—273 (medium) (vii) As per treatments (viii) 2 weedings (ix) 10.4cm; 4.49cm (x) 21 to 28—4—65; 15 to 24 - 4 66

2. TREATMENTS :

All combinations of (1) and (2)

(1) 3 levels of soil moisture depletion: S_1=20, S_2=30 and S_3=40%.

(2) 3 water application efficiency : E_1=70, E_2=80 and E_3=90%.

3. DESIGN :

(i) Fact. in R.B.D. (ii) (a) 9 (b) N.A. (iii) 2; 4 (iv) (a) 12.35m×10.22m (b) 11.43m×8.32m (v) 46cm×95cm (vi) Yes.

4. GENERAL :

(i) Good (ii) Nil (iii) Yield of grain (iv) (a) 1964—Contd. (b) No. (c) Nil (v) N.A. (vi) Nil (vii) As the expt is contd. beyond' 65, results of individual years have been presented under 5. Results.

5. RESULTS :

64 (1685)

(i) 2589Kg/ha. (ii) 294.2Kg/ha. (iii) Main effect of S alone is significant. (iv) Av. yield of grain in Kg/ha.

	S_1	S_2	S_3	mean
E_1	2695	2695	2227	2539
E_2	2660	3123	2250	2678
E_3	2731	2652	2271	2551
mean	2695	2823	2249	2589

C.D. for S marginal means=391.8Kg/ha

65 (1566)

(i) 2858 Kg/ha. (ii) 245.1 Kg/ha. (iii) None of the effects is significant. (iv) Av. yield of grain in Kg/ha.

	S_1	S_2	S_3	mean
E_1	2927	2760	2615	2767
E_2	2920	3042	2972	2978
E_3	2969	2679	2841	2830
mean	2939	2827	2809	2858

Crop :- Wheat (*Rabi*). **Ref :- U.P. 64 (2685), 65 (2566).**

Site :- Govt. Agri. Farm; Dhanauri. **Type :- 'I'**

Object :—To determine the optimum time of irrigation for maximum yield of wheat by irrigation at different stages of crop growth.

1. BASAL CONDITIONS :

(i) (a) G.M.—Wheat (b) *Sanai, Dhaincha* (c) Compost at 55.3 Q/ha. (ii) Mixture of clay, silt and Sandy loam (iii) 12 to 19-11-64; 5 to 11-11-65 (iv) (a)Ploughings and levellings 10 Kumes before sowing. (b) Line sowing behind the plough; Dibbling (c) 74Kg/ha; 30Kg/ha. (d) 23cm between rows; 23cm × 11cm (e) — (v) Compost at 55.3Q/ha before sowing+Super at 92Kg/ha. before sowing + A/S/N applied in two stages @ 39.5Kg/ha (vi) C-273 (medium) (vii) As per treatments (viii) 2 weedings (ix) 10.4cm; 4.49cm (x) 21 to 28-4-65; 15 to 24-4-66.

2. TREATMENTS:

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

(1) 2 levels of irrigation at jointing stage : J_0=No irrigation and J_1=One irrigation.
(2) 2 levels of irrigation at booting stage : B_0=No irrigation and B_1=Due Irrigation.
(3) 2 levels of irrigation at flowering stage : F_0=No irrigation and F_1=One irrigation.
(4) 2 levels of irrigation at grain filling stage : G_0=No irrigation and G_1=One irrigation.

3. DESIGN:

(i) 2^4 Fact. in R.B.D. (ii) (a) 16 (b) N.A. (iii) 3; 2 (iv) (a) 12.35m×10.22m (b) 11.43m×8.32m (v) 46m×95cm (vi) Yes.

4. GENERAL:

(i) Good (ii) Nil (iii) Yield of grain (iv) (a) 1964—Cont. (b) No (c) Nil (v) N.A. (vi) Nil (vii) As the expt. is contd. beyond 65, results of individual years have been presented under 5. Results.

5. RESULTS:

64 (2685)

(i) 2452Kg/ha (ii) 326.9Kg/ha. (iii) Main effects of B, F, J. and interaction B×J are signifieant Main effect of G is highly significant (iv) Av. yield of grain in Kg/ha.

	F_0	F_1	G_0	G_1	J_0	J_1	mean
B_0	2163	2540	2177	2527	2121	2582	2352
B_1	2524	2582	2445	2660	2574	2532	2553
mean	2343	2561	2311	2594	2348	2557	2452
J_0	2249	2446	2192	2503			
J_1	2438	2676	2430	2684			
G_0	2199	2424					
G_1	2199	2699					

C.D. for marginal means=192.6Kg/ha.

C.D. for body of B×J table=272.1Kg/ha.

65 (2566)

(i) 2596Kg/ha. (ii) 204.8Kg/ha (iii) Main effects of B, F, G and J are highly, significant. (iv) Av. yield of grain in Kg/ha.

	F_0	F_1	G_0	G_1	J_0	J_1	mean
B_0	2293	2671	2319	2645	2315	2649	2482
B_1	2549	2870	2632	2788	2602	2818	2710
mean	2421	2770	2475	2716	2458	2733	2596
J_0	2239	2677	2317	2599			
			2633	2834			
J_1	2603	2864					
G_0	2237	2714					
G_1	2606	2827					

C.D. for marginal means=153.5Kg/ha.

Crop :- Wheat (*Rabi*). **Ref :- U.P. 64 (3685), 65 (3566).**

Site :- Govt. Agri. Farm; Dhanauri. **Type :- 'F'.**

Object :—To derive the optimum time and depth of irrigation at fixed depth and interval for maximum yield of Wheat.

1. BASAL CONDITIONS :

(i) (a) G.M. Wheat (b) Sanai; *Dhaincha* (c) Compost at 55.3Q/ha (ii) Mixture of clay, Silt and Sandy loam (iii) 12 to 19.11.64; 5 to 11.11.65 (iv) (a) 10 ploughings and levellings before sowing. (b) Line sowing behind the plough, Dibbling (c) 74Kg/ha; 30Kg/ha (d) 23cm between rows; 23cm×11cm (e) — (v) Compost at 55.3Q/ha. before sowing+Super @ 92K/ha. before sowing+A/S/N applied in two stages @ 39.5Kg/ha. (vi) C—273 (medium) (vii) As per treatments (viii) 2 Weedings (ix) 10.4cm; 4.49cm (x) 21 to 28.4.65 ;15 to 24.4.66.

2. TREATMENTS :

All combinations of (1) and (2)

(1) 3 depths of irrigation : I_1=5.08, I_2=7.62 and I_3=10.16cm.

(2) 2 intervals of irrigation : T_1=4 and T_2=5 Weeks.

3. DESIGN :

(i) Fact. in R.B.D. (ii) (a) 6 (b) N.A. (iii) 2, (iv) (a) 12.35m×10.22m (b) 11.43m×8.32m. (v) 46cm×95cm (vi) Yes.

4. GENERAL:

(i) Good (ii) Nil (iii) Yield of grain (iv) (a) 1964—Contd. (b) No (c) Nil. (v) N.A. (vi) Nil (vii) As the expt. is Contd. beyond 65, results of individual years have been presented under 5. Results.

5. RESULTS:

64 (3685)

(i) 2535Kg/ha (ii) 147.4Kg/ha (iii) None of the effects is significant (iv) Av. yield of grain in Kg/ha.

	I_1	I_2	I_3	Mean
T_1	2524	2760	2463	2582
T_2	2429	2555	2482	2489
Mean	2476	2657	2472	2535

65 (3566)

(i)2127Kg/ha (ii) 229.4Kg/ha. (iii) None of the effects is signincant. (iv) Av. yield of grain in Kg/ha.

	I_1	I_2	I_3	Mean
T_1	2086	2195	1904	2062
T_2	2164	2242	2169	2192
Mean	2125	2219	2036	2127

Crop :- Wheat (*Rabi*). **Ref :- U.P. 60(51).**

Site :-State Soil Cons. Res. Demons & Trg. Centre, Rehmankhera. **Type :- 'I'.**

Object :—To study the optimum moisture range for growing Wheat.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Loamy sand to sandy loam (iii) 31.10.60 and 1.11.60. (iv) (a) 1 plewa and ploughings by *Deshi* plough (b) Line sowing behind the plough (c) 92Kg/ha (d) Rows 23cm apart (e) — (v) 44.8Kg/ha of N as A/S (vi) N.P.—710 (vii) As per treatments (viii) Weeding (ix) N.A. (x) 21.4.61.

2. TREATMENTS :

Main-plot treatments:

2 Intensities of irrigation : W_1=5.98 and W_2=7.62cm. deep

Sub-plot treatment:

8 Irrigational treatments : I_1=Irrigation 2 weeks after sowing, I_2=Irrigation 4 weeks after sowing, I_3= Irrigation 6 weeks after sowing I_4=I_1+ Irrigation 4 weeks after I_1, I_5=I_4+Irrigation 6 weeks after I_2 I_6=I_1+subsequent 2 irrigations at intervals of 4 weeks of I_7=Ist irrigation 3 weeks after sowing and, subsequent 2 irrigations at intervals of 5 weeks and I_8=I_1+subsequent 2 irrigations at intervals of 6 weeks.

3. DESIGN :

(i) Split—plot (ii) (a) 2 Main-plots/replication; 8 Sub-plots/main-plot (b) N.A. (iii) 4 (iv) (a) 10.06m×6.71m (b) 9.45m×6.10m (v) 30cm×30cm (vi) Yes.

4. GENERAL:

(i) Good (ii) Brown rust (iii) Yield of grain (iv) (a) 1958–60 (b) N.A. (c) Nil (v) to (vii) Nil.

5. RESULTS :

(i) 1380Kg/ha. (ii) 759.8Kg/ha. (iii) Main effect I is highly significant (iv) Av. yield of grain in Kg/ha.

	I_1	I_2	I_3	I_4	I_5	I_6	I_7	I_8	mean
W_1	769	1307	1363	1302	1312	1441	1598	1568	1332
W_2	1343	1097	1355	1550	1641	1469	1598	1360	1427
mean	1556	1202	1359	1426	1476	1455	1598	1464	1380

C.D. for I marginal means=277.4 Kg/ha.

Crop :- Wheat (*Rabi*). **Ref :- U.P. 60 (53).**

Site :- Instt. of Crop Physiology, Dilkusha, Lucknow. **Type :- 'IV'.**

Object :—To study the relative water requirement of six Varieties of Wheat.

1. BASAL CONDITIONS:

(i) (a) to (c) N.A. (ii) Sandy loam to loam. (iii) 6 to 8.11.1960 (iv) (a) N.A. (b) Dibbling (c) — (d) N.A. (e) 2 (v) 28Kg/ha. of N as A/S+22.4Kg/ha. of P_2O_5 as Super (vi) As per treatments (vii) Irrigated (viii) N.A (ix) 2.8cm. (x) 21.4.61.

2. TREATMENTS :

Main-plot treatments :

8 levels of Irrigation : I_0=No irrigation, I_1=one irrigation at tillering stage, I_2=one irrigation at pre-flowering stage, I_3=one irrigation at milky stage, $I_4=I_1+I_2$, $I_5=I_1+I_3$, $I_6=I_2+I_3$ and $I_7=I_1+I_2+I_3$.

Sub-plot treatments :

4 Varieties : V_1=C13, V_2=K.65, V_3=N.P. 710, and V_4=N.P. 798.

3. DESIGN :

(i) Split-plot (ii) (a) 8 main plots/replication, 6 Sub-plots/main-plot (b) N.A. (iii) 3 (iv) (a) to (b) 3.06m × 2.13m. (v) Nil (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (lii) Yield of grain (iv) (a) 1960—only (b) and (c) Nil (v) to (vii) Nil.

5. RESULTS :

(i) 238Kg/ha. (ii) (a) 1929.9 Kg/ha. (b) 469.0 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	V6	mean
I_0	2526	2302	2033	1614	1973	1988	2073
I_1	2900	2526	2496	2720	2436	2586	2611
I_2	2302	1913	1525	1315	1629	1719	1734
I_3	2018	2227	2137	1808	2048	1554	1965
I_4	3124	2750	2780	2631	3049	2466	2800
I_5	3468	2436	2795	3019	3632	2167	2920
I_6	3064	2765	2227	2361	2227	2197	2474
I_7	2107	3124	2750	2406	2645	1868	2483
mean	2689	2505	2343	2234	2455	2068	2382

C.D. for V marginal means=269.8Kg/ha.

Crop :- Wheat (*Rabi*). **Ref. :- U.P. 61 (59).**

Site :- Instt. of Crop Physiology, Dilkusha, Lucknow. **Type :- 'IV'**

Object :—To study the relative water requirements of four Varieties of Wheat.

1. BASAL CONDITIONS:

(i) (a) to (c) N.A. (ii) Sandy loam to loam. (iii) 15/16.11.61 (iv) (a) N,A. (b) Dibbling (c) — (d) N.A. (e) N.A. (v) 28Kg/ha. of N as A/S+22.4Kg/ha. of P_2O_5 as Super. (vi) As per treatments (vii) N.A. (ix) 11.2cm (x) 16 to 19.4.62.

2. TREATMENTS:

Main-plot treatments :

8 levels of Irrigation : I_0=No irrigation, I_1=one irrigation at tillering stage, I_2=one Irrigation at pre-flowering stage, I_3=one irrigation at milky stage, $I_4=I_1+I_2$, $I_5=I_1+I_3$, $I_6=I_2+I_3$ and $I_7=I_1+I_2+I_3$.

Sub-plot treatments :

4 Varieties : V_1=C13, V_2=K.65, V_3=N.P. 710, and V_4=N.P. 798.

3. DESIGN:

(i) Split-plot (ii) (a) 8 main plots/replication, 4 Sub-plots/main-plot (b) N.A. (iii) 3 (iv) (a) to (b) 3.06m × 1.52m. (v) Nil (vi) Yes.

4. GENERAL :

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

5. RESULTS :

(i) 2766 Kg/ha. (ii) (a) 697.4 Kg/ha. (b) 569.2 Kg/ha. (iii) Main effect of V alone is highly significant. (iv) Av. yield of grain in Kg/ha.

	V_1	V_2	V3	V4	Mean
I_0	2440	2440	2619	2512	2503
I_1	2942	2404	2368	2045	2440
I_2	2583	2368	2936	2547	2601
I_3	3086	3337	3265	2332	3005
I_4	3444	2942	2683	2404	2843
I_5	2763	2655	3086	2117	2655
I_6	3444	2834	2799	2332	2852
I_7	4306	3229	2942	2440	3229
Mean	3126	2776	2821	2341	2766

C. D. for V marginal means=330.8Kg/ha.

Crop :- Wheat (*Rabi*). **Ref- U.P. 62 (59).**

Site :-Instt. of Crop Physiology, Dilkusha, Lucknow. **Type :-'IV'.**

Object :—To study the response of six varieties of Wheat to varying levels of irrigation.

1. BASAL CONDITIONS :

(i) (a) Nil (b) Paddy (c) N.A. (ii) Sandy loam to loam. (iii) 12/13.11.62 (iv) (a) N.A. (b) Dibbling (c) N.A. (d) 23cm×11cm (e) 2 (v) 44.8Kg/ha. of N as A/S+22.4Kg/ha. of P_2O_5 as Super by placement (vi) and (vii) As per treatments (viii) N.A. (ix) 42cm (x) 25 to 30.4.63.

2. TREATMENTS :

Main-plot treatments :

4 Irrigational treatments : I_0=No irrigation, I_1=one irrigation at tillering stage, I_2=I_1+one irrigation at preflowering stage, I_3=I_2+one irrigation at milky stage.

Sub-plot treatments :

6 Varieties: V_1=C. 303, V_2=Pb. 591, V_3=K 65, V_4=N.P. 830, V_5=K. 64 and V_6=K. 68.

3. DESIGN :

(i) Split-plot (ii) (a) 4 main-plots/replication 6 sub-plots/main-plot. (b) 16.15m×16.76m. (iii) 6 (iv)(a) and(b) 3.35m×2.44m (v) Nil (vi) Yes.

4. GENERAL :

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

5. RESULTS :

(i) 1432Kg/ha (ii) (a) 741 7Kg/ha. (b) 305.8Kg/ha. (iii) Main effect of I and V are highly significant. (iv) Av. yield of grain in Kg/ha.

	V_1	V_2	V_3	V_4	V_5	V6	Mean
I_0	744	846	948	448	632	815	739
I_1	1643	1305	1641	1172	1835	1407	1500
I_2	1723	1596	1947	1580	1825	1784	1742
I_3	1560	1580	1998	1682	1835	1835	1748
Mean	1417	1332	1634	1220	1532	1460	1432

C.D. for I marginal means=372·0 Kg/ha.

C.D. for V marginal means =175.4 Kg/h.

Crop :- Wheat (*Rabi*). **Ref :- U.P. 61 (434), 62 (494), 63 (614), 64 (716).**

Site:-Govt. Reg. Agri. Res. Stn., Amrukh. **Type :- 'IM'.**

Object :—To find out suitable combination of levels of irrigation and fertilizers which maximizes the yield of Wheat.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Paddy (c) Nil (ii) *Kabar* and *Purwa* (iii) 1.12.61; N.A.; 14.11.63; 30.10 to 1.11.64 (iv) (a) 2 to 3 ploughings by *Bakhar* plough and pata application (b) Line sowing behind *Nari* plough. (c) 92Kg/ha (d) Rows 30cm. apart. (e) — (v) Nil (vi) Pb. 591 (vii) As per treatments (viii) Hoeing (ix) N.A.; N.A.; 1.4cm.; 3.6cm. (x) N.A.; 11.4.63; 10.4.64; 10/11.4.65.

2. TREATMENTS :

All combinations of (1) and (2)

(1) 3 levels of irrigation : I_1=Irrigation after three weeks of sowing, I_2=I_1+Irrigation after six weeks of sowing and I_3=I_2+Irrigation at tillering stage.

(2) 3 levels of fertilizers: F_0=Control (No fertilizer), F_1=22.4Kg/ha. of N+22.4Kg/ha P_2O_5 +22.4Kg/ha of K_2O+46Qt/ha of F.Y.M. and F_2=2×F_1.

3. DESIGN:

(i) Fact. in R.B.D. (ii) (a) 9 (b) N.A. (iii) 2 for 61 to 63; 4 for 64 (iv) (a) 12.19m×8.23m for 61, to 63 10.06m×5.00m for 64. (b) 12.19m×8.23m for 61 to 63 9.45m×4.39m for 64 (v) 30cm×30cm for 64; Nil for others. (vi) Yes.

4. GENERAL:

(i) Good (ii) Nil (iii) Yield of grain (iv) (a) 1961—64 (b) No (c) Results of combined analysis have been presented under 5. Results. (v) Hardoi, Nawabgunj, Varanasi and Atara (vi) Nil (vii) Irrigational treatments could not be tried in 64. Hence the results for 1961-63 only have been combined. Error Variances are homogenous and Treatments×years interaction is absent.

5. RESULTS :

Pooled results

(i) 975Kg/ha. (ii) 268.0Kg/ha.(based on 40 d.f. made up of pooled error and Treatments×years interaction). (iii) Main effect of F is highly significant. (iv) Av. yield of grain in Kg/ha.

	I_1	I_2	I_3	mean
F_0	686	597	759	681
F_1	1144	1165	904	1071
F_2	1138	1096	1284	1178
mean	990	953	982	975

C.D. for F marginal means=180.5 Kg/ha.

Individual results

Treatment	I_1	I_2	I_3	Sig.	F_0	F_1	F_2	Sig.	G.M.	S.E./plot
Year 1961	1362	1314	1329	N.S.	980	1434	1591	*	1335	279.6
1962	513	442	384	N.S.	342	477	520	N.S.	446	250.6
1963	1093	1102	1234	N.S	720	1302	1407	**	1143	247.2
1964	—	—	—	—	1356	1917	2383	**	1886	242.5
Pooled (Excluding 1964results)	990	953	982	N.S.	681	1071	1173	**	975	268 0

Crop :- Wheat (*Rabi*). **Ref :- U.P. 61 (431), 62 (454), 63(611), 64(714).**

Site :- Govt. Agri. Farm, Atarra. **Type :- 'IM'**

Object :—To find out the suitable combination of irrigation and fertilizer which maximizes the yield of Wheat.

1. BASAL CONDITIONS:

(i) (a) Nil (b) and (c) N.A. (ii) *Parwa* soil (iii) 20.11.61; 24.11.62; 15.12.63; 20.11.64 (iv) (a) 2 to 3 ploughings by *Bakhar* plough and Pata application (b) Line sowing by *Nari* plough (c) 92Kg/ha (d) Rows 30cm. apart (e) — (v) Nil (vi) N.A. (vii) As per treatments (viii) Hoeing and weeding (ix) N.A. (x) 28.4.62; 10 and 20.4.63; 12.4.64; 8.4.65.

2. TREATMENTS:

All combination of (1) and (2)

(1) 3 levels of irrigation : I_1=Irrigation after 3 weeks of sowing, I_2=I_1+irrigation after 6 weeks of sowing and I_3=I_2+irrigation at milky stage.

(2) 3 levels of fertilizers: F_0=Control (No fertilizer), F_1=22.4Kg/ha of N+22.4Kg/ha of P_2O_5+22.4Kg/ha of K_2O +46Q/ha of F.Y.M. and F_2=2×F_1.

3. DESIGN:

(i) Fact. in R.B.D. (ii) (a) 9 (b) N.A. (iii) 2 (iv) (a) and (b) 7.92m×12.80m. (v) Nil (vi) Yes.

. GENERAL :

(i) Good (ii) Nil (iii) Yield of grain (iv) (a) 1961—64 (b) Yes (c) Nil (v) Varanasi, Nawabgunj, Hardoi and Amrukh. (vi) Nil(vii) As the error variances are heterogeneous and Treatments×years interaction is absent, results of individual years have been presented under 5. Results.

5. RESULTS :

61 (431)

(i) 965Kg/ha (ii) 75.6Kg/ha. (iii) Main effects of F and interaction I×F are highly significant. Main effect of I is significant. (iv) Av. yield of grain in Kg/ha.

	I_1	I_2	I_3	mean
F_0	759	843	818	807
F_1	1045	986	931	987
F_2	1326	877	1104	1102
mean	1043	902	951	965

C.D. for F or I marginal means=100.7Kg/ha.

C.D. for body of table=174.4Kg/ha.

62 (454)

(i) 1541Kg/ha. (ii) 206.4Kg/ha. (iii) None of the effects is significant. (iv) Av. yield of grain in Kg/ha.

	I_1	I_2	I_3	mean
F_1	1577	1587	1380	1515
F_2	1488	1459	2060	1669
F_3	1286	1493	1538	1439
mean	1451	1513	1659	1541

63 (611)

(i) 795Kg/ha. (ii) 203.Kg/ha.8Kg/ha. (iii) None of the effects is significant. (iv) Av. yield of grain in Kg/ha.

	I_1	I_2	I_3	mean
P_0	803	720	665	729
P_1	700	700	956	785
P_2	887	838	887	871
mean	797	752	836	795

64 (714)

(i) 986Kg/ha. (ii) 231.4Kg/ha. (iii) None of the effects is significant (iv) Av. yield of grain in Kg/ha.

	I_1	I_2	I_3	mean
F_0	929	1047	803	928
F_1	858	877	1119	951
F_2	1044	1084	1104	1078
mean	944	1003	1010	985

Crop :- Wheat (*Rabi*). **Ref:-U.P. 63(318), 64 (327)**

Site :- R.B.S. College, Bichpuri. **Type :- 'IM'.**

Object : —To study the effect of levels of N and P, intensity and frequancy of irrigation on the yield and quality of Wheat.

1. BASAL CONDITIONS:

(i) (a) Fallow-Wheat (b) Fallow (c) Nil (ii) Sandy loam (iii) 20.10.63; 27.10.64 (iv)(a)3—4 ploughings by tractor (b) Behind the plough (c) 100Kg/ha.; 86Kg/ha. (d) Rows 25cm. and 20cm. apart (e) — (v) 56Q/ha. of F.Y.M. (vi) Pb. 591 (vii) As per treatments (viii) Weeding by *Khurpi* (ix) 0.8cm.; 1.2cm (x) 19.4.64; 22.4.65.

2. TREATMENTS :

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

(1) 3 levels of N as A/S : $N_0=0$, $N_1=33.36$ 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 intensities of irrigation : $I_1=5.0$, $I_2=7.5$ and $I_3=10.0$cm. per hectare per irrigation.

(4) 3 frequencies of irrigation: $F_1=2$, $F_2=3$ and $F_3=4$ irrigations.

3. DESIGN:

(i) 3^4 Confd. (ii) (a) 9 plots/block, 9 blocks/replication (b) N.A. (iii) One (iv) (a) 8.21m×5.77m.; 10.00m×5.00m (b) 7.31m×4.87m; 9.00m×4.00m (v) 45cm×45cm; 50cm×50cm (vi) Yes.

4. GENERAL :

(i) Good (ii) Nil (iii) Yield of grain (iv) (a) 1963—64 (b) No (c) Nil (v) and (vi) Nil (vii) Plot-wise yield data and all the two-way table are not available. Hence pooling is not possible and available results of individual years have been presented under 5. Results.

5. RESULTS:

(i) 1727Kg/ha (ii) 244.2Kg/ha. (iii) Main effects of N and F are highly significant and interaction N×F is significant (iv) Av. yield of grain in Kg/ha.

Treatment :	P_0	P_1	P_2	I_1	I_2	I_3
Av. yield :	1678	1731	1773	1737	1712	1734

	F_1	F_2	F_3	Mean
N_0	1279	1198	1215	1232
N_1	1627	1767	1874	1756
N_2	1944	2194	2444	2194
mean	1616	1721	1844	1727

C.D. for N or F marginal meanes=134.0Kg/ha.

C.D. for the body of N×F table=123.0Kg/ha.

64 (327)

(i) 1155Kg/ha (ii) 472.8Kg/ha (iii) Main effects of N and F are highly significant (iv) Av. yield of grain in Kg/ha.

Treatment:	N_0	N_1	N_2	F_1	F_2	F_3	P_0	P_1	P_2	I_1	I_2	I_3
Av. yield :	803	1229	1433	1024	1044	1398	1157	1163	1144	1144	1132	1189

C.D. for N or F marginal means=260.0Kg/ha.

Crop :- Wheat (*Rabi*). **Ref :- U.P. 65 (140).**

Site :- R.B.S. College, Bichpuri. **Type :- 'IM'**

Object :—To study the effect of levels of N and P, intensity and frequancy of irrigation on the yield and quality of Wheat.

1. BASAL CONDITIONS:

(i) (a) Fallow-Wheat (b) Fallow (c) Nil (ii) Sandy loam (iii) 3.11.65 (iv) (a) 3—4 ploughings and 4 harrowings followed by planking (b) Behind the plough (c) 100Kg/ha (d) Rows 25cm. apart (e) (v) 56Q/ha. of F.Y.M. (vi) K, 68 (vii) As per treatments (viii) Weeding by *Khurpi* and roguing (ix) 2.3cm (x) 11.4.66.

2. TREATMENTS and 3. DESIGN:

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

(1) 3 levels of N as A/S: $N_0=0$, $N_1=35$ and $N_2=70$Kg/ha.

(2) 3 levels of P_2O_5 as Super : $P_0=0$, $P_1=15$ and $P_2=30$Kg/ha.

(3) 3 intensities of irrigation : $I_1=50$, $I_2=75$ and $I_3=100$cm. per hectare per irrigation.

(4) 3 frequencies of irrigation : $F_1=2$, $F_2=3$ and $F_3=4$ irrigations.

3. DESIGN

(i) 3^4 Confed. (ii) (a) 9 plots/block, 9 blocks/replication (b) N.A. (iii) One (iv) (a) 10.00m×5.00m; (b) 9.00m×4.00m (v) 50cm×50cm (vi) Yes.

4. GENERAL:

(i) Good (ii) Nil (iii) Yield of grain (iv) (a) 1965 -only (b) and (c) Nil (v) and (vi) N.A. (vii) Plot-wise data Not Available.

5. RESULTS:

(i) 1116Kg/ha (ii) 403.7Kg/ha. (ii) Main effects of N and F and interaction I×F are highly significant Main effect of I and Interaction N×F are significant (iv) Av. yield of grain in Kg/ha.

Treatment :	P_0	P_1	P_2
Av. yield :	1057	1140	1152

	N_0	N_1	N_2	I_1	I_2	I_3	mean
F_1	903	1201	934	854	1230	954	1012
F_2	892	1158	1267	1098	1166	1053	1105
F_3	977	1518	1203	1477	1177	1043	1231
mean	923	1292	1134	1143	1190	1016	1116

C.D. for N, F or I marginal means=134.4Kg/ha.

C.D. for body of N×F table=235.0Kg/ha.

Crop :- Wheat (*Rabi*). **Ref :- U.P. 61(263).**

Site :- R.B.S. College, Bichpuri. **Type :- 'IM'**

Object :—To study the effect of different levels of N,P,K and irrigation on Wheat.

1. BASAL CONDITIONS:

(i) (a) N.A. (b) follow (c) Nil (ii) Sandy loam. (lii) 29/30.10.61 (iv) (a) 4 harrowings by tractor (b) Behind the plough (c) 99Kg/ha (d) Rows 23cm. apart (e)—(v) Nil (vi) Pb—591 (vii) As per treatments (viii) Weeding by *Khurpi* (ix)6.3cm. (x) 23/24.4.62.

2. TREATMENTS:

Main-plot treatments:

3 times of irrigations: I_1=3 weeks, I_2=4 weeks and I_3=6 weeks after sowing.

Sub-plot treatments:

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

(1) 3 levels of N as A/S: N_1=44.8, N_2=89.7 and N_3=134.5Kg/ha.

(2) 3 doses of P_2O_5 as Super: P_1=44.8, P_2=89.7 and P_3=134.5Kg/ha.

(3) 3 doses of K_2O as Pol-Sul: K_1=44.8, K_2=67.2 and K_3=89.7Kg/ha. of K_2O. fertilizer was applied at the time of sowing.

A/S broadcasted before sowing, Super and Pot. Sul. mixed and appllied in furrow at sowing.

3. DESIGN:

(i) Split-plot confd. (ii) (a) 3 blocks/main-plots, 9 sub/plots/main-plot (b) N. A. (iii) 1 (iv) (a) N.A. (b) 7.31m×4.57m. (v) N.A. (vi) Yes.

4. GENERAL:

(i) Good (ii) N.A. (iii) Yield of grain (iv) (a) 1961—only (b) and (c) Nil (v) and (vi) Nil. (vii) Plot-wise data N.A.

5. RESULTS:

(i) 2783Kg/ha (ii) (a) 530.0Kg/ha. (b) 1527.6Kg/ha. (iii) None of the effects is significant (iv) Av. yield of grain in Kg/ha.

Treatment :	N_1	N_2	N_3	P_1	P_2	P_3	K_1	K_2	K_3
Av. yield :	2832	2663	2854	2823	2719	2807	2729	2790	2830

I_1	I_2	I_3
2736	2876	2737

Crop :- Wheat (*Rabi*). **Ref :- U.P. 65(138).**

Site :- R.B.S. College, Biehpuri **Type :- 'IM'**

Objcet: —To see the effect of N and P, each at three levels under four moisture regimes on growth, yield and quality of Wheat.

1. BASAL CONDITIONS :

(i) (a) Nil (b) *Jowar* (c) Nil (ii) Sandy (iii) 9.11.65 (iv) (a) 3 ploughings by tractor and planking (b) Behind the plough (c) 100 kg/ha. (d) Rows 23 cm. apart. (e) — (v) Nil (vi) K. 68 (vii) Irrigated (viii) Weeding (ix) 2,3cm (x) 9.4.66.

2. TREATMENTS :

Main-plot treatments :

4 moisture regimes : M_1=30, M_2=40, M_3=50 and M_4=60% available moisture.

Sub-plot treatments :

All combinations of (1) and (2)

(1) 3 levels of N as C/A/N : N_1=45, N_2=90 and N_3=135Kg/ha.

(2) 3 levels of P_2O_5 as Super : P_1=45, P_2=90 and P_3=135Kg/ha.

Full dose of P_2O_5 and $\frac{1}{2}$ dose of N was given of sowing, $\frac{1}{2}$ dose of N was topdressed at Ist irrigation.

3. DESIGN :

(i) Split—plot (ii) (a) 4 main-plots/replication and 4 sub-plots/main plot (b) 73.50m×16.00m (iii) 2 (iv) (a) 6.00m×5.00 m. (b) 5.00m×4.00m (v) 50cm×50cm (vi) Yes.

4. GENERAL :

(i) Good (ij) Nil (iii) Yield of grain (iv) (a) 1965—only (b) and (c) Nil (v) and (vi) N.A. (vii) Plot-wise yield data Not Available.

5. RESULTS :

(i) 2421Kg/ha. (ii) (a) 49.0JKg/ha. (b) 140 3Kg/ha. (iii) Main effect of N alone is significant. (iv) Av. yield of grain in Kg/ha.

Treatment :	M_1	M_2	M_3	M_4	N_1	N_2	N_3	P_1	P_2	P_3
Av. yield :	2297	2363	2378	2646	2475	2692	2096	2371	2437	2454

C.D. for N means=82.5Kg/ha.

———

Crop :- Wheat (*Rabi*). **Ref :- U.P. 64(58), 65(396).**

Site :- Irrigation Res. Farm, Gursarai. **Type :-'IM'.**

Object :—To study the effect of levels of irrigation and N and their interaction on growth and yield of Wheat.

1. BASAL CONDITIONS :

(i) (a) N.A.; Nil (b) N.A.; Fallow (c) N.A.; Nil. (ii) *Mar.* Soil (iii) 30.10.64; 11.11.65 (iv)(a) 5-6 ploughings by *Bakhar* and *Deshi* plough (b) behind the plough (c) 81Kg/ha.; 100Kg/ha. (d) 23cm apart (e)—(v) 44.8Kg/ha. of P_2O_5 as Super; Nil (vi) Pb. 591; K. 68 (vii) As per treatments (viii) Hoeing and weeding (ix) 0,5cm.; 1.0cm. (x) 28.3.65; 29.3.66.

2. TREATMENTS:

Main plot treatments :

3 levels of irrigation : I_1=1 irrigation at tillering stage, I_2=I_1+irrigation at ear-emergence and I_3=I_2+ irrigation at milky stage

Sub-plot treatments :

3 levels of N as A/S : N_0=0, N_1=28 and N_2=56Kg/ha,

A/S was applied as basal dressing before sowing.

3. DESIGN :

(i) Split-plot (ii) (a) 3 main plots/replication; 3 sub-plots/main plot (b) 25.00m×25.20m; 26.50m×23.10m. (iii) 6 (iv) (a) 8.00m×7.50m; (b) 7.00m×6.50m; 7.50m×7.50m. (v) 50cm×50cm. ; 25cm.×25cm. (vi) Yes,

4. GENERAL:

(i) Good (ii) Nil (iii) Yield of grain (iv) (a) 1961—65 (b) No. (c) Results of combined analysis have been presented under 5. Results. (v) Rampur, Lucknow and Varanasi (vi) Nil (vii) Main-plot as well as sub-plot error variances are homogeneous and Main-plot treatments×years as well as sub-plot treatments×years interactions are present.

5. RESULTS :

Pooled Results:

(i) 1667Kg/ha. (ii) (a) 526.6Kg/ha. (based on 12d.f. made up of Main-plot Treatments×years' intreaction) (b) 481.7Kg/ha. (based on 6 d.f. made up of Sub-plot 'Treatments×years' interaction.) (iii) Main effect of N alone is highly significant (iv) Av. yield of grain in Kg/ha.

	N_0	N_1	N_2	mean
I_1	1279	1551	1703	1511
I_2	1366	1813	2067	1748
I_3	1405	1763	2055	1741
mean	1350	1709	1942	1667

C.D. for N marginal means=277.8Kg/ha.

Induvidual results :

Treat-ment	I_1	I_2	I_3	Sig.	N_0	N_1	N_2	Sig.	G.M.	S.E. Main-plot	S.E. Sub-Plot
Year 1964	1640	1916	2038	**	1421	1911	2261	**	1864	174.3	124.5
1965	1382	1581	1445	**	1279	1508	1623	**	1470	201.0	170.0
Pooled	1511	1748	1741	N.S.	1350	1709	1942	**	1667	526.6	481.7

Crop :- Wheat (*Rabi*) **Ref :- U.P. 61(135), 62(113), 63(146).**

Site :- Govt. Reg. Agri. Res. Stn., Hardoi. **Type :- 'IM'**

Object :—To determine the levels of irrigation and fertility for maximum production of Wheat.

1. BASAL CONDITIONS :

(i) (a) Nil (b) *Moong* for G.M.; N.A; Early Paddy (c) Nil (ii) Sandy loam (iii) 27.11.61; 23.11.62; 8.11.63 (iv) (a) N.A. (b) Line sowing behind the plough (c) 116Kg/ha. 97.9Kg/ha; 92Kg/ha. (d) Rows 23cm apart; (e) — (v) Nil (vi) N.P. 710 (vii) As per treatments (viii) N.A. (ix) 2.0cm; 2.3cm; 1.0cm. (x) 15.4.62; 7.4.63. 8.4.64.

2. TREATMENTS :

All combinations of (1) and (2)

(1) 3 levels of irrigation : I_1=One irrigation 3 weeks after sowing, $I_2=I_1$+irrigation 6 weeks after sowing and $I_3=I_2$+irrigation at milky stage.

(2) 3 levels of fertilizers : F_0=No fertilizer, F_1=22.4Kg/ha of N+22.4Kg/ha of P_2O_5+22.4Kg/ha of K_2O+23.0Q/ha. of compost and $F_2=2\times F_1$.

3. DESIGN :

(i) Fact. in R.B.D. (ii) (a) 9 (b) N.A. (iii) 2 (iv) (a) and (b) 9.14m×7.6m. for 61; 8.69m×7.32m for others (v) Nil (vi) Yes.

4. GENERAL :

(i) Good (ii) Nil (iii) Yield of grain (iv) (a) 1961—63 (b) No (c) Nil (v) and (vi) Nawabganj Amrukh and Atarra (vii) As the error variances are heterogeneous and treatments×years interaction is absent, the results of individual years have been presented under 5. Results.

5. RESULTS :

61 (135)

(i) 1687Kg/ha (ii) 320.4Kg/ha (iii) Main effect of F is significant. (iv) Av. yield of grain in Kg/ha·

	F_0	F_1	F_2	mean
I_1	1400	1881	1989	1757
I_2	114	1723	1737	1625
I_3	1185	2362	1486	1678
mean	1333	1989	1737	1687

C.D. for F marginal means=426.5Kg/ha.

62 (113)

(I) 2001Kg/ha (ii) 299.1Kg/ha (iii) Main-effect of I is signifieant and that of F is highly significant. Av. yield of grain in Kg/ha.

	F_0	F_1	F_2	mean
I_1	1179	1831	1989	1666
I_2	1328	1989	2657	1991
I_3	1674	2279	3081	2345
mean	1394	2033	2576	2001

C.D. for I or F marginal means=398.1Kg/ha.

63 (146)

(i) 1518Kg/ha. (ii) 102.3Kg/ha. (iii) Main effects of I and F are highly significant (iv) Av. yield of grain in Kg/ha.

	F_0	F_1	F_2	mean
I_1	1085	1440	1652	1392
I_2	1212	1534	1747	1498
I_3	1408	1589	1991	1663
mean	1235	1521	1797	1518

C.D. for I or F marginal means=136.2K8/ha.

Crop :- Wheat (*Rabi*). **Ref :- U.P. 61(138).**

Site :- Govt. Reg. Agri. Res. Stn., Hardoi. **Type :- 'IM'.**

Object :—To study the effect of levels of irrigation and N and their interaction on the yield of Wheat.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Sandy laom (iii) 19.11.61 (iv) (a) N.A. (b) Line sowing behind the plough (c) 92Kg/ha (d) Rows 23cm. apart (e) — (v) Nil (vi) N.P. 710. (vii) As per treatments (viii) N.A. (ix) 3.8cm. (x) N.A.

2. TREATMENTS :

Main-plot treatments :

3 levels of Irrigation : I_1=One irrigation at tillering stage (4 weeks after sowing); I_2=I_1+one irrigation at pre-floweing stage (10 weeks after sowing) and I_3=I_2+one irrigation at milky stage (12 weeks after sowing).

Sub-plot treatments :

3 levels of N as A/S/N : N_0=0, N_1=28 and 56Kg/ha. of N;

N applied : at sowing time, in furrows behind the plough.

Irrigations were given : 1st on 17.12.61, 2nd on 28.1.62 and 3rd on 11.2.62.

3. DESIGN :

(i) Split-plot. (ii) (a) 3 main plots/replication; 3sub-plots/maln-plot (b) N.A. (iii) 6 (iv) (a) and (b) 10.36m × 3.66m (v) Nil (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of grain and straw (iv) (a) 1961—only (b) and (c) Nil (v) Mainpuri, Nawabganj, Lucknow and Varanasi (vi) and (vii) Nil.

5. RESULTS :

(i) 2631Kg/ha. (ii) (a) 479.8Kg/ha. (b) 385.8Kg/ha. (iii) None of the effects is significant. (iv) Av. yield of grain in Kg/ha.

	N_0	N_1	N_2	Mean
I_1	2432	2594	2660	2562
I_2	2810	2854	2599	2754
I_3	2396	2577	2761	2578
Mean	2546	2675	2673	2631

Crop :- Wheat (*Rabi*). **Ref :-U.P. 63(142).**

Site :- Govt. Reg. Agri. Res. Stn,, Hardoi. **Type :- 'IM'.**

Object: —To study the effect of time and interval of irrigation and the residual effect of fertilizers applied to the previous *Jowar* crop.

1. BASAL CONDITIONS:

(i) (a) *Jowar* (fodder)—Wheat (b) *Jowar* (c) As per treatments (ii) Sandy loam (iii) 2.11.63 (iv) (a) N.A. (b) Behind the plough in limes. (c) 74Kg/ha (d) Rows 23cm. apart (e) – (v) Nil (vi) N.P. 710 (vii) As per treatments (viii) N.A. (ix) 0.5cm. (x) 6.4.64.

2. TREAMENTS:

All combinations of (1) and (2) :

(1) 3 levels of irrigations: I_1=One irrigation 3 weeks after sowing, I_2=Two irrigations; 1st after 3 weeks and 2nd after 6 weeks of sowing and I_3=Three irrigations at intervals of 3, 6 and 9 weeks after sowing.

(2) 3 levels of fertilizers applied to previous *Jowar* Crop for sodder: F_0=No. fertilzer, F_1=22.4Kg/ha of N+22.4Kg/ha of P_2O_5+22.4Kg/ha. of K_2O+46.1Q/ha. of compost and $F_2=2\times F_1$.

3. DESIGN :

(i) Fact. in R.B.D. (ii) (a) 9 (b) N.A. (iii) 2 (iv) (a) and (b) 7.92m.×5.03m. (v) Nil (vi) Yes.

4. GENERAL:

(i) Good (ii) Nil (iii) Yield of grain (iv) (a) 1963—only (b) and (c) Nil (v) Nawabganj, (vi) and (vii) Nil.

5. RESULTS :

(i) 2116Kg/ha. (ii) 516.9Kg/ha. (iii) None of the effect is significant (iv) Av. yield of grain in Kg/ha.

	F_0	F_1	F_2	Mean
I_1	2032	2183	2509	2241
I_2	2183	2246	1581	2003
I_3	2246	2434	1631	2104
Mean	2154	2288	1907	2116

Crop :- Wheat (*Rabi*). **Ref :-U.P. 63(145).**

Site :- Govt. Reg. Agri. Res. Stn., Hardoi **Type :-'IM'.**

Object :—To study the effect of time and interval of irrigation and the residual effect of fertilizers applied to the previous *Sanai* Crop.

1. BASAL CONDITIONS :

(i) (a) *Sonai* for G.M.—Wneat (b) *Sanai* for G.M..(c) As per treatments (ii) Sandy loam (iii) 2.11.63 (iv) (a) N.A. (b) Behind the plough in lines (c) 74Kg/ha. (d) Rows 23cm. apart. (e) — (v) G.M. by *Sanai* (vi) N.P. 710 (vii) As per treatments (viii) N.A. (ix) 0.5cm. (x) 6.4.64

2. TREAMENTS:

All combinations of (1) and (2):

(1) 3 levels of irrigations: I_1=One irrigation 3 weeks after sowing, I_2=Two irrigations; 1st after 3 weeks and 2nd after 6 weeks of sowing and I_3=Three irrigations at intervals of 3, 6 and 9 weeks after sowing.

(2) 3 levels of fertilizers applied to previous *Sanai* Crop which has been used for green manuring the present experiment F_0=No fertilizer, F_1=5.6Kg/ha. of N+28.0Kg/ha. of P_2O_5 and $F_2=2\times F_1$

3. DESIGN:

(i) Fact. in R.B.D. (ii) (a) 9 (b) N.A. (iii) 2 (iv) (a) and (b) 7.92m.×5.03m. (v) Nil (vi) Yes.

4. GENERAL

(i) Good (ii) Nil (iii) Yield of grain (iv) (a) 1963—only (b) and (c) Nil (v) to (vii) Nil.

5. RESULTS:

(i) 2409Kg/ha. (ii) 346.2Kg/ha. (iii) None of the effect is significant (iv) Av. yield of grain in Kg/ha.

	F_0	F_1	F_2	Mean
I_1	2622	2559	2221	2467
I_2	2333	1807	3011	2384
I_3	2133	2396	2597	2375
Mean	2363	2254	2610	2409

Crop :-Wheat (*Rabi*). **Ref.:-U.P. 63(144)**

Site :-Govt. Reg. Agri. Res. Stn., Hardoi. **Type:-'IM'**

Object :—To study the effect of time and interval of irrigation and the residual effeet of fertilizers applied to the previous Maize Crop.

1. BASAL CONDITIONS:

(i) Maize—Wheat (b) Maize (c) As per treatments (ii) Sandy loam (iii) 2.11.63 (iv) (a) N.A. (b) Behind the plough in lines (c) 74Kg/ha (d) Rows 23em. apart (e)— (v) Nil (vi) N.P. 710 (vii) As per treatments (viii) N.A. (ix) 0.5cm. (x) 6.4.64.

2. TREATMENTS:

All combinations of (1) and (2)

(1) 3 levels of irrigation: I_1=One irrigation 3 weeks after sowing, I_2=Two irrigations; 1st after 3 weeks and 2nd after 6 weeks of sowing and I_3=Three irrigations at intervals of 3,6 and 9 weeks after sowing.

(2) 3 levels of fertilizers applied to previous Maize crop during Kharif session: F_0=No fertilizer, F_1=44.8Kg/ha of N+44.8Kg/ha of P_2O_5+44.8Kg/ha. of K_2O,+92.2Q/ha. of compost and $F_2=2\times F_1$.

3. DESIGN :

(i) Fact. in R.B.D. (ii) (a) 9 (b) N.A. (iii) 2 (iv) (a) and (b) 7.92m. × 5.03m. (v) Nil (vi) Yes.

4. GENERAL:

(i) Good (ii) Nil (iii) Yield of grain (iv) (a) 1963 -only (b) and (c) Nil (v) to (vii) Nil.

5. RESULTS :

(i) 1606Kg/ha. (ii) 240.6Kg/ha. (iii) Main effect of I is significant (iv) Av. yield of grain in Kg/ha.

	F_0	F_1	F_2	Mean
I_1	1556	2195	1869	1873
I_2	1430	1468	1744	1547
I_3	1330	1380	1480	1397
Mean	1439	1681	1698	1606

C.D. for I marginal means=320.3Kg/ha.

Crop :- Wheat (*Rabi*). **Ref :- U.P. 64(136).**

Site :- Govt. Reg. Agri. Res. Stn., Hardoi. **Type :- 'IM'**

Object —To study the effect of levels of irrigation and fertilizer and different doses of manures applied to to previous Maize and *Sanai* Crops on the yield of Wheat.

1. BASAL CONDITIONS :

(i) (a) Nil (b) and (c) As per treatments (ii) Sandy loam (iii) 9 and 10.11.64 (iv) (a) N.A. (b) Line sowing behind the plough (c) 99Kg/ha (d) Rows 23cm. apar (e) — (v) Nil (vi) N.P. 710 (vii) As per treatments (viii) Weeding and hoing (ix) 2.0cm. (x) 3 5.6 .

2. TREATMENTS :

Main-plot treatments :

9 mamurial treatments applield to previous crops : M_1=No fertilizer applied to Maize, M_2=44.8Kg/ha of N+44.8Kg/ha of P_2O_5+44.8Kg/ha of K_2O+92Q/ha. of F.Y.M. applied to Maize, $M_3=2\times M_2$, M_4=No fertilizer applied to *Sanai* for G.M., M_5=5.6Kg/ha. of N+28Kg/ha of+28Kg/ha. of P_2O_5 applied to *Sanai* for G.M., $M_6=2\times M_5$, M_7=No fertilizer applied to *Sanai* for fibre, M_8=5.6Kg/ha of N+28Kg/ha of P_2O_5 applied to *Sanai* for fibre and $M_9=2\times M_8$.

Sub-plot treatments :

3 levels of irrigation : I_1=One irrigation after 3 weeks of sowing, I_2=Two irrigations after 3 and 6 weeks of sowing and I_3=Three irrigations after 3, 6 and 9 wecks of sowing.

Sub-Sub-Plot treatments :

3 levels of fertilizers : F_0=Control. (No fertilizers), F_1=22Kg/ha of N+22Kg/ha of P_2O_5+22Kg/ha of K_2O+46Q/ha. of F.Y.M. and $F_2=2\times F_1$.

3. DESIGN:

(i) Split-plot (ii) (a) 9 main-plots/replication, 3 Sub-plots/main-plot, 3 Sub-Sub-plots/sub-plot. (b) N. A. (iii) 2 (iv) (a) and (b) 4.57m×2.97m. (v) Nil (vi) Yes.

4. GENERAL:

(i) Good (ii) Nil (iii) Yield of grain (iv) (a) 1964—only (b) and (c) Nil (v) to (vii) Nil.

5. RESULTS:

(i) 2906Kg/ha. (ii) (a) 376.9Kg/ha. (b) 441.3Kg/ha. (c) 490.7Kg/ha. (iii) Main effects of M and F are highly significant (iv) Av. yield of grain in Kg/ha.

	I_1	I_2	I_3	F_0	F_1	F_2	Mean
M_1	2453	2453	2613	2380	2416	2723	2506
M_2	2919	2637	2686	2575	2625	3042	2747
M_3	3570	3140	2662	2895	2846	3631	3124
M_4	3189	2674	2944	2625	2821	3361	2936
M_5	3435	3226	3146	3018	3367	3422	3269
M_6	2723	3128	3189	2931	3030	3079	3013
M_7	2847	3079	2686	2833	2895	2883	2870
M_8	2882	2699	2699	2797	2588	2895	2760
M_9	2858	2883	3054	2981	2858	2956	2932
Mean	2986	2880	2853	2782	2827	3110	2906
F_0	2940	2744	2662				
F_1	2854	2854	2774				
F_2	3165	3042	3124				

C.D. for M marginal means=289.7Kg/ha.

C D. for F marginal means=188.9Kg/ha.

Crop. :- Wheat (*Rabi*). **Ref. :- U.P. 63(469), 64(552), 65(376).**

Site :- Govt. Res. Farm, Kanpur. **Type :- 'IM'**

Object : —To study the effect of Varying frequencies and depth of irrigation under different levels of fertility on the growth and yield of Wheat.

1. BASAL CONDITIONS:

(i) (a) Nil (b) *Jowar*; N.A.; *Dhaincha*. (c) N.A. for 64; Nil for others (ii) Sandy loaw (iii) 11.11.63; 25.11.64; 6.11.65 (iv)(a)4 to 5 ploughings by Victory/*Deshi* plough (b) Behind the plough (c) 75Kg/ha. (d) Rows 23cm. apart(e)--(v) 67Kg/ha. of N as A/S for 63 and 22Kg/ha of N as A/S for others (vi) K.68 (vii) As per treatments (viii) Hoeing and weeding (ix) 1.3cm.; 7.8cm.; 0.2cm. (x) 8 to 14.4.64; 11 to 16.4.65; 1 to 7.4.66.

2. TREATMENTS :

Main-plot treatments :

All combinations of (1) and (2)

(1) 4 levels of irrigation: I_1=Irrigation at 5%, I_2=Irrigation at 20%, I_3=Irrigation at 35% and I_4=Irrigation at 50% available Water remained in the first 30cm of soil.

(2) 3 *intensities* of Water : W_1=5,05,598, W_2=7,86,485 and W_3=10,67,372 litres/ha.

Sub-plot treatments :

3 levels of fertility : F_0=Control (no manure), F_1=24.4Kg/ha of N as A/S+24.4Kg/ha of P_2O_5 as Super+ 24.4Kg/ha. of K_2O as Mur. Pot. and $F_2=2\times F_1$.

3. DESIGN :

(i) Split-plot. (ii) (a) 12 main-plots/replication, 3 Sub-plots/main-plot (b)N.A.;108.25m×20.25m; 69.30m. × 19.90m. (iii) 2 (iv) (a) 10.36m.×4.57m.; 7.00m×6.00m.; 6.20m×5.50m. (b) 9.45m×3.66m; 6.75m×5.75m; 5.90m×5.00m. (v) 45cm×45cm; 12cm×12cm; 15cm×25cm. (vi) Yes.

4. GENERAL:

(i) Good. Lodging from 30% to 35% for' 63 (ii) 5% B.H.C. dust applied to control *Gujhia* pest in 64; N.A. for others (iii) Yield of grain (iv) (a) 1963—65 (b) No (c) Nil (v) and (vi) Nil (vii) As the main-plot as well as sub-plot error variances are heterogenous, the results of individual years are presented under 5. Results.

5. RESULTS :

63 (469)

(i) 3414Kg/ha. (ii) (a) 277.1Kg/ha. (b) 303.3Kg/ha. (iii) Main effect of I and F are highly significant and that of W is significant (iv) Av. yield of grain in Kg/ha.

	W_1	W_2	W_3	F_0	F_1	F_2	mean
I_1	3043	3096	3241	2585	3231	3564	3127
I_2	3183	3231	3559	2850	3294	3829	3324
I_3	3284	3366	3699	3024	3414	3911	3450
I_4	3636	3868	3762	3173	3848	4244	3755
mean	3287	3390	3565	2908	3447	3887	3414
F_0	2691	2832	3201				
F_1	3429	3378	3534				
F_2	3740	3960	3960				

C.D. for I marginal means=203.5Kg/ha,

C.D. for W marginal means=176.2Kg/ha.

C.D. for F marginal means=180.7Kg/ha.

64 (552)

(i) 2193Kg/ha. (ii) (a) 225.6Kg/ha. (b) 109.9Kg/ha. (iii) Main effect of I and interaction I×W are significant. Main effect of F is highly significant. (iv) Av. yield of grain in Kg/ha.

	W_1	W_2	W_3	F_0	F_1	F_2	mean
I_1	2096	2214	2282	1997	2261	2334	2197
I_2	2169	1874	2057	1735	2046	2319	2033
I_3	2071	2295	2252	1919	2257	2443	2206
I_4	2542	2304	2160	2018	2381	2607	2335
mean	2219	2172	2188	1917	2236	2426	2193
F_0	2021	1868	1863				
F_1	2219	2262	2227				
F_2	2419	2385	2473				

C.D. for I marginal means=165.5 Kg/ha.

C.D. for F marginal means=65.5 Kg./ha.

C.D. for body of I×W table=287.7Kg/ha.

65 (376)

(i) 3211Kg/ha. (ii) (a) 555.0Kg/ha. (b) 258.1Kg/ha. (iii) Main effect of I is significant and that of F is highly significant. (iv) Av. yield of grain in Kg/ha.

	W_1	W_2	W_3	F_0	F_1	F_2	mean
I_1	2345	2994	2966	2316	2684	3305	2768
I_2	3729	3277	3277	2740	3531	4011	3427
I_3	3333	3249	3220	2655	3333	3814	3267
I_4	3277	3305	3559	2797	3277	4068	3380
mean	3171	3206	3256	2627	3206	3799	3211
F_0	2712	2542	2627				
F_1	3136	3199	3284				
F_2	3665	3877	3856				

C.D. for I marginal means=407.2Kg/ha.

C.D. for F marginal means=153.8 Kg/ha.

Crop :- Wheat (*Rabi*). **Ref:- U.P. 64 (48), 65 (384)**

Site :- Govt. Res. Farm, Kanpur. **Type :- 'IM'.**

Object :—To study the effect of spraying N as urea under irrigated and unirrigated conditions on growth, yield and quality of Wheat.

1. BASAL CONDITIONS:

(i) (a) Nil (b) *Moong* and ground nut for 64, N.A. for 65. (c) N.A. (ii) Sandy loam (iii) 3.12.64; 29.11.65. (iv) (a) 4 ploughings by Victory and *Deshi* plough (b) Behind the deshi plough (c) 100Kg/ha (d) Rows 23cm. apart. (e) - (v) 22.4Kg/ha. of N as A/S+22.4Kg/ha. of P_2O_5 as Super+22.4Kg/ha. of K_2O as Pot. Sul. applied before sowing. (vi) K—68 (vii) As per treatments (viii) Weeding (ix) 5.9cm.; 2.0cm. (x) 9.4.65; 12.4.66.

2. TREATMENTS :

All combinations of (1) and (2)

(1) 2 levels of irrigation : I_0=Unirrigated and I_1=2 irrigations.

(2) 6 manurial treatments : M_0=Control, M_1=28Kg/ha of N as soil application, M_2=56Kg/ha of N as soil application, M_3=3 sprayings of 1% urea solution to give in all 11.2Kg/ha of N, M_4=M_3+16.8Kg/ha. of N as soil application and M_5=M_3+44.8Kg/ha. of N as soil application.

Fertilizers were applied as top dressing, spraying done at 748 litters/ha per spray.

3. DESIGN :

(i) Fact. in R.B.D. (ii) (a) 12 (b) 15.90m×7.50m; 7.66m×14.40m (iii) 4 (iv) (a) and (b) 2.40m×3.20m; 3.33m×2.15m. (v) Nil (vi) Yes.

4. GENERAL:

(i) Good (ii) Nil (iii) Yield of grain (iv) (a) 1964—65 (b) No (c) Nil. (v) to (vi) Nil. (vii) As the error variances are heterogeneous and Treatments×years interaction is absent, the results of individual years have been presented under 5. Results.

5. RESULTS :

64 (48)

(i) 3068 Kg/ha. (ii) 165.7 Kg/ha. (iii) Main effects of I and M are highly significant. (v) Av. yield of grain in Kg/ha :

	M_0	M_1	M_2	M_3	M_4	M_5	mean
I_0	2734	2897	2962	3125	3027	3255	3000
I_1	2832	2930	2995	3320	3288	3451	3136
mean	2783	2914	2978	3222	3158	3353	3068

C.D. for I marginal means=97.6Kg/ha

C.D. for M marginal means=168.9Kg/ha.

65 (384)

(i) 2333Kg/ha. (ii) 453.3Kg/ha. (iii) Main effect of I is highly significant. (iv) Av. yield of grain in Kg/ha.

	M_0	M_1	M_2	M_3	M_4	M_5	mean
I_0	1973	2158	2242	2189	2252	1987	2134
I_1	2273	2546	2636	2570	2647	2528	2533
mean	2123	2352	2439	2380	2450	2257	2333

C.D. for I marginal means=266.8Kg/ha.

Crop :- Wheat (*Rabi*). **Ref :- U.P. 61 (58), 62 (57), 63 (49).**

Site :- Instt. of Crop Physiology, Dilkusha, Lucknow. **Type :- 'IM'**

Object : —To study the effect of levels of irrigation and N and their interaction on the yield of Wheat Crop.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) G.M. (c) N.A. (ii) Sandy loam to loam (iii) 5.11.61; 12 and 13.11.62; 7.11.63 (iv) (a) to (d) N.A. (e) — (v) Nil (v) Nil (vi) N.P. 710 (vii) As per treatments (viii) N.A. (ix) 11.2cm.; 3.4cm; Nil. (x) 17/18.4.62; 17 to 23.4.63; 8 to 14.4.64.

2. TREATMENTS :

Main-plot treatments:

3 levels of irrigation : I_1 = One irrigation at tillering stage, $I_2 = I_1$ + irrigation at pre-flowering stage and $I_3 = I_2$ + One irrigation at milky stage.

Sub-plot treatments :

3 levels of N as A/S : $N_0=0$, $N_1=28$ and $N_2=56$Kg/ha.

3. DESIGN:

(i) Split-plot (ii) (a) 3 main plots/replication 3 sub-plots/main-plot (b) N.A.; 14.63m×27.28m,; 14.94m.× 24.99m. (iii) 6 (iv)(a) 10.36m×5.18m; 8.53m.×4.57m; 7.92m×3.96m. (b) 7.92m×3.96m.; 8.53m×4.57m.; 7.01m.×3.05m. (v) 122cm×61cm; Nil; 46cm×46cm. (vi) Yes.

4. GENERAL :

(i) N.A. Lodging in 62 (ii) N.A. (iii) Yield of grain (iv) (a) 1961—63 (b) No (c) Nil (v) Varanasi, Rampur and Gursarai (vi) Nil (vii) As the Sub-plot error Variances are heterogeneous, the results of the individual experiments have been presented under 5. Results.

5. RESULTS:

61 (58)

(i) 2684Kg/ha. (ii) (a) 709.6Kg/ha. (b) 371.9Kg/ha. (iii) None of the effects is significant (iv) Av. yield of grain in Kg/ha.

	N_0	N_1	N_2	mean
I_1	2376	2547	2692	2538
I_2	2733	2811	2678	2741
I_3	2713	2737	2866	2772
mean	2607	2698	2745	2684

62 (57)

(i) 2215Kg/ha (ii) (a) 243.1Kg/ha. (b) 251.1Kg/ha. (iii) Main effect of N is highly significant and that of I is significant. (iv) Av. yield of grain in Kg/ha.

	N_0	N_1	N_2	mean
I_1	1956	2037	2200	2064
I_2	2076	2178	2430	2228
I_3	2136	2315	2610	2354
mean	2056	2177	2413	2215

C.D. for N marginal means=170.9Kg/ha.

C.D. for I marginal means=180.5 Kg/ha.

63 (49)

(i) 2814Kg/ha. (ii) (a) 334.2Kg/ha. (b) 256.3Kg/ha. (iii) Main effects of I and N are highly significant and interaction I×N is significant. (iv) Av. yield of grain in Kg/ha.

	N_0	N_1	N_2	mean
I_1	2005	2558	2948	2504
I_2	2207	2917	3268	2797
I_3	2309	3123	3986	3141
mean	2174	2868	3401	2814

C.D. for I marginal means=248.2Kg/ha.

C.D. for N marginal means=174.4Kg/ha.

C.D. for N means at the same level of I=362.2Kg/ha.

C.D. for I means at the same level of N=349.5Kg/ha.

Crop :- Wheat *(Rabi)*, **Ref :- U.P. 61(67)**

Site :-Groundnut Res. Stn., Mainpuri. **Type :- 'IM'.**

Object :—To study the effect of levels of irrigation and doses of N on the yield of Wheat.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Sandy loam (iii) 20.11.61 (iv) (a) to (d) N.A. (e)— (v) and (vi) N.A. (vii) As pe treatments (viii) and (ix) N.A. (x) 12.4.62.

2. TREATMENTS:

Main-plot treatments:

3 levels of irrigation : I_1=One irrigation at tellering stage, I_2=I_1+irrigation at pre-flowering stage and I_2=I_2+irrigation at milky stage.

Sub-plot treatments :

3 levels of N as A/S : N_0=0, N_1=28 and N_2=56Kg/ha.

3. DESIGN :

(i) Split—plot (ii) (a) 3 main-plots/replication 3 sub-plots/main-plot. (b) 32.92m. 15.54m. (iii) 6 (iv)(a) 10.36m.×4.88m. (b) 9.45m.×3.96m. (v) 46cm.×46cm. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of grain (iv) (a) 1961—only (b) and (c) Nil (v) Varanasi, Hardoi and Lucknow (vi) and (vii) Nil.

5. RESULTS:

(i) 2591Kg/ha. (ii) (a) 375.8Kg/ha. (b) 200.8Kg/ha. (iii) Main effect of N alone is highly significant. (iv) Av. yield of grain in Kg/ha.

	N_0	N_1	N_2	mean
I_1	2083	2551	2662	2432
I_2	2190	2573	3049	2604
I_3	2324	2889	3000	2738
mean	2199	2671	2904	2591

C.D. for N marginal means=136.6Kg/ha.

———

Crop :- Wheat (*Rabi*). **Ref :- U.P. 61(174).**

Site :- Govt. Reg. Agri. Res. Stn., Nawabganj. **Type :- 'IM.'**

Object :—To study the effect of levels of irrigation and fertility on the yield of Wheat.

1. BASAL CONDITIONS:

(i) (a) Wheat—Early Paddy (b) and (c) N.A. (iii) Clay loam (iii) 26.11.61 (iv) (a) N.A. (b) Line sowing behind the plough (c) 92Kg/ha. (d) Rows 23cm. apart (e) — (v) Nil (vi) N.P. 824 (vii) As per treatment (viii) Hoeing (ix) 10.6cm. (x) 29.4.62.

2. TREATMENTS :

All combinations of (1) and (2).

(1) 3 levels of irrigation : I_1=one Irrigation 3 weeks after sowing, I_2=2 irrigations : 1st and 2nd after 3 and 6 weeks of Sowing I_3=3 irrigations : 1st and 2nd after 3 and 6 weeks of sowing and 3rd at milky stage,

(2) 3 levels of fertilizers : F_0=Control (No fertilizer), F_1=22.4Kg/ha of N+22.4Kg/ha of P_2O_5+ 22.4Kg/ha of K_2O+46Q/ha. of F.Y.M. and $F_2=2\times F_1$.

3. DESIGN :

(i) Fact. in R.B.D. (ii) (a) 9 (b) N.A. (iii) 2 (iv) (a) and (b) 7.31m×12.19m. (v) Nil (vi) Yes.

4. GENERAL :

(i) Good. (ii) Nil. (iii) Yield of grain. (iv) (a) 1961—only. (b) and (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 1493Kg/ha (ii) 184.6Kg/ha. (iii) Main effect of F is significant. (iv) Av. yield of grain in Kg/ha.

	F_0	F_1	F_2	mean
I_1	942	1402	1996	1447
I_2	852	1525	1934	1437
I_3	942	1777	2069	1596
mean	912	1568	2000	1493

C.D. for F marginal means=245.8Kg/ha.

Crop :- Wheat. (*Rabi*). **Ref :-U.P. 61 (157).**

Site :- Govt. Reg. Agri. Res. Stn., Nawabgunj. **Type :- 'IM'.**

Object :—To study the effect of levels of irrigations and N and their interaction on the yield of Wheat.

1. BASAL CONDITIONS :

(i) (a) Nil. (b) and (c) N.A. (ii) Clay loam. (iii) 12.11.61. (iv) (a) N.A. (b) Line sowing behind the plough. (c) 92Kg/ha. (d) Rows 23cm apart. (e) — (v) Nil (vi) Pb. 591. (vii) As per treatments. (viii) Weeding and hoe ng (ix) 10.6cm (x) 21 and 23—4—62.

2. TREATMENTS :

Main-plot treatments :

3 levels of irrigation : I_1=One irrigation at tillering stage i.e. after 4 weeks of sowing, I_2=Two irrigations : 1st after 4 weeks and 2nd after 10 weeks of sowing, I_3=Three irrigations: 1st at tillering, 2nd at pre-flowering and 3rd at milky stage.

Sub-plot treatments :

3 levels of N as A/S : N_0=0, N_1=28 and N_2=56Kg/ha.

3. DESIGN :

(i) Split-plot. (ii) (a) 3 main-plots/replication, 3 sub-plots/Main-plot. (b) N.A. (iii) 6 (iv) (a) 10.36m×5.18m. (b) 9.45m×4.72m. (v) 46cm×23cm. (vi) Yes.

4. GENERAL :

(i) Good. (ii) Nil. (iii) Yield of grain. (iv) (a) 1961—only. (b) and (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 1384Kg/ha. (ii) (a) 340.5Kg/ha. (b) 231.9Kg/ha. (iii) Main effect of N is highly significant. (iv) Av. yield of grain in Kg/ha.

	I_1	I_2	I_3	mean
N_0	1150	1262	1348	1253
N_1	1505	1632	1497	1545
N_2	1307	1490	1266	1354
mean	1321	1461	1370	1384

C.D. for N marginal means=157.8Kg/ha

Crop:- Wheat (*Rabi*). **Ref:- UP. 62 (155) 63 (152).**

Site :- Govt. Reg. Agri. Res. Stn., Nawabgunj. Type :- 'IM'.

Object :—To study the effect of levels of fertility and irrigation on the yield of Wheat.

1. BASAL CONDITIONS :

(i) (a) Wheat—Paddy (b) Poddy (c) As per treatment (ii) Clay loam (iii) 15.11.62; 29.11,63 (iv) (a) N.A. (b) Behind the plough (c) 92Kg/ha. (d) Rows 23cm apart (e)— (v) Nil (vi) N.P. 824 (vii) As per treatment (viii) Hoeing (ix) 3.1cm; 0.7cm (x) 19.4.63; 14.4.64.

2 TREATMENTS :

All combinations of (1) and (2).

(1) 3 levels of irrigation : I_1=One irrigation after 3 weeks of sowing, I_2=I_1+irrigation after 6 weeks of sowing and I_3=I_2+irrigation at milky stage.

(2) 3 levels of fertility : F_0=Control (No fertilizer), F_1=22.4Kg/ha N+22.4Kg/ha of P_2O_5 +22.4Kg/ha. of K_2O+46Q/ha. of F.Y.M.+the residual effect of the same amount of fertilizers to previous Crop and $F_2=2\times F_1$.

3. DESIGN :

(i) Fact. in R.B.D. (ii) (a) 9 (b) N.A. (iii) 2 (iv) (a) and (b) 7.32m×12.19m. (v) Nil (vi) Yes.

4. GENERAL :

(i) Good (ii) Nil (iii) Yield of grain (iv) (a) 1962—63 (b) Yes (c) Nil. (v) and (vi) Nil (vii) As the error variances are heterogeneous and Treatments × years interaction is absent, the results of individual years have been presented under 5. Results.

5. RESULTS :

62 (155)

(i) 1212Kg/ha. (ii) 321.7Kg/ha (iii) None of the effects is significant. (iv) Av. yield of grain in Kg/ha.

	F_0	F_1	F_2	mean
I_1	832	968	1519	1106
I_2	1358	1000	1355	1238
I_3	1208	1089	1582	1293
mean	1133	1019	1485	1212

63 (152)

(i) 1084Kg/ha. (ii) 107.8Kg/ha. (iii) Main effect of F is highly significant. (iv) yield of grain in Kg/ha.

	F_0	F_1	F_2	mean
I_1	608	1166	1532	1102
I_2	621	1141	1403	1055
I_3	771	1144	1371	1095
mean	667	1150	1436	1084

C.D. for F marginal means=143.5Kg/ha.

Crop :- Wheat (*Rabi*). **Ref :- U.P. 62 (159) 63 (209), 64(219),**

Site :- Govt. Reg. Agri. Res. Stn., Nawabganj. **Type :- 'IM'.**

Object :—To study the effect of levels of irrigation and fertility and the residual effect of previous Crop of Early Paddy on the yield of Wheat.

1. BASAL CONDITIONS :

(i) (a) Early Paddy—Wheat (b) Early Paddy (c) As per treatments (ii) Clay loam (iii) 11.11.62; 31.10.63; 10.11 64 (iv) (a) N.A. (b) Line sowing behind the plough (c) 92Kg/ha. (d) Rows 23cm apart (e)—(v) Nil (vi) N.P. 830 (vii) As per treatments. (viii) Hoeing by wheel hoe (ix) 3.1cm; 0.7cm; 16.3cm. (x) 7.4.63; 1/2.4.64; 13/14.4.65.

2. TREATMENTS:

2. Treatments : Same as in Expts No : 62 (155), 63(152) and presented on page No. 649

3. DESIGN :

(i) Fact. in R.B.D. (ii) (a) 9 (b) N.A. (iii) 2 (iv) (a) 15.30m.×6.40m. (b) 14.30m×5.94m. (v) 50cm×23cm (vi) Yes.

4. GENERAL:

(i) Good (ii) Nil (iii) Yield of grain (iv) (a) 1962—64 (b) Yes (c) Results of combined analysis have been presented under 5. Results. (v) and (vi) Nil (viii) Error variences are homogeneous and Treatments×years interaction is present.

5. RESULTS :

Pooled results :

(i) 1328Kg/ha (ii) 222.5Kg/ha. (based on 40 d.f. made up of Pooled error and Treatments×years interaction). (iii) Main effects of F is highly significant (iv) Av. yield of grain in Kg/ha.

	F_0	F_1	F_2	mean
I_1	823	1298	1918	1346
I_2	923	1340	1763	1342
I_3	834	1357	1699	1296
mean	860	1332	1793	1328

C.D. for F marginal means=149.9Kg/ha.

Individual results :

Treatment	I_1	I_2	I_3	Sig.	F_0	F_1	F_2	Sig.	G.M.	S.E./plot
year										
1962	1644	1666	1568	N.S.	923	1706	2249	**	1626	158.8
1963	1115	1111	1060	N.S.	784	984	1519	**	1096	202.8
1964	1281	1249	1442	N.S.	874	1305	1611	**	1263	201.9
Pooled	1346	1342	1296	N.S.	860	1332	1793	**	1328	222.5

Crop :- Wheat (*Rabi*).

Ref :- U.P. 62(161), 63 (211), 64 (218).

Site:-Govt. Reg. Agri. Res. Stn., Nawabgunj.

Type:-'IM'

Object :—To study the effect of levels of irrigation and fertility and the residual effect of previous Crop of *Dhaincha* for fibre on the yield of Wheat.

1. BASAL CONDITIONS :

(i) (a) *Dhaincha*—Wheat (b) *Dhaincha* for fibre (c) As per treatments (ii) Clay loam (iii) 11.11.62; 31.10.63; 10.11.64 (iv) (a) N.A. (b) Behind the plough (c) 92Kg/ha (d) Rows 23cm. apart (e)— (v) Nil (vi) N.P. 830 (vii) As per treatments (viii) Hoeing (ix) 3.1cm.; 0.7cm; 16.3cm (x) 7.4.63; 1/2, 4.64; 13/14.4.65.

2. TREATMENTS :

All combinations of (1) and (2) :

(1) 3 levels of irrigation: I_1=irrigation 3 weeks after sowing, I_2=I+irrigations 6 weeks after sowing and I_3=I_2+irrigation at milky stage.

(2) 3 levels of fertilizers : F_0=Control. F_1=22.4Kg/ha of N+22.4Kg/ha. of P_2O_5+22.4Kg/ha of K_2O+46Q/ha of F.Y.M.+Residual effect of 5.6Kg/ha of N+28.0Kg/ha of P_2O_5 applied to previous Crop of *Dhaincha* and $F_2=2\times F_1$.

3. DESIGN :

(i) Fact. in R.B.D. (ii) (a) 9 (b) N.A. (iii) 2 (iv) (a) 15.40m.×6.40m. (b) 14.30m×5.94m. (v) 45cm×23cm (vi) Yes.

4. GENERAL :

(i) Good (ii) Nil (iii) Yield of grain (iv) (a) 1962—54 (b) Yes (c) Results of combined analysis have been presented under 5. Results. (v) Hardoi (vi) Nil (viii) Error variences are homogeneous and Treatments×years interaction is present.

5. RESULTS :

Pooled results :

(i) 1605Kg/ha (ii) 348.3Kg/ha. (based on 16 d.f. made up of Treatments×years interaction) (iii) Main effects of F alone is significant (iv) Av. yield of grain in Kg/ha.

	F_0	F_1	F_2	mean
I_1	1094	1593	2160	1616
I_2	1073	1669	2127	1623
I_3	1042	1665	2025	1577
mean	1070	1642	2104	1605

C.D. for F marginal means=246.1Kg/ha.

Individul sesults :

Treatment	I_1	I_2	I_3	Sig.	F_0	F_1	F_2	Sig.	G.M.	S.E./plot
Years 1962	1763	1878	1912	N.S.	1073	1971	2508	**	1851	145.4
1963	1459	1586	1459	N.S.	1200	1371	1933	**	1501	182.9
1964	1625	1404	1362	*	935	1586	1871	**	1464	159.3
Pooled	1616	1623	1577	N.S.	1070	1642	2104	*	1605	348.3

Crop :- Wheat (*Rabi*). **Ref :- U.P. 62(160), 63(210), 64 (229).**

Site :- Govt. Reg. Agri. Res. Stn., Nawabgunj. **Type : - 'IM'**

Object :—To study the effect of levels of irrigation and fertility and the residual effect of previous Crop of *Dhaincha* for green manuring on the yield of Wheat.

1. BASAL CONDITIONS:

(i) (a) *Dhaincha*—Wheat (b) *Dhaincha* for G.M. (c) As per treatments (ii) Clay loam (iii) 11.11.62; 31.10.63; 10.11.64 (iv) (a) N.A. (b) Behind the plough (c) 92Kg/ha. (d) Rows 23cm apart (e)— (v) G.M. by *Dhaincha* (vi) N.P. 830 (vii) As per treatments (viii) Hoeing (ix) 3.1cm.; 0.7cm.; 16.3cm (x) 7.4.63 1/2.4.64; 13/14.4.65.

2. TREATMENTS :

Treatments same as in Expt. Nos. : 62(161), 63(211), 64(218) and presented on page No. 651.

3 DESIGN:

(i) Fact. in R.B.D. (ii) (a) 9 (b) N.A. (iii) 2 (iv) (a) 15.30m×6.40m (b) 14.30m×5.94m (v) 50cm×23cm. (vi) Yes.

4. GENERAL:

(i) Good (ii) Nil (iii) Yield of grain (iv) (a) 1962—64 (b) Yes. (c) Results of Combined analysis have been presented under 5. Results. (v) and (vi) Nil (vii) Error variances are homogeneous and Treatments × year interaction is absent.

5. RESULTS :

Pooled results :

(i) 1572Kg/ha (ii) 199.3Kg/ha (based on 40 d.f. made up of pooled error and Treatment × years Interaction.) (iii) Main effect of F is highly significant and interaction I × F is significant.(iv)Av. yield of grain in Kg/ha.

	F_0	F_2	F_4	mean
I_1	1149	1585	2112	1615
I_2	879	1693	1947	1506
I_3	1249	1573	1958	1593
mean	1092	1617	2006	1572

C.D. for F marginal means=134.3 Kg/ha.

C.D. for body of table=232.6Kg/ha

Individual results :

Treatment	I_1	I_2	I_3	Sig.	F_0	F_1	F_2	Sig.	G.M.	S.E./plot
year										
1962	1650	1681	1683	N.S.	1021	1776	2216	**	1671	149.3
1963	1602	1387	1615	N.S.	1172	1522	1920	**	1538	219.1
1964	1593	1442	1483	N.S.	1084	1553	1880	**	1506	163.3
Pooled	1615	1506	1593	N.S.	1092	1617	2006	**	1572	199.3

Crop:-Wheat (*Rabi*). **Ref.:-U.P. 64 (468).**

Site:-G.B. Pant University of Agri. and Technology.

Pantnagar. **Type :-'IM'**

Object : –To study the effect of Varying soil moisture regimes and fertility levels on growth, yield and quality of Wheat crop.

1. BASAL CONDITIONS :

(i) (a) Fallow—Wheat (b) Fallow (c) Nil (ii) Clay loam. (iii) 4.11.64 (iv) (a) 1 ploughing and 2 harrowings and levelling (b) By power seed drill (c) 55Kg/ha. (d) Rows 18cm apart (e)—(v) 70Kg/ha of P_2O_5 as Super broadcasted before sowing (vi) N.P. 824 (vii) As per treatments (viii) Nil (ix) 10.4cm. (x) 7.4.65.

2. TREATMENTS:

Main-plot treatments:

3 stages of irrigation : I_1=Irrigation when soil moisture tension, I_2=Irrigation when soil moisture tension reaches 0 8 atmospheres, I_3=Irrigation when soil moisture tension reaches 0.4 at mosphere.

Sub-plot treatments:

4 levels of N as A/S: N_0=0, N_1=30, N_2=60, and N_3=90Kg/ha. N applied at sowing.

3 DESIGN:

(i) Split-plot (ii) (a) 3 main-plots/replication; 4 sub-plots/main-plot (b) N.A. (iii) 4 (iv) (a) 11.00m×6.00m; (b) 10.00m×2.00m (v) 50cm×200cm (vi) Yes.

4. GENERAL :

(i) Satisfactory (ii) Nil (iii) Yield of grain (iv) (a) 1964—only (b) and (c) Nil (v) and (vi) Nil (vii) Plot-wise yield data N.A.

5. RESULTS :

(i) 1940 Kg/ha (ii) (a) 339.8Kg/ha (b) 390.2Kg/ha. (iii) Main effects of I and N are significant (iv) Av. yield of grain in Kg/ha.

Treatment :	I_1	I_2	I_3	N_0	N_1	N_2	N_3
Av. yield :	1699	2147	1975	1464	2075	2189	2032

C.D. for I marginal means=294.0Kg/ha.

C.D. for N marginal means=326.9Kg/ha.

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Crop :- Wheat (*Rabi*). **Ref. :-U.P. 64(57), 65(399)**

Site :- Govt. Agri. Farm, Rampur **Type :-'1M'.**

Object :—To study the effect of levels of irrigation and doses of N and their interaction on growth and yield of Wheat.

1. BASAL CONDITINS :

(i) (a) Nil (b) Maize; *Sanai* for G.M. (c) N.A. (ii) *Bhat* Soil (iii) 11.11.64; 14.11.65 (iv) (a) N.A. (b) Dibbling (c) 30Kg/ha (d) 23cm×11cm apart (e) — (v) Nil; 44.8Kg/ha. of N as G.M. (vi) K.68 (vii) As per treatments (viii) N.A. (ix) 2.7cm; 3.0cm (x) 11.4.65; 12.4.66.

2. TREATMENTS :

Main-plot treatments :

3 levels of irrigation : I_1 =Irrigation at tillering stage; $I_2=I_1$+irrigation at ear-emergence and $I_3=I_2$+ irrigation at milky stage.

Sub-plot treatments :

3 levels of N as A/S : $N_0=0$ $N_1=28$ and $N_2=56$ kg/ha.

3. DESIGN :

(i) Split-plot (ii) (a) 3 main-plots/replication; 3 sub-plots/ main-plot (b) 25.00m×25.20m; 24.70m×28.00m. (iii) 6 (iv) (a) 8.00m×7.50m. (b) 7.04m×6.54m. 7.50m×700m (v) 48cm×48cm; 25cm×25cm. (vi) Yes.

4. GENERAL:

(i) Good (ii) Nil (iii) Yield of grain (iv) (a) 1964—65 (b) No. (c) Nil (v) Varanasi, Lucknow and Gursarai (vi) Nil. (vii) As Main-plot error Variances are hecterogeneous and sub-plot error Variances are homogeneous and Main-plot treatments×years intraction is absent, results of individual years have been presented under 5. Result.

5. RESULTS :

64 (57)

(i) 1384Kg/ha (ii) (a) 172.5Kg/ha (b) 231.3Kg/ha (iii) Main-effect of I is significant and that of N is highly significant. (iv) Av. yield of grain in Kg/ha.

	N_0	N_1	N_2	mean
I_1	1104	1339	1466	1303
I_2	1122	1412	1484	1339
I_3	1213	1629	1691	1511
mean	1146	1460	1547	1384

C.D. for L marginal means=128.1Kg/ha.

C.D. for T marginal means=157.4Kg/ha.

95 (399)

(i) 1349Kg/ha. (ii) (a) 387.2Kg/ha (b) 277.6Kg/ha (iii) Main effect of N is highly significant. (iv) Av. yield of grain in Kg/ha.

	I_1	I_2	I_3	mean
N_0	1043	1158	1270	1157
N_1	1381	1254	1499	1378
N_2	1381	1333	1825	1513
mean	1268	1249	1531	1349

C.D. for N marginal means=189.0Kg/ha.

———

Crop :- Wheat (*Rabi*). **Ref :- U.P. 61(34), 62(31), 63(23),**

Site :- State Soil Cons. Res., Demons. and Trg. Centre, Rehmankhera, **64(22), 65(499).**

Type :- '1M'.

Object :—To find out the optimum moisture range and fertilizer requirement for Wheat.

1. BASAL CONDITIONS:

(i) (a) Wheat-fallow (b) Fallow (c) Nil (ii) Loamy sand to sandy loam (iii) 5/6.11.61; 5/6.11.62; 7/8.11.63; 1/2.11.64; 6/7.11.65. (iv) (a) Ploughings by *Deshi* plough, tractor harrow and cultivator (b) Sown behind the plough (c) 92.2Kg/ha (d) Rows 23cm apart (e) — (v) 22.4Kg/ha of N as F.Y.M. applied in September for 61 and 62; Nil for others (vi) K68 for 65; N.P.710 for others (vii) As per treatments (viii) 2—3 weedings (ix) N.A. (x) 23.4.62 to 1.5.62; 12—16.4.63; 9—13.4.64; N.A; N.A.

2. TREATMENTS:

Main-plot treatments :

4 irrigational treatments Irrigations to be given when soil moisture is at $-W_1=40\%$, $W_2=30\%$, $W_3=20\%$ and $W_4=10\%$ of available moisture range.

Sub-plot treatments:

All combinations of (1) and (2).

(1) 2 levels of N as C/A/N : $N_0=0$ 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.

The moisture condition in different plots was observed every third day with the help of nylon blocks (fitted at 15,30 and 61cm. depth) and the moisture meter. For the first four weeks, the moisture reading of the nylon block at 15cm. was taken as guiding line for irrigation and subsequanty the average of 30cm. and 61cm. depth blocks were taken. As the particular moisture condition was reached, the plots were irrigated and the moisture was not be allowed to go down below the limits indicated against each main-treatments. Each irrigation consisted of 5 cm hectare and the measured quantity of water was given by rubber hose-pipes. Irrigations were stopped in the first week of Feburary. Super placed at 10 cm. depth in furrows by hand *Khudali* at final preparation of the plots. C/A/N broadcasted and mixed in soil after placement of Super

3. DESIGN :

(i) Split—plot (ii) (a) 4 main-plots/replication; 4 sub-plots/main-plot (b) 22.71m×58.06m (iii) 4 (iv) (a) 10.06m×6.71m (b) 9.45m×6.10m (v) 30cm. all around. (vi) Yes.

4. GENERAL:

(i) Satisfactory (ii) Incidence of rust for 61 and 62; Attack of white ants in W_3 and W_4 plots for 64; N.A. for others (iii) Yield of grain (iv) (a) 1961—65 (b) Yes (c) Nil (v) No (vi) Nil (vii) As the sub-plot error variances are heterogeneous, the results of individual years have been presented under 5. Results.

5. RESULTS

61 (34)

(i) 2022Kg/ha. (ii) (a) 749.3Kg/ha. (b) 493.5Kg/ha (iii) Main effect of N alone is significant (iv) Av. yield of grain in Kg/ha.

	N_0	N_1	P_0	P_1	mean
W_1	1480	2615	2068	2026	2047
W_2	2183	2517	2337	2363	2350
W_3	1654	2216	1973	1897	1935
W_4	1487	2027	1697	1816	1757
mean	1701	2344	2019	2026	2022
P_0	1691	2347			
P_1	1711	2340			

C D. for N marginal means=250.3 Kg/ha.

62 (31)

(i) 1801Kg/ha (ii) (a) 579.3Kg/ha (b) 331.6Kg/ha (iii) Main effects of W and N are highly significant and interactions W×N is significant.(iv) Av. yield of grain in Kg/ha.

	N_0	N_1	P_0	P_1	mean
W_1	1502	2476	1955	2073	1998
W_2	1840	2626	2285	2181	2233
W_3	1593	2449	2046	2005	2026
W_4	846	1070	892	1024	958
mean	1445	2158	1795	1808	1801
P_0	1397	2192			
P_1	1493	2123			

C.D. for W marginal means=463.3 Kg/ha.

C.D. for N marginal means=168.2 kg/ha.

C.D. for N means at the same level of W=336.4 Kg/ha.

C.D. for W means at the same level of N=478.8 Kg/ha.

63 (23)

(i) 1202Kg/ha. (ii) (a) 596.2Kg/ha. (b) 257.9Kg/ha. (iii) Main effects of W, N and interaction W×N are highly significant. (iv) Av. yield of grain in Kg/ha.

	N_0	N_1	P_0	P_1	mean
W_1	1295	2044	1593	1747	1670
W_2	1467	2194	1777	1884	1831
W_3	701	833	833	701	767
W_4	508	573	516	564	540
mean	993	1411	1180	1224	1202
P_0	952	1408			
P_1	1034	1414			

C.D. for W Marginal means=476.8Kg/ha

C.D. for N Marginal means=130.8 Kg/ha

C.D. for N means at the same level of W=261.6Kg/ha.

C.D. for W means at the same level of N=466.0Kg/ha.

64 (22)

(i) 1437Kg/ha (ii) (a) 527.8Kg/ha (b) 251.9Kg/ha (iii) Main effect of W is significant and that of N and interaction W×N are highly signficant (iv) Av. yield of grain in Kg/ha.

	N_0	N_1	P_0	P_1	mean
W_1	1177	2185	1672	1691	1681
W_2	1453	2109	1854	1708	1781
W_3	1037	1210	1186	1061	1123
W_4	956	1370	1 27	1199	1163
mean	1156	1719	1460	1415	1437
P_0	1203	1717			
P_1	1109	1720			

C. D. for W marginal means=422.1 Kg/ha.

C. D. for N marginal means=127.8 Kg./ha.

C.D. for N means at the same level of W=255.5Kg/ha.

C.D. for W means at the same level of N=419.5Kg/ha.

65 (4499)

(i) 1595Kg/ha (ii) (a) 575.1Kg/ha (b) 274.9Kg/ha (iii) Main effects of W, N and interaction W×N are highly significant (iv) Av. yield of grain in Kg/ha.

	N_0	N_1	P_0	P_1	mean
W_1	1291	2426	1879	1838	1859
W_2	1647	2433	2016	2064	2040
W_3	1287	2433	1721	1513	1617
W_4	744	983	801	927	864
mean	1242	1947	1604	1585	1595
P_0	1243	1965			
P_1	1241	1929			

C.D. for W marginal means=459.9 Kg/ha.

C.D. for N marginal means=139.4Kg./ha.

C.D. for N means at the same level of W=278.8Kg/ha.

C.D. for W means at the same levels of N=457.5Kg/ha.

Crop :- Wheat (*Rabi*). **Ref :- U.P. 61(185), 62(182), 63 (179).**

Site :- Govt. Reg. Agri. Res. Stn., Varanasi. **Type :- 'IM'**

Objecr :—To study the effect of different levels of irrigation and N and their interaction on the yield of Wheat crop.

1. BASAL CONDITIONS:

(i) (a) Nil (b) *Sanai* for G.M. for 61 and 62, N.A. for 63 (c) N.A. for 63; Nil for others (ii) Clay loam (iii) 4.11.61; 25.10.62; N.A. (iv) (a) N.A. (b) Line sowing behind the plough (c) 92Kg/ha. (d) Rows 23cm apart (e) — (v) G.M. by *Sanai* for 61 and 62; Nil for 63. (vi) N.P. 710; N.A.; N.P.—52 (vii) As per treatments. (viii) N.A. (ix) 4.1cm.; 5.5cm; 2.7cm (x) 11/12.4.62; 16.4.63; 10.5.64.

2. TREATMENTS:

Main-plot treatments :

3 levels of irrigations: I_1=Irrigation at tillering stage (4 weeks after sowing), I_2=I_1+Irrigation at pre-flowering stage (10 weeks after sowing), I_3=I_2+Irrigation at milky stage (12 weeks after sowing).

Sub-plot treatments :

3 levels of N as A/S: N_0=0, N_1=28 and N_2=56Kg/ha.

3. DESIGN :

(i) Split-plot (ii) (a) 3 main-plots/replication; 3 sub-plots/main-plot (b) 14.63m×36.50m for 61; N.A. for others (iii) 6 (iv) (a) 10.97m×4.57m for 61 and 62; N.A. for 63 (b) 10.36m×4.11m for 61 and 62; 1/267.09ha. for 63 (v) 30cm×23cm for 61 & 62; N.A. for 63 (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of grain (iv) (a) 1961–63 (b) No. (c) Results of combined analysis have been presented under, 5. Results. (v) Lucknow, Gursarai and Rampur (vi) Nil (vii) Main-plot and Sub-plot error variances are homogenous and main-plot Treatments×years and Sub-plot treatments×years interactions are absent.

5. RESULTS:

Pooled results :

(i) 1523Kg/ha. (ii) (a) 241.5Kg/ha (based on 34 d.f. made up of pooled error and 'Treatments×years' interaction) (b) 166.3 Kg/ha. (based on 102 d.f. made up of pooled error and Sub-plot Treatments×years interaction). (iii) Main effects of I and N are highly significant (iv) Av. yield of grain in Kg/ha.

	I_1	I_2	I_3	mean
N_0	960	1039	1187	1062
N_1	1438	1633	1761	1611
N_2	1709	1019	2057	1895
mean	1369	1531	1668	1523

C.D. for I marginal means=94.5Kg/ha.

C.D. fot N marginal means=63.4Kg/ha

Individual results :

Treatment	I_1	I_2	I_3	Sig.	N_0	N_1	N_2	Sig	G.M.	S.E./plot Main	S.E./plot Sub
Year											
1961	2301	2488	2587	*	2015	2575	2785	**	2458	252.7	155.3
1962	1017	1200	1401	**	727	1226	1665	**	1206	138.8	156.7
1963	789	904	1017	N.S.	443	1031	1236	**	904	284.9	173.6
Pooled	1369	1531	1668	**	1062	1611	1895	**	1523	241.5	166.3

Crop :- Wheat (*Rabi*). **Ref :- U.P. 64(180.)**

Site :- Govt. Reg. Agri. Res. Stn., Varanasi **Type :- 'IM'.**

Object : —To study the effect of different levels of irrigations and manures on the yield of Wheat crop.

1. BASAL CONDITIONS :

(i) (a) to (c) As per treatments (ii) Loam (iii) 18.11.1964 (iv) (a) N.A. (b) Line sowing behind *Deshi* plough (c) 100Kg/ha (d) Rows 23cm. apart (e)— (v) N.A. (vi) K—68 (vii) As per treatments (viii) N.A. (ix) 5.1cm. (x) N.A.

2. TREATMENTS:

Main-plot treatments :

3 previous crops : C_1=*Moong*, C_2=*Sanai* (G.M.) and C_3=Sanai (fibre).

Sub-plot treatments :

3 levels of fertility applied In *Kharif* : F_0=No manure, F_1=5.6Kg/ha of N+28Kg/ha of P_2O_5 and $F_2=2\times F_1$.

Sub-sub-plot treatments :

3 levels of irrigation : I_1=1, I_2=2 and I_3=3 irrigations.

Sub-sub-sub-plot treatments :

3 levels of fertility in *Rabi* : M_0=No manure, M_1=46.1Q/ha of F.Y.M.+22.4Kg/ha of N+22.4Kg/ha. of P_2O_5+22.4Kg/ha of K_2O and $M_2=2\times M_1$.

3. DESIGN:

(i) Split-plot (ii) (a) 3 main-plots/replication; 3 sub-plots/main-plot, 3 sub-sub-plots/sub-plot and 3 sub-sub-sub-plots/sub-sub-plot. (b) 16.92m×55.93m (iii) 3 (iv) (a) 5.03m×1.37m (b) 4.42m×1.14m (v) 38cm×12cm. (vi) Yes.

4. GENERAL:

(i) Good (ii) Nil (iii) Yield of grain (iv) (a) 1964—only (b) and (c) Nil (v) to (vii) Nil.

5. RESULTS :

(i) 2029Kg/ha (ii) (a) 558.2Kg/ha (b) 296.9Kg/ha. (c) 243.5Kg/ha. (d) 253.4Kg/ha (iii) Main effects of M and I are highly significant. Interaction F×C is significant (iv) Av. yield of grain in Kg/ha.

	F_0	F_1	F_2	I_1	I_2	I_3	M_0	M_1	M_2	mean
C_1	2058	1797	1940	1857	1899	2040	1407	1988	2451	1932
C_2	2038	2127	2200	1981	2193	2192	1563	2070	2733	2122
C_3	1954	2098	2051	1926	2046	2130	1533	2024	2545	2034
mean	2017	2007	2064	1921	2046	2121	1501	2011	2576	2029
M_0	1446	1516	1541	1440	1506	1557				
M_1	2063	1971	1999	1886	2025	2122				
M_2	2542	2534	2652	2437	2607	2684				
I_1	1893	1842	2028							
I_2	2037	2073	2028							
I_3	2121	2106	2136							

C.D. for C marginal means=77.0 Kg/ha.

C.D. for M marginal means=78.9 Kg/ha.

C.D. for F means at the same level of C=176.1 Kg/ha.

C.D. for C means at the same level of F=281.1 Kg/ha.

Crop :- Wheat (*Rabi*). **Ref :- U.P. 60 to 65 (M.A.E.).**

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

Object : Type I :—To study the effect of different instensities and frequencies of irrigation along with different levels of N and P on the yield of Wheat.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Alluvial (iii) to (v) N.A. (vi) Pb. 591 (vii) Irrigation (viii) to (x) N.A.

2. TREATMENTS :

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

(1) 3 frequencies of irrigations : F_1=2, F_2=3 and F_3=4 irrigations.

(2) 3 Intensities of irrigations : I_1=5.0, I_2=7.5 and I_3=10.0cm.

(3) 3 levels of N as A/S : N_0=0, N_1=33.6 and N_2=67.2Kg/ha.

(4) 3 levels of P_2O_5 as Super : P_0=0, P_2=33.6 and P_2=67.2Kg/ha.

3. DESIGN :

(i) 3^4, Confd. (ii) (a) 9 plots/block; 9 blocks/replication (b) N.A. (iii) 1 (iv) (a) and (b) N.A. (v) N.A. (vi) Yes.

4. GENERAL:

(i) and (ii) N.A. (iii) Yield of grain (iv) (a) 1958 –1965 (b) N.A. (c) Nil (v) Pura (vi) N.A. (vii) Nil.

5. RESULTS:

1960

(i) 2277Kg/ha (ii) N.A. (iii) Main effects of N and P are significant. (iv) Av. yield of grain in Kg/ha.

Treatment :	N_0	N_1	N_2	P_0	P_1	P_2
Av. yield :	1734	2434	2663	2091	2311	2428

C.D.=176Kg/ha.

	F_1	F_2	F_2'	mean
I_1	2204	2297	2232	2244
I_2	2380	2186	2306	2291
I_3	2269	2241	2380	2297
mean	2284	2241	2306	2277

1961

(i) 2567Kg/ha (ii) N.A. (iii) Main effect of only N is significant. (iv) Av. yield of grain in Kg/ha.

Treatment :	N_0	N_1	N_2	P_0	P_1	P_2
Av. yield :	2444	2721	2539	2693	2493	2518

C.D.=282Kg/ha

	F_1	F_2	F_3	mean
I_1	2340	2480	2520	2447
I_2	2800	2370	2590	2587
I_3	2390	2910	2700	2667
mean	2510	2587	2603	2567

1962

(i) 2029Kg/ha (ii) N A. (iii) Main effects of N and P and the interaction I×F are significant (iv) Av. yield of grain in Kg/ha.

Treatment :	N_0	N_1	N_2	P_0	P_1	P_2
Av. yield :	2013	1971	2104	1920	2072	2096

C.D.=131Kg/ha

	F_1	F_2	F_3	mean
I_1	2000	2050	2110	2053
I_2	1910	2010	2020	1980
I_3	1850	2210	2100	2053
mean	1920	2090	2077	2029

C.D. for body of I×F table=225Kg/ha.

1963

(i) 1544Kg/ha (ii) N.A. (iii) Interaction I×F is significant. (iv) Av. yield of grain in Kg/ha.

Treatment :	N_0	N_1	N_2	P_0	P_1	P_2
Av, yield :	1481	1583	1568	1540	1488	1604

	F_1	F_2	F_3	mean
I_1	1622	1646	1646	1638
I_2	1464	1358	1906	1576
I_3	1304	1480	1470	1418
mean	1463	1495	1674	1544

C.D. for I×F table=441Kg/ha

1964

(i) 1029Kg/ha (ii) N.A. (iii) Main effect of N and the interaction I×F are significant. (iv) Av. yield of grain in Kg/ha.

Treatment :	N_0	N_1	N_2	P_0	P_1	P_2
Av. yield :	716	1088	1282	1032	1046	1009

C.D.=245Kg/ha.

	F_1	F_2	F_3	mean
I_1	729	978	1351	1019
I_2	855	946	1198	1000
I_3	1089	924	1190	1068
mean	891	949	1246	1029

C.D. for body of table=80Kg/ha.

1965

(i) 1108Kg/ha (ii) N.A. (iii) None of the effects is significant. (iv) Av. yield of grain in Kg/ha.

Treatment :	N_0	N_1	N_2	P_0	P_1	P_2
Av. yield:	1055	1170	1100	1038	1116	1171

	F_1	F_2	F_3	ean
I_1	953	1083	1188	1075
I_2	1083	1175	1188	1149
I_3	1154	1012	1142	1102
mean	1063	1090	1172	1108

Crop :- Wheat (*Rabi*). **Ref. :-U.P. 63, 65 (M.A.E.)**

Site :-M.A.E, Centre; Pura. **Type :-'IM'**

Object: Type I :—To study the effect of different intensities and frequencies of irrigation along with different levels of N and P on the yield of Wheat.

1. BASAL CONDITIONS:

(i) (a) to (c) N.A. (ii) Alluvial (iii) to (x) N.A.

2. TREATMENTS : & 3. DESIGN :

Same as in expt. No. 60 to 65 (M.A.E.) Conducted at M.A.E. Centre, Bichpuri and presented on page No. 662.

4. GENERAL:

(i) and (ii) N.A. (iii) Yield of grain (iv) (a) 1963—1965 (62 N.A.) (b) N.A. (c) Nil (v) Bichpuri (vi) N.A. (vii) Nii.

5. RESULTS:

1963

(i) 2532 kg/ha. (ii) N.A. (iii) Main effects of N & P and interaction I×F is significant. (iv) Av. yielp of grain.

Treatment :	N_0	N_1	N_2	P_0	P_1	P_2
Av. yield :	2394	2551	2650	2255	2661	2679

C.D.=78 Kg/ha.

	F_1	F_2	F_3	mean
I_1	2223	2472	2649	2448
I_2	2621	2729	2830	2727
I_3	2372	2489	2398	2420
mean	2405	2563	2626	2532

C.D. for the body of I×F table=130Kg/ha.

1965

(i) 1729Kg/ha (ii) N.A. (iii) Main effect of N and the interaction I×F are significant.

Treatment :	N_0	N_1	N_2	P_0	P_1	P_2
Av. yield :	1192	1814	2180	1667	1798	1721

C.D.=151Kg/ha

	F_1	F_2	F_3	mean
I_1	1638	1566	1667	1624
I_2	1736	1909	1738	1794
I_3	1728	1759	1817	1768
mean	1701	1745	1741	1729

C.D. for body of I×F table=271Kg/ha.

Crop :- Wheat (*Rabi*). **Ref :- U.P. 62 (142),63(151), 64(144).**

Site :- Govt. Reg. Agri. Res. Stn., Nawabgunj. **Type :- 'IMV'.**

Object :—To study the response of Wheat varieties to irrigation levels and levels of N,P and K.

1. BASAL CONDITIONS:

(i) (a) Wheat—Early Paddy (b) *Dhaincha* for G.M. for 62, Paddy for others (c) N.A. (ii) Clay loam (iii) 25/26-11-62; 3-11-63; 30-10 to 1-11-64 (iv) (a) N.A. (b) Line sowing behind the plough (c) 100Kg/ha. (d) Rows 23cm. apart (e) — (v) G.M. by *Dhaincha* for 62; Nil for others (vi) As per treatments (vii) Irrigated as per treatments (viii) Hoeing by wheel hoe (ix) 3.1cm; 0.7cm; 16.3cm (x) 24 and 30-4-63; 10 to 12-4-64; 13 to 15-4-65.

2. TREATMENTS:

Main-plot treatments :

All combinations of (1) and (2)

(1) 3 Varieties: V_1=Pb. 591, V_2=N.P. 824 and V_3=N.P. 830.

(2) 3 levels of irrigation : I_1=1, I_2=2 and I_3=3 irrigations.

Sub-plot treatments :

All combinations of (3) (4) and (5).

(3) 3 levels of N : N_1=22.4, N_2=44.8 and N_3=89.7Kg/ha.

(4) 3 levels of P_2O_5 : P_1=11.2, P_2=22.4 and P_3=44.8Kg/ha.

(5) 3 levels of K_2O: K_1=11.2, K_2=22.4 and K_3=44.8Kg/ha.

3. DESIGN :

(i) Split-plot confounded. (ii) (a) 3blocks/replication, 9main-plots/replication, 9sub-plots/main-plot (b) N.A. (iii) 1 (iv) (a) 5.94m × 5.56m (b) 4.27m × 4.34m (v) 61cm alround the plot (vi) Yes.

4. GENERAL :

(i) Good (ii) Nil (iii) Yield of grain (iv) (a) 1962—64 (b) Yes (c) Results of Combined analysis have been presented under 5. Results (v) and (vi) Nil (vii) Main-plot and sub-plot error variances are homogeneous. Main-plot Treatments × years and sub-plot Treatments × years interactions are present.

5. RESULTS:

Pooled results:

(i) 1910Kg/ha (ii) (a) 2014.5 Kg/ha. (based on 16 d.f. made up of Treatments × years interaction) (b) 437.1Kg/ha (based on 522 d.f. made up of Treatments × years interaction) (iii) Main effect of N and P are highly significant (iv) Av. yield of grain in Kg/ha.

	N_0	N_1	N_2	K_1	K_2	K_3	V_1	V_2	V_3	I_1	I_2	I_3	mean
P_1	1675	1813	1938	1781	1807	1838	1951	1803	1672	1739	1845	1842	1809
P_2	1728	1911	2079	1933	1908	1877	1249	1899	1870	1829	1939	1950	1906
P_3	1751	2041	2251	1984	2014	2045	2069	2022	1953	1970	2040	2034	2014
mean	1718	1922	2089	1900	1909	1920	1990	1908	1831	1846	1941	1942	1910
I_1	1625	1841	2072	1859	1817	1862	1914	1813	1810				
I_2	1764	1950	2109	1970	1937	1917	2070	1934	1820				
I_3	1766	1974	2086	1870	1975	1981	1985	1977	1864				
V_1	1817	2012	2140	1985	1980	2004							
V_2	1712	1922	2090	1881	1883	1959							
V_3	1626	1831	2040	1833	1865	1797							
K_1	1711	1912	2076										
K_2	1703	1946	2080										
K_3	1741	1907	2112										

C.D. for N or P marginal means = 78.1Kg/ha.

Individual results :

Treatment	I_1	I_2	I_3	Sig.	V_1	V_2	V_3	Sig.	N_1	N_2	N_3	Sig.
Year												
1962	1702	1888	1881	N.S.	1739	1568	2164	**	1796	1821	1853	N.S.
1963	1963	2089	2078	N S.	2085	1945	2100	**	1810	2075	2245	**
1964	1873	1846	1867	N.S.	2146	2210	1230	**	1548	1869	2169	**
Pooled	1846	1941	1942	N.S.	1990	1908	1831	N.S.	1718	1922	2089	**

P_1	P_2	P_3	Sig.	K_1	K_2	K_3	Sig.	G.M.	S.E./Plot Main	Sub
1660	1853	1959	**	1851	1813	1808	N.S.	1824	571.9	364.7
1938	2068	2124	**	1978	2069	2083	N.S.	2043	706·9	357.2
1828	1798	1960	N.S.	1871	1847	1869	**	1862	423·1	327.0
1809	1906	2014	**	1900	1909	1920	N.S.	1910	2014·5	437.1

Crop :- Wheat (*Rabi*). **Ref :- U.P. 60(10).**

Site :- State Soil Cons. Res., Demons. and Trg. Centre,

Rehmankhera. **Type :- 'IC'.**

Object :—To study the effect of applying irrigations to Wheat in contoured beds aganist open plots.

1. BASAL CONDITIONS:

(i) (a) G.M.—Wheat (b) G.M. (c) Nil (ii) Loamy sand to sandy loam (iii) 7.11.60 (iv) (a) Ploughing by tractor followed by tractor harrow and *pata* application. (b) Sown in lines behind the plough (c) 92.2Kg/ha (d) Rows 23cm. apart. (e) — (v) *Sanai* as G. M. (vi) N.P.—718 (vii) As per treatments. (viii) N.A. (ix) N.A. (x) 2/3.5.61.

2. TREATMENTS :

8 Irrigational treatments applied to :

C_0=Open plots. C_1=Contoured bed with alround bund but no *Kiaries*, C_2=Contoured bed, further sub-divided into plots of 10.06m×6.10m. C_3=Contoured bed, further sub-divided into plots of 6.71 m×6.10 m, C_4=Contoured bed, further sub-divided into plots of 3.35m×6.10m, C_5=Contoured bed, further sub-divided into plots of 10.06m×3.05m, C_6=Contoured bed, further sub-divided into plots of 6.71 m×3.05m and C_7=contoured bed, further sub divided into Plots of 3.05 m×3 05m.

First of all, the treatments having the smallest bed were irrigated and the time taken in completing the irrigation standardised and also applied to other treatments uniformally.

3. DESIGN:

(i) R.B.D. (ii) (a) 8 (b) N.A. (iii) 4 (iv) (a) 20.12m×6.10m. (b) 18.90m×4.88m (v) 61cm×61cm (vi) Yes.

4. GENERAL

(i) and (ii) N.A. (iii) Yield of grain and straw (iv) (a) 1956 60 (b) Yes (c) Nil (v) and (vi) N.A. (vii) Slope of the plot is 1.17%.

5. RESULTS:

(i) 868Kg/ha. (ii) 188.5Kg/ha. (iii) Treatment differences are not significant. (iv) Av. yield of grain in Kg/ha.

Treatment :	C_0	C_1	C_2	C_3	C_4	C_5	C_6	C_7
Av. yield :	844	843	783	939	866	871	930	866

Crop :- Wheat (*Rabi*). **Ref :- U.P. 62(496),63(616).**

Site :- Govt. Reg. Agri. Res. Stn., Amrukh. **Type :- 'ICM'**

Object :—To find out the suitable Crop rotation, irrigation and fertility levels which maximizes the yield of Wheat.

1. BASAL CONDITIONS :

(i) (a) Nil (b) As per treatments. (c) N.A. (ii) *Kabar* and *Parwa* (iii) 1/2.12.62; 10.11.63 (iv) (a) 2 to 3 ploughings by *Bakhar* plough and *Pata* (b) Line sowing behind *Nari* plough (c) 92Kg/ha. (d) Rows 30cm. apart (e)— (v) Nil (vi) Po. 591 (vii) As per treatments (viii) Weeding (ix) N.A.; 1.4cm. (x) 19.4.63; 13 to 19.4.64.

2. TREATMENTS:

Main-plot treatments :

3 previous Crops : C_1=Maize, C_2=Paddy and C_3=Sanai.

Sub-plot treatments :

All combinations of (1) and (2)

(1) 3 levels of irrigations : I_1=Irrigation 3 Weeks of after sowing, I_2=2 Irrigations, one after 3 weeks of sowing and 2nd 6 weeks after sowing and I_3=3 Irrigations, one after 3 weeks of sowing, 2nd 6 weeks after sowing and 3rd. at tillering stage.

(2) 3 levels of fertilizers : F_0=Control (No fertilizer), F_1=22.4Kg/ha. of N+22.4Kg/ha. of P_2O_5+22.4Kg/ha. of K_2O and $F_2=2\times F_1$.

3. DESIGN :

(i) Split-plot (ii)(a) 3 main-plots/replication; 9sub-plots/main-plot (b) N.A. (iii) 2 (iv) (a) and (b) 10.97m.× 9.14m. (v) Nil (vi) Yes.

4. GENERAL :

(i) Good (ii) Nil (iii) Yield of grain (iv) (a) 1962—63 (b) Yes (c) Results of combined analysis have been presented under 5. Results. (v) and (vi) Nil (vii) Main-plot and sub-plot error variances are homogeneous. Main-plot treatments × years and sub-plot treatments × years interactions are absent.

5. RESULTS :

Pooled results :

(i) 1445 Kg/ha (ii) (a) 1153Kg/ha (based on 6 d.f made up of pooled error and Treatments × years interaction). (b) 272 .6 Kg/ha. (based on 64 d.f. made up of pooled error and treatments × years interactions) (iii) Main effects of F is highly significant (iv) Av. yield of grain in Kg/ha.

	I_1	I_2	I_3	F_0	F_1	F_2	mean
C_1	1465	1613	1527	937	1599	2067	1535
C_2	1133	1173	1335	834	1173	1635	1214
C_3	1647	1504	1605	1111	1714	1931	1585
mean	1415	1430	1489	961	1495	1878	1445
F_0	1015	913	953				
F_1	1459	1476	1551				
F_2	1769	1901	1963				

C.D. for F marginal means =128.5Kg/ha.

Individual results :

Treatment	C_1	C_2	C_3	Sig.	I_1	I_2	I_3	Sig.	F_0	F_1	F_2	Sig.
year 1962	1631	980	1111	*	1207	1300	1214	N.S.	852	1276	1593	**
1963	1439	1448	2059	Sig.	1622	1560	1764	N.S.	1069	1714	2163	**
Pooled	1535	1214	1585	N.S.	1415	1430	1489	N.S.	961	1495	1878	**

G.M.	S.E./main-plot	S.E./sub-plot
1241	587.0	276.5
1649	832.5	239.3
1445	115.3	272.6

Crop :- Wheat (*Rabi*).
Site :- Govt. Agri. Farm, Girthan.

Ref :- U.P. 61(484).
Type :- 'ICM'.

Object :—To find out suitable combinations of irrigation and fertilizers for *Mar* soil for Wheat cultivation.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) *Mar* soil (iii) 1.12.61 (iv) (a) 2 to 3 ploughings by *Bakhar* plough and *Pata* (b) Line sowing with *Nari* plough (c) 92Kg/ha (d) Lines 30cm apart (e)— (v) Nil (vi) Pb. 591 (vii) As per treatments (viii) Weeding and hoeing (ix) and (x) N.A.

2. TREATMENTS :

6 irrigational treatments:

I_0=Control (No irrigation), I_1=One irrigation without fertilizer and hoeing, I_2=One irrigation after tillering stage following hoeing, I_3=One irrigation after tillering following hoeing with top dressing followed by hoeing, I_4=Two irrigations after tillering stage and at milky stage with top dressing and hoeing on Ist irrigation I_5=Two irrigations after tillering stage and at milky stage with hoeing after Ist irrigation

Top dressing done at 22.4Kg/ha of N.

3. DESIGN:

(i) R B D. (ii) (a) 6 (b) N.A. (iii) 4 (iv) (a) and (b) 11.8m×4.2m (v) Nil (vi) Yes.

4. GENERAL :

(i) Good (ii) Nil (iii) Yield of grain (iv) (a) 1961—only (b) and (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 685Kg/ha. (ii) 204.7Kg/ha (iii) Treatment differences are not significant (iv) Av. yield of grain in Kg/ha.

Treatment :	I_0	I_1	I_2	I_3	I_4	I_5
Av. yield :	730	684	686	557	752	702

Crop :- Wheat (*Rabi*) **Ref :- U.P. 65(268).**

Site :- Govt. Reg. Agri. Res. Stn., Nawabgunj. **Type :- 'ICM'.**

Object :—To determine the effect of Crop rotation, manurial doses and number of irrigations in maximising production of Wheat.

1. BASAL CONDITIONS:

(i) (a) to (c) 'As per treatments' (ii) Clay loam. (iii) 23.11.65 (iv) (a) 1 ploughing by S.T.P and 3 ploughings by *Deshi* plough 4 plankings by Pata. (b) In lines behind the *Deshi* plough (c) 99Kg/ha. (d) Rows 23cm. apart. (e)—(v) Nil (vi) K.68 (vii) As per treatments (viii) I hoeing by wheel hoe (ix) 5.7cm. (x) 18, 20.4.66

2. TREATMENTS:

Main-plot treatments

All combinations of (1) and (2)

(1) 3 previous Crops : C_1=Paddy C_2=Dhaincha for G.M. and C_3=Dhaincha for fibre.

(2) 3 levels of fertilizers applied to previous Crop: F_0=No fertilizer, F_1=46.1Q/ha. of F.Y.M.+22.4Kg/ha of N+22.4Kg/ha P_2O_5+22.4Kg/ha. of K_2O, to C_1 and 5.6Kg/ha of N+28.0Kg/ha of P_2O_5 to C_2 and C_3, F_2=92.2Kg/ha of F.Y.M+44.8Kg/ha of N+44.8Kg/ha of P_2O_5+44.8Kg/ha of K_2O to C_1 and 11.2Kg/ha of N+56.0Kg/ha of P_2O_5 to C_2 and C_3.

Sub-plot treatments :

3 levels of irrigation : I_1=Irrigation 3 weeks after sowing, I_2=I_1+Irrigation weeks after 6 sowing, I_3=I_2+Irrigation at milky stage.

Sub-sub-plot treatments :

3 levels of fertilizers applied to Wheat Crop : M_0=No manure, M_1=46.1Q/ha. of F.Y.M.+22.4Kg/ha of P_2O_5+22.4Kg/ha. of K_2O and M_2=2×M_1.

N applied as C/A/N, P_2O_5 applied as Super and K_2O as Mur. pot. F.Y.M. applied as basal on 18,19.11.65, C/A/N and Mur. Pot. broadcast on 22.12.65 and 23.11.65 respectively.

3. DESIGN:

(i) Split-plot (ii) (a) 9 main plots/replication, 3 sub-plots/main plot and 3 sub-sub plots/sub-plot(b) 52.12m.×69.95m. (iii) 2 (iv) (a) 4.57m×6.86m. (b) 4.11m.×5.94m.(v) 23cm×46cm (vi) Yes.

4. GENERAL:

(i) Good (ii) Incidence of Brown rust. (iii) Yield of grain. (iv) (a) 1965—66 (b) Yes (c) Nil (v) Yes (vi) N.A. (vii) Nil.

5. RESULTS :

(i) 1905Kg/ha. (ii) (a) 249.4Kg/ha. (b) 380.3Kg/ha (c) 157.6Kg/ha. (iii) Main effects of C, M and interaction CM are highly significant. Interaction FM is significant (iv) Av. yield of grain in Kg/ha.

	C_1	C_2	C_3	F_0	F_1	F_2	M_0	M_1	M_2	mean
I_1	1536	2116	2160	1860	1999	1953	1458	1987	2367	1937
I_2	1474	2052	2076	1757	1828	1917	1413	1927	2262	1867
I_3	1511	2126	2093	1849	1955	1926	1476	1961	2293	1910
mean	1507	2098	2110	1822	1961	1932	1449	1958	2307	1905
M_0	990	1704	1652	1413	1521	1413				
M_1	1499	2151	2225	1875	1957	2042				
M_2	2032	2439	2451	2178	2404	2340				
F_0	1402	2000	2064							
F_1	1581	2130	2170							
F_2	1538	2163	2094							

C.D. for C marginal means=110.7Kg/ha

C.D. for M marginal means=64.6Kg/ha,

C.D. for M means at the same level of ForC=112.2Kg/ha.

C.D. for F or C means at the same level of M=143.2Kg/ha.

Crop :-(*Rabi*). **Ref :- U.P. 62(185).**

Site :- Govt. Reg. Agri. Res. Stn., Varanasi. **Type :- 'ICM'.**

Object :—To determine the maximum yield of Wheat under different irrigation and fertility levels.

1. BASAL CONDITIONS:

(i) (a) Nil (b) to (c) As per treatments (ii) Sandy loam (iii) 27/28.10.62 (iv) (a) N.A. (b) In rows behind *Deshi* plough (c) 100Kg/ha. (d) Rows 23cm apart (e) — (v) and (vi) N.A. (vii) As per treatments (viii) Nil (ix) 5.5cm (x) N.A.

2. TREATMENTS:

Main-plot treatments:

3 previous crops: C_1=Maize, C_2=*Sanai* for G.M. and C_3=*Sanai* for fibre.

Sub-plot treatments:

All combinations of (1) and (2).

(1) 3 levels of irrigation : I_1=1, I_2=2 and I_3=3 irrigations.

(2) 3 levels of fertility : F_0=No fertilizer, F_1=46Q/ha of F.Y.M. and $F_2=2\times F_1$.

3. DESIGN:

(i) Split-plot (ii) (a) 3 main-plots/replication; 9 sub-plots/main-plot (b) N.A. (iii) 2 (iv) (a) 15.85m×9.45m (b) 15.24m.×8.99m. (v) 30cm×23cm (vi) Yes.

4. GENERAL:

(i) Good (ii) Nil (iii) Yield of grain (iv) (a) 1962—only (b) and (c) Nil (v) to (vii) Nil.

5. RESULTS :

(i) 1056Kg/ha. (ii) (a) 80.6Kg/ha (b) 101.4Kg/ha. (iii) Main effects of I and F are highly significant. (iv) yield of grain in Kg/ha.

	I_1	I_2	I_3	F_0	F_1	F_2	mean
C_1	921	998	1118	805	1033	1198	1012
C_2	1015	1079	1173	899	1107	1262	1089
C_3	957	1050	1197	860	1047	1295	1068
mean	964	1042	1163	855	1062	1252	1056
F_0	777	842	945				
F_1	951	1040	1197				
F_2	1165	1244	1346				

C.D. for I or F marginal means—69·7Kg/ha.

Crop :-Wheat (*Rabi*). **Ref :-U.P. 63(183).**

Site :- Govt. Reg. Agri. Res. Stn., Varanasi. **Type :-'ICM'**

Object :—To determine the maximum yield of Wheat under different irrigation and fertility levels.

1. BASAL CONDITIONS:

(i) (a) to (c) As per treatments (ii) Loam (iii) N A. (iv) (a) N.A. (b) In rows behind *Deshi* plough (c) 90Kg/ha. (d) Rows 23cm. apart (e) — (v) and (vi) N.A. (vii) As per treatments (viii) Nil (ix) 2.7cm (x) N.A.

2. TREATMENTS :

Main-plot treatments :

3 previous Crops: C_1=Maize, C_2=Sanai for G.M. and C_3=Sanai for fibre.

Sub-plot treatments :

3 irrigation levels : I_1=1, I_2=2 and I =3 irrigations.

Sub-sub-plots :

3 fertility levels : F_0=No manure (Control), F_1=46.1Q/ha of F.Y.M. + 22.4Kg/ha of N+22.4Kg/ha of P_2O_5+22.4Kg/ha. of K_2O and $F_2=2\times F_1$.

3. DESIGN :

(i) Split-plot (ii) (a) 3 main-plots/replication; 3 sub-plots/main-plot, 3 sub-sub-plots/sub-plot (b) N.A. (iii) 2 (iv) (a) and (b) 14.63m×5.94m (v) Nil (vi) Yes.

4. GENERAL :

(i) Good (ii) Nil (iii) Yield of grain (iv) (a) 1963—only (b) and (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 1281Kg/ha. (ii) (a) 615.5Kg/ha. (b) 150.4Kg/ha (c) 179 0Kg/ha. (iii) Main effect of F alone is highly significant. (iv) Av. yield of grain in Kg/ha.

	I_1	I_2	I_3	F_1	F_2	F_3	mean
C_1	1141	1115	1106	641	1170	1551	1121
C	1310	1280	1205	942	1280	1573	1265
C_3	1412	1454	1509	1071	1554	1750	1458
mean	1288	1283	1273	885	1335	1625	1281
F_0	967	818	869				
F_1	1261	1395	1350				
F_2	1635	1637	1602				

C.D. for F marginal means=125.4Kg/ha.

Crop :- Wheat (*Rabi*). **Ref : U.P. 64(719).**

Site :- Govt. Reg. Agri. Res. Stn., Varanasi. **Type :- 'ICM'.**

Object : To find out the suitable crop rotation and fertility levels in *Kharif*, irrigation levels and levels of fertility in *Rabi* which maximizes the yield of Wheat.

1. BASAL CONDITIONS :

(i) (a) to (c) As per treatments (ii) *Kabar* and *Parwa* (iii) 10.11.64 (iv) (a) 2 to 3 ploughings by *Bakhar* plough and *pata* (b) Line sowing behind *Nari* plough (c) 92Kg/ha. (d) Rows 30cm. apart (e) – (v) Nil (vi) Pb. 591 (vii) As per treatments (viii) Hoeing (ix) 3.6cm. (x) N.A.

2. TREATMENTS :

Main-plot treatments :

3 previous Crops : C_1=Maize, C_2=Paddy and C_3=*Sanai*.

Sub-plot treatments :

3 levels of fertilizers applied in *Kharif*: F_0=Control (No fertilizer), F_1=44 8Kg/ha of N+44.8Kg/ha. of P_2O_5+44 8Kg/ha of K_2O+92Q/ha of F.Y. 1. for Maize; 22.4Kg/ha of N+22 4Kg/ha of P_2O_5+22 4Kg/ha. of K_2O+46Q/ha of F.Y M. for Paddy; 5.6Kg/ha of N+28Kg/ha of P_2O_5 for *Sanai* and $F_2=2\times F_1$.

Sub-sub-plot treatments :

3 levels of irrigation : I_1=1, I_2=2 and I_3=3 irrigations.

Sub-sub-sub-plot treatments :

3 levels of fertilizers applied in *Rabi* : M_0=Control (No fertilizer); M_1=22.4Kg/ a of N+22.4Kg/ha of P_2O_5+22.4Kg/ha of K_2O+46Q/ha. of F.Y.M. and $M_2=2\times M_1$.

3. DESIGN:

(i) Split-plot (ii) (a) 3 Main-plots/replication, 3 sub-plots/Main-plot, 3 sub-sub-plot/sub-plot, 3 sub-sub-sub-plot/sub-sub-plot (b) N.A. (iii) 2 (iv) (a) 7 32m×6.86m. (b) 6.71m×6.25m. (v) 30cm×30cm. (vi) Yes.

4. GENERAL:

(i) Good (ii) Nil (iii) Yield of grain (iv) (a) 1964—only (b) and (c) Nil (v) to (vii) Nil.

5. RESULTS :

(i) 1587Kg/ha (ii) (a) 537.7Kg/ha (b) 456.4Kg/ha (c) 259.2Kg/ha (d) 202.0Kg/ha (iii) Main effects of M and I are highly significant and that of C is significant. Interactions I×F and I×M are significant (iv) Av. yield of grain in Kg/ha.

	F_0	F_1	F_2	M_0	M_1	M_2	I_1	I_2	I_3	mean
C_1	1172	1713	1368	1123	1400	1730	1289	1415	1450	1418
C_2	896	1090	1129	764	1069	1282	917	1129	1069	1038
C_3	2236	2153	2530	2006	2382	2532	2110	2388	2420	2306
mean	1435	1652	1676	1298	1617	18^{4}_{8}	1439	1644	1680	1587
I_1	1367	1468	1481	1205	1500	1611				
I_2	1528	1766	1639	1276	1682	1974				
I_3	1410	1722	1908	1412	1669	1958				
M_0	1184	1527	1382							
M_1	1459	1665	1727							
M_2	1662	1963	1918							

C.D. for M marginal means=78.5Kg/ha.

C.D. for I marginal means=104-8Kg/ha

C.D. for C marginal means=619.9Kg/ha.

C.D. fer I means at the same level of F=181.5Kg/ha.
C.D. for F means at the same level of I=261.9Kg/ha.

C.D. for I means at the same level of M=153.7Kg/ha.

C.D. for M means at the same level of I=135.1Kg/ha.

Crop :- Wheat (*Rabi*). **Ref :-U.P. 63 (607).**

Site :- Govt. Reg. Agri. Res. Stn., Amrukh. **Type :- 'D'.**

Object . -To study the effectiveness of certain harmonal herbicides for the control of weeds in Wheat crop.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) *Parwa* soil (iii) 29.10.63 (iv) (a) 2 to 3 ploughings with *Bakhar* plough and planking (b) Line sowing with *Nari* plough. (c) 92Kg/ha. (d) Rows 30cm. apart (e)—(v) 22.4Kg/ha. of N+22.4Kg/ha of P_2O_5 (vi) Pb. 591. (vii) Irrigated (viii) As per treatments (ix) N.A. (x) 26.4.64.

2. TREATMENTS:

Herbicidal treatments :

T_0=Control, T_1=Hand weeding, T_2=Bladex G (Amin salt of 2,4—D) at 1.40 lities/ha. at 4th leaf stage, T_3=1.4 lities/ha. at 6th leaf stage, T_4=Bladex G at 1.4 lities/ha at 4th+6th leaf stage, T_5=Spontox (2) 4—D+2, 4, 5—T) at 1.1Kg/ha at 6th leaf stage, T_6=Planotox (Butoxy-ethyl-ester of 2,4—D) at 1.40litres/ha at . 4th leaf stage, T_7=Planotox at 1.40 litres/ha at 6th leaf stage and T_8=Plonotox at 1.40 litres/ha at 4th and 6th leaf stages.

3. DESIGN :

(i) R.B.D. (ii) (a) 9 (b) N A. (iii) 4 (iv) (a) and (b) 7.31m×5.79m (v) Nil (vi) Yes.

4. GENERAL :

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

5. RESULTS :

(i) 1685Kg/ha. (ii) 176.5Kg/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	T_8
Av. yield :	1715	1807	1577	1723	1602	1692	1629	1759	1661

Crop :-Wheat (*Rabi*). **Ref :- U.P. 60 (276), 61(253), 62(281).**

Site:- R.B.S. College, Bichpuri. **Type :- 'D'.**

Object : —To study the effect of mechanical and chemical methods of weed control on growth and yield of Wheat.

1. BASAL CONDITIONS:

(i) (a) Nil (b) *Sanhemp* (G.M.); Maize (fodder); *Jowar* and *Moong* (c) Nil for 60; N.A. for others (ii) Sandy loam (iii) 29 10.60; 23.10.61; 29.10.62 (iv) (a) 2 to 3 ploughings and harrowing (b) By seed-drill (c) 80.7Kg/ha for 60 and 61; 98.8Kg/ha for 62 (d) Rows 23cm. apart. (e) — v) 33.6Kg/ha of N as A/S drilled at sowing; 100Kg/ha of N as A/S before sowing; 67.2Kg/ha of N (½N before sowing and ½ N at 2nd irrigation) (vi) Pb. —591 (vii) Irrigated (vii) As per treatments (ix) 7.7cm.; 6.4cm.; 1.2cm. (x) 24.4.61; 10.4.62; 15.4.63.

2. TREATMENTS:

6 weed control treatments :

W_0=Control (No weeding), W_1=Local method of weeding (by *Khurpi*), W_2=Caltural method (by *Kudali*) W_3=One post-emergence application of 2, 4—D. W_4=Two post-emergence application of 2, 4 — D and $W_5=W_2+W_3$.

3. DESIGN :

(i) R.B.D. (ii) (a) 6 (b) N.A. (iii) 6 (iv) (a) 13.10m×6.40m (b) 12.19m×4.49m (v) 46cm×46cm (vi) Yes.

4. GENERAL;

(i) Good (ii) Nil (iii) Yield of grain (iv) (a) 1960—62 (b) N.A. (c) Nil (v) and (vi) Nil (vii) As the error variances are heterogeneous and Treatments × years interaction is absent, results of individual years, have been presented unders 5. Results.

5. RESULTS:

60(276)

(i) 2015Kg/ha (ii) 107.6Kg/ha. (iii) Treatment differences are significant (iv) Av. yield of grain in Kg/ha.

Treatment :	W_0	W_1	W_2	W_3	W_4	W_5
Av. yield :	1729	2158	2125	2040	1994	2045

C.D.=127.9Kg/ha.

61(253)

(i) 2501Kg/ha. (ii) 197.7Kg/ha (iii) Treatment differances are significant. (iv) Av. yield of grain in Kg/ha.

Treatment :	W_0	W_1	W_2	W_3	W_4	W_5
Av. yield :	2268	2501	2543	2629	2412	2653

C.D.=235.0Kg/ha.

62(281)

(i) 1611Kg/ha (ii) 316.2Kg/ha. (iii) Treatment differences are not significant. (iv) Av. yield of grain in Kg/ha.

Treatment :	W_0	W_1	W_2	W_3	W_4	W_5
Av. yield :	1492	1594	1690	1532	1515	1843

— — —

Crop :- Wheat (*Rabi*). **Ref. U.P. 60(273), 61(256), 62(280).**

Site :-R.B.S. College, Bichpuri. **Type :-'D'.**

Object :—To study the effect of various concentractions of weedicides in controlling weeds in Wheat.

1. BASAL CONDITIONS:

(i) (a) Nil (b) *Sanai*; Cowpea; *Jowar* (c) G.M. for 60; N.A. for others. (ii) Sandy loam (iii) 27.10.60; 23.10.61; 29.10.62 (iv) (a) 2 harrowings for 60; 2 ploughings and 3 to 4 applications of dise for others (b) By seed—drill in rows. (c) 74 to 98Kg/ha. (d) Rows 18 to 23cm. apart (e) — (v) 33.6Kg/ha. of N at sowing; 49.4Kg/ha. of N as A/S 32.1Kg/ha of P_2O_5 as Super; 33.6Kg/ha of N top dressed. (vi) Pb. 591 (vii) Irrigated (viii) Nil (ix) 7.7cm.; 6.4cm.; 1.2cm. (x) 26.4.61; 11.4.62; 14.4.63.

2. TREATMENTS :

All combinations of (1) and (2).

(1) 4 types of weedicides : W_1=Sodium salt of 2, 4 –D, W_2=Amione salt of 2, 4—D, W_3=Estor of 2, 4—D and W_4=Sodium MCPA.

(2) 3 doses of weedicides : D_1=0.56, D_2=1.12 and D_3=1.68Kga.e./ha.

Chemicals sprayed after flowering.

3. DESIGN :

(i) Fact. in R.B.D. (ii) (a) 12 (b) N.A. (iii) 4 (iv) (a) 9.75m×5.49m (b) 8.84m×4.57m (v) 46cm×46cm (vi) Yes.

4. GENERAL:

(i) Good (ii) Nil (iii) Yield of grain (iv)(a)1960–62 (b) N.A. (c) Nil (v) N.A. (vi) Nil (vii) Plot-wise data or two-way tables are not available.

5. RESULTS :

60 (273)

(i) 2200Kg/ha (ii) 136.1Kg/ha (iii) None of the effects is significant (iv) Av. yield of grain in Kg/ha.

Treatment :	W_1	W_2	W_3	W_4	D_1	D_2	D_3
Av. yield :	2209	2160	2261	2172	2175	2157	2268

61 (256)

(i) 2502Kg/ha (ii) 229.1Kg/ha (iii) Main effect of W and D are highly significant. (iv) Av. yield of grain in Kg/ha.

Treatment :	W_1	W_2	W_3	W_4	D_1	D_2	D_3
Av. yield :	2675	2189	2557	2586	2303	2538	2665

C.D. for W means=190.4Kg/ha.

C.D. for D means=164.9Kg/ha.

62 (280)

(i) 1372Kg/ha (ii 29.73Kg/ha (iii) Main effects of W and D are highly significant. (iv) Av. yield of grain in Kg/ha.

Treatment ;	W_1	W_2	W_3	W_4	D_1	D_2	D_3
Av. yield :	1229	1474	1316	1468	1436	1422	1257

C.D. for W means=24.71Kg/ha.

C.D. for D means=21.40Kg/ha.

Crop :- Wheat (*Rabi*). **Ref :- U.P. 63 (304), 64 (340), 65 (137).**

Site :- R.B.S. College, Bichpuri. **Type :- 'D'.**

Object : To study the effect of different doses of sodium salt of 2, 4—D on weeds and their impact on the yield of Wheat.

1. BASAL CONDITIONS :

(i) (a) Nil (b) *Jowar* (fodder) for 63 and 64; Fallow for 65 (c) N.A. for 63 and 64, Nil for 65. (ii) Sandy loam (iii) 4.11.63; 25.10.64; 28.10.65 (iv) (a) 1 tractor ploughing and 4 harrowings (b) Behind the plough (c) 86 to 97Kg/ha (d) Rows 23cm. apart. (e) — (v) 44.8Kg/ha. of P_2O_5 by *Nari* plough and 67.2Kg/ha of N as C/A/N; 13Kg/ha of P_2O_5 as Super; 67.3Kg/ha of N as A/S. (vi) Pb. 591 for 63, 64; C—303 for 65 (vii) Irrigated (viii) As per treatments (ix) 0.8cm; 1.2cm; 2.3cm (x) 11.4.64; 9.4.65; 15.4.66.

2. TREATMENTS :

7 weedicidal treatment : W_0=Control (un weeded), W_1=Hand weeding 4 weeks after sowing, W_2= Hand weeding 6 weeks after sowing, W_3=0.28, W_4=0.56, W_5=0.84 and W_6=1.12Kg/ha of Sodium salt of 2, 4—D.

W_3, W_4, W_5 sprayed 4 weeks after sowing treatment W_6 applied six weeks after sowing.

3. DESIGN:

(i) R.B.D. (ii) (a) 7 (b) 55.47m×12.00m for 63.64; N.A. for 65 (iii) 6 (iv) (a) 12.80m×7.92m for 63, 64; 13.00m×8.00m for 65 (b) 10.97m×6.09m for 63, 64; 11.00m×6.00m for 65 (v) 91cm×91cm. for 63, 64; 100cm×100cm for 65 (vi) Yes.

4. GENERAL:

(i) Good. (ii) Nil (iii) Yield of grain. (iv) (a) 1963—65 (b) No (c) Results of combined analysis have been presented under 5. Results. (v) and (vi) Nil (vii) Error variances are heterogeneous and treatment×years interaction is present.

5. RESULTS :

Pooled results

(i) 2286Kg/ha (ii) 585.7Kg/ha. (based on 12 d.f. made up of Treatment×years interaction) (iii) Treatment differences are significant. (iv) Av. yield of grain in Kg/ha.

Treatment :	W_0	W_1	W_2	W_3	W_4	W_5	W_6
Av. yield :	1807	2334	2315	2105	2243	2411	2785

C.D.=425.3Kg/ha.

Individual results :

Treatment	W_0	W_1	W_2	W_3	W_4	W_5	W_6	Sig.	G.M.	S.E./plot
Year 1963	1935	2192	2128	2167	2226	2347	2177	**	2167	177.4
1964	2151	2602	2707	2533	2458	2657	3250	**	2623	387.0
1965	1336	2208	2111	1616	2045	2230	2929	**	2068	220.0
Pooled	1807	2334	2315	2105	2243	2411	2785	**	2286	585.7

Crop :- Wheat (*Rabi*). **Ref :- .P. 65(543).**

Site :- Bilaspur (Bulandshahr—c.f.) **Type - 'D'**

Object :—To find out an economic and effective method of control against *Tanymecus indicus* Fst.

1. BASAL CONDITIONS :

(i) to (x) N.A.

2. TREATMENTS :

7 dusting treatments : T_0=Control (2 plots), T_1=15% B.H.C., T_2=5% Chlordane, T_3=2% Aldrin, T_4=10% C.H.C. and T_5=5% B.H.C. Insecticidal dustings and mixed with soil at 34Kg/ha. on 15.11.65.

3. DESIGN :

(i) R B.D 7 plots/block and 4 replications (ii) N.A. (iii) (a) and (b) 10.00m. × 10.00m (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Mean population of insects (iv) (a) 1965—Control (b) No (c) Nil (v) N.A. (v) Nil (vii) Plot-wise data N.A.

5. RESULTS :

Results of Av. insect population per plot.

(i) 5.14 insects. (ii) 2.55 insects (iii) Treatment differences are highly significant. (iv) Av. population of insects.

Treatment :	T_0	T_1	T_2	T_3	T_4	T_5
Av. population :	13.77	1.54	2.55	2.78	0.24	1.36

C.D. = 3.77Kg/ha.

Crop :- Wheat (*Rabi*). **Ref:- U.P. 61(29), 62(25), 63(18).**

Site :- Govt. Agri. College, Kanpur. **Type :- 'D'.**

Object :—To study the effect of Dithane and Thiovit to control Wheat rusts (*Puccinia graminis tritici*, *Puccinia recondita* and *P. Striformis*).

1. BASAL CONDITIONS:

(i) (a) to (c) N.A. (ii) Loam (iii) 13.11.61; 17.11.62; 11.11.63 (iv) (a) N.A. (b) Line sowing (c) N.A. (d) Rows 23cm. apart. (e) — (v) 3 C.L./ha. of F.Y.M. and 4Kg/ha. of A/S; for 62; N.A. for others (vi) Agra local (vii) Irrigated (viii) N.A. (ix) 6.6cm; 2.9cm; 1.3cm. (x) 4 to 6.4.62; for 61; N.A. for others.

2. TREATMENTS :

5 fungicides : F_0=Control (2 plots), F_1=0.3%, Dithane Z—78, F_2=0.3%, Dithane S—31, F_3=0.3% Dithane M—22 and F_4=1% Thiovit (wettable sulphur).

Dates of spraying : 8.1.62, 2.2.62 and 15.2.62 for 61; 18.1.63, 2.2.63 and 18.3.63 for 62; 22.1.64 and 17.2.62 for 63.

3. DESIGN :

(i) R.B.D. (ii) (a) 6 (b) 6.71m×6.71m (iii) 4 (iv) (a) and (b) 3.05m×1.83m. (v) Nil (vi) Yes.

4. GENERAL

(i) N.A. (ii) Under study (iii) Yieldof grain (iv) (a) 1961—63 (b) No (c) Nil (v) to (vi) Nil. (vii) As error variances are heterogeneous and Treatment×years interaction is absent, the results of individual years have been presented under 5. Results.

5. RESULTS:

61 (29)

(i) 2818Kg/ha. (ii) 220.0Kg/ha (iii) 'Fo *vs.* any other treatment mean is highly significant. (iv) Av. yield of grain in Kg/ha.

Treatment :	F_0	F_1	F_2	F_3	F_4
Av. yield :	2351	3032	3070	3041	3061

C.D. for F_0. *vs.* any other mean=287.0Kg/ha.

62 (25)

(i) 4116Kg/ha. (ii) 564.9Kg/ha. (iii) Treatment differences are not significant. (iv) Av. yield of grain in Kg/ha.

Treatment :	F_0	F_1	F_2	F_3	F_4
Av. yield :	4210	3673	3953	4158	4494

63 (18)

(i) 2962Kg/ha. (ii) 491.5Kg/ha. (iii) Treatment differences are not significant. (iv) Av. yield of grain in Kg/ha.

Treatment :	F_0	F_1	F_2	F_3	F_4
Av. yield :	2923	2618	3052	3001	3252

Crop :- Wheat (*Rabi*). **Ref :- U.P. 64 (17).**

Site :- Govt. Agri. College, Kanpur. **Type :- 'D'.**

Object: To study the effect of Dithane, Cosan, Urea and Cuman to control Wheat rusts (*Puccinia graminis tritici*; *Puccinia recondita* and *P. Striformis*).

1. BASAL CONDITIONS:

(i) (a) to (c) N.A. (ii) Loam (iii) 11.11.64 (iv) (a) to (e) N.A. (v) 2 C.L. of F.Y.M., (vi) and (vii) N.A. (viii) Weeding on 20.12.64 (ix) 5.9cm. (x) N.A.

2. TREATMENTS:

8 fungicides: F_0=Control, F_1=0.3%, Dithane Z—78, F_2=0.3%, Dithan M—22, F_3=0.3% cosan (80% sulphur and 20% wething Agent), F_4=0.2% N, $F_5=F_1+F_4$, $F_6=F_2+F_4$ and F_7=0.1% Cuman (80% Ziram is zine-dimethyl-dithis Carbomate).

3. DESIGN :

(i) R.B.D. (ii) (a) 8 (b) 6.80m × 8.80m. (iii) 4 (iv) (a) and (b) 3.00m × 1.60m (v) Nil (vi) Yes.

4. GENERAL:

(i) N.A. (ii) Under study (iii) Disease incidence, yield of bhusa and grain (iv) (a) 1964—only (b) and (c) Nil (v) to (vii) Nil.

5. RESULTS :

(i) 2712Kg/ha. (ii) 986.5Kg/ha. (iii) Treatment differences are not significant. (iv) Av. yield of grain in Kg/ha.

Treatment :	F_0	F_1	F_2	F_3	F_4	F_5	F_6	F_7
Av. yield :	2182	2662	2733	2361	3090	3112	2696	2856

Crop :- Wheat (*Rabi*). **Ref :-U.P. 60 (33).**

Site :- Govt. Agri. College, Kanpur. **Type :-'D'.**

Object :—To study the effect of Dithane Z—78 and O—3818B to control Wheat rusts (Puccinia graminis tritici; Puccinia recondita and P. Striformis).

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Loam (iii) 6.11.60 (iv) (a) N.A. (b) Line sowing (c) N.A. (d) Rows 25cm. apart (e)— (v) N.A. (vi) Agra local (vii) and (viii) N.A. (ix) 6.3cm. (x) 31.3.61.

2. TREATMENTS :

3 fungicides : F_0=Control (2 plots), F_1=2.24Kg/ha of Dithane Z– 78 and F_2= 2 24Kg/ha of 0—3818B. Sprayings done on 23.12.1960, 7.1.1961 and 7.2.1961.

3. DESIGN :

(i) R.B.D. (ii) (a) 4 (b) 14.94m×1.83m (iii) 4 (iv) (a) and (b) 1.83m×3.05m (v) Nil (vi) Yes.

4. GENERAL

(i) N.A. (ii) Under study (iii) Yield of grain and straw. (iv) (a) 1960—only (b) and (c) Nil. (v) and (vi) Nil. (vii) Leaves of the crop grazed by stray cattle in the night of 25/26 Dec. 60. Infection of yellow rust very high in all the plots on 15.3.61.

5. RESULTS :

(i) 1442Kg/ha. (ii) 282.2Kg/ha. (iii) Treatment differences are not significant. (iv) Av. yield of grain in Kg/ha.

Treatment :	F_0	F_1	F_2
Av. yield :	1269	1719	1512

Crop :-Wheat (*Rabi*). **Ref :- U.P. 60 (438)**

Site :- Govt. Agri. College, Kanpur. **Type :- 'D'.**

Object :—To study the effect of 5% B.H.C. on the germination of Wheat seed.

1. BASAL CONDITIONS:

(i) (a) to (c) N.A. (ii) Sandy loam (iii) 29.10.60 (iv) and (v) N.A. (vi) N.P. 710 (vii) and (viii) N.A. (ix) 6.3cm. (x) N.A.

2. TREATMENTS :

5 insecticidal treatments : T_0=Control (2 plots), T_1=Dusting the ploughed field with 5% B H.C. at 33.6Kg/ha. before sowing, T_2=Dusting of 5% B.H.C. in the furrows at 33.6Kg/ha. before sowing, T_3=Seed treatment with 5% B.H.C. just sufficent to cover the seed (@ 1.08Kg/ha of insecticide mixed with 37.3Kg/ha. of Wheat seed and T_4=Seed mixed with 5% B.H.C. at 22.4Kg. per 37.3Kg. of Wheat seed.

3. DESIGN :

(i) R.B.D. (ii) (a) 6 (b) N.A. (iii) 4 (iv) (a) and (b) 1.83m×1.83m (v) Nil (vi) Yes.

4. GENERAL:

(i) N.A. (ii) Nil (iii) % germination (iv) (a) 1960—only (b) and (c) Nil (v) to (vii) Nil.

5. RESULTS :

(i) 6.51 degrees (ii) 0 20 degrees (iii) Treatment differences are highly significant (iv) % germination in degrees.

Treatment :	T_0	T_1	T_2	T_3	T_4
Mean angle :	6.85	6.74	6.73	6.82	5.07

C.D.=0.29 degrees

Crop :- Wheat (*Rabi*). **Ref. :- U.P. 60 (437).**

Site :- Govt. Res. Farm, Kanpur. **Type :- 'D'**

Object :—To study the effect of 5% B.H.C. on the germination of Wheat seeds.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A (ii) Sandy loam (iii) 11 11.60 (iv) (a) and (b) N.A. (c) As per treatments (d) N.A. (e)—(v) to (viii) N.A. (ix) 6.3cm. (x) N.A.

2. TREATMENTS :

All combinations of (1) and (2).

(1) 3 seed—rates : S_1=69, S_2=92 and S_3=115Kg/ha.

(2) 4 chemical treatments : T_0=Seed sown without treatment (Control), T_1=Seeds mixed with 5% B.H.C. at 5.6Kg/ha., T_2=Seeds mixed with 5% B.H.C. at 16.8 Kg/ha. and T_3=Seeds mixed with 5% B.H.C. at 28.0Kg/ha.

3. DESIGN :

(i) Fact. in R.B.D. (ii) (a) 12 (b) 50.60m×4.89m (iii) 4 (iv) (a) and (b) 4 89m×3.66m. (v) Nil (vi) Yes.

4. GENERAL :

(i) N.A. (ii) Some adults of *gujia* weevial *Tanymecus indicus* Fst. (iii) % germination (iv) (a) 1960—only (b) and (c) Nil (v) and (vi) N.A. (vii) The germination was in general low due to the field being not well pulvirised resulting in early loss of moisture in the upper soil strata.

5. RESULTS :

(i) 37.9 degrees (ii) 8.1 degrees (iii) None of the effects is significant. (iv) % germination in degrees.

	T_0	T_1	T_2	T_3	mean
S_1	40.3	38.7	36.1	30.7	36.4
S_2	34.7	43.8	33.8	41.5	38.5
S_3	35.5	38.5	42.5	39.1	38.9
mean	36.8	40.3	37.5	37.1	37.9

Crop :- Wheat (*Rabi*). **Ref :- U.P. 63(64).**

Site :- Govt. Res. Farm, Kanpur. **Type :- 'D'**

Object :—To study the effectiveness of certain harmonal herbicides for the control of weeds in Wheat crop.

1. TREATMENTS:

(i) (a) N.A. (b) *Moong* (c) N.A. (ii) Loam (iii) 14.11.63 (iv) (a) to (e) N.A. (v) 22.4Kg/ha. of N+22.4Kg/ha. of P_2O_5 applied at sowing time. 22.4Kg/ha. of N at 2nd irrigation on 11.1.64 (vi) K.65 (vii) Irirgated (viii) As per treatments (ix) 1.3cm. (x) 10 to 13.4.64.

2. TREATMENTS:

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

(1) 2 harmonal herbicides : H_1=Bladex G (Amine salt of 2, 4—D) and H_2=Planotox (Butoxy ethyl ester of 2, 4—D).

(2) 3 times of spraying : T_1=At 4th leaf stage (21.12.63), T_2=At 6th leaf stage (4 1.64) and $T_3=T_1+T_2$.

Extra treatments : E_0=Control, E_1=Hand weeding and E_2=Spontox (2, 4—D+2,4—5—T) @ 1.12Kg/ha. at 6th leaf stage.

Harmones applied at 1.4 litres/ha.

3. DESIGN :

(i) R.B.D. (ii) (a) 9 (b) N.A. (iii) 4 (iv) (a) 10.971m.×7.62m. (b) 10 06m.×7.02m. (v) 46cm.×30cm. (vi) Yes.

4. GENERAL:

(i) and (ii) N.A. (iii) Yield of grain and *bhusa* (iv) (a) 1963—only (b) and (c) Nil (v) Rudrapur, Meerut, Dilkusha (Lucknow), Varanasi and Amrukh. (vi) and (vii) Nil.

5. RESULTS :

(i) 2421Kg/ha. (ii) 312.8Kg/ha. (iii) Main effect of T is significant. (iv) Av. yield of grain in Kg/ha,

E_0=2328, E_1=2543 and E_2=2583Kg/ha.

	T_1	T_2	T_3	mean
H_1	2535	2591	2257	2461
H_2	2483	2439	2031	2318
mean	2509	2515	2144	2389

C.D. for T marginal means=322.8Kg/ha.

Crop :-Wheat (*Rabi*). **Ref :-U.P. 64(51), 65(397).**

Site :- Govt. Res. Farm, Kanpur. **Type ;-'D'**

Object :—To find out the relative effeciency of different weedicides for the control of weeds and their effect on yield of Wheat.

1. BASAL CONDITIONS :

(i) (a) N.A ; G.M.—Wheat (b) *Sanai* ; G.M. (c) Nil (ii) Sandy loam (iii) 20.11.64: 8.11.65 (iv) (a) N.A ; 3 ploughings by *Dehsi* plough, one ploughing by Victory plough and 1 *palewa* (b) Behind the plough (c) N.A.; 98.8Kg/ha. (d) Rows 23cm. apart (e)— (v) *Sanai* (G.M.)+42.4Kg/ha. of P_2O_5 as Super.+22.4Kg/ha. of K_2O as Pot. Sul.; 60Kg/ha of N as A/S (1/3 as basal and 2/3 top dressed),+40Kg/ha. of P_2O_5 as Super. (vi)K—58 (vii) Irrigated (viii) As per treatments (ix) 5.9cm; 0.2cm. (x) 19 to 22.4.65; 18 to 21.4.66.

2. TREATMENTS :

10 weedicidal treatments : W_0=Control (No weeding), W_1=Hand weeding 4 weeks after sowing, W_2=Hand weeding 6 weeks aftet sowing, W_3=0.28Kg/ha. of 2,4—D Sodium salt as Bladex A, W_4=0.56Kg/ha. of 2,4—D sodium salt as Bladex A, W_5=0.84Kg/ha. of 2,4—D Sodium salt as Bladex A, W_6=1.12Kg/ha. of 2,4—D Sodium salt as Bladex A, W_7=1.4 litres/ha. of Amine 2,4—D as Bladex G, W_8=1.4 litres/ha. of Ester 2,4—D as Planotox and W_9=1.12Kg/ha. of 2,4—D+4,5—T as Spontox.

Weedicides mixed with water and sprayed at 562 litres/ha. W_3, W_4, W_5, W_7, W_8 and W_9 were sprayed 4 weeks after sowing (on 22.12.64 ; 15.12.65) and W_6 sprayed 6 weeks after sowing (on 7.1.65 ; 1.1.66).

3. DESIGN :

(i) R.B.D. (ii) (a) 10 (b) 42.20m×16.80m: 41.20m×17.00m. (iii) 4 (iv) (a) 8.20m×7.60m; 8.00m×8.00m. (b) 7.20m×6.60m; 8.00m×8.00m (v) 50cm×50cm; Nil (vi) Yes.

4. GENERAL :

(i) Good (ii) N.A. (iii) Population of different types of weeds recorded several time, Dry matter production and yield of grain and straw (iv) (a) 1964—65 (b) No. (c) Results of combined analysis have been presented under 5. Results (v) Rudrapur, Varanasi and Meerut. (vi) Nil (vii) Error Variances are homogeneous and Treatment × year interaction is present.

5. RESULTS ;

Pooled results :

(i) 3147Kg/ha. (ii) 411.5Kg/ha (based on 9 d.f: made up of Treatmenst × year interaction). (iii) Treatment differences are not significant (iv) Av. yield of grain in Kg/ha.

Treatment :	W_0	W_1	W_2	W_3	W_4	W_5	W_6	W_7	W_8	W_9
Av yield:	3015	3240	3421	3012	3201	3046	3104	3110	3239	3078

Individual results :

Treatment	W_0	W_1	W_2	W_3	W_4	W_5	W_6	W_7	W_8	W_9	Sig.	G.M.	S.E./plot
year 1964	3050	3321	3369	3066	3198	3327	3379	3467	3384	3382	N.S.	3294	210.5
1965	2980	3160	3473	2957	3203	2766	2828	2754	3094	2773	**	2999	215.4
Pooled	3015	3240	3421	3012	3201	3046	3104	3110	3239	3078	N.S.	3147	411.5

Crop :- Wheat (*Rabi*). **Ref :- U.P. 64(49), 65(383).**

Site :-Govt. Res. Farm, Kanpur. **Type :- 'D'**

Object :—To study the effect of soaking seeds in nutrient solution of Potassium-di-Hydrogen phosphate (KH_2PO_4) on growth and yield of Wheat.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Sandy loam (iii) 3.12.1964; 1st week of December, 65 (iv) (a) 1 ploughing by *victory* plough and 3 ploughings by *Deshi* plough (b) Behind the plough (c) 99Kg/ha. (d) Rows 23cm. apart (e) — (v) 44.8Kg/ha. of N as A/S, ½ at Ist and ½ at IInd irrigation (vi) K —68 (vii) Irrigated (viii) 1 to 3 weedings and earthings (ix) 5.96cm: 0.2cm (x) 17.4.65; April, 66,

2. TREATMENTS :

6 seed treatments : T_0=Unsoaked, T_1=Water soaked for 18 hrs., T_2=Seads soaked in 2.5% KH_2PO_4 for 18 hrs. T_3=Seeds soaked in 5% KH_2PO_4 for 18 hrs, T_4=Seeds soaked in 7.5% $KH_2P_2O_4$ for 18 hrs. and T_5=Seeds soaked in 10%KH_2PO_4 for 12 hrs.

3. **DESIGN**:

(i) R.B.D. (ii) (a) 6 (b) 9.6m×5.9m; N.A. (iii) 4 (iv) (a) and (b) 3.00m×2.40m (v) Nil (vi) Yes.

4. **GENERAL**:

(i) Good (ii) N.A. (iii) Yield of grain (iv) (a) 1964—Contd. (b) No. (c) Nil. (v) Nil (vi) Nil (vii) As the experiment is continued beyond 65, results of individual years have been presented under 5. Results.

5. **RESULTS**:

64 (49)

(i) 2924Kg/ha. (ii) 484.3Kg/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 :	2913	2951	3045	2896	3115	2625

65 (383)

(i) 3000Kg/ha (ii) 233.1Kg/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 :	2854	3087	3059	3014	3125	2861

Crop :- Wheat (*Rabi*). **Ref :- U.P. 65 (581).**

Site :- Govt. Res. Farm, Kanpur. **Type :- 'D'.**

Object :—To assess the efficacy of different fungicides in controlling Wheat rust.

1. BASAL CONDITIONS:

(i) (a) N.A. (b) Maize (c) N.A. (ii) Clay loam (iii) 11.11.65 (iv) (a) N.A. (b) Behind the plough (c) 89.2Kg/ha. (d) Rows 30cm. apart, (e) — (v) 240Kg/ha. of N as A/S topdressed on 15.12.65. (vi) Agra Local (medium.) (vii) Irrigated (viii) N.A. (ix) 0.2cm. (x) 15 to 25.4.66.

2. TREATMENTS :

9 fungicidal treatments: T_0=Control (2 plots), T_1=0.3% Dithanez—78, T_2=0.3% Dithane M_{22}, T_3=0.3%, Thiovit, T_4=0.2% of N as Urea, $T_5=T_1+T_4$, $T_6=T_2+T_4$, $T_6=T_2+T_4$. T_7=0.1% Cuman and T_8=0.2% Aratan.

3. DESIGN:

(i) R.B.D. (ii) (a) 10 (b) N.A. (iii) 4 (iv) (a) and (b) 7.00m×4.00m (v) Nil (vi) Yes.

4. GENERAL:

(i) Good (ii) As per treatments (iii) Yield and infestation (iv) (a) 1961—only (b) and (c) Nil. (v) No (vi) (vii) Nil.

5. RESULTS:

1. Yield.

(i) 3078Kg/ha. (ii) 190.4Kg/ha. (iii) Treatment differences and control *vs.* others are highly significant. (iv) Av. yield of grain in Kg/ha.

Treatments :	T_0	T_1	T_2	T_3	T_4	T_5	T_6	T_7	T_8
Av. yield :	2326	3605	3837	3168	2404	3424	4036	2867	2788

C.D. for treatment means except control=275.7Kg/ha.

C.D. for control *vs.* others=154.2Kg/ha.

2. Infection of Black rust (intensity in degrees).

(i) 18.56 degrees (ii) 2.99 degrees (iii) Treatment differences and control *vs.* others are highly significant. (iv)% infection in degrees.

Treatment :	T_0	T_1	T_2	T_3	T_4	T_5	T_6	T_7	T_8
Mean angle :	28.97	10.09	8.23	14.48	30.96	12.33	7.71	19.56	24.27

C.D. for treatments means except control=4.32 degrees.

C.D. for 'Control *vs.* others' =2.42 degrees.

3. Infection of Brown rust (intensity in degrees).

(i) 28.82 degrees (ii) 3.97 degrees (iii) Treatment differences and 'control vs. others' are highly significant. (iv)% infection in degrees.

Treatment :	T_0	T_1	T_2	T_3	T_4	T_5	T_6	T_7	T_8
Mean angle :	44.41	16.16	15.26	27.56	43.59	17.79	14.63	31.81	32.62

C.D. for treatment means except control=5.75 degrees.

C.D. for control vs. others'=3.22 degrees.

Crop :- Wheat (*Rabi*). **Ref :- U.P. 63 (51).**

Site :- Instt. of Crop Physiology, Dilkusha, Lucknow. **Type :- 'D'.**

Object :—To study the effect of certain hormonal herbicides for the control of weeds in Wheat crop.

1. BASAL CONDITIONS:

(i) (a) to (c) N.A. (ii) Sandy loam to loam. (iii) 13.11.63 (iv) (a) to (c) — (v) 33.6Kg/ha. of N as F.Y.M. and 74.6Kg/ha. of mixture of A/S and Super (3 : 2 ratio) (vi) N.A. (vii) Irrigated (viii) As per treatments (ix) Nil (x) N.A.

2. TREATMENTS :

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

(1) 2 harmones : H_1=Bladex G (Amine salt of 2, 4—D) and H_2=Planotox (Butoxy-ethyl-ester of 2 4-D)

(2) 3 *times of spraying* : T_1=At 4th leaf stage (16·12·63) T_2=At 6th leaf stage (28.12.63) and T_3=T_1+T_2.

Extra treatment : E_0=Control, E_1=Hand weeding and E_2=Spontox (2 4—D+4, 5—T) applied @ 1.12Kg/ha of 6th leaf stage (28.12.63).

Harmones sprayed at 1.4 literes/ha.

3. DESIGN :

(i) R.B.D. (ii) (a) 9 (b) N.A. (iii) 4 (iv) (a) 7.01m × 4.27m (b) 6.10m × 3.35m (v) 46cm × 46cm (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of grain (iv) (a) 1963—only (b) and (c) Nil (v) Varanasi, Kanpur, Rudrapur, Meerut and Amrukh. (vi) and (vii) Nil.

5. RESULTS :

(i) 1631Kg/ha. (ii) 337.1Kg/ha. (iii) None of the effects is significant. (iv) Av. yield of grain in Kg/ha.

E_0=1664, E_1=1969 and E_2=1688Kg/ha.

	T_1	T_2	T_3	Mean
H_1	1749	1541	1639	1643
H_2	1505	1468	1456	1476
Mean	1627	1504	1548	1560

Crop :- Wheat (*Rabi*). **Ref. :- U.P. 61 (47).**

Site :- Instt. of Crop Physiology, Dilkusha, Lucknow. **Type :- 'D'**

Object :—To study the effect of harmonal herbicides on weeds in Wheat crop.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Paddy (c) 56Kg/ha. of N as A/S. (ii) Sandy loam to loam (iii) 5.11.61 (iv) (a) Several ploughings, soil well pulverised (b) Sown by seed drill (c) 80.7Kg/ha (d) N.A. (e) — (v) N.A. (vi) N.P. 710 (vii) Irrigated (viii) As per treatments (ix) 11.2cm (x) N.A.

2. TREATMENTS:

6 weedicidal treatments : W_0=Control (unweeded), W_1=Hand weeding, W_2=1% of 2, 4—D as Bladex F, W_3=1% of MCPB as Tropotox, W_4=1% of 2, 4—D as Bladex F and W_5=1% of MCPB as Tropotox, W_2 and W_3 were sprayed at 4th leaf stage on 5.12.1961; W_4 and W_5 at 6th leaf stage on 9.1.1962. Sprayings done @ 562 litres/ha.

3. DESIGN:

(i) R.B.D. (ii) (a) 6 (b) 9.75m×7.92m (iii) 6 (iv) (a) and (b) 4.57m×2.44m (v) Nil (vi) Yes.

4. GENERAL:

(i) and (ii) N.A. (iii) Yield of grain and straw (iv) (a) 1961—only (b) and (c) Nil (v) to (vii) Nil.

5. RESULTS :

(i) 2469Kg/ha. (ii) 275.1Kg/ha. (iii) Treatment differences are highly significant. (iv) Av. yield of grain in Kg/ha.

Treatment :	W_0	W_1	W_2	W_3	W_4	W_5
Av. yield :	2511	2764	2615	2450	2406	2066

C.D.=327.1Kg/ha.

———

Crop :- Wheat (*Rabi*). **Ref :- U.P. 61(449).**

Site :- Govt. Res. Farm, Mauranipur. **Type :- 'D'**

Object: —To study the effect of 5% B.H.C. and Aldrin applied at sowing against termite attack.

1. BASAL CONDITIONS:

(i) (a) *Sanai* (G.M.)—Wheat *Jowar+Arhar* —Wheat (b) *Jowar+Arhar* (c) N.A. (ii) N.A. (iii) 17.11.61 (iv) (a) N.A. (b) Sown in rows—behind the plough (c) 92Kg/ha (d) Rows 30cm. apart (e) — (v) 56Kg/ha. of N as A/S. (vi) N.P.—710 (vii) to (ix) N.A. (x) 11, 14, and 15.4.62.

2. TREATMENTS:

7 Cultural-cum-inseeticidal treatments : T_0=Control (2 plots), T_1=5.6Kg/ha. of 5% B.H.C. dust mixed with seeds, T_2=5.6Kg/ha 5% Aldrin dust mixed with seeds, T_3=16.8Kg/ha of 5% B.H.C. dust in furrows, T_4=28Kg/ha. of 5% B.H.C. dust in furrows, T_5=16.8Kg/ha of 5% Aldrin dust in furrows and T_6=28Kg/ha of 5%Aldrin dust in furrows.

3. DESIGN :

(i) R.B.D. (ii) (a) 8 (b) N.A. (iii) 4 (iv) (a) and (b) 12.20m.×7.92m (v) Nil (vi) Yes.

4. GENERAL:

(i) N.A. (ii) Under study (iii) % of dead plants, Yield of grain and straw (iv) (a) 1961—only (b) and (c)Nil. (v) to (viii) Nil

5. RESULTS :

1. Yield

(i) 469Kg/ha. (ii) 145.5Kg/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 :	477	438	388	486	494	480	512

% of dead plants due to termite attack.

(i) 16.85 degrees (ii) 2.49 degrees. (iii) Treatment differences and 'Control *vs.* others' are highly significant. (iv) % infestation of dead plants in degrees.

Treatment :	T_0	T_1	T_2	T_3	T_4	T_5	T_6
Mean in festation :	24.80	13.77	13.36	18 94	10.89	17.06	11.22

C.D. for treatment means except control=3.65 degrees.

C.D. for 'Control *vs.* others'=2.12 degrees.

Crop :- Wheat (*Rabi*). **Ref :- U.P. 61 (450).**

Site :- Govt. Res. Farm Mauranipur. **Type :- 'D'**

Object :—To study the effect of different doses of 5% B.H.C. dust on the germination of Wheat.

2. BASAL CONDITIONS :

(i) (a) *Sanai* (G.M.)—Wheat *Jowar+Arhar*—Wheat (b) *Johar+Arhar* (c) N.A. (ii) N.A. (iii) 15.11.61 (iv) (a) N.A. (b) Sown in rows—Behind the plough (c) As per treatments (d) Rows 30cm. apart. (e)—(v) N.A. (vi) N.P.—710 (vii) to (ix) N.A. (x) 11 and 12.4.62.

TREATMENTS :

7 Cultural-cum-insecticidal treatments : T_0=Control (2 plots with 57.6Kg/ha. of seeds), T_1=5.6Kg/ha. of 5% B.H.C. dust mixed with 57.6Kg/ha. seeds T_2=5.6Kg/ha. 5% B.H.C. dust mixed with 92.0Kg/ha of seeds. T_3=Dusting with 5% B.H.C. in furrows at 16.8Kg/ha with 57.6Kg/ha of seeds, T_4=Dusting with 5% B.H.C. in furrows at 16.8Kg/ha with 92.0Kg/ha. of seeds, T_5=Dusting with 5% B.H.C. in furrows at 28.0Kg/ha with 57.6Kg/ha of seed and T_6=Dusting with 5% B.H.C. in furrows at 28.0Kg/ha with 92.0Kg/ha. seeds.

3. DESIGN:

(i) R.B.D. (ii) (a) 8 (b) N.A. (iii) 4 (iv) (a) and (b) 12.20m×7.92m (v) Nil (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) No. of plants, and Yield of grain and straw (iv) (a) to (c) Nil (v) to (viii) Nil.

5. RESULTS

1. Yield

(i) 581Kg/ha (ii) 141.2Kg/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 :	607	587	647	559	598	492	551

2 No. of plants germinated/ha.

(i) 14, 75, 895 plants/ha (ii) 2, 46, 226.5 plants/ha (iii) Treatment differences are highly significant (iv) Av. no. of plants germinated/ha.

Treatment :	T_0	T_1	T_2	T_3	T_4	T_5	T_6
Av. no. of plants:	15,7,993	12,59,388	18,85,315	11,65,876	17,62,874	10,41,417	16,56,310

C.D. for treatment means except control=3,6,1104plants/ha.

Crop :- Wheat (*Rabi*). **Ref :- U.P. 62(249).**

Site :- Govt. Reg. Agri. Res. Stn., Meerut. **Type :- 'D'**

Object : - To study the effect of chemical spraying for the control of Wheat rust.

1. BASAL CONDITIONS :

(i) (a) G.M. —Wheat. (b) *Dhaincha* G.M. (c) Nil (ii) Loam (iii) 15.11.62 (iv) (a) 1 plouging by S.T.P. and 3 to 4 ploughings by *deshi* plough (b) Behind the plough (c) 69.2Kg/ha (d) Rows 23cm. apart (e) — (v) 22.4Kg/ha. of N as A/S top dresed (vi) Pb. 591 (vii) Irrigated (viii) Nil (ix) 4.9cm. (x) 28 and 29.4.63.

2. TREATMENTS :

4 chemical treatments T_0=Control (2 plots), T_1=0.3% Dithane Z-78, T_2=0.3% Dithane M—22 and T_3=1.0% Thiovit.

Spraying done 29.1.63, 15.2.63 and 12.3.63.

3. DESIGN :

(i) R.B.D. (ii) (a) 5 (b) 9.14m×39.01m. (iii) 4 (iv) (a) 9.14m×7.32 m. (b) 8.23m×6.40m (v) 46cm×46cm. (vi) Yes.

4. GENERAL :

(i) Normal (ii) Brown-rust infection observed on 2.2.63 (iii) Yield of grain (iv) (a) 1962—only (b) and (c)— (v) to (vii) Nil.

5. RESULTS

(i) 2647Kg/ha. (ii) 332.0Kg/ha. (iii) Treatments differences are not significant. (iv) Av. yield of grain in Kg/ha.

Treatment:	T_0	T_1	T_2	T_3
Av. yield :	2756	2461	2782	2479

Crop :- Wheat (*Rabi*). **Ref :- U.P. 63(268).**

Site :- Govt. Reg. Agri. Res. Stn., Meerut. **Type :- 'D'.**

Object : —To study the effect of certain harmonal herbicides for the control of weeds in Wheat crop.

1. BASAL CONDITIONS :

(i) (a) Nil (b) Fallow (c) Nil (ii) Loam (iii) 31.10.63 (iv) (a) 1 ploughing by S.T.P. and 4 ploughings by *Deshi* plough (b) Line sowing behind *Deshi* plough (c) 80.7Kg/ha (d) Rows 23cm. apart (e) — (v) 22.4Kg/ha of N as C/A/N topdressed (vi) Pb—591 (vii) Irrigated (viii) Weeding only (ix) 1.3cm. (x) 25.4.64.

2. TREATMENTS :

9 cultural-*cum*-herbicidal treatments :

T_0=Control, T_1=Hand weeding (on 11.12.63 and 26.1.64), T_2=1.1 litres/ha of Bladex G (Amine salt of 2, 4—D) at 4th leaf stage, T_3=1.1 litres/ha of Bladex G at 6th leaf stage, T_4=1.1 litres/ha of Bladex at 4th and 6th leaf stage, T_5=1.2Kg/ha of spontox (2,4—D+2, 4, 5—T) at 6th leaf stage. T_6=1.1 litres/ha of Planotox (Bentoxy ethylester of 2. 4—D) at 4th leaf stage, T_7=1.1 litres/ha of Planotox at 6th leaf stage and T_8=1.1 litres/ha. of Planotox at 4th and 6th leaf stage

Sprayings done on 10.12.63 and 25/26.1.64.

3. DESIGN :

(i) R.B.D. (ii) (a) 9 (b) 15.85m × 26.8m (iii) 4 (iv) (a) 8.53 m × 4.88 m (b) 7.62 m × 3.96m (v) 46c m × 46cm. (vi) Yes.

4. GENERAL :

(i) Satisfactory (ii) Nil (iii) Germination%, Population of different types of weeds and yield of grain (iv) (a) 1963—only (b) and (c) Nil. (v) Dilkusha (Lucknow), Varanasi, Kanpur, Rudrapur and Amrukh (vi) and (vii) Nil.

5. RESULTS :

(i) 1892Kg/ha (ii) 463.9Kg/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	T_8
Av. yield :	1796	2494	1697	1920	2045	1805	1937	1927	1805

Crop :-Wheat (*Rabi*). **U.P. 64 (278), 65 (98).**

Site :- Govt. Reg. Agri. Res. Stn., Meerut. **Type :- 'D'**

Object :—To find out control meances against weeds in Wheat crops.

1. BASAL CONDITIONS:

(i) (a) Nil (b) Fallow; *chari* (c) Nil (ii) Loam (iii) 31.10.64; 16.11.65 (iv) (a) 1 ploughing by soil turning plough and 3 ploughings by *deshi* plough (b) Behind the plough (c) 86.5Kg/ha (d) Rows 25cm apart. (e) — (v) 33.6Kg/ha of N as A/S+28Kg/ha of P_2O_5 as Super as basal+22.4Kg/ha of N as A/S top dressed (vi) Pb. 591; N.P.—830 (vii) Irrigated (viii) As per treatments (ix) 7.7cm; 3.5cm. (x) 27.4.65; 7.4.66.

2. TREATMENTS:

10 weedicidal treatments : T_0=Control (unweeded), T_1=0.28, T_2=0.50, T_3=0.84 and T_4=1.12Kg. a.e./ha of 2,4—D (Sodium Salt) Bladex 'A', 4 weeks after sowing, T_5=1.4 litres/ha of Amine salt of 2, 4—D as Bladex 'G', 4 weeks after sowing, T_6=1.4Kg/ha of eter of 2, 4—D as Planotox, 4 weeks after sowing, T_7= 1.1Kg. a. e./ha of 2, 4—D+2, 4—5—T as spontox, 4 weeks after sowing, T_8=Hand weedings 4 weeks after sowing and T_9=Hand weeding 6 weeks after sowing.

3. DESIGN :

(i) R.B.D. (ii) (a) 10 (b) 10.36m×51.2cm (iii) 3 (iv) (a) 10.36m×4.57m (b) 9.45m×3.66m (v) 46cm×46cm (vi) Yes.

4. GENERAL :

(i) Satisfactory (ii) Nil (iii) Germination %, population of different types of weeds and yield of grain (iv) (a) 1964—65 (b) No (c) Nil (v) Kanpur, Rudrapur and Varanasi (vi) Nil (vii) As error Variances are heterogeneous and Treatment × years interaction is absent, results of individual years have been presented under 5. Results

5. RESULTS :

64 (278)

(i) 2740Kg/ha. (ii) 210.2Kg/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	T_8	T_9
Av. yield :	2750	2624	2914	2653	2720	2507	2720	2662	3040	2750

65 (98)

(i) 2931Kg/ha (ii) 372.6Kg/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	T_8	T_9
Av. yield :	2990	2336	3029	3038	2893	2913	2903	2951	3241	3019

Crop :- Wheat (*Rabi*). **Ref :- U.P. 65 (97)**

Site :. Govt. Reg. Agri. Res. Stn., Meerut. **Type :-'D'**

Object : —To study the effect of insecticidal dustings on Wheat seed in order to prevent the possible attack of *Gujia weevil* (*Tanymecus indicus* Fst.)

1. BASAL CONDITIONS :

(i) (a) Nil (b) G.M. (c) Nil (ii) Loam (iii) 11.11.65 (iv) (a) 1 ploughing by S.T.P. and 4 ploughings by *Deshi* plough (b) Behind the plough (c) 85Kg/ha (d) Rows 23cm. apart (e) — (v) G.M. 11.2Kg/ha of N at sowing 16.8Kg/ha. of N as Urea top dressed (vi) Pb.C. 273 (vii) Irrigated (viii) Nil (ix) 3.5cm (x) 18.4.66.

2. TREATMENTS :

All combinations of (1) and (2)+Control (2 plots).

(1) 5 Tsecticides : D_1=10%B.H.C., D_2=2% Aldrine, D_3=5% Aldrin, D_4=5% Chlordane and D_5=6% Heptachlor

(2) 2 levels of in secticides : L_1=25 and L_2=50Kg/ha.

3. DESIGN :

(i) R.B.D. (ii) (a) 12 (b) 10.0m×71.0m (iii) 4 (iv) (a) 10.00m×50m (b) 9.55m×4.55m (v) 23cm×23cm. (vi) Yes.

4. GENERAL :

(i) Good (ii) Under study (iii) Yield of grain (iv) (a) 1965—only (b) and (c) Nil (v) to (vii) Nil.

5. RESULTS :

(i) 2183Kg/ha. (ii) 485.9Kg/ha. (iii) None of the effects is significant (iv) Av. yield of grain in Kg/ha.

Control : 1902Kg/ha.

	D_1	D_2	D_3	D_4	D_5	mean
L_1	2342	2065	2123	2198	2186	2183
L_2	2128	2060	2290	2221	2215	2183
mean	2235	2062	2206	2210	2200	2183

Crop :- Wheat (*Rabi*) **Ref :- U.P. 65(544)**

Site :- Govt. Reg. Agri. Res. Stn., Meerut. **Type :- 'D'**

Object : —To find out an effective and economic method of control against Gujia Weevil (Tanymecus indicus Fst.) of Wheat.

1. BASAL CONDITIONS:

(i) (a) to (c) N.A. (ii) Loam (iii) to (v) N.A. (vi) K—68 (vii) and (viii) N.A. (ix) 3.5cm. (x) N.A.

2. TREATMENTS:

All combination of (1) and (2)+Control (2 plots).

(1) 5 insecticidal treatments : I_1=10% B.H.C., I_2=2% Aldrin, I_3=5% Aldrin, I_4=5% Chloradane, I_5=3% Heptachlor.

(2) 2 levels of insecticidal dusting: L_1=25 and L_2=50Kg/ha.

The insecticides dusted in furrows with seeds at the time of sowing.

3. DESIGN :

(i) R B.D. (ii))a) 12 (b) N.A. (iii) 4 (iv) (a) 50 sq.m. (b) N.A. (v) N.A. (vi) Yes.

4. GENERAL:

(i) and (ii) N.A. (iii) No. of affected plants (iv) (a) 1965—Contd. (b) N.A. (c) Nil (v) to (vi) Nil. (vii) Plot-wise data N.A.

5 RESULTS :

(i) $1.58\sqrt{x+1/2/plot}$ (ii) $0.15\sqrt{x+1/2/plot}$ (iii) Main effect of L,I, interaction L×I and 'Control *Vs.* others' are highly sinificant. (iv) Mean value of $\sqrt{x+1/2/}$, where x=No. of effected plants.

Control=$2.27\sqrt{x+1/2/plots}$.

	I_1	I_2	I_3	I_4	I_5	mean
M_1	1.35	1.70	1.35	2.86	1.37	1.53
M_2	1.06	1.41	1.18	1.56	1.57	1.36
mean	1.20	1.56	1.26	1.71	1.47	1.44

C.D. for control *Vs.* others=$0.12\sqrt{x+1/2/plot}$

C.D. for L marginal means=$0.095\sqrt{x+1/2/plot}$

C.D. for I marginal means =$0.15\sqrt{x+1/2/plot}$

C.D. for body of L×I table=$0.21\sqrt{x+1/2/plot}$

Crop :- Wheat (*Rabi*). **Ref :- U.P. 62(26).**

Site :- Rice Res.Sub-Stn., Nagina. **Type :- 'D'**

Object:—To study the effect of Dithane and Thiovit to control Wheat rust (*Puccinia graminis tritici*, *Puccinia recondita* and *P. Striformis*)

1. BASAL CONDITIONS :

(i) (a) Nil (b) Fallow (c) Nil (ii) Loam (iii) 15 and 16.11.62 (iv) (a) N.A. (b) Line sowing (c) N.A. (d) Rows apart (e) (v) 92.2/ha. of F.Y.M.+89.6Kg/ha of P_2O_5, 89.6Kg/ha of N—½ at sowing and ½ at booting stage. (vi) N.A. (vii) Irrigated (viii) to (x) N.A.

2. TREATMENTS:

4 fungicides: F_0=Control (2 plots), F_1=0.78% Dithane Z--78, F_2=0.3% Dithane M—22 and F_3=1.0% Thiovit.

Sprayings done on 16.1.63 and 21.2.63.

3. DESIGN :

(i) R.B.D. (ii) (a) 5 (b) 13.7m×40.23m (iii) 4 (iv) (a) and (b) 7.32m×13.72m (v) Nil (vi) **Yes**.

4. GENERAL :

(i) Germination good (ii) Under study (iii) Yield of grain (iv) (a) 1962—only (b) and (c) Nil (v) and (vi) Nil (vii) There was about 5% yellow-rust on 16.1.63 and Brown-rust below 5% in all the plots on 21.2.63.

5. RESULTS :

(i) 1772Kg/ha (ii) 118.8Kg/ha (iii) Treatment differences are not significant (iv) Av. yield of grain in Kg/ha.

Treatment :	F_0	F_1	F_2	F_3
Av. yield :	1739	1821	1836	1724

Crop :- Wheat (*Ra bi*). **Ref :- U.P. 65(42).**

Site :- Govt. Reg. Agri. Res. Stn., Nawabganj. **Type :-'D'.**

Object :—To study the chemical control of Wheat leaf-blight due to *Alternaria Triticum*.

1. BASAL CONDITIONS :

(i) (a) Nil (b) *Dhaincha* (c) N.A. (ii) Clay loam (iii) 27.11.65 (iv) (a) 4 to 5 ploughings (b) Line sowing behind the plough (c) 100Kg/ha (d) Rows 23cm apart (e) — (v) Green manuring by *Dhaincha* 20Kg/ha of N as C/A/N+20Kg/ha of P_2O_5 as Super (vi) N.P. 830 (vii) Irrigated (viii) 2 weedings by *Khurpi* (ix) N.A. (x) 16.4.66.

2. TREATMENTS :

12 insecticidal treatments : T_0=Control, T_1=Spraying the crop with 0 2% Dithane Z—78, T_2=Spraying the crop with 0.2% Dithane M—22, T_3=Spraying the crop with 0.2% Zirum T_4=Spraying the crop with 1% wettable Sulphur, T_5=Spraying the crop with 0.3% fungicide, T_6=Dusting the crop with 4% Blimix T_7=Dusting the crop with 6% Blimin, T_8=Dusting the crop with Coortor C, T_9=Dusting the crop with Fine Sulphur, and T_{11}=See treatments with Agosan G.N. before sowing.

3. DESIGN

(i) R.B.D. (ii) (a) 12 (b) 27.57m×22.17m (iii) 4 (iv) (a) 9.65m×3.45m (b) 8.65m×2.99m (v) 50cm×23cm (vi) Yes.

4. GENERAL:

(i) Good (ii) Under study (iii) Yield of grain (iv) (a) 1965—only (b) and (c) Nil (v) N.A. (vii) Nil.

5. RESULTS:

(i) 2381Kg/ha. (ii) 197.4Kg/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	T_8	T_9	T_{10}	T_{11}
Av. yield :	2305	2314	2539	2491	2491	2353	2406	2373	2353	2247	2133	2569

Crop :- Wheat (*Rabi*). **Ref :- U.P. 62 (198), 63(194), 64(209).**

Site :- Govt. Reg. Agri. Res. Stn., Nawabganj. **Type :- 'D'**

Object :—To find out a chemical control of Wheat rust.

1. BASAL CONDITIONS:

(i) (a) Nil (b) and (c) N.A. (ii) Clay loam (iii) 27.12.62; 5.12.63; 17.11.64 (iv) (a) N.A. (b) Line sowing behind *Deshi* plough (c) 100Kg/ha. for 62; N.A. for others (d) Rows 20cm. apart (e) — (v) 44.8Kg/ha. of N as C/A/N.+22.4Kg/ha. of P_2O_5 as Super for 62 and 63; 34Kg/ha of N as C/A/N+22.4Kg/ha of P_2O_5 for 64 (vi) N.A. for 62; Pb. 591 for others (vii) N.A. (viii) Nil (ix) 3.1cm; 0.7cm; 16.3cm (x) 18.4.63; 21.4.64; N.A.

2. TREATMENTS:

4 chemical treatments : T_0=Control (2 plots), T_1=0.3% Dithane Z—78, T_2=0.3% Dithane M—22 and T_3=10% Thioroit.

Dates of spraying for 62 N.A.; Dates of spraying for 63 20.1.64, 6.2.64 and 5.3.64. Dates of spraying for 66—5, 24.2.65 and 19.3.65.

3. DESIGN :

(i) R.B.D. (ii) (a) 5 (b) N.A. (iii) 4 (iv) (a) 7.31m×13.72m for 62; 13.72m×7.31m for others (b) 6.86m×12.49m for 62; 12.64m×6.40 for others (v) 23cm×61cm for 62; 54cm×46cm for others. (vi) Yes.

4. GENERAL :

(i) Good (ii) N.A. (iii) Yield of grain (iv) (a) 1962—64 (b) No. (c) Results of combined analysis have been presented under 5. Results. (v) and (vi) Nil (vii) Error variances are homogeneous and Treatment×years interaction in absent.

5. RESULTS :

Pooled results

(i) 1832Kg/ha. (ii) 215.5Kg/ha.(based on 45 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 :	1725	1865	1990	1853

Individual results:

Treatment	T_0	T_1	T_2	T_3	Sig	G.M.	S.E./plot
Years							
1962	1770	2036	2066	1882	N.S.	1905	178.5
1963	1161	1173	1243	1183	N.S.	1184	240.6
1964	2244	2385	2662	2493	N.S.	2406	231 0
Pooled	1725	1865	1990	1853	N.S.	1832	215.5

Crop :- Wheat (*Rabi*). **Ref :-U.P. 60(183).**

Site :- Govt. Reg. Agri. Res. Stn., Nawabganj. **Type:- 'D'.**

Object: —To see the effect of Sulphure dusting on Wheat crop.

1. BASAL CONDITIONS :

(i) (a) to (c) Nil (ii) Clay loam (iii) N.A. (iv) (a) N A. (b) Line sowing behind *Deshi* plough (c) 100Kg/ha (d) Rows 20cm apart (e) — (v) N.A. (vi) Pb. 591 (vii) and (viii) N.A. (ix) 5.60cm (x) N.A.

2. TREATMENTS :

2 dusting treatments : T_0=Control and T_1=Sulphure dusting at 16.8Kg/ha.

Dusting was done by orient duster on 6, 16 and 31.1.61.

3. DESIGN:

(i) Paired-plot (ii) (a) 2 (b) N.A. (iii) 8 (iv) (a) and (b) 11.89m × 8.53m (v) Nil (vi) Yes.

4. GENERAL :

(i) Good (ii) Nil (iii) Yield of grain (iv) (a) 1960—only (b) and (c) Nil (v) to (vii) Nil.

5. RESULTS :

(i) 689Kg/ha (ii) 48.9Kg/ha (iii) Treatment difference is not significant (iv) Av. yield of grain in Kg/ha.

Treatment :	T_0	T_1
Av. yield:	673	705

Crop :-Wheat (*Rabi*). **Ref.:- U.P. 61(30)**

Site :-Govt. Reg. Agri. Res. Stn., Nawabgunj. **Type:-'D'**

Object :—To study the effect of Dithane and Thiovit to control Wheat rust (*Puccinia graminis tritici, Puccinia recondita* and *P Striformis*).

1. BASAL CONDITIONS :

(i) (a) *Moong*—Paddy—Wheat (b) Paddy (c) N.A. (ii) Clay loam (iii) 29.11.61 (iv) (a) to (e) N.A. (v) Super applied, dose N.A. (vi) Pb. 591 (vii) to (x) N.A.

2. TREATMENTS:

5 fungicidal treatment : F_0=Control (2 plots), F_1=Dithane Z—78, F_2=Dithane M—22, F_3=Dithane S—31, and F_4=Thiovit.

F_1, F_2 and F_3 applied at 1.13Kg in 454 liters of watar and F_4 at 4.54Kg in 454 liters of water Sprayings done on 5.1.62, 13.3.62 and 30.3.62.

3. DESIGN :

(i) R.B.D. (ii) (a) 6 (b) 23.77m × 28.35m. (iii) 4 (iv) (a) and (b) 13.72m. × 7.32m. (v) Nil (vi) Yes.

4. GENERAL

(i) N.A. (ii) Under study (iii) Yield of grain (iv) (a) 1961—only (b) and (c) Nil (v) Kanpur (vi) and (vii) Nil

5. RESULTS :

(i) 1250Kg/ha. (ii) 272.2Kg/ha. (iii) Treatment differences are not significant (iv) Av. yield of grain in Kg/ha.

Treatment :	F_0	F_1	F_2	F_3	F_4
Av. yield :	1200	1246	1303	1341	1213

Crop :- Wheat (*Rabi*). **Ref :- U.P. 65 (45).**

Site:-Govt. Reg. Agri. Res. Stn., Nawabgunj. **Type :- 'D'.**

Object :—To find out the effect of N,P and K doses on *Attervaria* disease.

1. BASAL CONDITIONS :

(i) (a) Nil (b) Paddy (c) N.A. (ii) Clay loam (iii) 2.11.65 (iv) (a) N.A. (b) By dibbling (c) 100Kg/ha (d) N.A. (e) 2 seeds (v) Nil (vi) N.P. 830 (vii) Irrigated (viii) 2 weedings by *Khurpi* (ix) N.A. (x) 18.4.66.

2. TREAMENTS:

All combination of (1), (2), (3), (4) and (5).

(1) 2 sources of seed : S_1=Seed selected from infected crop and S_2=Seed selected from healthy crop.

(2) 2 seed treatments : T_0=Untreated and T_1=Seed treated with Agrosan G.N.

(3) 2 levels of N : N_1=40 and N_2=80Kg/ha.

(4) 2 levels of P_2O_5 : P_1=20 and P_2=40Kg/ha.

(5) 2 levels of K_2O :K_1=20 and K_2=40Kg/ha.

3. DESIGN :

(i) 2^5 Fact in R.B D. (ii) (a) 32 (b) N.A. (iii) 2 (iv) (a) and (b) 6m×0.95m (v) Nil (vi) Yes.

4. GENERAL :

(i) Good (ii) Brown rust and *Alternania* was observed (iii) Yield of grain (iv) (a) 1955—only (b) and (c) Nil (v) to (vii) Nil.

5. RESULTS :

(i) 2224Kg/ha (ii) 353 8Kg/ha (iii) Main effects of S,P and interactions S×T and S×N are significant (iv) Table of mean and differential response in Kg/ha.

Differential response

	Mean response	— S +		— O +		— N +		— O +		— O +	
S	—218	—	—	—26	—410	—19	—417	—273	—163	—218	—218
T	—149	43	—341	—	—	—277	—21	—280	—18	—223	—75
N	142	341	—57	14	270	—	—	308	—24	166	118
P	222	167	277	91	353	388	56	—	—	154	290
K	—110	—110	—110	—184	—36	—86	—134	—178	—42	—	—

C.D. for mean response=180.4Kg/ha.

C.D. for differential response=255.1Kg/ha.

Crop :- Wheat (*Rabi*). **Ref :-U.P. 62(196).**

Site :- Govt. Reg. Agri. Res. Stn., Nawabgunj. **Type :- 'D'**

Object :—To study the effectiveness of certain weedicides for the control of weeds in Wheat crop.

1. BASAL CONDITIONS :

(i) (a) Nil (b) and (c) N.A. (ii) Clay loam (iii) 3.12.62 (iv) (a) N.A. (b) Line sowing behind *deshi* plough (c) N.A. (d) Rows 20cm. apart (e) (v) 22.4Kg/ha of N as C/A/N +44.8Kg/ha of P_2O_5 as Super applied on 3.12.62 and 22.4Kg/ha of N top dressed on 18.1.63 (vi) N.P. 830 (vii) N.A. (viii) As per treatments (ix) 3.0cm (x) 25.4.63.

2. TREATMENTS :

6 weedicidal treatments :—T_0=Control (unweeded), T_1=Hand weeding, T_2=2, 4—D as Bladex G at 1.4 litres/ha sprayed at 4th leaf stage, T_3=Tapazine 50-W at 4.94Kg/ha sprayed at 4th leaf stage, T_4=Tafapon at 4.94Kg/ha Sprayed at 4th leaf stage and T_5=2, 4—D as Bladex G at 1.4 litres/ha Sprayed at 6th leaf stage.

The weedicides mixed in sufficient quantily of water to cover the crop. Application ceased before crop started running up to ear.

3. DESIGN :

(i) R.B.D. (ii) (a) 6 (b) N.A. (iii) 4 (iv) (a) 8.23m×7.92m (b) 7.31m×7.01m (v) 46cm×46cm. (vi) Yes.

4. GENERAL :

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

5. RESULTS :

(i) 1099Kg/ha (ii) 234.1Kg/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 :	1226	1421	1282	709	617	1338

C.D.=352.7Kg/ha.

Crop :- Wheat (*Rabi*). **Ref :- U.P. 63(319).**

Site :- Govt. Cotton Res. Stn., Raya. **Type :- 'D'**

Object :—To study the effect of Stem-34 in the control of weeds under irrigated conditions.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Sandy loam (iii) 5.11.63 (iv) (a) 2 to 3 ploughings (b) Behind the plough (c)92K/ha (d) Rows 30cm. apart (e) — (v) N.A. (vi) Pb.—591 (vii) Irrigated (viii) Nil (ix) N.A. (x) 22.4.64.

2. TREATMENTS :

5 concentrations of Stam—34 : C_0=0 (control), C_1=15, C_2=20, C_3=25 and C_4=30 C.C.

Weedicides sprayed on 22.12.63. Other details N.A.

3. DESIGN :

(i) R.B.D. (ii) (a) 5 (b) N.A. (iii) 4 (iv) (a) and (b) 4.57m×4.57m. (v) Nil (vi) Yes.

4. GENERAL :

(i) Good (ii) Nil (iii) Yield of grain (iv) (a) 1963—only (b) and (c) Nil (v) to (vii) Nil.

5. RESULTS :

(i) 2545Kg/ha. (ii) 253.6Kg/ha. (iii) Treatment differences are significent. (iv) Av. yield of grain in Kg/ha.

Treatment :	T_0	T_1	T_2	T_3	T_4
Av. yield:	2428	2607	2679	2823	2189

C.D.=390.7Kg/ha.

Crop :- Wheat (*Rabi*). **Ref :- U.P. 63(409).**

Site :- Govt. Reg. Agri. Res. Stn., Rudrapur. **Type :- 'D'**

Object : —To study the effect of certain harmonal herbicides for the control of weeds in Wheat crop.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Fallow (c) Nil (ii) Loam to clay loam (iii) 13.11.63 (iv) (a) One ploughing by Victory plough and 3 to 4 ploughings by Jullandhar plough and planking (b) Behind the plough (c) 92.2Kg/ha (d) Rows 24.5cm. apart (e) — (v) N.A. (vi) N.P. 824 (vii) Unirrigated (viii) Hand weeding (ix) N.A. (x) 24 to 25.4.64

2. TREATMENTS :

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

(1) 2 herbicides : H_1=Bladex G at 1.4 litres/ha and H_2=Plantex at 1.0 litres/ha.

(2) 3 times of application : T_1=At 4th leaf stage. T_2=At 6th leaf stage and T_3=T_1+T_2.

Extra treatments are : W_0=Control W_1=Hand weeding and W_2=Spontox at 1.1Kg/ha at 6th leaf stage,

3. DESIGN:

(i) R.B.D. (ii) (a) 9 (b) N.A. (iii) 4 (iv) (a) N.A. (b) 9.75m×7.01m (v) N.A. (vi) Yes.

4. GENERAL :

(i) Good (ii) As per treatments (iii) Yield of grain and straw (iv) (a) 1963—only (b) and (c) Nil. (v) Dilkhusha (Lucknow). Varanasi, Kanpur, Meerut and Amrukh. (vi) and (vii) Nil.

5 RESULTS :

(i) 1379Kg/ha (ii) 228.9Kg/ha. (iii) Extra treatment among themselves alone are significant. (iv) Av. yield of grain in Kg/ha.

	F_1	F_2	F_3	Mean
N_0	1429	1360	1367	1385
N_1				
N_2	1451	1554	1444	1483
mean	1440	1457	1406	1434

' C.D. for 'Extra treatments'=333.9Kg/ha.

Crop :- Wheat (*Rabi*). **Ref :- U.P. 60 (62).**

Site :- Govt. Reg. Agri. Res. Stn., Rudrapur. **Type :- 'D'**

Object :—To study the control of weeds by 2, 4 –D in Wheat fields.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Loam to clay loam (iii) to (x) N.A.

2. TREATMENTS:

3 weedicidal treatments : W_0=Contr›l, W_1=Spraying with 2, 4—D at 0.2% at tillering stage and W_2=Spraying with 2, 4 –D at 0.2% at tillering+Spraying with 2, 4—D at 0.2% at pre-flowering stage.

3. DESIGN :

(i) R.B.D. (ii) (a) 3 (b) N.A. (iii) 8 (iv) (a) N.A. (b) 8.23m×3.66m (v) N.A. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of grain (iv) (a) 1960—only (b) and (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 1499Kg/ha (ii) 123.9Kg/ha (iii) Treatment differences are not significant (iv) Av. yield of grain in Kg/ha.

Treatment :	W_0	W_1	W_2
Av. yield :	1472	1497	1528

Crop :- Wheat (*Rabi*). **Ref :- U.P. 62(70).**

Site :- Govt. Reg. Agri. Res. Stn., Rudrapur. **Type :- 'D'.**

Object :—To study the effectiveness of Bladex G, Tafazine 50—W and Tafapow used as weedicides for the control of weeds in Wheat crop.

1. BASAL CONDITIONS:

(i) (a) to (c) N.A. (ii) Loam to clay loam (iii) 7.11.62 (iv) (a) N.A. (b) Behind the plough (c) 92Kg/ha (d) N.A. (e) — (v) N.A. (vi) N.P. 824 (vii) N.A. (viii) Aas per treatments. (ix) N.A. (x) 13.4.63.

2. TREATMENTS :

6 weedicidal treatments : W_0=Control W_1=Hand weeding, W_2=2, 4—D as Bladex G at 1.4 litre /ha Sprayed at 4th leaf stage, W_3=4.94Kg/ha of Tafazine 50—W, W_4=4.94Kg/ha of Tafapon and W_5=2, 4—D as Bladex G at 1.4 litres/ha. Sprayed at 6th leaf stage.

3. DESIGN:

(i) R.B.D (ii) (a) 6 (b) 8.00m×50.00m (iii) 4 (iv) (a) 8.00m×7.50m (b) 7.00m×6.50m (v) 50cm.×50cm. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of grain (iv) (a) 1962—only (b) and (c) Nil (v) and (vi) Nil (vii) Treatment W_2 Killed almost all the weeds. Treatment W_4 had a very adverse effect on the crop and resulted in buring of crop in all the 4 plots.

5. RESULTS :

(i) 1619 kg/ha. (ii) 189.7 kg/ha. (iii) Treatment differences are highly significant. (iv) Av. yield of grain in kg/ha.

Treatment	W_0	W_1	W_2	W_3	W_4	W_5
Av. . yield	1901	1720	1967	1621	308	2198

C.D.=285.8 Kg/ha.

Crop :- Wheat (*Rabi*). **Ref:-U.P. 64 (450)**

Site :- Govt. Agri. Res, Stn., Rudrapur. **Type :- 'D'.**

Object :—To study the effeet of different herbicides in controling the weeds in Wheat crop.

1. BASAL CONDITIONS :

(i) (a) Maize—Wheat (b) Maize (c) N.A. (ii) Loam to clay loam (iii) 28.11.64 (iv) (a) One ploughing by Victory plough and 2 ploughings by Jullandhar plough and planking (b) Behind the plough (c) 98.8Kgh/ha (d) 23cm. apart (e) — (v) 22.4Kg/ha, of N as A/S. on 28.11.64 (vi) N.P. 824 (vii) Unirrigated (viii) As per treatments (ix) N A. (x) 20.4.65.

2. TREATMENTS :

10 weedicidal treatments : T_0=Control (unweeded), T_1=0.28, T_2=0.55, T_3=0.84 and T_4=1.1Kg/ha of 2, 4—D (Sodium salt) as Bladex 'A' T_5=1.4 litres/ha of Amine 2, 4—D as Bledex G, T_6=1.4 litres/ha of Ester 2, 4—D as planotox, T_7=1.1Kg/ha of 2, 4—D+ 2,4—5—T as spontox, T_8=Hand weeding 4 weeks after sowing and T_9=Hand weeding 6 weeks after sowing.

Treatments T_1 to T_3, T_5 and T_6 applied 4 weeks after sowing, treatment T_4 applied 6 weeks after sowing.

Date of spraying 13.1.65 and 4.2.65. Weeding done on 16.1.65 and 6.2.65.

3. DESIGN :

(i) R.B.D. (ii) (a) 10 (b) 26.50m×38.00m. (iii) 4 (iv) (a) 12.00m×7.00m. (b) 11.00m×6.00m. (v) 50cm.×50cm (vi) Yes.

4. GENERAL :

(i) Good (ii) Nil (iii) Yield of grain (iv) (a) 1964—only (b) and (c) Nil (v) Kanpur, Varanasi and Meerut (vi) and (vii) Nil.

5. RESULTS :

(i) 1354Kg/ha (ii) 238.2Kg/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	T_8	T_9
Av. yield :	1310	1300	1180	1230	1610	1430	1300	1280	1380	1620

Crop :- Wheat (*Rabi*). **Ref :- U.P. 64(171), 65(447).**

Site :- Govt. Reg. Agri. Res. Stn., Varanasi. **Type :- 'D'.**

Object :—To find out the relative efficiency of different weedicides for the control of weeds and their effect on yield and economics.

1. BASAL CONDITIONS :

(i) (a) Nil (b) *Lobia*; N.A. (c) 67.2Kg/ha of N+22.4Kg/ha of each of P_2O_5 and K_2O; N.A. (ii) Sandy loam (iii) 1.12.64, 24.12.65 (iv) (a) 4 ploughings (b) Line sowing, behind the plough (c) 115Kg/ha; 99Kg/ha (d) Rows 23cm. apart (e) — (v) 22.4Kg/ha of each of N, P_2O_5 and K_2O applied as topdressing; 33.6Kg/ha of N+44.8Kg/ha of P_2O_5 and K_2O each applied as top dressing (vi) N.P. 710; N.A, (vii) Irrigated (viii) As per treatments (ix) 5.1cm.; 75cm (x) 27.4.65; 12.4.66.

2. TREATMENTS :

10 weedicidal treatments : T_0=Control (No weeding), T_1=Hand weeding, T_2=Hand hoeing by *Sharma* hoe, T_3=Bladex A (2, 4—D sodium salt) @ 0.28Kg/ha at 6 weeks aftersowing, T_4=Bladex A (2, 4—D sodium salt) @ 0.56Kg/ha at 6 weeks after sowing, T_5=Bladex A (2, 4—D sodium salt) @ 0.84Kg/ha at 6 weeks after sowing, T_6=Blotex A (2, 4—D sodium salt) @ 1.12Kg/ha at 6 weeks after sowing, T_7=Bladex G (2, 4—D Amine salt) @ 1400 e.c./ha at 6 weeks after sowing, T_8=Planotex (Buto×yeth lester of 2, 4—D @ 14.00 e.c./ha. at 6 weeks after sowing and T_9=Spontox (2, 4—D+2, 4, 5—T) @ 1.12Kg/ha at 6 weeks after sowing.

3. DESIGN :

(i) R.B.D. (ii) (a) 10 (b) 27.50m.×16.15m; 5.03m×60.19m (iii) 4 ; 3 (iv) (a) 7.62m×5.03m; 6.10m×5.33m. (b) 7.01m×4.80m; 6.10m×5.33m, (v) 30cm×11cm; Nil (vi) Yes.

4. GENERAL :

(i) N.A. ; Good (ii) Nil (iii) Yield of grain (iv) (a) 1964–65 (b) No (c) Results of combined analysis have been presented under 5. Results (v) Kanpur, Rudrapur and Meerut (vi) Nil (vii) Error variances are homogeneous and Treatment×year interaction is absent.

5. RESULTS :

Pooled results

(i) 2159Kg/ha (ii) 143.7Kg/ha. (based on 54 d.f. made up of pooled error and Treatment × year 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	T_8	T_9
Av. yield :	2184	2183	2291	2202	2113	2148	2114	2172	2121	2065

Individual results

Treat-ment	T_0	T_1	T_2	T_3	T_4	T_5	T_6	T_7	T_8	T_9	Sig.	G.M.	S.E. plot
Year 1964	1974	2087	2055	2039	1828	1988	1912	1977	1898	1899	N.S.	1966	147.0
1965	2464	2312	2605	2420	2493	2361	2383	2133	2418	2285	N.S.	2417	131.5
Pooled	2184	2183	2291	2202	2113	2148	2114	2172	2121	2065	N.S.	2159	143.7

Crop :- Wheat (*Rabi*). **Ref :- U.P. 63 (178).**

Site :- Govt. Reg. Agri. Res. Stn., Varanasi. **Type :- 'D'.**

Object :—To study the effect of certain harmonal herbicides against the control of weeds in Wheat.

1. BASAL CONDITIONS :

(I) (a) to (c) N.A. (ii) Loam (iil) N.A. (iv) (a) N.A. (b) Line sowing behind the plough (c) 92.2Kg/ha. (d) Rows 23cm. apart (e) — (v) N.A. (vi) N.P. 710 (vii) Irrigated (viii) As per treatments (ix) 2.7cm. (x) 27.4.64.

2. TREATMENTS :

All Combinations of (1) and (2) +3 selective treatments.

Selective treatments are : S_1=Control, S_2=Hand weeding and S_3=Spondox (2, 4—D+4, 5—T) applied at 1.1Kg/ha at 6th leaf stage.

(1) 2 Harmons sprayed at 1.4 litres/ha : H_1=Bladex G (Amine Salt of 2, 4—D) and H_2=Planotox (Butoxy ethylester of 2, 4—D).

(2) 3 times of spraying : T_1=At 4th leaf stage, T_2=At 6th leaf stage and T_3=T_1+T_2.

3. DESIGN :

(i) R.B.D. (ii) (a) 9 (b) N.A. (iii) 4 (iv) (a) N.A. (b) 1/306.7 ha. (v) N.A. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of grain (iv) (a) 1963—only (b) and (c) Nil. (v) Kanpur, Rudrapur, Meerut Dilkusha (Lucknow) and Amrokh (vi) Nil (vii) Plots of Treatment H_2T_3 was affected much due to rat attack at maturity stage.

5. RESULTS :

(i) 1413Kg/ha (ii) 158.5Kg/ha (iii) 'Selective treatment *vs.* others' alone is highly significant. (iv) Av. yield of grain in Kg/ha.

S_1=1474, S_2=1523 and S_3=1569Kg/ha.

	T_1	T_2	T_3	Mean
H_1	1355	1438	1323	1372
H_2	1323	1371	1342	1345
Mean	1339	1404	1332	1358

C.D. for 'selective treatments *vs.* others'=115.6Kg/ha.

Crop :- Wheat (*Rabi*). **Ref :- U.P. 62(309).**

Site :- Res. Farm, College of Agri., B.H.U., Varanasi. **Type :- 'D'**

Object :—To see the effectiveness of 2, 4 –D Dichloroplenorcy Acetic Acid as weed Killers in Wheat.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Loam (iii) 2.11.62 (iv) (a) 2 ploughings by *deshi* plough (b) By seed drill (c) 90Kg/ha (d) Rows 23 Cm. apart (e)– (v) G. M. by *crotolaria juncea*+top dressing with 22.4 kg/ha of N as A/S (vi) N P. 70. (vii) Irrigated (viii) As per treatments. (ix) 5.5 cm. (x) March, 63.

2. TREATMENTS :

All combinations of (1) and (2) +a control (3 plots).

(1) 5 weeding treatments : T_1=Weeding by Khurpi, T_2=Hoeing by hand hoe. T_3=Spraying of 2, 4—D at 1000PPM., T_4=Spraying of 2, 4—D at 2000PPM and T_5=Spraying of 2, 4—D at 3000PPM.

(2) 3 stages of application of weeding treatments. S_1=25, S_2=50 and S_3=75 days after sowing.

3. DESIGN:

(i) R.B.D. (ii) (a) 18 (b) 22.10m×60.96m (b) 4 (iv) (a) and (b) 9.14m×6.10m (v) Nil (vi) Yes.

4 GENERAL:

(i) Satisfactory (ii) Nil (iii) Nil (iv) Yield of grain (iv) (a) 1962—only (b) and (c) Nil (v) to (vii) Nil.

5. RESULTS:

(i) 3868Kg/ha (ii) 54 6Kg/ha (iii) Main effect of T and 'Control *vs.* others' are highly significant. (iv) Av. yield of grain in Kg/ha.

Control=3587Kg/ha.

	T_1	T_2	T_3	T_4	T_5	mean
S_1	4099	3672	4078	3800	3651	3860
S_2	4206	3758	4120	3886	3651	3924
S_3	4056	3800	3950	3736	3565	3821
mean	4120	3743	4049	3807	3622	3868

C.D. for T marginal mean=44.8Kg/ha.

C.D. for 'Control *vs.* others'=34.8Kg/ha.

Crop :- Wheat (*Rabi*). **Ref :- U.P. 65(542).**

Site :- Vsaini, (Agra, C.F.). **Type :- 'D'**

Ooject :—To study the effect of different insecticidal dusting against *Tanymcus indicus* Fst.

1. BASAL CONDITIONS:

(i) to (v) N.A. (vi) 5.11.65 (vii) to (x) N.

2. TREATMENTS:

11 insecticidal treatments : T_0=Control (2 plots), T_1=Dusting 25Kg 10% B.H.C., T_2=Dusting with 50Kg/ha. of 10% B.H.C., T_3=Dusting with 25Kg/ha. of 2% Aldrin, T_4=Dusting with 50% Aldrin, T_5=Dusting with 25Kg/ha of 5% Aldrin, T_6=Dusting with 50Kg/ha. of 5% Aldrin, T_7=Dusting with 25Kg/ha of 5% chlordane, T_8=Dusting with 50Kg/ha of 5% chlordane, T_9=Dusting with 25Kg/ha of 3% Heptachlor and T_{10}=Dusting with 50Kg/ha. of 3% Heptachlor.

3. DESIGN:

(i) R.B.D.; 12 plots/Block and 4 replication (ii) N.A. (iii) (a) 12 00 n×5.00 n (b) N.A. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Data on infestation of disease. (iv) (a) 1965—only (b) and (c) Nil (v) N.A. (vi) and (vii) Nil.

5. RESULTS :

(i) 1.77 degree (ii) 0.26 degree (iii) Treatment differences are significant. (iv) Mean angle of infestation of disease in degrees.

Treatment :	T_0	T_1	T_2	T_3	T_4	T_5	T_6	T_7	T_8	T_9	T_{10}
Mean angle :	2.36	1.77	1.34	1.86	1.68	1.56	1.23	2.04	1.56	1.94	1.58

$C.D._{.}$=0.37 degree

Crop :- Barley. (*Rabi*). **Ref :-U.P. 65(102).**

Site:- Govt. Agri. Farm, Dhanauri, **Type :- 'M'.**

Object :—To study the residual effect of N, P and K applied to Paddy crop during the precceeding season on Barley.

1. BASAL CONDITIONS :

(i) (a) Nil (b) Paddy (c) As per treatments (ii) Sandy to sandy loam (iii) 16.11.65. (iv) (a) 1 ploughing by S.T.P. and 4 ploughings by *Deshi* plough (b) Behind the plough (c) 86.5Kg/ha (d) Rows 23cm apart (e) – (v) Nil (vi) K. 12 (vii) Irrigated (viii) Nil (ix) N.A. (x) 7.4.66.

2. TREATMENTS :

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

(1) 3 levels of N : N_0=0, N_1=44 8 and N_2=89 6Kg/ha.

(2) 3 levels of P_2O_5: P_0=0, P_1=22.4 and P_2=44.8 Kg/ha.

3 levels of K_2O : K_0=0, K_1=22.4 and K_2=44 8Kg/ha.

These treatments were applied to previous crop of paddy.

3. DESIGN :

(i) 3^3 Confd (ii) (a) 3 blocks/replication, 9 plots/9block (b) 17.37×46.03; (iii) 2. (iv) (a) and (b) 17.37m× 4.57m (v) Nil. (vi) Yes.

4. GENERAL :

(i) Germination good (ii) Nil (iii) Yield of grain (iv) (a) 1955 –only (b) and (c) Nil (v) to (vii) Nil.

5. RESULTS:

(i) 1098Kg/ha (ii) 46.4Kg/ha (iii) Main effects of N,P and K are highly significant and interaction N×P 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	928	997	1186	1006	1037	1069	1037
N_1	1003	1113	1256	1092	1125	1155	1124
N_2	962	1104	1329	1104	1121	1169	1132
mean	964	1071	1257	1067	1095	1131	1098
K_0	941	1058	1203				
K_1	964	1067	1253				
K_2	989	1090	1314				

C.D. for N, P or K marginal means=31.8Kg/ha.

C.D. for body of N×P table=55.0Kg/ha.

Crop :- Barley. (*Rabi*). **Ref :- U.P. 65(101)**

Site :- Govt. Agri. Farm, Dhanauri. **Type :- 'M'.**

Object :—To study the residual effect of organic and inorganic manures applied to Paddy crop during the precceeding season on Barley.

1. BASAL CONDITIONS :

(i) (a) Nil (b) Paddy (c) As per treatments (ii) Sandy to sandy loam (iii) 17.11.65 (iv) (a) 4 ploughings by soil turning and *deshi* plough (b) Behind the plough. (c) 86Kg/ha (d) Rows 23cm apart. (e) — (v) Nil (vi) K—12 (vii) Irrigated (viii) Nil (ix) N.A. (x) 5.4.66.

2. TREATMENTS:

All combinations of (1) and (2)

(1) 7 manurial treatments: T_0=Control (No manure), T_1=28Kg/ha of N as C/A/N, T_2=28Kg/ha of N as F.Y.M., T_3=14Kg/ha of N as C/A/N+14Kg/ha of N as F.Y.M, T_4=56Kg/ha of N as C/A/N, T_5=56Kg/ha of N as F.Y.M and T_6=28Kg/ha of N as C/A/N+28Kg/ha of N as F.Y.M.

(2) 3 levels of fertilizers : F_0=Nil, F_1=44.8Kg/ha of P_2O_5 as Super F_2=F_1+44.8Kg/ha of K_2O.

These treatments were applied to previous crop.

3. DESIGN:

(i) Fact in R.B.D. (ii) (a) 21 (b) 56.69m×20.42m (iii) 3 (iv) (a) and (b) 6.40m×7.3 m (v) Nil (vi) Yes.

4. GENERAL :

(i) Germination-good (ii) Nil (iii) Yield of grain (iv) (a) 1965—only (b) and (c) Nil. (v) to (vii) Nil.

5. RESULTS:

(i) 1245Kg/ha (ii) 99.3Kg/ha (iii) Main effect of T and interaction T×F are highly significant. (iv) Av. yield of grain in Kg/ha.

	T_0	T_1	T_2	T_3	T_4	T_5	T_6	mean
F_0	925	1067	1188	1238	1345	1323	1494	1226
F_1	968	1210	1082	1124	1387	1338	1544	1236
F_2	1138	1224	1295	1316	1124	1281	1530	1273
mean	1010	1167	1188	1226	1285	1314	1523	1245

C D. for T marginal means=94.6Kg/ha.

C.D. for body of T×F table=163.8Kg/ha.

Crop :- Barley. (*Rabi*). **Ref :- U.P. 60 (292).**

Site :- Govt. Agri. Flood.Res. Stn , Gogragbat. **Type :- 'M'.**

Object :—To study the effect of different doses of N, P and K applied singly and in combination on the yield of Barley.

1. BASAL CONDITIONS:

(i) (a) Nil (b) *Dhaincha* for seed. (c) Nil (ii) Sandy loam (iii) 18.12.60 (iv) (a) One ploughing by S.T.P., one ploughing by *Deshi* plough and application of singh and *Deshi* Pata. (d) Behind the plough (c) 86Kg/ha (d) Rows 23cm apart (e) — (v) Nil (vi) K 12 (vii) Unirrigated (viii) 1 weeding and hoeing (ix) 2.8cm. (x) 11/12.4.61.

2- TREATMENTS :

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

(1) 2 levels of N as A/S : N_0=0 and N_1=44.8Kg/ha.

(2) 2 levels of P_2O_5 as Super : P_0=0 and P_1=44.8Kg/ha.

(3) 2 levels of K_2O as Mur. Pot.: K_0=0 and K_1=44.8Kg/ha.

All the fertilizers were applied in furrows at sowing.

3. DESIGN:

(i) Fact. in R.B.D. (ii) (a) 8 (b) 8.23m×42.98m (iii) 4 (iv) (a) and (b) 4.57m×8.23m (v) Nil (vi) Yes.

4. GENERAL:

(i) Poor (ii) Incidence of smut. (iii) Yield of grain (iv) (a) 1960—only (b) and (c) Nil (v) to (vii) Nil.

5. RESULTS:

(i) 673Kg/ha (ii) 137.7Kg/ha (iii) Main effects of N and P are highly significant and interaction N×P is significant. (iv) Av. yield of grain in Kg/ha.

	P_0	P_1	K_0	K_1	mean
N_0	497	642	527	612	570
N_1	566	1007	802	771	787
mean	532	825	665	692	678
P_0	521	808			
P_1	542	841			

C.D. for N or P marginal means=138.0Kg/ha.

C.D. for body of N×P table=195.2Kg/ha.

Crop :- Barley. (*Rabi*) **Ref :- U.P. 61(308), 69(332) 63(363).**

Site :- Govt. Agri. Flood Res. Stn., Gograghat. **Type:- 'M'**

Object :—To study the effect of N and P applied singly and in combination on the yield of Barley.

1. BASAL CONDITIONS:

(i) (a) N.A. (b) Paddy-Barley for 62, N.A. for others (c) N.A. (ii) Sandy loam (iii) 11.12.61; 25.12.62; 6.11.63 (iv) (a) 1 ploughing by S.T. P and 1—2 ploughing by *Deshi* plough and application of singh and *Deshi* Pata (b) Behind the plough (c) 86Kg/ha (d) Rows 23cm apart (e)— (v) Nil (vi) K.12 (vii) Unirrigated (viii) 1 hoeing (ix) 7.5cm: 4.4cm; 0.6cm (x) 15.4.62; N.A.; 28.3.64.

2. TREATMENTS:

All combinations of (1) and (2) :

(1) 3 levels of as A/S : N_0=0, N_1=33.6 and N_2=67.2Kg/ha.

(2) 3 levels of P_2O_5 as Super : P_0=0, P_1=33.6 and P_2=67.2Kg/ha.

A/S broadcasted and Super drilled in furrows behind the plough at the time of sowing.

3. DESIGN :

(i) Fact. in R.B.D. (ii) (a) 9 (b) 14.94m×24.08m; 18.29m×24.38m; 14.94m×24.08m (iii) 4 (iv) (a) N.A.; 7.32m×5.49m; 7.62m×4 57m (b) 7.32m×5.49m; 6.86m×4.88m; 7.16m×3.96m (v) N.A. for 61; 23cm×30cm. Not clear for 62 and 63. (vi) Yes.

4. GENERAL:

(i) Satisfactory (ii) Infection of smut; Damage by birds and rats; N.A. (iii) Yield of grain and straw (iv) (a) 1961—63 (b) No (c) Nil. (v) and (vi) Nil (vii) As the error variances are hreterogeneous and Treatments× years interaction is absent, the results of the individual years have been presented under 5. Results.

5. RESULTS :

61 (308)

(i)172.6Kg/ha (ii) 239.1Kg/ha (iii) Main effect of N is highly significant. Interaction N×P is highly significant. (iv) Av. yield of grain in Kg/ha.

	P_0	P_1	P_2	mean
N_0	1572	1297	1584	1484
N_1	1387	1894	1941	1741
N_2	1915	2118	1828	1954
mean	1625	1770	1784	1726

C.D. for N marginal means=201.4Kg/ha

C.D. for the body of N×P table=348.9Kg/ha.

62 (332)

(i) 632.1Kg/ha. (ii) 153.6Kg/ha (iii) Main effect of N is highly significant. (iv) Av. yield of grain in Kg/ha

	P_0	P_1	P_2	mean
N_0	530.7	478.4	505.3	504.8
N_1	275.6	616.7	758.7	650.3
N_2	612.9	859.6	751.2	741.3
mean	573.1	651.6	671.7	632.1

C.D. for N marginal means=129.4Kg/ha.

63 (363)

(i) 1327Kg/ha. (ii) 324.6Kg/ha (iii) Main effect of N is highly significant (iv) Av. yield of grain in Kg/ha.

	P_0	P_1	P_2	Mean
N_0	789	1067	1238	1031
N_1	1373	1136	1293	1268
N_2	1411	1940	1693	1681
Mean	1191	1381	1408	1327

C.D. for N marginal means=273.5Kg/ha.

Crop :- Barley (*Rabi*). **Ref :-U.P. 63(65), 64(53).**

Site :- Govt. Res. Farm, Kanpur. **Type :-'M'.**

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

1. BASAL CONDITIONS:

(i) (a) N.A. (b) *Moong*; *Sanai* (c) N.A. (ii) Sandy loam (iii) 27.11.63: 10.11.64 (iv) (a) N.A, (b) Behind the plough (c) 99Kg/ha (d) Rows 23cm apart (e)— (v) G.M. by *Moong*; G.M. by *Sanai* (vi) K. 12 (vii) Irrigated (viii) N.A. (ix) 34.5cm: 2.7cm (x) 14.4.64; 22/23.3.65.

2. TREATMENTS :

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

(1) 4 levels of N as A/S : N_0=0, N_1=22.4, N_2=44.8 and N_3=67.2Kg/ha.

(2) 3 levels of P_2O_5 as Super : P_0=0, P_1=0, P_1 =11.2 and P_2=22.4Kg/ha.

(3) 3 levels of K_2O as Pot. Sul. : K_0=0, K_1=11.2 and K_2=22.4Kg/ha.

P_2O_5 and K_2O applied one day before sowing in furrows and N broad casted at the time of sowing.

3. DESIGN:

(i) Fact. in R.B.D. (ii) (a) 36 (b) 53.90m×44.00m; N.A. (iii) 2 (iv) (a) 8.40m×6.00m 6.55m×4.57m (b) 7.90m×5.50m 5.64m×3.66m (v) 25cm×25cm; 46cm×46cm (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of grain (iv) (a) 1963—64 (b) No (c) Nil (v) and (vi) Nil (vii) As the error variances are heterogenous and Treatments×years interaction is absent, the results of the individual years have been presented under 5. Results.

5. RESULTS:

63 (65)

(i) 1454Kg/ha (ii) 64.8Kg/ha (iii) Main effect of N, P and K are highly significant and Interaction P×P 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	1005	1078	1139	1047	1078	1097	1074
N_1	1277	1316	1369	1304	1323	1335	1321
N_2	1454	1577	1676	1542	1569	1596	1569
N_3	1726	1834	1995	1787	1849	1918	1851
mean	1366	1451	1545	1420	1455	1486	1454
K_0	1335	1415	1510				
K_1	1367	1453	1545				
K_2	1395	1484	1579				

C.D. for N marginal means=43.9Kg/ha.

C.D. for P or K marginal meanes=38 0Kg/ha.

C.D. for the body of N×P table=76.0Kg/ha.

64 (53)

(i) 3769Kg/ha. (ii) 439.9Kg/ha. (iii) Main effect of N is highly significant. (iv) Av. yield of grain in Kg/ha.

	P_0	P_1	P_2	K_0	K_1	K_2	mean
N_0	3604	3354	3354	3354	3483	3475	3437
N_1	3661	3879	3976	3742	3855	3919	3839
N_2	3693	3887	4016	3774	3887	3935	3865
N_3	3717	3944	4146	3806	3952	4049	3936
mean	3669	3766	3873	3669	3794	3845	3769
K_0	3618	3661	3727				
K_1	3703	3752	3927				
K_2	3685	3885	3964				

C.D. for N marginal means=297.9Kg/ha.

Crop :- Barley (*Rabi*). **Ref. :- U.P.65 (46).**

Site :-Govt. Reg. Agri. Res. Stn., Majhera. **Type :- 'M'.**

Object :—To find out the optimum dose of N and K singly and in combination in the presence of a uniform dose of P.

1. BASAL CONDITIONS:

(i) (a) Nil (b) *Urd* (c) 11.2Kg/ha of N as F.Y.M. (ii) Clay loam (iii) 30.11.65 (iv) (a) 1 ploughing by soil turning plough and 2 plankings by *Deshi* plough (b) Line sowing behind the plough (c) 86Kg/ha (d) Rows 23cm apart (e)— (v) 20Kg/ha of P_2O_5 as Super (vi) K—5 (vii) Irrigated (viii) 2 hoeings and 1 weeding (ix) N.A. (x) 24.4.66.

2. TREATMENTS:

All combinations of (1) and (2)

(1) 4 levels of N : N_0=0, N_1=20, N_2=40 and N_3=60Kg/ha.

(2) 4 levels of K_2O : K_0=0, K_1=20, K_2=40 and K_3=60Kg/ha.

3. DESIGN:

(i) Fact. in R.B.D. ii) (a) 16 (b) N.A. (iii) 4 (iv) (a) and (b) 2.90m×1.15m. (v) Nil (vi) Yes.

4. GENERAL:

(i) Good (ii) Nil (iii) Yield of grain (iv) (a) 1965—only (b) and (c) Nil (v) and (vii) Nil.

5. RESULTS:

(i) 2353Kg/ha (ii) 459·7Kg/ha (iii) Main effect of N is highly significant (iv) Av. yield of grain in Kg/ha .

	N_0	N_1	N_2	N_3	mean
K_0	1109	2541	2564	3231	2361
K_1	1184	2114	2481	3358	2284
K_2	1387	2361	2406	3276	2358
K_3	1409	2211	2871	3216	2427
mean	1272	2307	2581	3270	2358

C.D. for N marginal means=327.6Kg/ha.

Crop :- Barley (*Rabi*) **Ref :- U.P. 65 (41)**

Site :- Govt. Reg. Agri. Rcs. Stn., Nawabgunj. **Type :- 'M'.**

Object:—To study the residual effect of organic and inorganic manures with and without Super, applied to previous paddy crop on the yield of Barley crop.

1. BASAL CONDITIONS:

(i) (a) Paddy—Barley (b) Paddy (c) As per treatments (ii) Clay loam (iii) 25.12.65 (iv) (a) 2 ploughings by Mould board plough and *Deshi* plough (b) Line sowing behind the plough (c) 100Kg/ha. (d) Rows 23cm apart (e) — (v) Nil (vi) C.138 (vii) Irrigated (viii) Nil (ix) N.A. (x) 25.4.66.

2. TREATMENTS:

All combinations of (1), (2) and (3) + 2 additional treatments.

(1) 3 Sources of N: S_1=C/A/N, S_2=F.Y.M. and S_3=1/2 C/A/N+1/2 F.Y.M.

(2) 2 levels of N: N_1=28 and N_2=56Kg/ha.

(3) 2 levels of P_2O_5: P_0=0 and P_1=44.8Kg/ha.

Additional treatments

E_0=Control and E_1=44 8Kg/ha of P_2O_5

Treatments were applied to the previous crop.

3. DESIGN:

(i) R.B.D (ii) (a) 14 (b) N A. (iii) 4 (iv) (a) 12.19m×4.12m (b) 11.28m×3.66m (v) 46cm×46cm (vi) Yes.

4. GENERAL:

(i) Average (ii) Nil (iii) Yield of grain (iv) (a) 1965—only (b) and (c) Nil (v) to (vii) Nil.

5. RESULTS:

(i) 720Kg/ha (ii) 137.2Kg/ha. (iii) Main effects of P and interaction N×S are significant. (iv) Av. yield of grain in Kg/ha.

E_0=605 and E_1=781Kg/ha.

	N_1	N_2	S_1	S_2	S_3	mean
P_0	666	702	667	689	695	684
P_1	713	8 6	762	784	748	765
mean	689	759	714	736	722	724
S_1	747	682				
S_2	644	829				
S_3	678	765				

C.D. for P marginal means=80.1Kg/ha.

C.D. for the body of N×S table=138.8Kg/ha.

Crop :- Barley (*Rabi*). **Ref :-U.P. 63(227), 64 (239)**

Site :- Govt. Reg. Agri. Res. Stn., Nawabgunj. **Type :-'M'.**

Object :—To study the effect of N, P and K along with compost on Barley crop.

1. BASAL CONDITIONS :

(i) (a) Nil (b) and (c) N.A. (ii) Clay loam (iii) 8.12.63; 18.12.64. (iv) (a) N.A. (b) *Line sowing (c)* 92Kg/ha (d) Rows 23cm apart (e) — (v) 92.2Q/ha of compost (vi) K. 12 (vii) Irrigated (viii) Hoeing and weeding (ix) 0.7cm; 16.3cm (x) 4.5.64; 18.4.65.

2. TREATMENTS

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

(1) 2 levels of N: N_0=0 and N_1=33.4Kg/ha.

(2) 2 levels of P_2O_5 : P_0=0 and P_1=33.4Kg/ha.

(3) 2 levels of K_2O : K_0=0 and K_1=33.4Kg/ha.

3. DESIGN :

(i) R.B.D. (ii) (a) 9 (b) N.A. (iii) 3 (iv) (a) and (b) 4.27m×3.66m ; 3.88m×1.52m (v) Nil (vi) Yes.

4. GENERAL :

(i) Poor (ii) Nil (iii) Yield of grain (iv) (a) 1963—64 (b) No. (c) Results of combined analysis have been presented under 5. Results. (v) and (vi) Nil (vii) As the error variances are heterogeneous and Treatments×years interaction is absent in the P×K table. Pooled results of (N×P) and (N×K) have been presented under 5. Results.

5. **RESULTS :**

Pooled results :

(i) 590.4Kg/ha. (ii) 98.8Kg/ha. (based on 5 d.f. (based on year×N, year×P, year×K, Y×(N×P) and Y(N×K) interactions.) (iii) Main effects of N is highly significant and that of P is significant. (iv) Av. yield of grain in Kg/ha.

Control=328.3Kg/ha.

	P_0	P_1	K_0	K_1	Mean
N_0	391.0	411.5	413.0	389.5	401.2
N_1	766.5	924.0	855.0	835.5	845.2
Mean	578.7	667.8	634.0	612.5	623.2

C.D. for N or P marginal means=73.3Kg/ha.

63(227)

	P_0	P_1	mean
K_0	422.0	448.0	435.0
K_1	190.0	470.0	430.0
mean	406.0	459.0	432.0

64(239)

	P_0	P_1	mean
K_0	841.5	824.5	833.0
K_1	661.3	928.7	795.0
mean	751.4	876.6	814.0

Individual results :

Treatment	N_0	N_1	Sig.	P_0	P_1	Sig.	K_0	K_1	Sig.
years									
1963	308.0	557.0	**	406.0	359.0	**	435.0	430.0	N.S.
1964	494.4	1133.4	**	751.4	876.6	N.S.	833.0	795.0	N.S.
Pooled	401.2	845.2	**	578.7	667.8	**	634.0	612.5	N.S.

Control	G.M.	S.E./plot
312.0	419.0	26.4
344.7	761.9	209.5
328.3	391.6	98.8

Crop :- Barley (*Rabi*). **Ref :- U.P. 61(55), 62(54), 63(44),**

Site :- State Soil Cons. Res. Demons, and Trg. Centre, Rehmankhera. **64(38), 65(497),**

Type :- 'M'.

Object :—To assess the manurial requirement of Barley crop under rain-fed conditions.

1. BASAL CONDITIONS :

(i) (a) As per treatments—Barley (b) As per treatments (c) Nil (ii) Loamy sand (iii) 6.11.61; 26.10.62; 23.10.63; 28/29.10.64; 12.11.65. (iv) (a) Field prepared by Tractor harrow and cultivator. (b) Sown behind *Deshi* plough (c) 92Kg/ha (d) Rows 23cm. apart (e)– (v) Nil (vi) K.12 (vii) Unirrigated (viii) and (ix) N.A. (x) N.A.; 18.3.63; 23/24.3.64; N.A.; N.A.

2. **TREATMENTS:**

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

(1) 4 previous crops : C_0=Fallow (control), C_1=44.8Kg/ha of N as F.Y.M. C_2=*Sanai* G.M. and C_3=*Urd* for grain.

(2) 2 levels of N : N_0=0 and N_1=22.4Kg/ha.

(3) 2 levels of P_2O_5 as Super : P_0=0 and P_1=22.4Kg/ha.

N as A/S in 61 and C/A/N for others. *Sanai* and *Urd* sown with the break of Monsoon. F.Y.M. applied at the end of the rains and fertilizers applied at the time of final preparation of the seed-beds Super placed at a depth of about 10 -- 13cm. behind the plough (U.P. No. 2) without mould-board along the rows and A/S and C/A/N broadcasted in the field. *Sanai* crop was satisfactory in all the years except in 65.

3. **DESIGN:**

(i) Fact. in R.B.D. (ii) (a) 16 (b) 13.41m×126.80m (iii) 3 (iv) (a) 13.41m×7.32m (b) 12.80m×6.71m (v) 30cm. discarded alround the net plot (vi) Yes.

4. GENERAL :

(i) Satisfactory except in 63 where it was poor and especially in C_3 treatment. (ii) N.A. (iii) Yield of *Urd* grain and bhusa. Germination % stand and yield of grain and straw (iv) (a) 1961 – 65 (b) Yes (c) Results of combined analysis has been presented under 5. Results. (v) Nil (vi) Drought conditions prevailed during 62. In 63 drought conditions prevailed right from sowing till harvest. (vii) Yield in 63 were poor and have been excluded from pooling of results. Error variences are heterogeneous and Treatments × years intraction is present.

5. RESULTS :

Pooled results :

(i) 1683Kg/ha (ii) 552.9Kg/ha. (based on 36 d.f. made up of Treatment × years interaction) (iii) Main effects of C and N are highly significant and that of P is significant. (iv) Av. yield of grain in Kg/ha.

	N_0	N_1	P_0	P_1	mean
C_0	1547	1981	1615	1913	1764
C_1	1691	2210	1975	1926	1951
C_2	1644	1969	1673	1940	1806
C_3	1059	1361	1131	1289	1210
mean	1485	1880	1599	1767	1683
P_0	1475	1723			
P_1	1496	2038			

C.D. for C marginal means=229.0Kg/ha

C.D. for N or P marginal means=161.9Kg/ha.

Individual results:

Treatments	C_0	C_1	C_2	C_3	Sig.	N_0	N_1	Sig.	P_0	P_1	Sig.	G.M.	S.E./plot
Year													
1961	2845	2819	2648	1590	**	2124	2827	**	2370	2581	N.S.	2476	456.7
1962	1226	1262	1386	1011	**	1077	1365	**	1180	1262	N.S.	1221	223.4
1964	2155	2673	2973	1658	*	1978	2302	**	2010	2270	N.S.	2140	471.6
1965	831	1049	1118	583	**	672	1028	**	826	955	N.S.	895	260.0
Pooled	1764	1951	1806	1210	**	1485	1880	**	1599	1767	*	1683	552.9

Crop :- Barley (*Rabi*) **Ref :- U.P. 64(182).**

Site.-Govt. Reg. Agri. Res. Stn., Varanasi. **Type :- 'M'.**

Object :—To study the effect of levels of N and Spartin on the yield of Barley.

1. BASAL CONDITIONS

(i) (a) Nil (b) and (c) N.A. (ii) Loam (iii) 26.11.64 (iv) (a) N.A. (b) In rows behind *Deshi* plough (c) N.A. (d) Rows 23cm. apart (e) — (v) and (vi) N.A. (vii) Irrigated (viii) Nil (ix) 5.2cm (x) N.A.

2. TREATMENTS:

All combinations of (1) and (2)

(1) 2 levels of Spartin: S_0=0 and S_1=150Kg/ha.

(2) 4 levels of N: N_0=0, N_1=50, N_2=100 and N_3=150Kg/ha.

3. DESIGN:

(i) Fact. in R.B.D. (ii) (a) 8 (b) N.A. (iii) 4 (iv) (a) 2.74m×0.91m (b) 2.13m×0.69m (v) 30cm×11cm. (vi) Yes.

4. GENERAL:

(i) Good (ii) Nil (iii) Yield of grain (iv) (a) 1964—only (b) and (c) Nil (v) to (vii) Nil.

5. RESULTS:

(i) 3330Kg/ha. (ii) 365.6Kg/ha (iii) Main effect of N is significant. (iv) Av. yield of grain in Kg/ha

	S_0	S_1	mean
N_0	1487	1452	1470
N_1	3263	3024	3144
N_2	4203	4118	4161
N_3	4511	4579	4545
mean	3366	3293	3330

C.D. for N marginal means=380.2Kg/ha.

Crop :- Barley (*Rabi*) **Ref :- U.P. 61(S.F.T.)**

Site : District—Azamgarh, Ghazipur, Jaunpur, Partapgarh and Varanasi **Type :- 'M'.**

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

1. BASAL CONDITIONS:

(i) (a) to (c) N.A. (ii) Alluvial (iii) to (x) N.A.

2. TREATMENTS:

8 manurial treatments:

O=Control (no manure), N=22.4Kg/ha. of N, P=22.4Kg/ha. of P_2O_5, K=22.4Kg/ha. of K_2O, NP=22.4Kg/ha of N+22.4Kg/ha of P_2O_5, NK=22.4Kg/ha of N+22.4Kg/ha of K_2O, PK=22.4Kg/ha of P_2O_5+22.4Kg/ha of K_2O and NPK=22.4Kg/ha of N+22.4Kg/ha. of P_2O_5+22.4Kg/ha. of K_2O.

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) 1/98.8ha. (b) 1/197.7ha. (iv) Yes.

4. GENERAL :

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

5. RESULTS :

District	No. of trials	Control yield in Kg/ha.	Av. response in Kg/ha. N	P	K	S.E.	NP	NK	PK	NPK	S.E.
Azamgarh	24	1440	520	160	70	10.0	0	—10	40	40	12.0
Ghazipur	23	1810	560	280	130	34.0	20	—40	70	20	26.0
Jaunpur	24	1200	370	180	60	16.0	40	0	10	10	10.0
Pratapgarh	6	1100	230	120	130	40.0	0	0	10	60	32.0
Varanasi	18	1570	430	220	70	28.0	40	—10	40	—20	18.0

Crop :- Barley. (*Rabi*). **Ref:-U.P. 61 (S.F.T.)**

Site :- District—Ghazipur and Jaunpur. **Type :- 'M'.**

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

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Alluvial (iii) to (x) N.A.

2. TREATMENTS :

7 manurial treatments :

O=Control (no manure), N_1=22.4Kg/ha. of N as Urea N_2=44.8Kg/ha of N as Urea N_1'=22.4Kg/ha of N as A/S/N, N_2'=44.8Kg/ha. of N as A/S/N, N_1''=22.4Kg/ha of N as C/A/N and N_2''=44.8Kg/ha of N as C/A/N.

3. DESIGN :

Same as in type A experiment conducted on Barley crop and presented on page No. 726.

4. GENERAL :

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

5. RESULTS :

District	No. of trials	Control yield in Kg/ha.	N_1	N_2	N_1'	N_2'	N_1''	N_2''	S.E.
Ghazipur	24	1820	400	550	580	940	510	860	55.0
Jaunpur	24	1060	230	530	300	530	320	580	42.0

Crop :- Barley (*Rabi*). **Ref :- U.P. 61 (S.F.T.)**

Site :- District—Pratapgarh and Varanasi **Type :-'M'.**

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

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Alluvial (iii) to (x) N.A.

2. TREATMENTS :

7 manurial treatments:

O=Control (no manure), N_1=22.4Kg/ha. of N as A/S, N_2=44.8Kg/ha of N as A/S, N_1'=22.4Kg/ha of N as Urea, N_3'=44.8Kg/ha. of N as Urea, N_1=22.4Kg/ha. of N as A/S/N, and N_2''=44.8/ha of N as A/S/N.

3. DESIGN :

Same as in type A experiment conducted on Barley crop and presented on page No. 726.

4. GENERAL:

(i) to (ii) N.A. (iii) Yield of grain (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_1	N_2	N_1'	N_2''	N_1''	N_2''	S.E.
Partapgarh	6	1310	270	360	460	630	460	540	43.0
Varanasi	6	1360	720	840	440	1130	800	970	217.0

Crop :- Barley (*Rabi*). **Ref :- U.P. 61 (S.F.T.)**

Site :- District—Azamgarh. **Type :- 'M'.**

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

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Alluvial (iii) to (x) N.A.

2. TREATMENTS :

7 manurial treatments :

O=Control (no manure), N_1=22.4Kg/ha. of N as A/S N_2=44.8Kg/ha of N as A/S N_1'=22.4Kg/ha of N as Urea, N_2'=44.8Kg/ha. of N as Urea, N_1''=22.4Kg/ha of N as C/A/N and N_2''=44.8Kg/ha of N as C/A/N.

3. DESIGN :

Same as in type A experiment conducted on Barley crop and presented on page No. 726.

4. GENERAL :

(i) to (ii) N.A. (iii) Yield of grain (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_1	N_2	N_1'	N_2'	N_1''	N_2''	S.E.
Azamgarh	24	1420	320	560	350	620	420	740	28.0

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Crop:- Barley (*Rabi*). **Ref:- U.P. 62 to 65 (S.F.T.) for Varanasi, Azamgarh, Ghazipur, and Jaunpur.**

Site : District—Varanasi, Azamgarh, Ghazipur and Jaunpur. **Type :-'M'.**

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

1. BASAL CONDITIONS :

(i) to (vi) N.A. (vii) Irrigated (viii) to (x) N.A.

2. TREATMENTS:

8 manurial treatments :

O=Control (no manure), N_1=35Kg/ha of N, N_2=70Kg/ha of N, P_1=35Kg/ha of P_2O_5, N_1P_1=35Kg/ha of N+35Kg/ha of P_2O_5, N_2P_1=70Kg/ha of N+35Kg/ha of P_2O_5, N_2P_2=70Kg/ha of N+70Kg/ha of P_2O_5 and $N_2P_2K_1$=70Kg/ha of N+70Kg/ha of P_2O_5+70Kg/ha of K_2O.

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 cach 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 elected in each block. (iii) (a) 1/100ha (b) 1/200ha (iv) Yes.

4. GENERAL:

(i) and (ii) N.A. (iii) Yield of grain (iv) (a) 1962--56 (b) No (c) Nil (v) to (vii) N.A.

5. RESULTS:

Varanasi

62 (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 of Kg/ha.	470	812	179	554	953	1160	1220	73.5

Control yield=1347Kg/ha.: No. of trials=13

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.	484	784	165	645	964	1104	1173	70.6

Control yield=1508Kg/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.	350	608	83	445	764	961	1001	35.1

Control yield=1471Kg/ha.: No. of 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.	312	589	82	426	715	863	902	37·8

Control yield=1285Kg/ha.: No. of trials=18

Azamgarh

62(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.	329	561	174	463	665	794	928	40.0

Control yield=1810Kg/ha.: No. of trials=16

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.	491	821	174	646	915	1074	1150	30·6

Control yield=1766Kg/ha.; No. of trials=16

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.	446	759	118	609	860	974	1010	31·5

Control yield=1588Kg/ha.; No. of trials=23

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.	537	853	172	679	970	1075	1169	25·0

Control yield=1810Kg/ha.: No. of trials=24

Ghazipur

62 (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.	626	758	426	793	1033	1298	1499	90·6

Control yield=1837Kg/ha.: No. of trials=16

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.	380	668	116	466	760	908	1015	40·3

Control yield=1450Kg/ha.; No. of trials=17

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.	292	450	57	372	531	666	756	22·1

Control yield=1257Kg/ha.: No. of trials=24

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.	314	540	103	377	615	785	904	30·1

Control yield=1383Kg/ha.; No. of trials=26

Jaunpur

62 (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.	412	762	135	575	852	948	1036	50·0

Control yield=1394Kg/ha.; No. of trials=16

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.F.
Av. response of grain in Kg/ha.	365	622	142	537	834	1011	1106	47.2

Control yield=1582Kg/ha.; No. of trials=16

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.	457	777	115	537	901	1098	1154	49.4

Control yield=1592Kg/ha.: No. of trials=24

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. rerponse of gra n in Kg/ha.	490	777	167	606	484	1048	1131	31.0

Control yield=1687Kg/ha.: No. of trials=24

Crop :-Barley (*Rabi*). **Ref :-U.P. 62(S.F.T.)**

Site :-District—Ghazipur. **Type :-'M'**

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

1. BASAL CONDITIONS:

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

2. TREATMENTS & 3. DESIGN :

Same as in Type A_1 experiment conducted under irrigated conditions for Barley crop and presented on Page No. 729.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of grain (iv) (a) 1962—only (b) No (c) Nil (v) to (vii) N.A.

5. RESULTS :

Ghazipur

62 (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.	494	691	355	662	919	1126	1166	113.6

Control yield=1354Kg/ha.; No. of trials=2

Crop :- Barley (*Rabi*). **Ref :-U.P. 62 to 65 (S.F.T.)**

District : Azamgarh, Ghazipur, Jaunpur and Varan si. **Type :-'M'**

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

1. BASAL CONDITIONS :

(i) to (vi) N.A. (vii) Irrigated (viii) to N.A.

2. TREATMENTS :

8 manurial treatments :

O=Control (no manure), N_1=35Kg/ha. of N, P_1=35Kg/ha. of P_2O_5, P_2=70Kg/ha. of P_2O_5, N_1P_1=35Kg/ha of N+35Kg/ha. of P_2O_5, N_1P_2=35Kg/ha. of N+70Kg/ha. of P_2O_5, N_2P_2=70Kg/ha. of N+70Kg/ha. of P_2O_5 and $N_2P_2K_1$=70Kg/ha. of N+70Kg/ha. of P_2O_5+70Kg/ha. of K_2O.

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 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) 1/100ha. (b) 1/200ha (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of grain (iv) (a) 1962 - 66 (b) No (c) Nil (v) to (vii) N.A.

5. RESULTS :

Av. response in Kg/ha.

Azamgarh

62 (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.	417	122	239	505	639	881	998	52.8

Control yield=1813Kg/ha.: No. of the trials=16

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.	444	184	278	604	699	1031	1203	36.0

Control yield=1844Kg/ha.: No. of trials=16

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.	453	158	258	626	785	984	1154	45.9

Control yield=1556Kg/ha.; No. of trials=25

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.	528	173	292	684	759	1039	1222	25.9

Control yield=1718Kg/ha.; No. of trials=24

Ghazipur

62 (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 Kg/ha.	690	310	433	760	859	1174	1216	64.7

Control yield=1904Kg/ha.; No. of trials=16

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.	371	141	230	535	601	858	959	35.8

Control yield=1506Kg/ha.; No. of trials=17

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.	328	53	106	416	486	652	790	21.1

Control yield=1208Kg/ha.; No. of trials=24

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.	364	53	107	418	476	830	917	16.9

Control yield=1354Kg/ha.; No. of trials=26

Jaunpur

62 (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.	362	92	171	459	552	858	994	54.6

Control yield=1296Kg/ha.; No. of trials=16

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.	493	184	316	553	703	1045	1140	47·6

Control yield=1654Kg/ha.; No. of trials=16

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.	448	133	231	569	703	1044	1176	40.7

Control yield=1522Kg/ha.; No. of trials=23

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.	399	142	252	565	706	944	1061	32·1

Control yield=1566Kg/ha.; No. of trials=24

Varanasi

62 (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.	473	131	299	683	790	1154	1235	69·2

Control yield=1366Kg/ha.; No. of trials=14

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 grian in Kg/ha.	478	96	209	601	732	1066	1216	79·6

Control yield=1429 Kg/ha.; No. of trials=13

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.	373	82	159	510	574	944	1027	27·7

Control yield=1492Kg/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.	320	55	119	403	487	783	811	33·7

Control yield=1305Kg/ha.; No. of trials=18

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Crop :- Barley (*Rabi*). **Ref :- U.P. 62 to 65 (S.F.T.) for Azamgarh, Ghazipur, Jaunpur and Varanasi.**

Site :- District—Azamgarh, Ghazipur, Jaunpur and Varanasi. Type :- 'M'.

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

1. BASAL CONDITIONS :

(i) to (vi) N.A. (vii) Irrigated (viii) to (x) N.A.

2. TREATMENTS:

8 manurial treatments :

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

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 each 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 elected in each block. (iii) (a) 1/100ha (b) 1/200ha (iv) Yes.

4. GENERAL :

(i) and ( ) N.A. (iii) Yield of grain (iv) (a) 1962—66 (b) N.A. (c) Nil (v) to (vii) N.A.

5. RESULTS :

Azamgarh

62 (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.	340	109	159	411	515	630	563	51.4

Control yield=16696g/ha.: No. of trials=16

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 inKg/ha.	492	124	180	573	629	917	801	31.4

Control yield=1780Kg/ha.; No. of trials=16

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.	401	103	180	504	575	838	669	49.3

Control yield=1475Kg/ha.; No. of trials=24

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.	404	103	171	491	578	863	720	35.0

Control yield=1624Kg/ha.; No. of trials=25

Ghazipur

62 (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.	645	175	230	657	674	1008	982	48.1

Control yield=1679Kg/ha.; No. of trials=16

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.	346	44	135	394	468	740	636	43.7

Control yield=1243Kg/ha.; No. of trials=17

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.	279	27	54	329	372	558	463	17.0

Control yield=1070Kg/ha.; No. of trials=24

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.	389	35	68	425	460	709	578	30.8

Control yield=1292Kg/ha.; No. of trials=26

Jaunpur

62 (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.	483	170	245	587	664	975	879	69.6

Control yield=1207Kg/ha.; No. of trials=16

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.	341	62	179	444	525	845	690	38.0

Control yield=1471Kg/ha.; No. of trials=16

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.	413	88	144	447	506	816	678	43.1

Control yield=1464Kg/ha.; No. of trials=24

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.	394	108	209	466	581	820	640	34.8

Control yield=1463Kg/ha.; No. of trials=23

Varanasi

62 (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.	397	46	122	482	567	854	756	52·7

Control yield=1288Kg/ha.; No. of trials=14

53 (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.	400	36	130	395	542	867	643	70·4

Control yield=1254Kg/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.	312	30	75	369	423	779	579	33·5

Control yield=1472Kg/ha.; No. of trials=18

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.	282	26	61	330	366	638	508	13·6

Control yield=1165Kg/ha.; No. of trials=18

Crop. :- Barley (*Rabi*). **Ref. :- U.P. 62(S.F.T.)**

Site :- District—Ghazipur. **Type :- 'M'**

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

1. BASAL CONDITIONS :

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

2. TREATMENTS: & 3. DESIGN:

Same as in Type A_2 experiment conducted under irrigated conditions on Barley crop and presented on Page No. 735

4. GENERAL:

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

5. RESULTS:

Av. response in Kg/ha.

Ghazipur

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.	375	128	227	415	513	642	751	66·4

Control yield=1205Kg/ha.; No. of trials=2

Crop :- Barley (*Rabi*). **Ref:- U.P. 64(2000)**

Site :- Govt. Agri. Flood Res. Stn., Gograghat. **Type :- 'MV'.**

Object :—To find out the suitability of top dressing of N under *Barani* conditions on Barley varieties.

1. BASAL CONDITIONS:

(i) (a) Paddy—Barley (b) Paddy (c) N.A. (ii) Sandy loam (iii) 18.12.64 (iv) (a) 3 ploughings and 3 pata applications (b) Behind *Deshi* plough (c) 86Kg/ha (d) Rows 23cm. apart (e)— (v) Nil (vi) As per treatments (vii) Unirrigated (viii) 1 weeding (ix) 5.3cm. (x) 25.4.65.

2. TREATMENTS:

All combinations of (1) and (2)

(1) 3 levels of N as A/S: N_0=0, N_1=22.4 and N_2=44.8Kg/ha.

(2) 2 varieties: V_1=K—12 and V_2=K—70

N applied in two equal doses as top dressing on 18.1.65 and 18.2.65.

3. DESIGN:

(i) Fact. in R.B.D. (ii) (a) 6 (b) 18.29m×17.98m (iii) 4 (iv) (a) and (b) 2.74m×8.84m (v) Nil (vi) Yes.

4. GENERAL:

(i) Germination good and growth poor (ii) Heavy attack of rats in some plots (iii) Yield of grain (iv) (a) 1964—only (b) and (c) Nil (v) to (vii) Nil.

5. RESULTS :

(i) 488.0Kg/ha (ii) 180.7Kg/ha. (iii) None of the effects is significant. (iv) Av. yield of grain in Kg/ha.

	N_0	N_1	N_2	mean
V_1	360.8	577.4	474.3	470.8
V_2	483.5	414.4	617.6	505.2
mean	422.2	495.9	545.9	488.0

Crop :- Barley (*Rabi*). **Ref :-U.P. 60 (78).**

Site :- Govt. Res. Farm, Kanpur. **Type :- 'MV'.**

Object :—To find out the best variety for very late sowing i.e. during December to follow late Paddy under different levels of N.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Late Paddy (c) N.A. (ii) Loam (ii) 29.12.60 (iv) (a) N.A. (b) Line sowing behind the plough. (c) 90Kg/ha. (d) Rows 23cm apart. (e) - (v) 44.8Kg/ha. of P_2O_5 as Super.+44.8Kg/ha. of K_2O as Mur. Pot. applied at sowing (vi) As per treatments. (vii) Irrigated. (viii) N.A. (ix) 6.3cm. (x) Ist week of April, 61.

2. TREATMENTS :

All combination of (1) and (2).

(1) 3 levels of N as A/S : N_0=0, N_1=44.8 and N_2=89.6Kg/ha.

(2) 10 Varieties : V_1=K—23 (Mid-late), V_2=K—24 (Mid-late), V_3=K.N. 28 (Medium), V_4=K.N. 16 (Early), V_5=I.W. 112/8—6 (Mid. late), V_6=K_8 (Mid. late), V_7=K.19 (Medium), V_8=N.P. 21 (Mid. late), V_9=C.251 (Mid-early) and V_{10}=K. 12 (early).

3. DESIGN :

(i) Fact. in R.B.D. (ii) (a) 30 (b) 14.63m×21.49m. (iii) 4 (iv) (a) 4.27m.×1.60m. (b) 3.66m×1.14m (v) 30cm×23cm (vi) Yes.

4. GENERAL :

(i) Lodging 5 to 10% in some plots (ii) Incidence of yellow rust from 50% to 100% (iii) Yield of grain and straw (iv) (a) 1959—61 (with changed design in 1960) (b) and (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 1050Kg/ha. (ii) 229.4Kg/ha. (iii) Main effects of N and V are highly significant. (iv) Av. yield of grain in Kg/ha.

	V_1	V_2	V_3	V_4	V_5	V_6	V_7	V_8	V_9	V_{10}	mean
N_0	431	694	502	562	550	443	604	484	437	777	548
N_1	987	1632	981	957	1130	975	1435	1118	1172	1441	1183
N_2	1214	1949	1082	1411	1172	1351	1710	1363	1220	1710	1418
mean	877	1425	855	977	951	923	1250	988	943	1309	1050

C.D. for N marginal means=102.2Kg/ha.

C.D. for V marginal means=185.9Kg/ha.

Crop :- Barley (*Rabi*). **Ref :- U.P. 61(85).**

Site:-Govt. Res. Farm, Kanpur. **Type:-'MV'**

Object :—To find out the best variety for very late sowing i.e. during December to follow late Paddy under different levels of N.

1. BASAL CONDITIONS:

(i) (a) N.A. (b) Late Paddy (c) N.A. (ii) Loam (ii) 30.12.61 (iv) (a) N.A. (b) Line sowing behind the plough. (c) 90Kg/ha. (d) Rows 23cm apart. (e) - (v) 44.8Kg/ha. of P_2O_5 as Super.+44.8Kg/ha. of K_2O as Mur. Pot. applied in furrows adjacent to seed furrows time. (vi) As per treatments. (vii) and (viii) N.A. (ix) 6.1cm. (x) 15.5.62.

2. TREATMENTS :

Main-plot treatmcnts :

(1) 3 levels of N as A/S : N_0=0, N_1=44.8 and N_2=89.6Kg/ha.

Sub-plot treatments :

(2) 10 Varieties : V_1=K—23 (Mid-late), V_2=K—24 (Mid-late), V_3=K.N. 28 (Medium), V_4=K.N. 16 (Early), V_5=I.W. 112/8—6 (Mid. late), V_6=K_3 (Mid. late), V_7=K.19 (Medium), V_8=N.P. 21 (Mid. late), V_9=C.251 (Mid-early) and V_{10}=K. 12 (early).

A/S applied as broadcast at sowing.

3. DESIGN :

(i) Split-plot. (ii) (a) 3 main-plots/replication, 10 sub-plots/main-plot. (b) 14.63m×21.4.9m (iii) 4 (iv) (a) 4.27m×1.60m. (b) 3.66m×1.14m. (v) 30cm×23cm. (vi) Yes.

4. GENERAL:

(i) N.A. (ii) Nil (iii) Yield of sheaf and grain (iv) (a) 1959—61 (with changed design in 1960) (b) and (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 1452Kg/ha (ii) (a) 368.4Kg/ha. (b) 267.9Kg/ha. (iii) Main effects of N, V and interaction N×V are highly significant. (iv) Av. yield of grain in Kg/ha.

	V_1	V_2	V_3	V_4	V_5	V_6	V_7	V_8	V_9	V_{10}	mean
N_0	676	879	329	556	610	658	616	724	520	753	632
N_1	1710	1752	981	1429	1627	1615	1902	2141	1710	1656	1652
N_2	2248	2422	951	1435	1860	2482	2159	2518	2363	2595	2073
mean	1545	1684	754	1140	1366	1585	1559	1794	1431	1668	1452

C.D. for N marginal means=201.5Kg/ha.

C.D. for V marginal means=218.0Kg/ha

C.D. for V means at the same level of N=377.7Kg/ha.

C.D. for N means at the same level of V=409.6Kg/ha.

Crop:- Barley (*Rabi*). **Ref:- UP. 63 (78), 64 (123).**

Site :- Govt. Res. Farm, Kanpur. **Type :- 'MV'.**

Object :—To study the effect of levels of N on different varieties of Barley.

1. BASAL CONDITIONS :

(i) (a) Nil (b) N.A.; *Moong* (c) N.A. (ii) Loam (iii) 20.11.63; 2.12.64 (iv) (a) N.A. (b) Line sowing ; behind the plough (c) 91Kg/ha.; 102Kg/ha (d) Rows 23cm. apart (e) N.A. (v) 22.4Kg/ha of P_2O_5 as Super in furows (vi) As per treatments (vii) Irrigated (viii) N.A., 1 interculturing (ix) 1.3cm; 6.0cm (x) 13.15.4.64; 20.4.65.

2. TREATMENTS :

Main-plot treatments :

2 levels of N as Urea : N_1=22.4 and N_2=44.8Kg/ha.

Sub-plot treatments :

14 varieties : V_1=K.12 (early), V_2=K.14 (Mid-late), V_3=K.18 (late), V_4=K.19 (late), V_5=K.23 (Mid-late), V_6=K.24 (Mid-late), V_7=K.69 (Early), V_8=K.70 (Mid-late), V_9=K.71 (Mid-late). V_{10}=K.72 (late), V_{11}=C.251 (Mid-early), V_{12}=B.R. 22 (Mid-late), V_{13}=N.P. 104 (late) and V_{14}=I.W.112/B-7 (Mid-late).
Note : Urea applied as broadcast.

3. DESIGN :

(i) Split-plot. (ii) (a) 2 main-plots/replication, 14 Sub-plots/main-plot (b) N.A.;13.72m×60.35m; (iii) 4 (iv) (a) 6.04m.×3.66m.; 6.40m×2.06m.; (b) 5.49m×3.20m; 5.94m×1.60m; (v) 46cm×23cm; 23cm×23cm (vi) Yes.

4. GENERAL:

(i) Good; Lodging observed in April, 64 in V_8, V_{11} and V_{13} (ii) Infestation by smut and attack of mustard aphis, 5% B.H.C. dusting on 18.12.63; Nil (iii) (b) Yield of grain and sheaf (iv) (a) 1963–64 (b) No (c) Nil (v) Nil (vi) Nil for 63; Due to rains, the varities V_8 and V_9 in (Rep IV) and V_3, V_4, V_6, V_{10} and V_{14} in (Rep I) were not completely germininated. The ungerminated patches were resown on 15.12.64. (vii) As Sub-plot error variances are heterogeneous, individual years results have been presented under 5. Results.

5. RESULTS:

63 (78)

(i) 2676Kg/ha. (ii) (a) 697.1Kg/ha. (b) 340.6Kg/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	V_6	V_7	V_8	V_9	V_{10}	V_{11}	V_{12}	V_{13}	V_{14}	mean
N_1	2634	2924	2865	2826	2963	2940	2923	2711	2727	2512	2463	2855	2583	2731	2761
N_2	2638	2784	3139	2638	2640	2506	2661	2307	2823	2512	2033	2719	2019	2855	2591
mean	2636	2854	3002	2732	2802	2723	2792	2509	2775	2512	2248	2787	2301	2793	2676

C.D. for V marginal means=339.7Kg/ha.

64 (123)

(i) 2090Kg/ha. (ii) (a) 182.1Kg/ha. (b) 703.4Kg/ha. (iii) Main effect of N is highly significant (iv) Av. yield of grain in Kg/ha.

	V_1	V_2	V_3	V_4	V_5	V_6	V_7	V_8	V_9	V_{10}	V_{11}	V_{12}	V_{13}	V_{14}	mean
N_1	1902	2266	1859	2200	1940	1677	1891	1663	2133	2096	1613	2057	1705	1912	1922
N_2	2288	2224	2602	2258	2387	2455	2196	2149	2298	2398	1991	2167	2117	2083	2258
mean	2095	2245	2230	2229	2163	2066	2044	1906	2216	2247	1802	2112	1911	1998	2090

C.D. for N marginal means=109.4Kg/ha.

Crop :- Barley (*Rabi*). **Ref :- U.P. 65 (99).**

Site :- Govt. Reg. Agri. Res. Stn., Meerut. **Type :- MV.**

Object:—To find out the suitable variety of Barley under high and medium fertility conditions.

1. BASAL CONDITIONS :

(i) (a) Nil (b) *Jowar* (c) Nil (ii) Loam (iii) 28.10 65 (iv) (a) 1 ploughing by soil turning plough, 3ploughings by *Deshi* plough and 2 plankings by *Deshi* Pata (b) Behind the plough (c) 86Kg/ha. (d) Rows 25cm. apart (e) -- (v) Nil (vi) As per treatments (vii) Irrigated (viii) Nil (ix) 4.5cm (x) 21.3.66.

2. TREATMENTS:

Main-plot treatments :

2 levels of fertilizer : F_1=44.8Kg/ha of N as A/S+22.4Kg/ha of P_2O_5 as Super+22.4Kg/ha of K_2O as Pot. Sul. and F_2=67.2Kg/ha of N as A/S+44.8Kg/ha of P_2O_5 as Super+33.6Kg/ha of K_2O as Pot. Sul.

Sub-plot treatments :

12 varieties : V_1=K.14, V_2=K.18, V_3=K.19, V_4=K.21, V_5=K.23, V_6=K.43, V_7=K.45, V_8=K.69, V_9=K.70, V_{10}=I.W.11/B-7, V_{11}=N.P. 13 and V_{12}=N.P. 104.

3. DESIGN :

(i) Split-plot (ii) (a) 2 main-plots/replication, 12 sub-plots/main-plot, (b) 31.20m×35.30m (iii) 3 (iv) (a) 10.00m×4.00m. (b) 9.00m×3.00m (v) 50cm×50cm (vi) Yes.

4. GENERAL:

(i) Satisfactory (ii) Some plants affected by Rust in V_4, V_6, V_9 and V_{11} (iii) Yield of grain (iv) (a) 1965—only (b) to (c) Nil (v) to (vii) Nil.

5. RESULTS :

(i) 3520Kg/ha. (ii) (a) 920.4Kg/ha. (b) 313.3Kg/ha. (iii) Main effects of V is highly significant (iv) Av. yield of grain in Kg/ha.

	V_1	V_2	V_3	V_4	V_5	V_6	V_7	V_8	V_9	V_{10}	V_{11}	V_{12}	mean
F_1	3556	3333	3272	2827	3519	3679	3272	3395	3000	3272	3444	3704	3356
F_2	4074	4000	3519	3457	3951	4247	3951	3704	3753	4198	3642	4123	3884
mean	3815	3666	3395	3141	3735	3963	3611	3549	3376	3735	3543	3913	3620

C.D. for V marginal means=364.8Kg/ha.

Crop :- Barley (*Rabi*). **Ref :- U.P. 62 (205),**

Site :- Govt. Reg. Agri. Res. Stn., Nawabganj. **Type :- 'MV'.**

Object :—To study the effect on Barley varieties grown under high medium fertility levels.

1. BASAL CONDITIONS:

(i) (a) Nil (b) Paddy (c) N.A. (ii) Clay loam (iii) 16.11.62 (iv) (a) N.A. (b) Line sowing behind the plough (c) 100Kg/ha (d) Rows 20cm. apart (e) — (v) N.A. (vi) As per treatments (vii) Irrigated (viii) Weeding (ix) 3.1cm (x) 12.4.63.

2. TREATMENTS:

Main-plot treatments:

2 levels of fertilisers : F_1=89.6Kg/ha of N+44.8Kg/ha of P_2O_5 and F_2=44.8Kg/ha of N+22.4Kg/ha of P_2O_5.

Sub-plot treatments :

10 Varieties : V_1=K.12, V_2=K14, V_3=K.18, V_4=K.23, V_5=K.24, V_6=K.69, V_7=K.70, V_8=C.50, V_9=C.251 and V_{10}=I.W. 112/B-7.

3. DESIGN :

(i) Split-plot (ii) (a) 2 main-plots/replication, 10 sub-plots/main-plot. (b) N.A. (iii) 4 (iv)(a) 4.57m.×10.97m. (b) 4.12m.×9.75m. (v) 23cm.×61cm. (vi) Yes.

4. GENERAL :

(i) Good (ii) Nil (iii) Yield of grain (iv) (a) 1962—only (b) and (c) Nil (v) and (vii) Nil.

5. RESULTS:

(i) 1615Kg/ha. (ii) (a) 347.1Kg/ha (b) 221.3Kg/ha (iii) M in effect of F is highly significant. (iv) Av. yield of grain in Kg/ha.

	V_1	V_2	V_3	V_4	V_5	V_6	V_7	V_8	V_9	V_{10}	mean
F_1	1926	2088	2000	2093	2073	1914	1843	1857	1840	2127	1976
F_2	1254	1180	1542	1259	1439	1076	1274	1373	1052	1093	1254
mean	1590	1634	1771	1676	1756	1495	1559	1615	1446	1610	1615

C.D. for F marginal means=247.0Kg/ha.

Crop :- Barley (*Rabi*). **Ref :- U.P. 65(272).**

Site :- Govt. Reg. Agri. Res. Stn., Nawabganj. **Type :- 'MV.'**

Objcet :—To find out the high yielding varieties under different levels of fertility.

1. BASAL CONDITIONS:

(i) (a) Nil (b) Paddy (c) 80Kg/ha of N+40Kg/ha of P_2O_5 (ii) Clay loam (iii) 15.11.65 (iv) (a) 5 ploughings by S.T.P. and *Deshi* plough (b) Sown in lines behind the plough (c) 92Kg/ha (d) Rows 23cm. apart (e)—(v) Nil (vi) As per treatments (vii) Irrigated (viii) Nil (ix) 5.8cm (x) 1, 2.4.66.

2. TREATMENTS :

Main-plot treatments :

2 levels of fertilisers : F_1=40Kg/ha of N+20Kg/ha of P_2O_5 and F_2=80Kg/ha of N+40Kg/ha of P_2O_5.

Sub-plot treatments :

12 varieties : V_1=K.14, V_2=18, V_3=K.23, V_4=K.24, V_5=K.43, V_6=K.71, V_7=K.72, V_8=C.138 V_9=C.163, V_{10}=K.164, V_{11}=NP13 and V_{12}=I.W. 11/B-7.

1/2 dose of N as compost and full dose of P_2O_5 as Super applied as basal. 1/2 dose of N as C/A/N top dressed.

3. DESIGN:

(i) Split-plot (ii) (a) 2 main-plots/replication; 12 sub-plots/main-plot (b) 19.80m×46.90m (iii) 3 (iv) (a) 3.45m×9.65m. (b) 2.99m×9.05m. (v) 23cm×30cm (vi) Yes.

4. GENERAL:

(i) Satisfactory (ii) Nil (iii) Yield of grain and straw (iv) (a) 1965—contd. (b) No (c) Nil (v) to (vii) Nil.

5. RESULTS :

(i) 1387Kg/ha (ii) (a) 441.2Kg/ha (b) 157.4Kg/ha (iii) Main-effect of F is significant and that of V is highly significant. (iv) Av. yield of grain in Kg/ha.

	V_1	V_2	V_3	V_4	V_5	N_6	V_7	V_8	V_9	V_{10}	V_{11}	V_{12}	mean
F_1	1109	1195	998	1047	1404	1121	1269	1072	949	801	1022	1232	1101
F_2	1725	1897	1651	1786	1762	1811	1909	1293	1491	1614	1478	1651	1672
mean	1417	1546	1324	1417	1583	1466	1589	1183	1220	1207	1250	1441	1387

C.D. for F marginal means=447.4Kg/ha.

C.D. for V marginal means=183.3Kg/ha.

Crop :- Barley (*Rabi*). **Ref :- U.P. 64 (186).**

Site :- Govt. Reg. Agri. Res. Stn., Varanasi. **Type :- 'MV'**

Object : –To study the effect of different levels of Nitrogen on different varieties of Barley.

1. BASAL CONDITIONS :

(i) (a) Nil (b) and (c) N.A. (ii) Loam (iii) 25.11.64 (iv) (a) N.A. (b) In rows behind *Deshi* plough (c) 100Kg/ha (d) Rows 23cm apart (e) – (v) and (vi) N.A. (vii) Irrigated (viii) Nil (ix) 5.1cm (x) N.A.

2. TREATMENTS :

Main-plot treatments:

6 levels of N : N_0=0, N_1=24.7, N_2=49·4, N_3=74.1, N_4=98.8 and N_5=123.5Kg/ha.

Sub-plot treatments :

4 varieties: V_1=Ballia, V_2=K.12. V_3=C.50 and V_4=K.21.

3. DESIGN:

(i) Split—plot (ii) (a) 6 main plots/replication : 4 sub-plots/main-plot (b) N.A. (iii) 4 (iv) (a) 2.74m×0.91m (b) 2.13m×0.69m. (v) 30cm×11cm. (vi) Yes.

4. GENERAL :

(i) Good (ii) Nil (iii) Yield of grain (iv) (a) 1964—only (b) and (c) Nil. (v) to (vii) Nil.

5. RESULTS:

(i) 2887Kg/ha. (ii) (a) 560.9Kg/ha. (b) 395.3Kg/ha. (iii) Main effect of N is highly significant. (iv) Av. yield of grain in Kg/ha.

	N_0	N_1	N_2	N_3	N_4	N_5	mean
V_1	1042	1961	2836	3779	3834	4336	2965
V_2	1029	2257	2934	3619	3477	3713	2838
V_3	1070	2290	3144	3515	3368	3839	2871
V_4	1218	1991	2659	3511	4024	3841	2874
mean	1090	2125	2893	3606	3676	3932	2887

C.D. for N marginal means=422.5Kg/ha.

Crop :- Barley (*Rabi*). **Ref :- U.P. 64(188), 65(445),**

Site :- Govt. Reg. Agri. Res. Stn., Varanasi. **Type : - 'MV'**

Object :—To study the effect of high and medium fertility conditions on the yield of different varieties of Barley.

1. BASAL CONDITIONS :

(i) (a) to (c) Nil (ii) Clay loam; loam (iii) 1.11.64; 16.11.65 (iv) (a) 4 ploughings (b) Line sowing behind the plough (c) 98Kg/ha.; 111Kg/ha (d) Rows 23cm apart (e)— (v) Nil (vi) As per treatments (vii) Irrigated (viii) Hand weeding (ix) 5.2cm; 7.5cm. (x) 28/29.3 65; end of march 66.

2. TREATMENTS :

Main-plot treatments :

2 levels of fertilisers: F_1=22.4Kg/ha of N+22.4Kg/ha of P_2O_5 +22.4Kg/ha of K_2O and F_2=33.6Kg/ha of N+44.8Kg/ha of P_2O_5+33.6Kg/ha of K_2O.

Sub-plot treatments :

16 varieties : V_1=K-12, V_2=K-18, V_3=K-20, V_4=K-21, V_5=K-22, V_6=K-23, V_7=K-43, V_8=K-45, V_9=K-69, V_{10}=V—71, V_{11}=Ballia, V_{12}=C—50, V_{13}=I—W—112/B—7, V_{14}=I—W—112/B—2, V_{15}=NP—104 and V_{16}=NP—105.

N applied as top dressing, P_2O_5 and K_2O applied as basal dressing.

3 DESIGN:

(i) Split-plot (ii) (a) 2 main—plots/replication, 16 sub-plots/main-plot (b) N.A., 18.90m×24.99m (iii) 4 (iv) (a) 5.49m×3.66m; 5.49m×1.83 m (b) 4.88m×3.43m; 4.88m×1.60 (v) 30cm×11cm (iv) Yes.

4. GENERAL:

(i) Good, Lodging in 65 (ii) Nil; Incidence of covered smut and damage by rats (iii) Yield of grain (iv) (a) 1964—65 (b) No (c) Nil. (v) and (vi) Nil (vii) As the sub-plot error variances are heterogeneous, results of individual years have been presented under 5. Results.

5. RESULTS :

64 (188)

(i) 3335Kg/ha. (ii) (a) 381.0Kg/ha. (b) 673.3Kg/ha. (iii) None of 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	V_8	V_9	V_{10}	V_{11}	V_{12}	V_{13}	V_{14}
F_1	3712	2971	3382	3141	2239	3274	3558	3075	3162	3276	3549	3447	3328	3148
F_2	3267	3624	3746	3495	3231	3163	3621	3441	3314	3035	3196	3890	3705	4032
mean	3489	3297	3564	3318	2735	3219	3589	3258	3238	3155	3373	3669	3516	3590

V_{15}	V_{16}	mean
3338	3421	3251
3470	3098	3458
3404	3259	3355

65 (445)

(i) 2532 Kg/ha (ii) (a) 592.5Kg/ha (b) 450.8Kg/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	V_8	V_9	V_{10}	V_{11}	V_{12}	V_{13}	V_{14}
F_1	2276	2439	2369	2635	2130	2677	2411	2375	2422	2769	2246	2547	2536	2443
F_2	2571	2468	2944	2276	2548	2516	2585	2395	2321	3037	2529	2822	3298	2302
mean	2423	2454	2657	2456	2339	2596	2498	2385	2371	2303	2387	2685	2917	2372

V_{15}	V_{16}	mean
2307	2326	2432
2971	2532	2632
2639	2429	2532

Crop :- Barley (*Rabi*). **Ref. :-U.P. 60(73), 61(80).**

Site :- Govt. Res. Farm, Kanpur. **Type .-'C'.**

Object :—To study the effect of North-South *vs.* East-West sowing on the yield of Barley under unirrigated conditions.

1. BASAL CONDITIONS:

(i) (a) to (c) N.A. (ii) Loam (iii) 21.11 60; 24.11.61 (iv) (a) N.A. (b) Line sowing behind the plough (c) 80Kg/ha (d) Rows 23cm. apart (e) — (v) N.A. (vi) C—251 (Medium late) (vii) Unirrigated (viii) N.A. (ix) 6.3cm; 6.9cm. (x) N.A.

2. TREATMENTS:

Two directions of sowing: D_1=North—Sourth and D_2=East—West.

3. DESIGN:

(i) R.B.D. (ii) (a) 2 (b) N.A. (iii) 7 (iv) (a) 5.49m×5.49m (b) 4.88m×4.88m (v) 30cm×30cm (vi) Yes.

4. GENERAL:

(i) N.A. (ii) Incidence of yellow rust. (iii) Yield of grain (iv) (a) 1960—61 (b) No. (c) The results of combined analysis have been presented under 5. Results. (v) and (vi) Nil (vii) Error variances are homogeneous and Treatment×years interaction is absent.

5. RESULTS:

Pooled results:

(i) 2080Kg/ha (ii) 231.0Kg/ha (based on 13 d.f. made up of pooled error and Treatments×year interaction). (iii) Treatment difference is not significant. (iv) Av. yield of grain in Kg/ha.

Treatment:	D_1	D_2
Av. yield:	2032	2027

Individul results:

Treatment	D_1	D_2	Sig.	G.M.	S.E./plot
Years					
1960	1351	1273	N.S.	1312	277·5
1961	2713	2781	N.S.	2747	180·0
Pooled	2032	2027	N.S.	2030	231.0

Crop :- Barley *(Rabi)*, **Ref :- U.P. 60(74); 61(81).**

Site :-Govt. Res. Farm, Kanpur. **Type :- 'C'.**

Object:—To study the effect of North –South *vs.* East—West sowings on the yield of Barley under irrigated conditions.

1. BASAL CONDITIONS:

(i) (a) to (c) N.A. (ii) Loam (iii) 19.10.60; 25.11.61 (iv) (a) N.A. (b) Line sowing behind the plough (c) 90Kg/ha (d) Rows 23cm. apart (e) — (v) N.A. (vi) C—251 (Medium late) (vii) Unirrigated (viii) 1 hoing and weeding(ix) 6.3cm; 6.9cm. (x) 11.4.61; 17.4.62.

2. TREATMENTS:

Two directions of sowing: D_1 = North—Sourth and D_2 = East—West.

3. DESIGN :

(i) R B.D. (ii) (a) 2 (b) 11.80m × 5.49m (iii) 7 (iv) (a) 5.49m × 5.49m (b) 4.88m × 4.88m (v) 30cm × 30cm (vi) Yes.

4. GENERAL:

(i) Lodging 30% to 60% for 61 (ii) Incidence of yellow rust from 75%; to 95% N.A. (iii) Yield of grain (iv) (a) 1960—61 (b) No. (c) The results of combined analysis have been presented under 5. Results. (v) and (vi) Nil (vii) Error variances are homogeneous and Treatment × years interaction is absent.

5. RESULTS:

Pooled results:

(i) 2250Kg/ha (ii) 261.9Kg/ha (based on 13 d.f. made up of pooled error and Treatments × year interaction). (iii) Treatment difference is not significant. (iv) Av. yield of grain in Kg/ha.

Treatment :	D_1	D_2
Av. yield :	2220	2280

Individual results :

Treatment	D_1	D_2	Sig.	G.M.	S.E./plot
Years					
1960	1580	1814	N.S	1697	278·3
1961	2780	2688	N.S.	2734	206·1
Pooled	2220	2280	N.S.	2250	261.9

Crop :- Barley. (*Rabi*). **Ref :- U.P. 61(7), 62(16), 64(8),**

Site :-State Soil Cons. Res. Demons & Trg. Centre, **65(504).**

Rehmankhera. **Type :- 'C'.**

Object:—To select suitable previous crop and study their effect on the subsequent crop of Barley.

1. BASAL CONDITIONS :

(i) (a) As per treatments—Barley (b) As per treatments (c) 22.4Kg/ha of N to C_{11} only, 44.8Kg/ha of P_2O_5 applied except in C_0 and C_1. (ii) Loamy sand to sandy loam. (iii) 6/7.11.61; 30.10.62; 28/29.10.63; 19/20.10.64; 1.11.65 (iv) (a) Grass uprooted in last week of sept, and field ploughed by *Deshi* plough and pata application. (b) Line sowing behind the plough. (c) 90Kg/ha. (d) Rows 30cm. apart (e) - (v) 44.8Kg/ha. of N+44.8Kg/ha of P_2O_5 to C_0 and C_1, 22.4Kg/ha. of N to C_{11} (vi) K—12 (vii) Unirrigated (viii) Weeding and earthing. (ix) N.A.; N.A: 3.4.64; N.A.; 22.3.66.

2. TREATMENTS:

12 previous crops : C_0=Uncultivated fallow, C_1=Cultivated fallow, C_2=*Sanai* G.M. buried, C_3=*Sanai* G.M. cut and spread, C_4=Soyabean for grain, C_5=Urd for grain, C_6=*Moong* for grain, C_7=Groundnut for grain, C_8=Cowpea for grain, C_9=*Moth* for fodder, C_{10}=*Styzolobium* for fodder and C_{11}=Grass (*Jonewa*) for fodder.

Crops sown in 2nd fortnight of July; Grass uprooted in the last week of Sept.; G.M. ploughed in 2nd fortnight of Aug.; Fodder crops harvested in middle Sept.

3. DESIGN:

(i) R.B.D. (ii) (a) 12 (b) N.A. (iii) 3 (iv) (a) and (b) 20.12m×3.35m (v) Nil (vi) Yes.

4. GENERAL:

(i) Poor germination in 1961; crop failed in 1963 due to poor germination on account of lack of moisture in plots where *Kharif* grain and fodder crops were taken; Germination poor in 1965 due to lack of moisture in plots where *Kharif* crops were harvested late. Below average to average in others. (ii) Attack of termite in C_{11} in 1965., Nil for others. (iii) Ground canopy measurement of *Kharif* crops, % soil loss of run-off, yield of grain and straw (iv) (a) 1961—65 (Expt failed in 1963). (b) Yes (c) Nil (v) Nil (vi) Drought effected the crop in 1962. Unfavourable weather conditions in 1965 (vii) The field had a slope of 2.5%. Plots not well prepared in 1961 due to late maturing of legumes and moisture was inadequate for Barley sowing.

As the error variances are heterogeneous and Treatments×years interaction is absent, the results of individual years have been presented under 5. Results.

5. RESULTS :

61 (7)

(i) 869Kg/ha (ii) 259.5Kg/ha (iii) Treatment differences are highly signlficant. (iv) Av. yield of grain in Kg/ha.

Treatment :	C_0	C_1	C_2	C_3	C_4	C_5	C_6	C_7	C_8	C_9	C_{10}	C_{11}
Av. yield :	7860	1103	1296	1405	495	875	1296	341	480	653	870	836

C.D.=439.4Kg/ha.

62 (16)

(i) 863Kg/ha. (ii) 521.5Kg/ha. (iii) Treatment differences are highly significan t (iv) Av. yield of grain in Kg/ha.

Treatment :	C_0	C_1	C_2	C_3	C_4	C_5	C_6	C_7	C_8	C_9	C_{10}	C_{11}
Av. yield :	1187	1186	1512	1399	23	156	1087	26	895	647	1438	796

C.D.=883.1Kg/ha.

64 (8)

(i) 1089Kg/ha. (ii) 308.9Kg/ha. (iii) Treatment differences are highly significant (iv) Av. yield of grain in Kg/ha.

Treatment :	C_0	C_1	C_2	C_3	C_4	C_5	C_6	C_7	C_8	C_9	C_{10}	C_{11}
Av. yield :	1339	1883	1992	1680	249	1102	1008	182	1090	805	1018	719

C.D.=523.0Kg/ha.

65 (504)

(i) 580Kg/ha (ii) 379.2Kg/ha (iii) Treatment differences are highly significant (iv) Av. yield of grain in Kg/ha.

Treatment :	C_0	C_1	C_2	C_3	C_4	C_5	C_6	C_7	C_8	C_9	C_{10}	C_{11}
Av. yield :	702	1095	1310	993	121	707	289	15	232	363	781	351

C.D.=642.0Kg/ha.

Crop:-Barley (*Rabi*). **Ref.:-U.P. 62 (308).**

Site:-Res. Farm, College of Agriculture, B.H.U., Varanasi. Type :-'C'

Object :—To study the growth, yield and quality of Barley (*H. Vulgare L.*) Crop as influenced by low spacing and techniques of N fertilization.

1. BASAL CONDITIONS :

(i) (a) *Jowar*—Gram (b) *Jowar* (c) N.A. (ii) N.A. (iii) 1.11.62 (iv) (a) 6 ploughings by soil turning plough and *Deshi* plough followed by discing and planking. (b) In furrows opened by *Deshi* plough (c) 58Kg/ha (d) As per treatments (e)— (v) 67.2Kg/ha. of P_2O_5 as Super and 44.8Kg/ha of K_2O as Pot. Sul broadcasted and mixed in the soil just before sowing. (vi) K—12 (vii) Irrigated (viii) Weeding (ix) 5.5cm (x) 22.3.63.

2. TREATMENTS:

Main-plot treatments

2 Row—Spacings : S_1=45 and S_2=61cm.

Sub-plot treatments:

5 methods of application of 44.8Kg/ha of N as A/S : M_1=Full dose broadcasted and mixed before sowing, M_2=½ dose applied as in M_1+½ dose top dressed at the time of panicle for mation, M_3=1/3 dose placed in furrows at sowing, 1/3 dose spread on the sides of rows before maximum tillering and 1/3 dose spread on the sides of rows at panicle formation and soil dressed at both the latter stages, M_4=Applied as in M_3 but soil dressed only at the time of maximum tillering and M_5=Applied as in M_3 but soil dressed only at the time of panicle formation.

3. DESIGN:

(i) Split-plot (ii) (a) 2 main plots/replication, 5 sub-plots/main plot (b) 30.48m ×32.31m. (iii) 4 (iv) (a) 14.63m×5.49m. (b) 14.02m.×4.88m.(v) 30cm×30cm (vi) Yes.

4. GENERAL:

(i) Good (ii) Nil (iii) Height, dry and fresh weight of root and shoot, yield of grain and *Bhusa* (iv) (a) 1962—only (b) and (c) Nil. (v) to (vii) Nil

5. RESULTS:

(i) 2375Kg/ha (ii) (a) 117.8Kg/ha (b) 202.5Kg/ha (iii) Main effect of S is significant and that of M is highly significant. (iv) Av. yield of grain in Kg/ha.

	M_1	M_2	M_3	M_4	M_5	mean
S_1	2149	2203	2551	2361	2305	2314
S_2	2222	2363	2729	2458	2404	2435
mean	2186	2283	2640	2410	2355	2375

C.D. for S marginal means=118.6Kg/ha.

C.D. for M marginal means=321.9Kg/ha.

Crop :- Barley. (*Rabi*). **Ref :- U.P. 60(24), 61(22),**

Site :- State Soil Cons. Res., Demons, & Trg. Centre, Rehmankhera. **62(18), 63(8).**

Type :- 'CM'.

Object :—To study the effect of different green manures on the yield of subsequent Barley crop under unirrigated conditions with different dates of sowing.

1. BASAL CONDITIONS :

(i) (a) and (b) As per treatments (c) Nil (ii) Loamy sand to sandy loam. (iii) As per treatments (iv) (a) Ploughings by *Deshi* and soil turning ploughs (b) Line sowing behind the plough (c) 92Kg/ha (d) Rows 30cm. apart (e) — (v) 22.4Kg/ha of P_2O_5 as Super, for 63; Nil for others (vi) K.12 (vii) Unirrigated (viii) Weeding and earthing (ix) N.A. (x) 14—17.3.61 and 5.4.61; 15—17.3.62 and 3/4.4.62; N.A.; 24/25.3.64.

2. TREATMENTS :

Main-plot treatments:

5 green manures : G_0=Fallow (No green manure), G_1=*Sanai*, G_2=*Dhaincha*, G_3=*Guar* and G_4=*Moong* T_1.

Sub-plot treatments

4 Sowing Dates : D_1=15tn October, D_2=25th October, D_3=4th November and D_4=14th November.

The condition of G.M. crops was very poor in 60.

3. DESIGN :

(i) Split-plot (ii) (a) 5 main-plots/replication, 4 sub-plots/main-plot (b) 40.23m×50.69m (iii) 4 for 60; 3 for others (iv) (a) 12.71m×7.32m (b) 12.10m×6.71m (v) 30cm×30cm (vi) Yes.

4. GENERAL :

(i) Poor for 62 and 63; Satisfactory for others (ii) Attack of white ants and Smut in 61; Mild incidence of Smut in 62; N.A. for others. (iii) Germination %, yield of grain and straw. (iv) (a) 1960—63 (b) Yes (c) Nil (v) Nil (vi) Lack of adequate moisture affected the crop in 62.; Drought condition prevailed during 63 As the sub-plot error variances are heterogeneous, the results of the individual years have been presented under 5. Results.

60 (24)

(i) 1951Kg/ha (ii) (a) 342.9Kg/ha (b) 307.5Kg/ha. (iii) Main effects of G and D are highly significant. (iv) Av. yield of grain in Kg/ha.

	D_1	D_2	D_3	D_4	mean
G_0	2446	2895	3019	2471	2708
G_1	1724	2295	2588	2309	2229
G_2	1043	1541	1744	1735	1516
G_3	1131	1519	1444	1729	1456
G_4	1408	1986	2049	1952	1849
mean	1550	2047	2169	2039	1951

C.D. for G marginal means=264.1Kg/ha.

C.D. fot D marginal means=195.9Kg/ha

61 (22)

(i) 1694Kg/h (ii) (a) 320.6Kg/ha (b) 240.5Kg/ha (iii) Main effect of D is highly significant and that of G is significant. (iv) Av. yield of grain in Kg/ha.

	D_1	D_2	D_3	D_4	mean
G_0	1420	1435	1547	1609	1503
G_1	1643	1776	2018	2260	1924
G_2	1723	1492	1478	1559	1439
G_3	1854	2112	1741	2100	1952
G_4	1389	1600	1853	1772	1654
mean	1507	1683	1727	1860	1694

C.D for G marginal means=301.8Kg/ha
C.D. for D marginal means=179.3Kg/ha.

62 (18)

(i) 822Kg/ha (ii) (a) 316.3Kg/ha (b) 228.6Kg/ha (iii) Main effect of G is significant and that of D is highly significant. (iv) Av. yield of grain in Kg/ha.

	D_1	D_2	D_3	D_4	mean
G_0	341	575	686	743	586
G_1	748	1068	1150	1265	1058
G_2	353	772	764	809	675
G_3	785	1212	1007	115	1040
G_4	361	698	969	274	751
mean	518	865	915	990	822

C.D. for G marginal means=297.7Kg/ha.

C.D. for D marginal means=170.4 Kg/ha.

63 (8)

(i) 278Kg/ha (ii) (a) 120.2Kg/ha (b) 103.8Kg/ha (iii) Main effect of G is significant and that of D is highly significant. (iv) Av. yield of grain in Kg/ha.

	D_1	D_2	D_3	D_4	mean
G_0	70	144	2670	214	174
G_1	251	431	452	349	371
G_2	84	575	251	320	233
G_3	209	382	378	378	337
G_4	103	283	341	370	274
mean	143	303	338	326	278

C.D. for G marginal means=113.2 Kg/ha.

C.D. for D marginal means=77.4Kg/ha.

Crop :- Barley (*Rabi*). **Ref :- U.P. 61(88), 62(76).**

Site :- State Soil Cons. Res. Demons. and Trg. Centre, Rehmankhera. **Type :- 'CM'**

Object : To study the residual effect of shallow and deep cultivation while using different spacings and levels of fertility applied to Maize crop, on the yield of succeeding Barley crop.

1. BASAL CONDITIONS:

(i) (a) Maize—Gram/Barley (b) Maize (c) As per treatments 11Q of G.N.C. in whole field; As per treatment (ii) Loamy sand to sandy loam (iii) N.A. (iv) (a) N.A. (b) Line sowing behind the plough (c) 90Kg/ha (d) Rows 30cm. apart (e)— (v) Nil (vi) K 12 (vii) Unirrigated (viii) to (x) N.A.

2. TREATMENTS:

Main-plot treatments:

2 types of ploughing : C_1=Shallow ploughing (10cm. deep) with the help of country plough and cultivators and C_2=Deep ploughings (20cm. deep) with the help of soil inverting plough and tractor disc-harrow.

Sub-plot treatments :

3 row spacings : S_1=23, S_2=46 and S_3=91cm.

Sub-sub plot treatments :

3 levels of N: N_0=0 N_1=56 and N_2=112Kg/ha.

Sub-sub-sub-plot treatments :

2 levels of P_2O_5 as Super : P_0=0 and P_1=44.8Kg/ha.

Note :—The above treatments were applied to Maize crop during the previous *Kharif* season.

3. DESIGN :

(i) Split-plot (ii) (a) 2 main-plots/replication; 3 sub-plots/main-plot, 3 sub-sub-plots/sub-plot and 2 sub-sub-sub-plots/sub-sub-plot. (b) 89.76m×29.26m (iii) 3 (iv) (a) 9.14m×7.32m (b) 8.53m×6.71m (v) 30cm. discerded alround the plot. (vi) Yes.

4. GENERAL:

(i) and (ii) N.A. (iii) Yield of [illegible]n and *Bhusa* (iv) (a) 1961—62 (b) Yes (c) Results of combined analysis have been presented under 5. Results. (v) and (vi) Nil (vii) Error variances are homogeneous and Treatment×year interaction is absent.

5. RESULTS :

Pooled results :

(i) 1992Kg/ha. (ii) (a) 1393.6Kg/ha (based on 5 d.f. made up of pooled error and Treatments×year interaction) (b) 703.4 Kg/ha. (based on 20 d.f. made up of pooled error and Treatments×years interaction). (c) 574.9Kg/ha (based on 56 d.f. made up of pooled error and Treatments×year interaction) (d) 319.7Kg/ha. (based on 78 d.f. made up of pooled error and Treatments×year interaction) (iii) Main effects of N, and interaction P×S and P are highly significant. Interaction P×C is significant. (iv) Av. yield of grain in Kg/ha.

	S_1	S_2	S_3	N_0	N_1	N_2	P_0	P_1	mean
C_1	1842	2114	1996	1701	2043	2210	1960	2009	1964
C_2	2033	2031	1937	1747	1981	2274	1884	2117	2000
mean	1938	2073	1967	1724	2012	2242	1922	2063	1992
P_0	1771	2021	1974	1726	1938	2101			
P_1	2105	2125	1960	1721	2086	2382			
N_0	1599	1971	1602						
N_1	2044	2014	1977						
N_2	2170	2233	2322						

C.D. for N marginal means=192.2Kg/ha.

C.D. for P marginal means=87.2Kg/ha.

C.D. for P means at the same level of S=150.3Kg/ha.

C.D. for S means at the same level of P=226.3Kg/ha.

C.D. for P means at the same level of C=122.7Kg/ha.

C.D. for C means at the same level of P=494.3Kg/ha.

Individual results :

Treatment	C_1	C_2	Sig.	S_1	S_2	S_3	Sig.	N_0	N_1	N_2	Sig.
Year 1961	3199	3039	N.S.	3049	3199	3109	N.S.	2747	3215	3395	**
1962	770	962	N.S.	826	947	824	N.S.	700	808	1088	**
Pooled	1964	2000	N.S.	1938	2073	1967	N.S.	1724	2012	2242	**

P_0	P_1	Sig.	G.M.	S.E.(a) plot	S.E. (b) plot	S.E.(c)Plot	S.E. (d) plot
3002	3236	**	3119	1819.6	992.4	571.9	343.8
842	390	N.S.	866	839.4	483.3	423·1	266.4
1922	2063	**	1992	1393.6	703.4	574·9	319.7

Crop :- Barley (*Rabi*). **Ref :- U.P. 64 (650),**

Site :- State Soil Cons. Res., Demons. and Trg. Centre, Rehmankhera. **65 (501).**

Type :- 'CM'.

Object —To study the effect of different seed—rates, levels of fertility and inter-cultivation on the yield of Barley under rain-fed condition.

1. BASAL CONDITIONS:

(i) (a) to (c) N.A. (ii) Light loam (iii) 27/28.10.64; 11/12.11.65 (iv) (a) Field prepared by *Deshi* plough, cultivator and tractor harrow and Pata (b) Sown in furrows opened by Hand hoe (c) As per treatments (d) N.A. (e) - (v) Nil (vi) K12 (vii) Unirrigated (viii) As per treatments (ix) N.A. (x) N.A.; 29.3.66 to 2.4.66.

2. TREATMENTS :

Main-plot treatments :

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

(1) 3 Seed rates : S_1=75, S_2=100 and S_3=125Kg/ha.

(2) 2 levels of N as C/A/N : N_0=0 and N_1=20Kg/ha.

(3) 2 levels of P_2O_5 as Super : P_0=0 and P_1=20Kg/ha

Sub-plot treatments:

3 inter-cultivations: H_0=No. Hoeing H_1=1 hoeing with *Khurpi*, after six weeks of sowing and H_2=H_1+1 hoeing *with Khurpi* four weeks after first hoeing.

In 64, N_1 was taken as 22.4Kg/ha. of N and P_1 as 22.4Kg/ha. of P_2O_5. The fertilizer application was done just before sowing. Super. placed 10cm. deep behind U.P. No. 2 plough and C/A/N broadcasted and mixed.

3. DESIGN :

(i) Split—plot (ii) (a) 12 main-plots/replication; 3 sub-plots/main-plot (b) 19.51m×116.43m; 29.00m×63.85m (iii) 3 (iv) (a) 9.14m×6.10m ; 9.00m×5.00m (b) 8.53m×5.49m; 8.00m×4.00m. (v) 30cm. and 50cm alround the plot in 64 and 65 respectively. 30cm×30cm; 50cm×50cm (vi) Yes.

4. GENERAL:

(i) Germination was satisfactory in two replications but poor in the third (ii) N.A. (iii) Germination%, stand, yield of grain and straw. (iv) (a) 1964—Contd. (b) No. (c) Nil (v) to (vi) Nil (vii) As the expt. is contd. beyond 65, results of individual years have been presented under 5. Results.

5. RESULTS:

64 (650)

(i) 1234Kg/ha. (ii) (a) 268.6Kg/ha. (b) 275.2Kg/ha (iii) Main effect of N and P are highly significant and that of S is significant (iv) Av. yield of grain in Kg/ha.

	N_0	N_1	P_0	P_1	H_0	H_1	H_2	mean
S_1	1091	1338	1154	1275	1098	1292	1253	1224
S_2	1164	1488	1189	1462	1331	1203	1443	1326
S_3	1066	1258	1102	1222	1071	1235	1180	1162
mean	1107	1361	1148	1230	1167	1243	1292	1234
H_0	1067	1267	1073	1261				
H_1	1113	1374	1124	1363				
H_2	1141	1443	1248	1336				
P_0	993	1304						
P_1	1221	1418						

C.D. for S marginal means=131.3Kg/ha

C.D. for N or P marginal means=107.2Kg/ha,

65 (501)

(i) 1221Kg/ha (ii) (a) 477.4Kg/ha (b) 330.3Kg/ha. (iii) Main effects of N and P are significant. (iv) Av. yield of grain in Kg/ha.

	N_0	N_1	P_0	P_1	H_0	H_1	H_2	mean
S_1	1172	1279	1125	1326	1265	1300	1111	1226
S_2	1011	1203	950	1264	1026	1159	1136	1107
S_3	1167	1493	1212	1448	1328	1295	1331	1330
mean	1117	1325	1096	1346	1206	1251	1193	1221
H_0	1112	1301	1096	1317				
H_1	1167	1359	1185	1340				
H_2	1072	1315	1006	1380				
P_0	1053	1138						
P_1	1181	1512						

C.D. for N or P marginal means=190.6 Kg/ha.

Crop :- Barley (*Rabi*). **Ref :- U.P. 61 (198).**

Site :- Govt. Reg. Agri. Res. Stn., Varanasi. **Type :- 'IM'.**

Object:—To study the effect of different levels of Irrigation and fertility on the yield of Barley.

1. BASAL CONDITIONS:

(i) (a) to (c) N.A. (ii) Clayey loam. (iii) 27.11.61 (iv) (a) N.A. (b) Behind the plough in lines (c) N.A. (d) Rows 23cm. apart, (e)— (v) Nil (vi) K—12 (vii) As per treatments (viii) N.A. (ix) 4.2cm (x) 15.4.62.

2. TREATMENTS :

All combinations of (1) and (2)

(1) 3 levels of Irrigation : I_1=1, I_2=2 and I_3=3 irrigations.

(2) 3 levels of fertilisers : F_0=No manure, F_1=22.4Kg/ha of N as A/S+22.4Kg/ha of P_2O_5 as Super. +22.4Kg/ha of K_2O as Pot. Sul.+46Q/ha. of F.Y.M. and F_2=2×F_1.

Dates of Irrigation : 25.12.61, (I_1, I_2 and I_3) 22.1.62 (I_1+I_3) and 4.3.62 (I_2).

3. DESIGN :

(i) Fact. in R.B.D. (ii) (a) 9 (b) 17.22m×51.21m (iii) 2 (iv) (a) 12 80m×8.23m (b) 12.19m×7.62m (v) 30cm×30cm. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of grain (iv) (a) 1961—only (b) and (c) Nil (v) to (vii) Barley 61 (198), Pea 61 (199) Gram 61 (200) and Berseem 61 (201) crops were taken as main-plot treatments in one expt. to test their effects on Early Paddy during 1962.

5. RESULTS :

(i) 1760Kg/ha (ii) 156.0Kg/ha (iii) Main effect of I is highly significant. (iv) Av. yield of grain in Kg/ha.

	I_1	I_2	I_3	mean
F_0	1071	1803	2099	1658
F_2	1125	1851	2164	1713
F_3	1389	1948	2390	1909
mean	1195	1868	2217	1760

C.D. for I marginal means=207.7Kg/ha.

Crop :- Barley (*Rabi*). **Ref :- U.P. 63(591).**

Site :- Usar Reclamation Farm, Chakeri (Kanpur). **Type :- 'D'**

Object:—To evaluate the efficacy of murcurial seed—dressing in reducing the infection of covered smut in varieties of Barley with different grades of susceptibility.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) *Usar* (iii) 26.11.63 (iv) and (v) N.A. (vi) As per treatments (vii) and (viii) N.A. (ix) 1.2cm (x) 22.4.64.

2. TREATMENTS:

All combinations of (1) and (2)

(1) 3 varieties : V_1=K-24, V_2=C-84 and V_3=N.P. 21.

(2) 5 fungicidal treatments : F_0=Control (2 plots), F_1=Agrosan G.N. (1:300), F_2=Agrosan G.N. (1:500) F_3=Ceresan (1:300) and F_4=Ceresan (1:500).

3. DESIGN :

(i) Fact in R.B.D. (ii) (a) 18 (b) N.A. (iii) 4 (iv) and (v) N.A. (vi) Yes.

4. GENERAL :

(i) N.A. (ii) Under study (iii) No. of diseased and healthy plants and yield of grain (iv) (a) 1963—only (b)— (c)— (v) to (vii) Nil.

5. RESULTS :

Yield

(i) 817gm/plot (ii) 134.1gm/plot (iii) Main effects of V and F. are highly significant (iv) yield of grain in gm/plot.

	V_1	V_2	V_3	mean
F_0	839	774	630	748
F_1	883	689	707	760
F_2	1025	880	693	866
F_3	927	770	877	858
F_4	1066	840	853	920
mean	930	788	732	817

C.D. for V mgrginal means=77.7gm/plot

C.D. for F marginal means (except F_0)=109.9gm/plot.

C.D. for F_0 and any other marginal means=95.1gm/plot.

Infestation data

(i) 7.15 degrees (ii) 4.18 degrees (iii) Main effect of V and F and interaction V × F are highly significant. (iv) % of diseased plants in degrees.

	V_1	V_2	V_3	mean
F_0	0.78	1.56	24.98	9.11
F_1	0.0	2.81	28.05	10.29
F_2	0.0	0.00	27.22	9.07
F_3	0.0	0.00	3.85	1.28
F_4	0.0	3.89	14.06	5.98
mean	0.26	1.64	20.52	7.47

C.D. for V marginal means=2.42 degrees

C.D. for F marginal means (except F_0)=3.42 degrees.

C.D. for F_0 and any other marginal mean=2.96 degrees.

C.D. for F_0 *vs.* any other F mean at same V=5.14 degrees.

C.D. for any two F means (except F_0) at same V or any two V means at same F (except F_0)=5.93 degrees.

C.D. for any two V means at F_0=4.19 degrees.

Crop :- Barley (*Rabi*). **Ref. :-U.P. 64 (693)**

Site :-Usar Reclamation Farm, Chakeri (Kanpur). **Type :-'D'**

Object: To evaluate the efficacy of mercurial seed-dressing in reducing infection of covered smut of Barley with different grades of susceptibility.

1. BASAL CONDITIONS:

(i) (a) to (c) N.A. (ii) *Usar* (iii) 18.11.64 (iv) (a) N.A. (b) Line sowing by Dibbling (c)— (d) and (e) N.A. (v) N.A. (vi) NP—21 (vii) and (viii) N.A. (ix) 5.9cm (x) 27/28.4.65.

2. TREATMENTS:

All combinations of (1) and (2).

(1) 3 perccentages of spores of disease applied: D_1=5, D_2=10 and D_3=30%.

(2) 5 fungicidal treatments: F_0=Control (2 plots), F_1=Agrosan G.N. (1:300), F_2=Agrosan G.N. (1:500), F_3=Ceresan (1:300) and F_4=Ceresan (1:500)

3. DESIGN :

(i) Fact in R.B.D. (ii) (a) 18 (b) N.A. (iii) 4 (iv) (a) and (b) N.A. (v) N.A. (vi) Yes.

4. GENERAL:

(i) N.A. (ii) Under study (iii) No. of healthy and diseased plants and yield of grain (iv) (a) 1964—only (b) and (c) Nil (v) to (vii) Nil.

5. RESULTS:

Yield data

(i) 573gm/plot (ii) 106.7gm/plot (iii) None of the effects is significant. (iv) Av. yield of grain in gm/plot.

	D_1	D_2	D_3	mean
F_0	563	528	528	540
F_1	581	650	618	616
F_2	656	587	637	627
F_3	519	600	637	585
F_4	519	556	518	531
mean	567	575	578	573

Infestation data

(i) 6.87 degrees (ii) 4.40 degrees (iii) Main effect of F is highly significant. (iv) % of diseased plants in degree.

	D_1	D_2	D_3	mean
F_0	16.00	17.90	20.40	18.10
F_1	0.0	0.0	1.30	0.43
F_2	0.0	1.40	2.10	1.17
F_3	0.0	1.40	2.20	1.20
F_4	1.30	2.30	3.10	2.23
mean	5.55	6.82	8.25	6.87

C.D. for F marginal means (except F_0)=3.61 degrees.

C.D. for F_0 and any other marginal mean=3.12 degrees

Crop :- Barley (*Rabi*) **Ref :- U.P. 60(291).**

Site :- Govt. Reg. Agri. Res. Stn., Gogragbat. **Type :-'D'.**

Object : To test the efficiency of different fungicides for the control of Barley smut.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Sandy to sandy loam (iii) 15.11.60 (iv) (a) 1 ploughing by soil turning plough and 1 ploughing by *Deshi* plough and application of singh and *Deshi* Pata (b) Behind the *Deshi* plough (c) 83Kg/ha (d) Rows 2 cm apart (e) — v) 44.8Kg/ha as N as A/S. (vi) K12 (medium) (vii) Unirrigated (viii) 1 weeding by *Khurpi* (ix) 2.8cm (x) April, 61.

2. TREATMENTS:

4 fungicidal treatments :

T_0=Control, T_1=Agrosan G.N. (I.C.I.), T_2=Agrosan G.N. and T_3=Sulphur dust.

Doses of fungicides N.A.

3. DESIGN:

(i) Latin square (ii) (a) 4 (b) Row and column dimensions=20 12m×6.10m and 4.57m×26.21m respectively (iii) 4 (iv) (a) and (b) 6.09m×4.57m. (v) Nil (vi) Yes.

4. GENERAL

(i) Fair (ii) Under study (iii) No. of smutted plants rogued out on different detes and yield of grain (iv) (a) 1960—only (b) and (c) Nil (v) to (vii) Nil.

5. RESULTS :

Yield data

(i) 1020Kg/ha. (ii) 217.5Kg/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 :	1603	2107	2085	1886

Disease data

(i) 12841 plants/ha (ii) 192.6 plants/ha (iii) Treatment differences are highly significant (iv) Av. No of smutted plants/ha rogued out from 1 2.60 to 1.3.60.

Treatment :	T_0	T_1	T_2	T_3
Av. No.	31,720	4,075	5,749	7,819

C.D.=333.3 plants/ha

Crop :- Barley (*Rabi*) **Ref :- U.P. 61(304).**

Site :- Govt. Agri. Flood Res. Stn., Gogragbat. **Type :- 'D'**

Object :—To study the effect of different fungicides on the control of covered smut of Barley.

1. BASAL CONDITIONS:

(i) (a) to (c) N.A. (ii) Sandy to sandy loam. (iii) 17.11.61 (iv) (a) 1 ploughing by S.T.P. and 1 ploughing by *Deshi* plough and planting with singh and *Deshi* pata (b) Behind the plough (c) 112Kg/ha (d) Rows 23cm apart (e)— (v) 44.8Kg/ha of N as A/S (vi) K12 (medium) (vii) Unirrigated (viii) 1 weeding by *Khurpi* (ix) 7.7cm (x) April, 62.

2. TREATMENTS:

5 fungicidal treatments: T_0=Control (No treatment), T_1=0.28% Agrosan G.N. (1: 357), T_2=0.31% Ceresan (1: 320), T_3=0.45% Thiram (1:220) and T_4=0.28% Hexasson (1:357).

3. DESIGN :

(i) R.B.D. (ii) (a) 5 (b) 14.93m × 7.62m (iii) 4 (iv) (a) and (b) 7.62m × 2.74m (v) Nil (vi) Yes.

4. GENERAL :

(i) Good (ii) Under study (iii) No. of ears/plot no of smutted ears rougued out on different dates) % infestation and yield of grain (iv) (a) 1961—only (b) and (c) Nil (v) to (vii) Nil.

5. RESULTS:

Yield data

(i) 1259Kg/ha (ii) 174.3Kg/ha (iii) Treatment differences are not significant. (iv) Av. yield of grain in Kg/ha.

Treatments:	T_0	T_1	T_2	T_3	T_4
Av. yield :	1124	1209	1278	1227	1457

Infetastion data

(i) 7.52 degrees (ii) 1.41 degrees (iii) Treatment differences are highly significant (iv) % in festation in degrees.

Treatment :	T_0	T_1	T_2	T_3	T_4
Mean angle :	10.11	7.77	5.33	6.48	7.93

C.D.=2.17 degrees

Crop :- Barley (*Rabi*). **Ref :- U.P. 61(31); 62(30); 63(22); 64(21).**

Site :- Govt. Res. Farm, Kanpur. **Type :-'D'.**

Object : To test the efficiency of seed-dressing fungicides on the control of covered smut of Barley.

1. BASAL CONDITIONS:

(a) to (c) N.A. (ii) Loam (iii) 18.11.61; 20.11.62; 19.11.63; 21.11.64 (iv) (a) N.A. (b) By dibbling (c)—(d) 30cm × 25cm for 64; 30cm × 23cm for others (e) 2 seeds/ha (v) N.A. (vi) N.P.—21 (vii) N.A. (viii) Weeding (ix) 6.7cm; 2.9cm; 1.3cm; 5.9cm (x) 16 to 23.4.62; N.A.; 18.4.64, 23/24.4.65.

2. TREATMENTS :

10 seeding-dressing fungicides : F_0=Control, F_1=0.07% New Improved cereson, F_2=0.33% cereson, F_3=0.28% Lunasan, F_4=0.22% Fusarial, F_5=0.28% Haresan, F_6=0.28% Tillex, F_7=0 28% Agresan G.N. F_8=0.07% Agrosan S.W. and F_9=0.17% Flit 406.

3. DESIGN:

(i) R.B.D. (ii) (a) 10 (b) 47.55m × 12.19m for 61; N.A. for others. (iii) 4 (iv) (a) N.A. (b) 3.74m × 12.19m; 6.10m × 5.49m; 13.30m × 4.00m; 12.00m × 4.00m (v) N.A. (vi) Yes.

4. GENERAL :

(i) N.A. (ii) Under study (iii) No. of seeds germinated, No. of tillers, % infestation of covered smut and yield of grain (iv) (a) 1961—64 (b) No. (c) The results of the combined analysis have been presented under 5. Results. (v) and (vi) Nil (vii) Error varainces are heterogeneous and treatments × years interaction is present.

5. RESULTS :

Pooled results :

(i) 3259 Kg/ha (ii) 396.2Kg/ha (based on 27 d.f. made up of Treatments × years interaction). (iii) Treatment differences are highly significant (iv) Av. yield of grain in Kg/ha.

Treatment :	F_0	F_1	F_2	F_3	F_4	F_5	F_6	F_7	F_8	F_9
Av. yield :	2726	3285	3322	2993	3514	3376	3513	3317	3273	3270

C.D.=287.4Kg/ha.

Individual results :

Treatment	F_0	F_1	F_2	F_3	F_4	F_5	F_6	F_7	F_8	F_9	Sig	G.M.	S.E. plot
Year 1961	3123	3300	3196	3107	3704	3844	3760	3614	3530	3615	**	3479	276.3
1962	2491	3197	3430	3180	3600	3448	3904	3491	3483	3457	**	3368	379.5
1963	2984	3766	3671	3002	3700	3641	3364	3415	3320	3246	**	3411	221.4
1964	2306	2875	2991	2682	3053	2570	3024	2748	2759	2761	N.S.	2777	313.9
Pooled	2726	3285	3322	2993	3514	3376	3513	3317	3273	3270	**	3259	396.2

Infestation data

61 (131)

(i) 5.95 degrees (ii) 3.49 degrees (iii) Treatment differences are highly significant. (iv) % infection in degrees.

Treatment :	F_0	F_1	F_2	F_3	F^4	F_5	F_6	F_7	F_8	F_9
Mean angle :	29.76	0.00	0.00	16.67	1.28	2.13	0.00	0.00	0.00	9.68

C.D.=5.05 degrees

62 (30)

(i) 17.11 degrees (ii) 5.34 degrees (iii) Treatment differences are highly significant. (iv) %infaction in degrees.

Treatment :	F_0	F_1	F_2	F_3	F_4	F_5	F_6	F_7	F_8	F_9
Mean angle :	40.19	7.02	19.10	30.62	0.99	17.73	9.81	14.60	12.45	18.55

C.D.=7.75 degrees

63 (22)

(i) 15.66 degree (ii) 4.64 degrees (iii) Treatment differences are highly significant. (iv) % infestion in degrees.

Treatment :	F_0	F_1	F_2	F_3	F_4	F_5	F_6	F_7	F_8	F_9
Mean angle :	34.01	3.14	12.86	24.10	0.00	14.28	15.07	16.78	15.20	21.18

C.D.=6.73 degrees

64 (21)

(i) 20.08 degrees (ii) 5.55 dagrees (iii) Treatment differences are highly significant. (iv) % infection in degrees.

Treatment :	F_0	F_1	F_2	F_3	F_4	F_5	F_6	F_7	F_8	F_9
Mean angle :	34.24	22.38	7.44	25.29	0.00	26.70	13.47	24.01	23.79	23.48

C.D.=8.07 degrees

Crop :- Barley (*Rabi*). **Ref :- U.P. 60 (237)**

Site :-Govt. Reg. Agri. Res. Stn., Meerut **Type :- 'D'.**

Object :—To find out a simple method to control covered smut of Barley.

1. BASAL CONDITIONS :

(i) (a) Nil (b) *Urd, Moong* and *Til*, (c) N.A. (ii) Loam (iii) 10.11.60 (iv) (a) 1 ploughing by S.T.P. and 3 ploughings by *Deshi* plough (b) Behind the plough (c) 69Kg/ha (d) Rows 30cm apart (e)— (v) Nil (vi) K.N. 17 (vii) Unirrigated (viii) 1 weeding (ix) 4.9cm. (x) 5.4.61.

2. TREATMENTS :

6 seed-soaking treatments : T_0=Control (No soaking treatment), T_1=In water for 16 hours, T_2=In water for 24 hours, T_3=In 0.1% solution of Cu SO_4 for 4 hours, T_4=In 0.5% solution of $CuSO_4$ for 4 hours and T_5=In Agrosan G.N.

3. DESIGN :

(i) R.B.D. (ii) (a) 6 (b) 19.20m×17.37m (iii) 4 (iv) (a) 9.14m×5.18m (b) 8.23m×4.27m (v) 46cm×46cm (vi) Yes.

4. GENERAL:

(i) Satisfactory (ii) Under study (iii) Germination %, No. of Barley smutted plants on different dates and yield of grain and straw (iv)(a) 1959—60 (b) and (c) Nil (v) to (vii) Nil.

5. RESULTS:

Yield data

(i) 3155Kg/ha (ii) 191.1Kg/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	T_5
Av. yield :	2875	3018	3310	3068	3317	3342

C.D.=287.9Kg/ha.

Incedence data

(i) 8.11 $\sqrt{x+\frac{1}{2}}$/plot (ii) 1.218 $\sqrt{x+\frac{1}{2}}$/plot (iii) Treatment differenees are highly significant (iv) Mean value of $\sqrt{x+\frac{1}{2}}$/plot, where x is the No. of smutted plants/plot.

Treatment :	T_0	T_1	T_2	T_3	T_4	T_5
Mean value :	14.32	10.03	10.20	8.38	1.05	4.69

C.D.=1.83 $\sqrt{x+\frac{1}{2}}$/plot

Crop :- Barley (*Rabi*). **Ref :- U.P. 62 (204); 63 (204)**

Site :- Govt. Reg. Agri. Res. Stn., Nawabgunj. **Type :- 'D'**

Object :—To control the leaf-strip disease of Barley (due to *Halminthosporium* Sp.) by using seed-dressing fungicides.

1. BASAL CONDITIONS :

(i) (a) Nil (b) and (c) N.A. (ii) Clay loam (iii) 22.11.62; 7.11.63 (iv) (a) N.A. (b) Behind *Deshi* plough (c) N.A. (d) Rows 20cm apart (e) — (v) 22.4Kg/ha of N as C/A/N; Nil (vi) C—251; K—12 (vii) Irrigated (viii) Nil (ix) 3.1cm; 0.7cm (x) N.A.; 31.3.64.

2. TREATMENTS :

4 Seed-dressing treatments : T_0=Control (2 plots), T_1=0.28% Agrosan G.N; T_2=0.33% Ceresan and T_3=0.28% Hexasan.

3. DESIGN:

(i) R.B.D. (ii) (a) 5 (b) N.A. (iii) 4 (iv) (a) 7.62m×6.10m; 7.62m×6.40m (b) 7.62m×6.10; 6.71m×5.79m (v) Nil; 45cm×30cm (vi) Yes.

4. GENERAL:

(i) Good (ii) Nil (iii) Yield of grain (iv) (a) 1962—63 (b) No. (c) Results of combined analysis have been presented under 5. Results (v) Rudrapur and Varanasi (vi) Nil (vii) Error variances are homogeneous and Treatment×year interaction is absent.

5. RESULTS :

Pooled results :

(i) 2164Kg/ha (ii) 301.1Kg/ha (based on 29 d.f. made up of pooled error and Treatment×year 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 :	2046	2353	2203	2174

Individual results :

Treatment / Year	T_0	T_1	T_2	T_3	Sig.	G.M.	S.E./plot
1962	1057	1181	1270	1090	N.S.	1131	212.0
1963	3035	3525	3135	3258	N.S.	3198	367.7
Pooled	2046	2353	2203	2174	N.S.	2164	301.1

Crop :- Barley (*Rabi*). **Ref :- U.P. 62 (354)**

Site :- Govt. Reg. Agri. Res. Stn., Rudrapur. **Type :- 'D'**

Object :—To select out the best control measure for leaf strip disease of Barley.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Clay to clay loam (iii) 1.12.62 (iv)(a) 1 ploughing by victory plough and 2.3 ploughings by Jullunder plough and planking (b) Behind the plough (c) 92Kg/ha. (d) N.A. (e) — (v) Nil (vi) C. 251 (vii) Unirrigated (viii) Weeding (ix) N.A. (x) 7.4.63.

2. TREATMENTS :

4 seed-dressing treatments : T_0=Control (2 plots), T_1=0.28% Agrosan G.N., T_2=0.33% Ceresan and T_3=0.28% Hexasan.

3. DESIGN :

(i) R.B.D. (ii) (a) 5 (b) N.A. (iii) 4 (iv) (a) and (b) 7.50m × 6.00m. (v) Nil (vi) Yes.

4. GENERAL :

(i) Good (ii) Under study, Disease observed on 23.2.63 (iii) Yield of grain and straw (iv) (a) 1962 —only (b) and (c) Nil. (v) Varanasi and Nawabgunj. (vi) and (vii) Nil.

5. RESULTS :

(i) 611Kg/ha (ii) 121.0Kg/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 :	458	806	778	556

C.D. for T_0 *Vs.* any other T means=119.3Kg/ha.

C.D. for T means except T_0 mean=184.8Kg/ha.

———

Crop :- Barley (*Rabi*). **Ref:-U.P. 62(407).**

Site :- Govt. Res. Agri. Res. Stn., Varanasi. **Type :- 'D'.**

Object :—To select the best control measure for leaf-strip disease of Barley.

1. BASAL CONDITIONS:

(i) (a) Nil (b) Paddy (c) N.A. (ii) Clay loam (iii) 6.11.62 (iv) (a) 3 ploughings and Pata (b) Sown behind the plough (c) 111Kg/ha (d) Rows 23cm. apart (e) — (v) N.A. (vi) C 500 (vii) Irrigated (viii) 1 weeding and hoeing (ix) 5.5cm (x) 4.4.63.

2. TREATMENTS:

4 seed-dressing treatments: T_0=Control (2 plots), T_1=0.28% Agrosan G.N., T_2=0.33% Ceresan and T_3=0.28% Hexasan.

3. DESIGN:

(i) R.B.D. (ii) (a) 5 (b) N.A. (iii) 4 (iv) (a) and (b) 11.58m×3.20m (v) N.A. (vi) Yes.

4. GENERAL:

(i) N.A. (ii) Under study (iii) No. of strip affected plants and yield of grain (iv) (a) 1962—only (b) and (c) Nil (v) Rudrapur and Nawabgunj (vi) and (vii) Nil.

5. RESULTS:

(i) 2083Kg/ha (ii) 482.7Kg/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:	1784	2246	2415	2185

Crop :- Barley (*Rabi*). **Ref :- U.P. 63(487).**

Site :-Govt. Reg. Agri. Res. Stn., Varanasi. **Type :- 'D'**

Object :—To select the best control measure for leaf-strip disease of Barley.

1. BASAL CONDITIONS:

(i) (a) to (c) N.A. (ii) Loam (iii) N.A. (iv) (a) 3 ploughings and Pata (b) Sown behind the plough c) 111Kg/ha (d) Rows 23cm apart (e) — (v) and (vi) N.A. (vii) Irrigated (viii) 1 weeding and hoeing (ix) 2.2cm (x) N.A.

2. TREATMENTS:

8 fungicidal treatments:

T_0=Control (Plain water), T_1=0.2% Thiram, T_2=0.17% Flit 406, T_3=0.22% Fusanob, T_4=0.28% Spergon T_5=0.28% Agrosan G.N, T_6=0.33% Ceresan and T_7=0.28% Hesasan.

3. DESIGN:

(i) R.B.D. (ii) (a) 8 (b) N.A. (iii) 4 (iv) (a) and (b) 12.19m×4.88m (v) Nil (vi) Yes.

4. GENERAL:

(i) N.A. (ii) Under study (iii) Yield of grain (iv) (a) 1963—only (b) and (c) Nil (v) to (vii) Nil.

5. RESULTS:

(i) 1077Kg/ha (ii) 125.3Kg/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:	998	1150	1110	1084	1020	1132	1081	1037

Crop :- Barley (*Rabi*). **Ref :- U.P. 64(191).**

Site :- Govt. Reg. Agri. Res. Stn., Varanasi. **Type :- 'D'**

Object:—To select the best control measure for strip disease of Barley.

1. TREATMENTS:

(i) (a) to (c) N.A. (ii) Loam (iii) N.A. (iv) (a) N.A. (b) Line sowing behind *Deshi* plough (c) 100Kg/ha (d) Rows 23cm apart (e) — (v) and (vi) N.A. (vii) Irrigated (viii) Nil (ix) 5.2cm (x) N.A.

2. TREATMENTS:

7 fungicidal treatments: T_0=Control, T_1=Ceresan wet, T_2=Dithan Z—78, T_3=Ceresan, T_4=Blitox, T_5=Hexasan and T_6=Agrosan.

Dose of fungicides N.A.

3. DESIGN :

(i) R.B.D. (ii) (a) 7 (b) N.A. (iii) 4 (iv) (a) and (b) 3.05m × 1.37m (v) Nil (vi) Yes.

4. GENERAL·

(I) Good (ii) Nil (iii) Yield of grain (iv) (a) 1964—only (b) and (c) Nil (v) to (vii) Nil.

5. RESULTS :

(i) 3588Kg/ha. (ii) 518.3Kg/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 :	3379	4261	3648	3678	3169	3857	3125

Crop :-Oats (*Rabi*). **Ref :- U.P. 64 (222)**

Site :- Govt. Reg. Agri. Res. Stn., Nawabgunj. **Type :- 'M'.**

Object :—To study the effect of soil *vs.* foliar application of N on Oats.

1. BASAL CONDITIONS:

(i) (a) to (c) N.A. (ii) Clay loam (iii) 24.12.64 (iv) (a) N.A. (b) Behind *Deshi* plough in lines (c) 90Kg/ha (d) Rows 20cm. apart (e)— (v) Nil (vi) EC—13594 (vii) and (viii) N.A. (ix) 16.3cm (x) N.A.

2. TREATMENTS :

Three manurial treatments : T_0=Control, T_1=44.8Kg/ha of N as urea through soil application and T_2=44.8Kg/ha of N as Urea applied through foliar spray.

3. DESIGN :

(i) R.B.D. (ii) (a) 3 (b) N.A. (iii) 9 (iv) (a) 10.00m × 5.00m (b) 9.00m × 4.60m (v) 50cm × 20cm (vi) Yes.

4. GENERAL :

(I) Good (ii) Nil (iii) Yield of grain (iv) (a) 1964—only (b) and (c) Nil (v) to (vii) Nil.

5. RESULTS :

(i) 637.8Kg/ha. (ii) 81.20Kg/ha. (iii) Treatment differences are highly significant. (iv) Av. yield of grain in Kg/ha.

Treatment :	T_0	T_1	T_2
Av. yield :	558.2	791.7	563.6

C.D.=80.95Kg/ha.

Crop :-Oats (*Rabi*). **Ref :- U.P. 63 (233), 64(235), 65(39).**

Site:- Govt. Reg. Agri. Res. Stn., Nawabgunj. **Type :- 'M'.**

Object :—To study the residual effect of N, P and K each at 3 levels applied to previous Paddy crop.

1. BASAL CONDITIONS:

(i) (a) Paddy—Oats (b) Paddy (c) As per treatments (ii) Clay loam (iii) 5.1.64; 31.12.64; 9.1.66 (iv) (a) N.A. (b) Line sowing behind the plough for 65, Broadcasting for others. (c) 100Kg/ha (d) Rows 23cm. apart. for 65. (e)— (v) Nil for 65, 22.4Kg/ha of N as C/A/N for others (vi) X—27 (vii) Irrigated (viii) Nil for 65, N.A. for others. (ix) N.A. (x) 2.5.64; 11.5.65; 14 to 18.5.66.

2. TREATMENTS:

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

(1) 3 levels of N: N_0=0, N_1=44.8 and N_2=89.6Kg/ha.

(2) 3 levels of P_2O_5 : P_0=0, P_1=22.4 and P_2=44.8Kg/ha.

(3) 3 levels of K_2O : K_0=0, K_1=22.4 and K_2=44.8Kg/ha.

Treatments were applied to the previous Paddy crop.

3. DESIGN :

(i) 3^3 Confd. (ii) (a) 9 plots/block; 3 blocks/replication (b) N.A. (iii) 2 (iv) (a) 10.67m×7.32m (b) 9.75m×6.86m for 65 and 10.67m×7.32m for others (v) 46cm×23cm for 65; Nil for others (vi) Yes.

4. GENERAL:

(i) Good (ii) Nil (iii) Yield of grain. (iv) (a) 1963 –65 (b) N.A. (c) The results of combined analysis have been presented under 5. Results. (v) and (vi) Nil (vii) Error variances are homogeneous and treatment × years in teraction is absent.

5. RESULTS :

Pooled results

(i) 687.8 Kg/ha (ii) 183.0Kg/ha. (based on 102 d.f. made up of pooled error and Treatment × years interaction) (iii) Main effect of N is significant and that of P is highly singnificant (iv) Av. yield of grain in Kg/ha.

	P_0	P_1	P_2	K_0	K_1	K_2	mean
N_0	589.3	694.3	642.0	664.6	570.6	690.3	641.8
N_1	679.6	743.0	764.0	745.6	726.6	715.0	728.8
N_2	586.0	721.0	771.6	745.6	726.2	714.6	692.8
mean	618.3	719.4	725.8	676.6	680.6	706.6	687.8
K_0	574.3	732.0	723.6				
K_1	587.0	668.3	786.6				
K	693.6	758.0	667.3				

C.D. for N or P marginal means=69.9Kg/ha.

Individual results :

Treatment	N_0	N_1	N_2	Sig.	P_0	P_1	P_2	Sig.	K_0	K_1	K_2	Sig.	G.M.	S.E./plot
year 1963	537.9	679.3	623.3	N.S.	554.4	620.2	665.9	N.S.	626.4	607.9	606.1	N.S.	613.5	197.0
1964	760.6	870.2	8 7 .4	N.S	742.8	874.9	880.6	N.S.	837.1	826.8	834.3	N.S.	832.8	181.7
1965	626.9	637.2	588.1	N.S.	558.0	663.1	631.2	N.S.	566.4	607.0	678.9	N.S.	617.4	146.6
Pooled	641.8	728.8	692.8	*	618.3	719.4	725.8	N.S.	676.6	680.6	706.6	N.S.	687.8	183.0

Crop :- Oats (*Rabi*). **Ref : U.P. 64(323).**

Site :- Res. Farm, College of Agri. B.H.U, Varanasi. **Type :- 'M'.**

Object : To study the response of Oats to application of various forms and levels of N.

1. BASAL CONDITIONS:

(i) (a) to (c) N.A. (ii) Sandy loam (iii) 12.11.64 (iv) (a) 3 ploughings by S.T./*Deshi* plough followed by plankings. (b) Behind the plough (c) 62Kg/ha (d) Rows 23cm. apart (e) — (v) Nil (vi) Kent (vii) Irrigated (viii) Periodical hoeing and weeding (ix) 5.2cm (x) 17.4.65.

2. TREATMENTS:

All combinations of (1) and (2):

(1) 3 levels of N : N_1=24.7, N_2=49.4 and N_3=98.9Kg/ha.

(2) 3 forms of N : F_1=A/S, F_2=A/C and F_3=Urea.

½ N applied at 1st irrigation and ½ N applied at 2nd irrigation.

3. DESIGN:

(i) Fact. in R.B.D. (ii) (a) 9 (b) N.A. (iii) 4 (iv) (a) 8.69m×5.18m (b) 8.08m×4.57m (v) 30.5cm alround the plot (vi) Yes.

4. GENERAL:

(i) Good (ii) Nil (iii) Yield of grain and straw (iv) (a) 1964—only (b) and (c) Nil (v) to (vii) Nil.

5. RESULTS:

(i) 2121Kg/ha (ii) 355.3Kg/ha (iii) Main effect of N and interaction N×F are highly significant (iv) Av. yield of grain in Kg/ha.

	F_1	F_2	F_3	mean
N_1	1544	1598	1706	1616
N_2	2139	2248	1814	2067
N_3	2491	2735	2816	2681
mean	2058	2194	2112	2121

C.D. for N marginal means=300.2Kg/ha.
C.D. for body of table=519.9Kg/ha.

Crop :-Oats (*Rabi*). **Ref :-U.P. 65(159).**

Site :- Res. Farm. College of Agri. B.H.U., Varanasi. **Type :-'M'**

Object :—To study the response of Oats to varying levels of N and in relation to growth, yield and quality.

1. BASAL CONDITIONS:

(i) (a) N.A. (b) Fallow (c) Nil (ii) Loam (iii) 31.10.65 (iv) (a) One ploughing by deep soil inverting Care plough, two ploughings by a light mould board plough; 4 ploughings by country plough followed by planking and discing. (b) Behind the plough (c) 100Kg/ha. (d) Rows 23cm. apart (e) — (v) Nil (vi) Kent (vii) Irrigated (viii) Intercultivation and weeding (ix) 4.5cm (x) 14.4.66.

2. TREATMENTS :

All combinations of (1) and (2) :

(1) 4 levels of N as A/S : N_0=0, N_1=40, N_2=80 and N_3=120Kg/ha.

(2) 3 levels of P_2O_5 as Super ; P_0=0, P_1=30 and P_2=60Kg/ha.

Application:

N was given in 3 split doses; 1/3rd was applied as basal dressing throug plough soil method. soil was mixed with A/S. 1/3rd N was given 45 days after seedling at the time of irrigation, remaining N was applied 30 days after the first top dressing. The last dressing coincided with the booting stage of crop.

3. DESIGN :

(i) Fact. in R.B.D. (ii) (a) 12 (b) 20.25m×21.75m (iii) 4 (iv) (a) 6.00m×3.50m (b) 5.00m×2.50m (v) 50cm×50cm (vi) Yes.

4. GENERAL :

(i) Good (ii) Nil (iii) Population count, Height and no. of tillers, yield of grain (iv) (a) No. (b) and (c) Nil. (v) and (vi) Nil (vii) The seeds were dressed with Agrosan G.N.

5. RESULTS :

(i) 1925Kg/ha. (ii) 195.3Kg/ha. (iii) Main effects of N and P are highly significant. (iv) Av. yield of grain in Kg/ha.

	N_0	N_1	N_2	N_3	mean
P_0	1240	1380	2200	2120	1735
P_1	1340	1560	2620	2280	1950
P_2	1360	1800	2760	2440	2090
mean	1313	1580	2527	2280	1925

C.D. for N marginal means=162.3Kg/ha.
C.D. for P marginal means=140·5Kg/ha.

Crop :- Oats (*Rabi*). **Ref :- U.P. 64 (358).**

Site :- Res. Farm, College of Agri. B.H.U., Varanasi. **Type :- 'M'.**

Object: -To study the relative efficiency of sources and techniques of N application in relation to growth and yield behaviour of Oats crop.

1. BASAL CONDITIONS:

(i) (a) N.A. (b) *Jowar* (c) N.A. (ii) Loam (iii) 30.10.64 (iv) (a) One ploughing by mould-board plough, one by tractor (b) 2 discings and plankings and 1 ploughing by *Deshi* plough. (c) 74.1Kg/ha (d) Rows 23 cm apart (e) – (v) Nil (vi) Kent (vii) Irrigated (iii) One weeding (ix) 5.2cm (x) 14.4.65.

2. TREATMENTS:

All combination (1) and (2).

(1) 4 sources of N: S_1=A/S, S_2=C/A/N, S_3=Urea and S_4=A/C.

(2) 3 methods of N application at 74Kg/ha of N: P_1=Broadcasting, P_2=Plough-sole and P_3=Band placement.

3. DESIGN :

(i) Fact, in R.B.D. (ii) (a) 12 (b) 31.09m×12.80m (iii) 4 (iv) (a) 6.10m×3.05m (b) 5.49m×2.44m (v) 30cm×30cm (vi) Yes.

4. GENERAL:

(i) Good (ii) Nil (iii) Height, no. of tillers, yield of grain and Bhusa (iv) (a) 1964—only (b) and (c) Nil (v) to (vii) Nil.

5. RESULTS:

(i) 2937Kg/ha. (ii) 258.6Kg/ha. (iii) None of the effects is significant. (iv) Av. yield of grain in Kg/ha.

	P_1	P_2	P_3	mean
S_1	3061	3135	3061	3086
S_2	2837	2911	2911	2886
S_3	2986	2911	2986	2962
S_4	2762	2837	2837	2937
mean	2912	2949	2949	

Crop :- Oats (*Rabi*). **Ref:- U.P. 64 (201).**

Site :- Govt. Reg. Agri. Res. Stn., Nawabgunj. **Type :- 'MV'.**

Object :—To study the effect of N, P and K on three varieties of Oats.

1. BASAL CONDITIONS:

(i) (a) Nil (b) Paddy (c) N.A. (ii) Clay loam (iii) 11.1.64 (v) (a) N.A. (b) Line sowing behind the plough (c) 100Kg/ha (d) Rows 20cm. apart (e) N.A. (v) N.A. (vi) As per treatments (vii) Irrigated (viii) Nil (ix) 16.3cm. (x) 9/10.5.64.

2. TREATMENTS :

Main-plot treatments :

3 Varieties : V_1=N.P. Hy. 1, V_2=N.P. Hy. 3 and V_3=X-27.

Sub-plot treatments :

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

(1) 3 levels of N : N_1=22.4, N_2=44.8 and N_3=89.6Kg/ha.

(2) 3 Levels of P_2O_5 : P_1=11.2, P_2=22.4 and P_3=44.8Kg/ha.

(3) 3 Levels of K_2O : K_1=11.2, K_2=22.4 and K_3=44.8Kg/ha.

3. DESIGN :

(i) Split-plot confd. (ii) (a) 9 main-plots blocks/replication and 9 sub-plot/main-plot block (b) N.A. (iii) 2 (iv) (a) 8.84m. × 4.57m. (b) 7.62m. × 4.11m. (v) One row on either side and 60 cm. at each end. (vi) Yes.

4. GENERAL

(i) Good (ii) Nil (iii) Yield of Oat seed (iv) (a) 1964—only (b) and (c) Nil (v) to (vi) Nil.

5. RESULTS:

(i) 1059Kg/ha. (ii) (a) 423.1Kg/ha. (b) 318.2Kg/ha. (iii) Main effects of V, N and P are highly significant. Interaction N × P is significant. (iv) Av. yield of grain in Kg/ha.

	P_1	P_2	P_3	K_1	K_2	K_3	V_1	V_2	V_3	mean
N_1	773	850	823	741	772	833	614	829	903	782
N_2	913	981	1279	1049	1079	1045	872	1007	1294	1058
N_3	1006	1330	1673	1479	1258	1272	1055	1415	1539	1336
mean	864	1053	1258	1090	1036	1050	847	1084	1245	1059
V_1	707	823	1011	863	819	858				
V_2	858	1087	1306	1137	1047	1068				
V_3	1027	1250	1458	1269	1243	1223				
K_1	902	1055	1311							
K_2	875	1079	1155							
K_3	815	1026	1308							

C.D. for V marginal means=187.7Kg/ha.

C.D. for N or P marginal means=122.1Kg/ha

C.D. for body of N×P table=211.5Kg/ha.

Crop :- Oats (*Rabi*). **Ref :-U.P. 65 (157).**

Site :- Res. Farm, College of Agri. B.H.U., Varanasi **Type :- 'MV'.**

Object .—To study the relative efficiency of varieties and levels of N in relation to growth, yield and quality of Oats.

1. BASAL CONDITIONS :

(i) (a) Nil (b) *Jowar* (c) Nil (ii) Light loam (iii) 28.10.65 (iv) (a) Deep ploughing by heavy soil-inverting plough and 3 ploughings by country plough followed by plankings harrowing and discing (b) Behind the plough (c) 80Kg/ha. (d) Rows 25cm. apart (e)— (v) Nil (vi) As per treatments (vii) Irrigated (viii) One weeding (ix) 4 5cm (x) 9.4.66.

2. TREATMENTS:

All the combinations of (1) and (2):

(1) 3 varieties : V_1=Kent, V_2=Brunker 10 and V_3=W. 11.

(2) 4 levels of N as A/S : N_0=0, N_1=40, N_2=80 and N_3=120Kg/ha.

N was applied in 3 equal split doses. Ist. at sowing, 2nd and 3rd at 1st. and 2nd irrigation respectively.

3. DESIGN :

(i) Fact. in R.B.D. (ii) (a) 12 (b) 22.50m×19.75m (iii) 4 (iv) (a) 6.00m×5.00m (b) 5.00m×4 00m (v) 50cm×50cm (vi) Yes.

4. GENERAL:

(i) Good (ii) Nil (iii) Yield of grain (iv)(a)1965—only (b) and (c) Nil (v) to (vii) Nil

5. RESULTS :

(i) 2362Kg/ha (ii) 136.0Kg/ha (iii) M in effects of V and N are highly significant and interaction N×V is significant. (iv) Av. yield of grain in Kg/ha.

	N_0	N_1	N_2	N_3	mean
V_1	545	2515	3190	3505	2439
V_2	540	2510	2905	3150	2276
V_3	950	2300	3105	3130	2371
mean	678	2442	3067	3262	2362

C.D. for V marginal means=97.9Kg/ha.

C.D. for N marginal means=113.0Kg/ha.

C.D. for body of table=195.5Kg/ha.

Crop :- Oats (*Rabi*). **Ref- U.P. 63(486), 64(586), 65(430).**

Site :-Central Soil Cons. Res. Stn., Selakaui (Dehra Dun). **Type :-'C'.**

Object :—To study the residual effect of optimum relative width ratio of erosion—permitting and erosion—resisting crops in strip—cropping on the succeeding Oats crop.

1. BASAL CONDITIONS

(i) (a) As per treatments—Oats (b) As per treatments. (c) Maize—90Kg/ha of N+45Kg/ha of P_2O_5; Cowpea —45Kg/ha. of P_2O_5 (ii) Sandy loam (iii) 22/23.10.63., 13.11.64; 3.11.65 (iv) (a) 1 ploughings by Disc plough, 2 harrowings, 2 plankings (b) By seed—drill (c) 99Kg/ha. (d)Rows 17.5cm. apart (e) - (v) 50.5Kg/ha. of N at in sowing+22.5Kg/ha of N topdressed(vi) Australian (vii) Unirrigated (viii) Nil (ix) 12.0cm; 34.6cm; 8.7cm. (x) N.A.; N.A.; 29.4.66.

2. TREATMENTS:

3 cultural treatments :

T_1=Maize and Cowpea in seprate strips in the ratio of 3: 1 (5 sets), T_2=Maize and cowpea in seprate strips in the ratio of 4 : 1 (4 sets) and T_3=Maize—Contour cultivation.

Note :—

Width of erosion—resisting strip (cowpea)=4.57m.

Treatments are to rotate every year in a replication in cyclic order.

These treatments were applied during *Kharif* crop.

3. DESIGN :

(i) R.B.D. (ii) (a) 3 (b) 15.24m×274.32m (iii) 2 (iv) (a) (b) 15.24m.×91.44m. (v) Nil (vi) Yes.

4. GENERAL;

(i) Satisfactory (ii) Nil (iii) Yield of grain and straw. (iv) (a) 1963—contd. (Expt. failed in 1965) (b) Yes. (Same plots but treatments are rotating) (c) Nil (v) and (vi) Nil (vil) Usual method (up and down cultivation) as treatment was also taken in one replication only and hence rejected, slope of field=4%.

5. RESULTS:

63(486)

(i) 642Kg/ha (ii) 25.9Kg/ha. (iii) Treatment differences are highly significant(iv) Av. yield of grain in Kg/ha.

Treatment:	T_1	T_2	T_3
Av. yield:	556	506	865

C.D.=66.5Kg/ha.

64(586)

(i) 1471Kg/ha. (ii) 214.8Kg/ha (iii) Treatment differances are not significant. (iv) Av. yield of grain in Kg/ha.

Treatment :	T_1	T_2	T_3
Av. yield :	1457	1489	1467

Crop :- Oats (*Rabi*). **Ref :- U.P. 60(375).**

Site :- State Usar Reclamation Farm, Katiyar, **Type - 'CM'**

Object :—To study the reclamation of saline alkali land by leaching with and with out application of Gypsum.

1. BASAL CONDITIONS :

(i) (a) *Dhaincha* (G.M.)–Wheat (b) *Dhaincha* (G.M.) (c) Nil (ii) Saline alkali Soil (iii) N.A. (iv) (a) 6—7 ploughings (b) By seed-drill (c) 99Kg/ha (d) Rows 15cm apart (e) – (v) Nil (vi) T. I (vii) Irrigated (viii) 1 weeding (ix) N.A. (x) May, 61.

2. TREATMENTS :

Main-plot treatments:

3 levels of Gypsum : G_0=0, G_1=100.4 and G_2=200.8Q/ha.

Sub-plot treatments :

2 levels of leaching : L_0=No leaching and L_1=Leaching.

Note: Date of application N.A.

3. DESIGN :

(i) Split-plot. (ii) (a) 3 main-plots/replication, 2 sub-plots/main-plot. (b) 59.13m×77.72m (iii) 6 (iv) (a) 60.35m×13.41m (b) 59.13m×12.19m (v) 61cm×61cm (vi) Yes.

4. GENERAL:

(i) Normal (ii) Nil (iii) Yield of grain (iv) (a) 1960—only (b) and (c) Nil (v) and (vi) Nil (vii) From 1956, this expt. was conducted on Wheat crop and from 1961 also on Wheat crop.

5. RESULTS:

(I) 1847Kg/ha (ii) (a) 615.3Kg/ha. (b) 529.9Kg/ha (iii) Main effect of L is highly significant. (iv) Av. yield of grain in Kg/ha.

	G_0	G_1	G_2	mean
L_0	1180	1694	1802	1559
L_1	1823	2240	2340	2134
mean	1502	1967	2071	1847

C.D. for L marginal means=376.4 Kg/ha.

Crop :- Oats (*Rabi*). **Ref :- U.P. 61(416).**

Site :- State Usar Reclamation Farm, Rahimabad. **Type :- 'CM'.**

Object :—To compare the effectiveness of Gypsum with bulky organic matter like Paddy-straw in reclamation of saline—alkali soils both under leached and unleached conditions.

1. BASAL CONDITIONS :

(i) (a) Paddy—Fallow from 1957-60; Paddy—Oats in 1961 (b) Paddy (c) 2.77Q/ha. of A/S (ii) Clay loam. (iii) 1st week of Dec., 61. (iv) (a) 4—5 ploughings by *Deshi* plough/Meston plough (b) Broadcasting (c) 99Kg/ha (d) and (e) — (v) 184.5Kg/ha. of A/S (vi) N.A. (vii) Irrigated (viii) One weeding (ix) 6.6cm. (x) 8/9.5.62.

2. TREATMENTS :

Main-plot treatments :

4 manurial treatments: T_0=Control, T_1=251.1Q/ha. of Paddy-straw for 3 years, T_2=125.5Q/ha. of Gypsum applied once and $T_3=T_1+T_2$.

Sub-plot treatments :

2 levels of leaching : L_0=Unleached and L_1=Leached with water.
Gypsum applied in 1957 and Paddy straw applied in 1957, 1958 and 1959. Leaching done only in 1957.

3. DESIGN :

(i) Split-plot (ii) (a) 4 main plots/replication, 2 sub-plots/main-plot. (b) 50.29m×86.87m (iii) 4 (iv) (a) 50.29m×10.06m. (b) 49.07m×8.84m. (v) 61cm×61cm (vi) N.A.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of grain (iv) (a) 1961—only (b) and (c) Nil (v) and (vi) Nil (vii) Expt. conducted on Paddy from 1957 to 1961.

5. RESULTS :

(i) 104.5Kg/ha (ii) (a) 145.6Kg/ha (b) 74.8Kg/ha (iii) Main effect of L is significant. (iv) Av. yield of grain in Kg/ha.

	T_0	T_1	T_2	T_3	mean
L_0	86.4	27.6	117.1	49.6	70.2
L_1	50.9	164.3	267.1	72.7	138.8
mean	68.6	95.9	192.1	61.2	104.5

C.D. for L marginal means=57.6Kg/ha.

Crop :-Oats (*Rabi*). **Ref :-U.P. 64(364).**

Site :- Res. Farm, College of Agri. B.H.U. Varanasi. **Type :-'CM'**

Object :—To study the responses of N levels and date of sowing on growth, yield and quality of Oats.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) *Jowar* (c) N.A. (ii) Loam (iii) As per treatments (iv)(a) One ploughing by heavy soil inverting plough, one by mould board plough and country plough followed by planking. (b) Behind the plough (c) 61.8Kg/ha (d) Row 23cm. apart (e)— (v) Nil (vi) Kent (vii) Irrigated (viii) One weeding (ix) 5.2cm (x) 8.4.65.

2. TREATMENTS:

All combinations of (1) and (2) :

(1) 4 levels of N : N_0=0, N_1=40, N_2=80 and N_3=120Kg/ha.

(2) 3 dates of sowing : D_1=23.10.64, D_2=7.11.64 and D_3=22.11.64.

Note : ½ N was given at 1st. irrigation and ½ N at 2nd irrigation.

3. DESIGN :

(i) Fact. in R.B.D. (ii) (a) 12 (b) N.A. (iii) 4 (iv) (a) 8.50m×8.00m (b) 7.50m×7.00m (v) 50cm×50cm (vi) Yes.

4. GENERAL:

(i) Good (ii) Pallets of $BaCO_3$; was placed to protect the crop from wild rodents. (iii) Yield of grain and bhusa (iv) (a) 1964—only (b) and (c) Nil (v) to (vii) Nil.

5. **RESULTS:**

(i) 2162Kg/ha. (ii) 381.0Kg/ha. (iii) Main effects of N and D are highly significant. (iv) Av. yield of grain in Kg/ha.

	N_0	N_1	N_2	N_3	mean
D_1	1251	2505	3086	3280	2531
D_2	1080	2181	2775	2933	2242
D_3	752	1875	2013	2210	1713
mean	1028	2137	2625	2808	2162

C.D. for N marginal means=316.6Kg/ha.
C.D. for D marginal means=274.2Kg/ha.

Crop :- Oats (*Rabi*). **Ref :-U.P. 60 (310).**

Site :- Govt. Reg. Agri. Res. Stn., Rudrapur. **Type :-'D'.**

Object :—To study the comparative effect of different cultural methods on the population of weeds in *Rabi*.

1. **BASAL CONDITIONS :**

(i) (a) N.A. (b) As per treatments (c) N.A. (ii) Clay to clay loam (iii) 12.12.60. (iv) (a) One ploughing by victory plough and 3-4 ploughings by Jullundar plough and planking (b) Behind the plough. (c) N.A. (d) Rows 23cm. apart (e) — (v) and (vi) N.A. (vii) Unirrigated (viii) to (x) N.A.

2. TREATMENTS :

6 cultural treatments: T_0=Fallow, T_1=2, 4—D, T_2=Periodic ploughings, T_3=*Dhaincha*, T_4=Jute and T_5=Paddy.

Kharif crops sown on 10.7.61; 37.18 gm. of 2, 4—D dissolved in 12 litres of water.

3. DESIGN:

(i) R.B.D. (ii) (a) 6 (b) 35 58m×27.13m (iii) 4 (iv) (a) and (b) 11.58m×12.50m. (v) Nil (vi) Yes.

4. GENERAL:

(i) Good (ii) Crop damaged by smut infection. (iii) Yield of grain and straw (iv) (a) 1960—only (b) and (c) Nil (v) to (vii) Nil.

5. RESULTS :

(i) 215.8Kg/ha (ii) 10.10Kg/ha. (iii) Treatment differences are highly significant. (iv) Av. yield of grain Kg/ha.

Treatment :	T_0	T_1	T_2	T_3	T_4	T_5
Av. yield :	215.4	228.6	227.7	209.1	195.4	218.6

C.D.=15.20Kg/ha.

Crop :- Jowar (*Kharif*). **Ref. :- U.P. 60 (416).**

Site :- Govt. Reg. Agri. Res. Stn., Amrukh. **Type :- 'M'**

Object :—To see the efficiency of organic and inorganic manures with and without phosphatic fertilizer.

1. BASAL CONDITIONS :

(i) to (c) N.A. (ii) *Kabar* and *Parwa* (iii) 23.7.60 (iv) (a) 2 to 3 ploughings by *Bakhar* plough (b) Broad—casting (c) N.A. (d) — (e) — (v) Nil (vi) Local (vii) Unirrigated (viii) Nil (ix) and (x) N.A.

2. TREATMENTS :

10 manurial treatments:

T_0=Control, T_1=22.4Kg/ha of N as urea, T_2=44.8Kg/ha of N as urea, T_3=22.4Kg/ha of N as urea+44.8Kg/ha of P_2O_5 as Super, T_4=22.4Kg/ha. of N as F.Y M., T_5=44.8Kg/ha of N as F.Y.M., T_6=22.8Kg/ha. of N as F.Y.M.+44.8Kg/ha of P_2O_5 as Super, T_7=22.4Kg/ha of N as urea+22.4Kg/ha of N as F.Y.M. T_8=22.4Kg/ha of N as Urea+22.4Kg/ha of N as F.Y.M.+44.8Kg/ha of P_2O_5 as Super and T_9=44.8Kg/ha. of P_2O_5 as Super.

3. DESIGN :

(i) R.B.D. (ii) (a) 10 (b) N.A. (iii) 4 (iv) (a) and (b) 6.40m×10.67cm (v) Nil (vi) Yes.

4. GENERAL :

(i) Good (ii) Nil (iii) Yield of grain (iv) (a) 1960—only (b) and (c) Nil (v) to (vii) Nil.

5. RESULTS :

(i) 1025Kg/ha. (ii) 491.2Kg/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	T_8	T_9
Av. yield :	1101	1012	1435	1187	824	717	1063	1311	807	790

Crop :- Jowar (*Kharif*). **Ref :- U.P. 63 (494).**

Site :- State Soil Cons. Res. & Trg. Centre, Majkhali. **Type :- 'M'.**

Object :—To study the effect of liming on productivity in medium acidic soil.

1. BASAL CONDITIONS :

(i) to (c) N.A. (ii) Sandy loam. (iii) N.A. (iv) (a) Digging by spade (b) Line sowing (c) and (d) N.A. (e)—(v) 44.8Kg/ha of N as town compost. (vi) Hegari (vii) Unirrigated (viii) to (x) N.A.

2. TREATMENTS :

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

(1) 2 levels of lime : L_0=0 and L_1=18.5.Q/ha.

(2) 2 levels of N as C/A/N : N_0=0 and N_1=72.9Kg/ha.

(3) 2 levels of P_2O_5 as Super : P_0=0 and P_1=67.3Kg/ha.

(4) 2 types of organic manure : M_0=G.M. with Soyabeen and M_1=44.8Kg/ha of N as F.Y.M.

3. DESIGN :

(i) 2^4 confd; LNPM totally confounded, (ii) (a) 2 blocks/replication; 8 plots/block (b) N.A. (iii) 4 (iv) (a) and (b) 2.44m×2.13m (v) Nil (vi) Yes.

4. GENERAL :

(i) N.A. (ii) Nil (iii) Yield of grain and fodder (iv) (a) 1963—Contd. (Data for 64 and 65 not available) (b) N.A. (c) Nil (v) to (vii) Nil.

5. RESULTS :

(i) 2240Kg/ha. (ii) 226.0Kg/ha. (iii) Main effect of N alone is highly significant. (iv) Mean and differential response in Kg/ha.

Differential response

Treatment	Mean response	L		N		P		M	
		Absence	Presence	Absence	Presence	Absence	Presence	Absence	Presence
L	60.4			86.9	33.9	109.2	11.7	165.6	—44.7
N	213.0	239.5	186.5	—		109.2	316.9	131.4	294.6
P	103.0	151.8	54.2	—0.8	206.8	—		115.8	90.2
M	—6.5	98.6	—111.7	—88.1	75.0	6.2	—19.4	—	

C.D. for mean response of N=114.1Kg/ha.

Crop:-Jowar (*Kharif*). **Ref :- U.P. 65 (402).**

Site :- Govt. Agri. Res. Farm, Mauranipur. **Type :-'M'.**

Object :—To see the effect of varying doses of N and P and its combinations on the yield of *Jowar*.

1. BASAL CONDITIONS :

(i) (a) Nil (b) Wheat (c) 123Kg/ha. of Mixture No. 2. (ii) *Kabar* and *Purwa* mixed (iii) 31.7.65 (iv) (a) 3 ploughings by *Bukkhar* plough (b) Behind the plough (c) 19.8Kg/ha (d) Rows 45cm. apart (e) — (v) Nil (vi) Man. T_1. (vii) Unirrigated (viii) Thinning and gap filling, 1 weeding and 1 hoeing (ix) 33.4cm (x) 26/27.11.65.

2. TREATMENTS :

All combinations of (1) and (2)

(1) 5 levels of N as A/S: N_0=0, N_1=28, N_2=56, N_3=84 and N_4=112Kg/ha.

(2) 2 levels of P_2O_5 as Super : P_0=0 and P_1=44.8Kg/ha.

1/3 N applied at sowing, 1/3 N top dressed on 28.8.65, 1/3 N top dressed on 10.9.65 Super a pplied as basal at sowing.

3. DESIGN :

(i) Fact. in R.B.D. (ii) (a) 10 (b) 15.00m × 24.50m (iii) 4 (iv) (a) 7.00m × 4.50m (b) 7.00m × 3.60m (v) 1 row on either side. (vi) Yes.

4. GENERAL :

(i) Good (ii) Mild attack of stem-borer, 20% Endrin was sprayed @ 3.7 litres/ha on 8.9.65 and 25.9.65. (iii) Yield of grain (iv) (a) 1965—continued (b) No (c) Nil (v) Nil (vi) Drought after 9th Sept. 65 affected the crop. (vii) Nil.

5. RESULTS :

(i) 2054Kg/ha. (ii) 308.3Kg/ha. (iii) Main effect of N and P are highly significant. (iv) yield of grain in Kg/ha.

	P_0	P_1	mean
N_0	1528	2014	1771
N_1	1389	2351	1870
N_2	1756	2708	2232
N_3	1657	2907	2282
N_4	1597	2629	2113
mean	1585	2522	2054

C. D. for N marginal means=316.3 Kg/ha.

C. D. for N marginal means=200.0 Kg./ha.

Crop :- Jowar (*Kharif*). **Ref. U.P. 64, 65 (M.A.E.)**

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

Object :—Type V (a) : To study the effect of method of application of N on *Jowar*.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Loamy (iii) 18.7.64; N.A. (iv) (a) to (e) N.A. (v) N.A. (vi) Local (vii) Unirrigated (viii) and (ix) N.A. (x) 17.12·64; N.A.

2. TREATMENTS :

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

(1) 3 methods of placement : M_1=Broadcast at sowing, M_2=Drilled 6.25cm below the seed and M_3=Side band placement at about 5 to 7.5cm on either side.

(2) 3 levels of N : N_1=33.6, N_2=50.4 and N_3=67.2Kg/ha.

3. DESIGN :

(i) R.B.D. (ii) (a) 10 (b) N.A. (iii) 4 (iv) (a) 1/197.6ha. (b) 1/247ha (v) N.A. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of grain (iv) (a) 1964—1965 (b) N.A. (c) Nil (v) to (vii) Nil.

5. RESULTS :

1964

(i) 3576Kg/ha (ii) N.A. (iii) None of the effects is significant. (iv) Av. yield of grain in Kg/ha.

Control=3121Kg/ha.

Treatment	M_1	M_2	M_3	N_1	N_2	N_3
Av. yield	3517	3810	3551	3345	3834	3699

1965

(i) 1576Kg/ha (ii) N.A. (iii) None of the effects is significant. (iv) Av. yield of grain in Kg/ha.

Control=1413Kg/ha.

Treatment	M_1	M_2	M_3	N_1	N_2	N_3
Av. yield	1523	1624	1636	1638	1635	1510

Crop :- Jowar (*Kharif*). **Ref :-U.P. 60 to 61 (S.F.T.) for Kanpur, Farrukhabad and 60 (S.F.T.) for Rae-Bareli.**

Site :- District : Kanpur, Farrukhabad and Rae-Bareli. **Type :- 'M'**

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

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Alluvial (iii) to (x) N.A.

2. TREATMENTS :

8 manurial treatments : O=Control (no manure), N=22.4Kg/ha. of N, P=22.4Kg/ha. of P_2O_5, K=22.4Kg/ha. of K_2O, NP=22.4Kg/ha. of N+22.4Kg/ha. of P_2O_5, NK=22.4Kg/ha. of N+22.4Kg/ha. of K_2O, PK=22.4Kg/ha. of P_2O_5+22.4Kg/ha. of K_2O and NPK=22.4Kg/ha. of N+22.4Kg/ha. of P_2O_5+22.4Kg/ha. of K_2O.

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) 1/98.8ha. (b) 1/197.7ha. (iv) Yes.

4. GENERAL:

(i) and (ii) N.A. (iii) Yield of grain (iv) (a) 1960—61 for Kanpur, Farrukhabad and 1960 for Rae-Bareli (iv) (b) to (vii) N.A.

5. RESULTS :

60 (S.F.T.)

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.
Kanpur	10	1170	230	220	90	35.0	—50	30	30	10	20.0
Farrukhabad	23	570	230	160	100	13.0	0	0	20	10	7.0
Rae-Bareli	6	1070	70	20	0	7.0	10	0	0	0	6.0

61 (S.F.T.)

Kanpur	24	540	200	130	110	13.0	30	—10	20	20	10.0
Farrukhabad	5	1020	140	240	260	24.0	24	—20	60	0	13.0

Crop :-Jowar (*Kharif*) **Ref :-U.P. 60 to 61 (S.F.T.) for Farrukhabad, and 60 (S.F.T.) for Kanpur.**

Site :- District : Farrukhabad and Kanpur. **Type :- 'M'**

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

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Alluvial (iii) to (x) N.A.

2. TREATMENTS :

7 manurial treatments :

O=Control (no manure), N_1=22.4Kg/ha. of N as A/S, N_2=44.8Kg/ha of N as A/S, N_1'=22.4Kg/ha of N as Urea, N_2'=44.8Kg/ha. of N as Urea, N_1''=22.4Kg/ha of N as A/S/N and N_2''=44.8Kg/ha of N as A/S/N.

3. DESIGN :

Same as in Type A conducted on *Jowar* crop and presented on Page No. 791.

4. GENERAL :

(i and (ii) N.A. (iii) Yield of grain (iv)(a) 1960—61 for Farukhabad and 1960 for Kanpur (b) and (c) N.A. (v) to (vii) N.A.

5. RESULTS :

60 (S.F.T.)

District	No. of trials	Control yield in Kg/ha.	Av. response in Kg/ha. N_1	N_2	N_1'	N_2'	N_1''	N_2''	S.E.
Farrukhabad	22	650	170	370	180	360	200	440	28 0
Kanpur	11	1230	160	380	140	290	90	360	25.0
61 (S.F.T.)									
Farrukhabad	6	630	260	440	160	350	280	240	28 0

Crop :- Jowar (*Kharif*). **Ref :- U.P. 61(S.F.T.).**

Site :- District : Farrukhabad and Kanpur. **Type :- 'M'.**

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

1. BASAL CONDITIONS

(i) (a) to (c) N.A. (ii) Alluvial (iii) to (x) N.A.

2. TREATMENTS :

7 manurial treatments :

O=Control (no manure), N_1=22.4Kg/ha of N as A/S, N_2=44 8Kg/ha of N as A/S, N_1'=22.4Kg/ha of N as Urea, N_2'=44.8Kg/ha of N as Urea, N_1''=22.4Kg/ha of N as C/A/N and N_2''=44.8Kg/ha of N as C/A/N.

3. DESIGN :

Same as in Type A conducted on *Jowar* crop and presented on Page No. 791

4. GENERAL :

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

5. RESULTS

District	No. of trials	Control yield in Kg/ha.	Av. response in Kg/ha.						
			N_1	N_2	N_1'	N_2'	N_1''	N_2''	S.E.
Farrukhabad	18	550	170	340	170	330	200	350	33.0
Kanpur	6	1080	70	340	230	320	300	460	47.0

Crop :- Jowar (*Kharif*). **Ref :- U.P. 63, 64 (S.F.T.) for Farrukhabad; 64, 65 (S.F.T.) for Hamirpur ; 63 to 65 (S.F.T.) for Jhansi, Jalaun and 64 (S.F.T.) for Kanpur.**

Site :- District : Farrukhabad, Hamirpur, Jhansi, Jalaun and Kanpur. **Type :- 'M'.**

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

1. BASAL CONDITIONS :

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

2. TREATMENTS :

8 Manurial treatments :

O=Control (no manure), N_1=35Kg/ha of N, N_2=70Kg/ha of N, P_1=35Kg/ha of P_2O_5, N_1P_1=35Kg/ha of N+35Kg/ha of P_2O_5, N_2P_1=70Kg/ha of N+35Kg/ha of P_2O_5, N_2P_2=70Kg/ha of N+70Kg/ha of P_2O_5 and $N_2P_2K_1$=70Kg/ha of N+70Kg/ha of P_2O_5+35Kg/ha of K_2O.

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 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 elected in each block. (iii) (a) 1/100ha (b) 1/200ha (iv) Yes.

4. GENERAL:

(i) and (ii) N.A. (iii) Yield of grain (iv) (a) 1962—66 (Expts. conducted from 1962 to 65 as given under Results. Expts. not conducted at Badaun and Jalaun in 1966.) (b) No. (c) Nil (v) to (vii) N.A.

Farrukhabad

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.	241	326	36	300	393	442	464	15·6

Control yield=695Kg/ha.; No. of trials=16

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.	230	323	48	297	401	456	505	16·8

Control yield=763Kg/ha.; No. of trials=18

Hamirpur

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.	236	347	51	466	622	740	810	38·3

Control yield=919Kg/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.	334	589	44	696	777	932	1198	77·5

Control yield=965Kg/ha.; No. of trials=9

Jhansi

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.	214	306	59	276	444	476	550	23.6

Control yield=1116Kg/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 grain in Kg/ha.	222	314	113	276	397	447	482	16·3

Control yield=1045Kg/ha.; No. of trials=7

Etawah

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.	241	327	85	338	493	548	571	40.6

Control yield=692Kg/ha.: No. of trials=8

Jalaun

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. rerponse of gra n in Kg/ha.	197	536	179	336	345	247	350	30.0

Control yield=435Kg/ha.: No. of trials=4

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.	96	247	37	158	237	286	345	44.7

Control yield=541Kg/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.	47	161	37	114	190	218	260	11.8

Control yield=427Kg/ha.; No. of trials=7

Kanpur

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.F.
Av. response of grain in Kg/ha.	102	184	208	153	251	335	866	90.4

Control yield=884Kg/ha.; No. of trials=6

Crop :- Jowar (*Kharif*).

Ref :- U.P. 64, 65 (S.F.T.) for Hamirpur, Jhansi; 63 to 65 (S.F.T.) for Jalaun; 63, 64 (S.F.T.) for Farrukhabad and 64 (S.F.T.) for Kanpur.

Site :- District : Hamirpur, Jhansi, Jalaun, Farrukhabad and Kanpur.

Type :-'M'

Object:- Type A_2: To study the response curves of important cereals, cash and oil—seed crops to P applied singly and in combination with other nutrients.

1. BASAL CONDITIONS:

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

2. TREATMENTS:

8 manurial treatments:

O=Control (no manure), N_1=35Kg/ha. of N, P_1=35Kg/ha. of P_2O_5, P_2=70Kg/ha. of P_2O_5, N_1P_1=35Kg/ha of N+35Kg/ha. of P_2O_5, N_1P_2=35Kg/ha. of N+70Kg/ha. of P_2O_5, N_2P_2=70Kg/ha. of N+70Kg/ha. of P_2O_5 and $N_2P_2K_2$=70Kg/ha. of N+70Kg/ha. of P_2O_5+70Kg/ha. of K_2O.

3. DESIGN:

Same as in Type A_1 conducted on *Jowar* crop and presented on Page No. 794.

4. GENERAL:

(i) and (ii) N.A. (iii) Yield of grain (iv) (a) 1962 66 (Exp's. conducted from 1962 to 65 given as under Results. Expts, not conducted at Badaun and Jalaun in 1966.) (b) No (c) Nil (v) to (vii) N.A.

5. RESULTS:

Hamirpur

64 (S.F.T.)

Av. response in Kg/ha.

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.	271	60	123	447	532	666	766	27.2

Control yield=764Kg/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.	412	116	189	641	831	1082	1181	92.5

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

Jhansi

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.	210	93	158	310	380	455	499	24.5

Control yield=924Kg/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 grain in Kg/ha.	337	165	263	474	543	658	688	36.8

Control yield=675Kg/ha.; No. of trials=8

Jalaun

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.	106	134	168	296	285	205	302	34.2

Control yield=460Kg/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 grain in Kg/ha.	98	51	32	135	103	190	210	17.4

Control yield=429Kg/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 grain in Kg/ha.	93	78	26	144	109	201	188	22.3

Control yield=414Kg/ha.; No. of trials=4

Farrukhabad

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.	234	34	67	295	350	442	495	15.5

Control yield=681Kg/ha.; No. of trials=16

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.	223	55	104	284	324	427	454	17.4

Control yield=747Kg/ha.; No. of trials=16

Kanpur

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.	113	34	86	166	196	294	317	15.4

Control yield=902Kg/ha.; No. of trials=6

Crop :- Jowar (*Kharif*). **Ref :- U.P. 63, 64 (S.F.T.) for Farrukhabad; 63 to 65 (S.F.T.) for Jhansi, Jalaun, 64, 65 (S.F.T.) for Hamirpur and 64 (S.F.T.) for Kanpur.**

Site :- District : Farrukhabad, Jhansi, Jalaun, Hamirpur and Kanpur. **Type :- 'M'.**

Object : —Type A_2 : To study the response curves of important cereals, cash and oil—seed crops to K applied singly and in combination with other nutrients.

1. BASAL CONDITIONS:

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

2. TREATMENTS:

8 manurial treatments :

O=Control (no manure), N_1=35Kg/ha of N, P_1=35Kg/ha of K_2O_5, P_2=70Kg/ha of K_2O_5, N_1P_1=35Kg/ha of N+35Kg/ha. of P_2O_5, N_1P_2=35Kg/ha. of N+70Kg/ha of P_2O_5, N_2P_2=70Kg/ha of N+70Kg/ha of K_2O_5 and $N_2P_2K_2$=70Kg/ha. of N+70Kg/ha of P_2O_5+70Kg/ha of K_2O.

3. DESIGN:

(i) to (iv) Same as in Type A_1 conducted on *Jowar* crop and presented on Page No. 794

4. GENERAL:

(i) and (ii) N.A. (iii) Yield of grain (iv) (a) 1962—66 (Expts conducted from 1962 to 65 as given under Results. Expts, not conducted at Farrukhabad and Kanpur in 1966.) (b) No. (c) Nil. (v) to (vii) N.A.

5. RESULTS:

Av. response in Kg/ha.

Farrukhabad

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.	226	49	89	257	295	369	366	13.9

Control yield=597Kg/ha.; No. of trials=16

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.	211	55	117	264	322	412	383	13·4

Control yield=645Kg/ha.; No. of trials=17

Jhansi

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.	256	108	158	266	276	622	504	32·6

Control yield=825Kg/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 grain in Kg/ha.	217	124	179	267	348	439	446	32·3

Control yield=826Kg/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.	320	180	235	373	443	592	540	30·9

Control yield=513Kg/ha.; No. of trials=7

Jalaun

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.	197	197	103	58	148	237	190	44.6

Control yield=160Kg/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.	118	—22	7	130	66	121	170	42.0

Control yield=491g/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 inKg/ha.	106	25	26	126	96	161	209	10.0

Control yield=434Kg/ha.; No. of trials=6

Ham irpur

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.	316	123	230	380	476	616	677	68.0

Control yield=706Kg/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.	403	145	152	681	674	951	1042	122.1

Control yield=904Kg/ha.; No. of trials=8

Kanpur

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.	168	20	76	173	199	313	238	18.8

Control yield=863Kg/ha.; No. of trials=6

Crop :- Jowar. (*Kharif*). **Ref :- U.P. 60(127).**

Site :- Govt. Reg. Agri. Res. Stn., Hardoi. **Type :- 'C.**

Object :—To study the effect of inter-cultural methods on the yield of *Jowar*.

1. BASAL CONDITIONS:

(i) (a) Nil (b) and (c) N.A. (ii) Sandy Loam (iii) 21.7.60 (iv) (a) to (c) N.A. (d) Rows 61cm apart. (e) — (v) Nil (vi) Local (vii) Unirrigated (viii) As per treatments (ix) 56.7cm (x) 14.10.60.

2. TREATMENTS:

3 inter-cultural treatments : I_0=0, I_1=2 and I_2=4 inter-cultures.

3. DESIGN:

(i) R.B.D. (ii) (a) 3 (b) N.A. (iii) 3 (iv) (a) and (b) 2.74m×14.63m (v) Nil (vi) Yes.

4. GENERAL:

(i) and (ii) N.A. (iii) Yield of grain (iv) (a) 1960—only (b) and (c) — (v) to (vii) Nil.

5. RESULTS:

(i) 221Kg/ha. (ii) 35.8Kg/ha. (iii) Treatment differences are not significant. (iv) Av. yield of grain in Kg/ha.

Treatment:	I_0	I_1	I_2
Av. yield:	243	238	213

Crop :- Jowar (*Kharif*). **Ref :- U.P. 63 (67).**

Site :- Govt. Agri. College, Kanpur. **Type :- 'D'**

Object :—To test the efficacy of different seed-dressing fungicides on germination.

1. BASAL CONDITIONS:

(i) (a) Nil (b) and (c) N.A. (ii) Sandy loam (iii) I sowing 24.7.63, II sowing N.A. (iv) (a) to (c) N.A. (d) Rows 30cm. (e) — (v) Nil (vi) N.A. (vii) Unirrigated (viii) Nil (ix) 46.2cm (x) N.A.

2. TREATMENTS :

6 seed-dressing treatments:

T_0=Control, T_1=Ceresane, T_2=Hexasane, T_3=Thiram, T_4=Flit 406 and T_5=Agrosan G.N.

Doses of fungicides N A.

3. DESIGN :

(i) R.B D. (ii) (a) 6 (b) N. A. (iii) 4 (iv) (a) and (b) 4 88m×0.61m (v) Nil (vi) Yes.

4. GENERAL:

(i) and (ii) N.A. (iii) % germination (iv) (a) 1963—only (b) and (c) — (v) and (vi) Nil (vii) Two different experiments were conducted with same treatments but different dates of sowing.

5. RESULTS :

1st sowing

(i) 37.54 degrees (ii) 10.09 degrees. (iii) Treatment differences are highly significant. (iv) Percentage of germination in degrees.

Treatment :	T_0	T_1	T_2	T_3	T_4	T_5
% age germination in degree	31.70	28.73	27.57	50.69	53.69	32.85

C.D.=15.21 degrees.

2nd sowing

(i) 33.33 degrees (ii) 5.82 degrees (iii) Treatment differences are not significant (iv) Percentage germination in degrees.

Treatment :	T_0	T_1	T_2	T_3	T_4	T_5
% age germination in degree	34.30	31.17	29.39	36.10	38.64	30.40

Crop :- Jowar. (*Kharif*). **Ref:-U.P. 64 (62)**

Site :- Govt. Res. Farm, Kanpur. **Type :- 'D'.**

Object :—To study the effeet of different seed-dressing fungicides on the germination and stand of *Jowar*.

1. BASAL CONDITIONS :

(i) (a) to (c) Nil (ii) Sandy loam (iii) 20.7.64 (iv) (a) N.A. (b) Line sowing (c) N.A. (d) N.A. (e) — (v) to (viii) N.A. (ix) 66.82cm (x) N.A.

2. TREATMENTS :

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

(1) 4 seed—treatments : F_1=0.28% Agroson G.N., F_2=0.20% Flit 406, F_3=0.28% Thiram and F_4=0.33% Ceresan.

(2) 3 times of application of seed treatment : T_1=Same day of sowing, T_2=One week before sowing and T_3=Two week before sowing.

3. DESIGN :

(i) R.B.D. (ii) (a) 13 (b) N.A. (iii) 4 (iv) (a) and (b) Single row of 5m (v) Nil (vi) Yes.

4. GENERAL :

(i) and (ii) N A. (iii) Germination % and stand (iv) (a) 1964—only (b) and (c) — (v) to (vii) Nil.

5. RESULTS:

(i) 52.93 degree (ii) 6.21 degree (iii) Main effects of T is significant. (iv) Percentage germination in degree.

Control=51.65 degree

	F_1	F_2	F_3	F_4	mean
T_1	58.72	51.18	57.06	56.69	
T_2	55.34	49.04	57.21	49.64	52.81
T_3	49.70	48 48	49.63	52.50	50.08
mean	54.59	49.57	54.63	52.94	52. 93

C.D. for T marginal means=4.46 degree.

Crop :- Jowar (*Kharif*). **Ref :- U.P. 63 (545).**

Site :- Student's Instructional Farm, Kanpur. **Type:- 'D'**

Object :—To study the effect of certain insecticides on *Jowar* leaf-roller, *Marasnia Trapzulis* Geun.

1. BASAL CONDITIONS:

(i) and (ii) N.A. (iii) 13.7.63 (iv) and (v) N.A. (vi) 8-B (vii) Unirrigated (viii) Nil (ix) 46.3cm (x) N.A.

2. TREATMENTS:

6 Insecticides :

T_0=Control, T_1=0.1% Metasystox emulsion, T_2=0.033% Endrin emulsion, T_3=0.33% Diazinom emulsion, T_4=0.033% Parathion emulsion and T_5=0.025% B.H.C. suspension.

Insecticides applied on 13,8.63 and 28.8.63.

3. DESIGN:

(i) R.B.D. (ii) (a) 6 (b) N.A. (iii) 4 (iv) (a) and (b) 10.06m×10.06m (v) Nil (vi) Yes.

4. GENERAL:

(i) Good (ii) N.A. (iii) No. of eatter–pillers counted on 50 plants before application, 24, 48 and 72 hause after applicatiog of treat nents and grain yield (iv) (a) 1963—only (b) and (c) Nil (v) to (vii) Nil.

5. RESULTS:

Yield data

(i) 508Kg/ha. (ii) 48.0Kg/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	T_5
Av. yield :	405	499	512	573	587	472

C.D.=72.3Kg/ha.

Infestation data

(i) 59.75 degree (ii) 5.66 degree (iii) Treatment differences are highly significant. (iv) Reduction in catter-pillers population in degree, 72 hours after treatment applications.

Treatment:	T_0	T_1	T_2	T_3	T_4	T_5
Mean angle :	18.32	65.46	68.38	72.93	81.02	52.36

C.D.=4.26 degree

Crop :- Jowar (*Kharif*). **Ref :- U.P. 61 (452).**

Site :- Chak—Ganjaria, Lucknow (c.f.). **Type :- 'D'**

Object :—To study the effect of certain pesiticides against Pantatomid bug attacking *Jowar* crop.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Sandy (iii) N.A. (iv) N.P. (for fodder) (v) (a) to (d) N.A. (e) — (vi) to (x) N.A.

2. TREATMENTS :

5 insecticides :

T_0=Control (2 plots), T_1=Dusting with 6% Heptachlor dust at 28.0Kg/ha and raking into the soil, T_2=Dusting with 5% Aldrin dust at 28.0Kg/ha and raking into the soil, T_3=Dusting with 15% BHC dust at 22.4Kg/ha and raking into the soil and T_4=Dusting with 10% B.H.C. dust at 33.6Kg/ha and raking into the soil.

Treatments applied on 21.8.61

3. DESIGN :

(i) R.B.D., 6 plots/block, 3 seplotion (ii) — (iii) (a) and (b) 1/49.42ha (iv) Yes.

4. GENERAL :

(i) N.A. (ii) Under study (iii) Total No. of nymphs and bugs (iv) '(a) 1961—only (b) and (c) -- (v) and (vii) Nil.

5. RESULTS :

(i) 53.11 degree (ii) 3.36 degree (iii) Treatment differences are highly significant. (iv) Reduction in population of bugs after one week of treatment application (in degrees).

Treatment :	T_0	T_1	T_2	T_3	T_4
Mean angle :	20.69	71.95	71.44	67.92	66.0

C.D.$_{.05}$=6.01 degrees.

Crop :- Bajra. (*Kharif*). **Ref :-U.P. 61(261).**

Site:- R.B.S. College, Bichpuri. **Type :- 'M'.**

Object :—To study the effect of different forms and times of N application on growth and yield of Bajra.

1. BASAL CONDITIONS :

(i) (a) Nil (b) Wheat (c) N.A. (ii) Sandy loam (iii) 15.7.61 (iv) (a) Ploughing by tractor, off—set disc harrowing followed by ploughing (b) Behind the plough (c) 7Kg/ha (d) Rows 46cm. apart (e) — (v) Nil (vi) Local (vii) Unirrigated (viii) Thinning, transplanting and weeding (ix) 60.1cm (x) 23.10.61.

2. TREATMENTS :

All combinations of (1) and (2).

(1) 4 sources of Nat 56Kg/ha : S_1=A/S., S_2=Urea, S_3=A/S/N and S_4=A/C.

(2) 3 times of application of N : T_1=Sowing, T_2=½ at sowing +1/2 one month after sowing and T_3=1/4 at sowing + 3/4 one month after sowing.

3. DESIGN :

(i) Fact. in R.B D. (ii) (a) 12 (b) N.A. (iii) 4 (iv) (a) 8.52m×6.72m (b) 7.30m×5.50m (v) 61cm×61cm (v) Yes.

4. GENERAL:

(i) Good (ii) Nil (iii) Yield of grain (iv) (a) 1951—only (b) and (c) Nil (v) and (vi) Nil (vii) Plot-wise data N A.

5. RESULTS:

(i) 849Kg/ha (ii) 286.6Kg/ha (iii) None of the effects is significant. (iv) Av. yield of grain in Kg/ha.

Treatment :	S_1	S_2	S_3	S_4	T_1	T_2	T_3
Av. yield:	813	786	961	835	791	877	879

Crop :- Bajra (*Kharif*). **Ref :- U.P. 63(600), 64(702), 65(598).**

Site :- Soil Cons. Res., Demons. and Trg. Centre, Chhalesar. Type :- 'M'.

Object:—To find out suitable level and source of N for Bajra crop in reclaimed ravine areas.

1. BASAL CONDITIONS :

(i) (a) Continous cropping of Bajra (b) Bajra (c) 12.5 C.L./ha of compost (ii) Sandy loam (iii) 30.7.63; 21.7.64; 4.8.65 (iv) (a) 2 Disc harrowings by tractor (b) Line sowing (c) 9Kg/ha (d) Rows 23cm apart. (e) — (v) 12.5 C.L./ha of compost (vi) Isolated (vii) Unirrigated (viii) Nil (ix) 88.9cm; 93.0cm; 46.3cm (x) 8.11.63, N.A. for others.

2. TREATMENTS :

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

(1) 2 levels of N: N_1=17 and N_2=34Kg/ha.

(2) 4 sowrces of N: S_1=A/S, S_2=A/N, S_3=Urea and S_4=Castor cake.

3. DESIGN:

(i) R.B D. (ii) (a) 9 (b) N.A. (iii) 4 (iv) (a) 10.36m×5.33m (b) 9.75m×4.88m (v) 30cm×23cm (vi) Yes.

4. GENERAL

(i) Poor for 63; Satisfactory for others. (ii) Nil (iii) Yield of grain (iv) (a) 1963—65 (b) Yes (c) Nil (v) and (vi) Nil (vii) As error variances are heterogeneous and Treatments×years interaction is absent, the results of the individual years have been presented under 5. Results.

5. RESULTS :

63 (600)

(i) 171.9Kg/ha. (ii) 83.8Kg/ha. (iii) None of the effects is significant (iv) Av. yield of grain in Kg/ha.

Control=159.2Kg/ha

	S_1	S_2	S_3	S_4	mean
N_1	146.6	122.4	191.8	147.6	152.1
N_2	204.4	181.3	184.4	210.2	195.1
mean	175.5	151.8	188.1	178.9	173.6

64 (702)

(i) 564.4Kg/ha. (ii) 270.0Kg/ha (iii) None of the effects is significant (iv) Av. yield of grain in Kg/ha.

Control=388.3Kg/ha

	S_1	S_2	S_3	S_4	Mean
N_1	461.9	499.7	601.6	602.1	541.3
N_2	681.5	274.3	766.1	803.9	631.4
mean	571.7	387.0	683.8	703.0	586.4

65 (598)

(i) 558.1Kg/ha. (ii) 264.7Kg/ha (iii) None of the effects is significant. (iv) Av. yield of grain in Kg/ha.

Control=403.0Kg/ha

	S_1	S_2	S_3	S_4	mean
N_1	431.9	543.3	633.7	590.1	549.7
N_2	649.4	289.5	785.5	696.7	605.3
mean	540.7	416.4	709.6	643 4	577.5

Crop :-Bajra (*Kharif*). **U.P. 63 (601), 64 (703), 65 (599).**

Site :- Soil, Cons. Res., Demons. and Trg. Centre, Chhalesar. **Type :- 'M'**

Object :—To find out the economic dose and time of application of F.Y.M. for Bajra crop in reclaimed ravine lands.

1. BASAL CONDITIONS:

(i) (a) Continous cropping of Bajra (b) Bajra (c) N.A. (ii) Sandy loam (iii) 20.7.63; 21.7.64; 6.8.65 (iv) (a) 2 disc harrowings (b) Line sowing (c) 9Kg/ha (d) Rows 33cm. apart (e) — (v) Nil (vi) Isolated (vii) Unirrigated (viii) Weeding and interculture (ix) 88.9cm; 92.9cm; 46.3cm. (x) 8.11.63; 26.10.64; N.A.

2. TREATMENTS:

15 Manurial treatments:

F_0=No manure, F_1=12.5 C.L/ha of F.Y.M. every year, F_2=12.5 C.L/ha of F.Y.M. applied in 1963 and in subsequent alternate years, F_3=12.5 C.L/ha of F.Y.M. applied in 1964 (No manuring in 1963) and in subsequent alternate years, F_4=25.0 C.L/ha of F.Y.M. every year, F_5=25.0 C.L/ha of F.Y.M. applied in 1963 and in subsequent alternate years, F_6=25.0 C.L./ha of F.Y.M. applied in 1964 (No manuring in 1963) and in subsequent alternate, F_7=37.5 C.L/ha of F.Y.M. every year, F_8=37.5 C.L/ha of F.Y.M. applied in 1963 and in subsquent alternate years, F_9=37.5 C.L/ha of F.Y.M. applied in 1964 (No manure in 1963) and in subsequet alternate years, F_{10}=50 C.L./ha of F.Y.M. every year, F_{11}=50 C.L./ha of F.Y.M. applied in 1963 and in subseqent alternate years, F_{12}=50 C.L./ha of F.Y.M. applied in 1964 (No manure in 1963) and in subsequent alternate years, F_{13}=Rotation of Bajra and *sum hemp*. G.M., starting with Bajra in 1963 and F_{14}=Rotation of *sum hemp* G.M. and Bajra, starting with G.M. crop in 1963.

3. DESIGN :

(i) R.B.D. (ii) (a) 15 (b) N.A. (iii) 4 (iv) (a) 11.30m×5.07m. (b) 11.00m×4.62m (v) 15m×23cm (vi) Yes.

4. GENERAL :

(i) Good (ii) Nil (iii) Yield of grain (iv) (a) 1963—contd (b) Yes (c) Nil (v) Nil. (vi) No. (vii) In 1963, treatments F_0, F_2, F_6, F_9, F_{12} and F_{14}; F_1 and F_2; F_4 and F_5; F_7 and F_8; F_{10} and F_{11} are identical treatments.

5. RESULTS :

63 (601)

(i) 393.3Kg/ha. (ii) 250.6Kg/ha. (iii) Treatment differences are not significent. (iv) Av. yield of grain in Kg/ha.

Treatment :	F_0(6)	F_1(2)	F_4(2)	F_7(2)	F_{10}(2)
Av. yield:	437.9	429.9	423.8	238.6	346.8

64 (703)

(i) 230 3Kg/ha. (ii) 167.2Kg/ha. (iii) Treatment differences are not significant. (iv) Av. yield of grain in Kg/ha.

Treatment :	F_0	F_1	F_2	F_3	F_4	F_5	F_6	F_7	F_8	F_9	F_{10}	F_{11}	F_{12}	F_{14}
Av. yield :	367.9	382.2	260.2	293.1	237.6	164.7	115.6	179.0	147.5	114.1	347.3	168.7	286.3	159.8

65 (599)

(i) 355.4Kg/ha (ii) 225.3Kg/ha (iii) Treatment differences are not significant. (iv) Av. yield of grain in Kg/ha.

Treatment :	F_0	F_1	F_2	F_3	F_4	F_5	F_6	F_7
Av. yield :	558.3	544.0	466.3	416.1	261.7	265.6	265.6	267.1

Treatment :	F_8	F_9	F_{10}	F_{11}	F_{12}	F_{13}
Av yield :	242.5	277.4	461.9	270.5	389.1	289.2

Crop :- Bajra (*Kharif*). **Ref :- U.P. 63(470).**

Site :- Govt. Agri. Res. Stn., Kanpur **Type :- 'M'**

Object :—To find out the nitrogen requirement of Bajra.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Castor (c) N.A. (ii) Sandy loam (iii) 25.7.63 (iv) (a) One ploughing by cultivator and one ploughing by *Deshi* plough (b) Behind the plough (c) 6Kg/ha (d) Rows 30cm apart (e) — (v) Nil (vi) Bahapuri, (vii) N.A. (viii) One thinning and one weeding (ix) 33.3cm; (x) N.A.

2. TREATMENTS :

4 levels of N as A/S : N_0=0, N_1=22.4, N_2=44.8 and N_3=67.2Kg/ha.

$\frac{1}{4}$ N applied as basal and 1/2 as top dressing.

3. DESIGN :

(i) R.B.D. (ii) (a) 4 (b) 9.14m×47.55m. (iii) 6 (iv) (a) and (b) 9.10m×10.99m (v) N.A. (vi) Yes.

4. GENERAL :

(i) Good (ii) N.A. (iii) Yield of grain (iv) (a) 1963—66 (Expt. failed in 64 and 65) (b) No (c) Nil (v) and (vi) Nil. (vii) Since the experiment is continued beyond 65, the results of individual years have been presented under 5 Results.

5. RESULTS :

63 (470)

(i) 857 0Kg/ha. (ii) 513.5Kg/ha. (iii) Treatment differences are not significant. (iv) Av. yield of grain in Kg/ha.

Treatment :	N_0	N_1	N_2	N_3
Av. yield :	840.4	870.3	964.7	752.6

Crop :- Bajra (*Kharif*). **Ref :- U.P. 60, 61 (S.F.T.) for Bulandshahar and Meerut and 61 (S.F.T.) for Aligarh.**

Site :- District : Aligarh, Bulandshar and Meerut. **Type :- 'M'**

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

1. BASAL CONDITIONS:

(i) (a) to (c) N.A. (ii) Alluvial (iii) to (x) Nil.

2 TREATMENTS :

8 manurial treatments:

O=Control (no manure), N=22.4Kg/ha of N, P=22.4Kg/ha of P_2O_5, K=22.4Kg/ha of K_2O, NP=22.4Kg/ha of N+22.4Kg/ha of P_2O_5, NK=22.4Kg/ha of N+22.4Kg/ha of K_2O, PK=22.4Kg/ha. of P_2O_5+22.4Kg/ha of K_2O and NPK=22.4Kg/ha of N+22.4Kg/ha of P_2O_5+22.4Kg/ha of K_2O.

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. Resid ff 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) 1/98.8ha. (b) 1/197.7ha. (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of grain (iv) (a) 1960–61 for Meerut and Bulandshahar (iv) (b) to (vii) N.A.

5. RESULTS:

Av. response in Kg/ha.

60 (S.F.T.)

District	No. of trials	Control yield in Kg/ha	N	P	K	S.E.	NP	NK	PK	NPK	S E.
Meerut	4	580	210	210	220	12.0	50	20	90	50	11.0
Bulandshahr	8	900	420	230	30	26.0	—30	—10	—10	—10	11.0

61 (S.F.T.)

Meerut	4	520	210	250	200	15.0	50	60	130	40	17.0
Bulandshahr	9	700	240	170	200	24.0	0	—60	—30	40	14.0
Aligarh	16	690	140	90	—20	18.0	—10	—20	—10	10	25.0

Crop :- Bajra. (*Kharif*). **Ref :- U.P. 60 (S.F.T.).**

Site :- District : Meerut, Bulandshahr and Aligarh. **Type :- 'M'.**

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

1. BASAL CONDITIONS:

(i) (a) to (c) N.A. (ii) Alluvial (iii) to (x) N.A.

2. TREATMENTS:

7 manurial treatments :

O=Control (no manure), N_1=22.4Kg/ha. of N as A/S, N_2=44.8Kg/ha of N as A/S, N_1'=22.4Kg/ha of N as Urea, N_2'=44.8Kg/ha. of N as Urea, N_1''=22.4Kg/ha of N as A/S/N and N_2''=44.8Kg/ha of N as A/S/N.

3. DESIGN:

(i) to (iv) Same as in Type A conducted on Bajra crop and presented on Page No. 809

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of grain (iv) (a) 1960—only (b) and (c) Nil (v) to (vii) N.A.

5. RESULTS :

District	No. of trials	Control yield in Kg/ha.	Av. response in Kg/ha. N_1	N_2	N_1'	N_2'	N_1''	N_2''	S.E.
Meerut	4	570	160	390	150	410	180	380	30.0
Bulandshahr	8	1010	370	640	370	650	190	720	41.0
Aligarh	7	590	170	350	150	310	170	300	33.0

Crop :- Bajra (*Kharif*). **Ref :- U.P. 61 (S.F.T.).**

Site :- District : Aligarh, Bulandshahr and Meerut. **Type :- 'M'.**

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

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Alluvial (iii) to (x) N.A.

2. TREATMENTS :

7 manurial treatments :

O=Control (no manure), N_1=22.4Kg/ha of N as A/S, N_2=44.8Kg/ha of N as A/S, N_1'=22.4Kg/ha of N as Urea, N_2'=44.8Kg/ha of N as Urea, N_1''=22.4Kg/ha of N as C/A/N and N_2''=44.8Kg/ha of N as C/A/N.

3. DESIGN :

(i) to (iv) Same as in Type A conducted on *Bajra* crop and presented on Page No. 809

4. GENERAL:

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

5. RESULTS :

District	No. of trials	Control yield in Kg/ha.	Av. response in Kg/ha. N_1	N_2	N_1'	N_2'	N_1''	N_2''	S.E.
Aligarh	15	690	130	210	130	170	110	260	36.0
Bulandshahr	11	820	270	560	310	530	300	530	30.0
Meerut	4	550	150	340	140	370	180	360	37.0

Crop :- Bajra (*Kharif*). **Ref :-U.P. 64, 65 (S.F.T.) for Aligarh, 63, 64 (S F.T.) for Agra, Badaun, 63 to 65 (S.F.T.) for Etawah, 63 (S F.T.) for Jalaun, 64 (S.F.T.) for Etah and 63, 64 (S.F.T.) for Mathura.**

Site :- District : Aligarh, Agra, Badaun, Etawah, Jalaun, Etah and Mathura. **Type:- 'M'.**

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

1. BASAL CONDITIONS :

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

2. TREATMENTS :

8 Manurial treatments :

O=Control (no manure), N_1=35Kg/ha of N, N_2=70Kg/ha of N, P_1=35Kg/ha of P_2O_5, N_1P_1=35Kg/ha of N+35Kg/ha of P_2O_5, N_2P_1=70Kg/ha of N+35Kg/ha of P_2O_5, N_2P_2=70Kg/ha of N+70Kg/ha of P_2O_5 and $N_2P_2K_1$=70Kg/ha of N+70Kg/ha of P_2O_5+35Kg/ha of K_2O.

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 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 elected in each block (iii) (a) 1/100ha (b) 1/200ha (iv) Yes.

4. GENERAL:

(i) and (ii) N.A. (iii) Yield of grain (iv) (a) 1962—66 (Expts. conducted from 1962 to 65 as given under Results. Expts. not conducted at Badaun and Jalaun in 1966.) (b) No. (c) Nil (/) to (vii) N.A.

Aligarh

64 (S.F.T.) Av. response in Kg/ha.

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.	233	395	164	339	416	495	517	40·2

Control yield=495Kg/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	$N_2P_2K_1$	S.E.
Av. response of grain in Kg/ha.	414	646	216	617	680	1098	1028	100·2

Control yield=1033Kg/ha.; No. of trials=4

Agra

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.	388	554	192	374	589	698	744	31.9

Control yield=654Kg/ha.: No. of trials=16

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.	184	281	125	224	312	362	408	24·7

Control yield=687Kg/ha.: No. of trials=20

Badaun

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.	229	392	123	283	483	551	562	61·5

Control yield=742Kg/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.	210	363	79	256	464	649	667	34·3

Control yield=1116Kg/ha.: No. of trials=4

Etawah

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.	147	265	187	277	463	509	700	62·7

Control yield=1282Kg/ha.; No. of trials=14

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.	214	370	121	424	535	663	796	63·6

Control yield=1276Kg/ha.; No. of trials=14

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 of Kg/ha.	286	346	141	462	625	751	840	53.3

Control yield=1386Kg/ha.: No. of trials=16

Jalaun

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.	98	428	83	247	475	659	713	19.5

Control yield=798Kg/ha.: No. of trials=3

Etah

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.	214	255	76	221	246	342	976	29.0

Control yield=868Kg/ha.: No. of trials=11

Mathura

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.	103	180	134	214	300	347	982	19.1

Control yield=841Kg/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.	218	351	124	277	412	480	526	63.0

Control yield=895Kg/ha.: No. of trials=14

Crop :- Bajra (*Kharif*). **Ref :- U.P. 64, 65 (S.F.T.) for Aligarh, 63 to 65 (S.F.T.) for Agra, Etawah, Etah, Mathura, Badaun and 63 (S.F.T.) for Jalaun.**

Site :- District : Aligarh, Agra, Etawah, Etah, Mathura, Badaun and Jalaun. **Type :- 'M'**

Object:—Type A_2: To study the response curves of important cereals. cash and oil—seed crops to P applied singly and in combination with other nutrients.

1. BASAL CONDITIONS:

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

2. TREATMENTS:

8 manurial treatments :

O =Control (no manure), N_1=35Kg/ha. of N, P_1=35Kg/ha. of P_2O_5, P_2=70Kg/ha. of P_2O_5, N_1P_1=35Kg/ha of N+35Kg/ha. of P_2O_5, N_1P_2=35Kg/ha. of N+70Kg/ha. of P_2O_5, N_2P_2=70Kg/ha. of N+70Kg/ha. of P_2O_5 and $N_2P_2K_2$=70Kg/ha. of N+70Kg/ha. of P_2O_5+70Kg/ha. of K_2O.

3. DESIGN :

(i) an d (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 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) 1/100ha. (b) 1/200ha (iv) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of grain (iv) (a) 1962—66 (Expts. conducted from 1962 to 65 as given under Results. Expts. not conducted at Badaun and Jalaun in 1966.) (b) No. (c) Nil (v) to (vii) N.A.

5. RESULTS :

Aligarh

64 (S.F.T.)

Av. response in Kg/ha.

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.	84	87	9	71	150	236	234	125.5

Control yield=464Kg/ha.: No. of the trials=10

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.	597	307	478	683	819	1070	1146	114.9

Control yield=950Kg/ha.: No. of trials=4

Agra

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.	346	163	264	397	414	665	772	32.7

Control yield=695Kg/ha.; No. of trials=16

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.	253	122	190	262	301	453	492	30·6

Control yield=611Kg/ha.; No. of trials=19

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.	183	61	149	267	357	547	645	22·8

Control yield=707Kg/ha.; No. of trials=14

Etawah

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.	303	91	200	316	389	566	756	64·1

Control yield=1229 Kg/ha.; No. of trials=12

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.	220	116	245	354	429	581	712	39·9

Control yield=1245Kg/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.	274	162	207	411	540	753	974	28.6

Control yield=1416Kg/ha.; No. of trials=16

Etah

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 Kg/ha.	173	46	74	204	221	332	852	25.8

Control yield=781Kg/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 grain in Kg/ha.	248	71	73	270	276	371	440	38.8

Control yield=802Kg/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 grain in Kg/ha.	231	102	129	295	302	438	459	33.5

Control yield=771Kg/ha.; No. of trials=13

Mathura

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.	163	113	183	232	262	363	430	29.4

Control yield=817Kg/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.	232	141	171	308	374	475	522	33.6

Control yield=840Kg/ha.; No. of trials=15

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.	223	117	161	276	318	420	483	26·5

Control yield=749Kg/ha.; No. of trials=12

Badaun

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.	236	103	163	312	375	530	635	57.5

Control yield=719Kg/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 grain in Kg/ha	180	34	84	256	306	679	726	60.8

Control yield=946Kg/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.	249	72	123	275	377	507	574	33.6

Control yield=822Kg/ha.; No. of trials=7

Jalaun

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.	123	120	276	313	356	582	784	15.6

Control yield=741Kg/ha.; No. of trials=4

Crop :-Bajra (*Kharif*). **Ref.:- U.P. 63 to 65 (S.F.T.) for Agra, Badaun, Etawah, Etah, Mathura 63 (S.F.T.) for Jalaun, and 64, 65 (S.F.T.) for Aligarh.**

Site :-District : Agra, Badun, Etawah, Etah, Jalaun, Mathura and Aligarh. **Type:-'M'**

Object : Type A_s: To study the response curves of important cereals, cash and oil-seed crops to K applied singly and in combination with other nutrients.

1, BASAL CONDITIONS:

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

2. TREATMENTS:

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

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 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) 1/100ha. (b) 1/200ha (iv) Yes.

4. GENERAL:

(i) and (ii) N.A. (iii) Yield of grain (iv) (a) 1962–66 (Expts. conducted from 1962 to 65 as given under Results. Expts, not conducted at Badaun and Jalaun in 1966.) (b) No. (c) Nil. (v) to (vii) N.A.

5. RESULTS:

Av. response in Kg/ha.

Agra

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.	307	78	177	310	410	503	445	21.4

Control yield=667Kg/ha.; No. of trials=19

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.	184	76	109	230	252	356	336	18.8

Control yield=628Kg/ha.; No. of trials=18

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.	191	34	83	230	282	495	458	28·1

Control yield=678Kg/ha.; No. of trials=13

Badaun

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.	245	66	85	303	285	590	401	56·0

Control yield=674Kg/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.	291	49	92	348	405	825	521	48.3

Control yield=941Kg/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.	210	112	138	284	376	560	333	39.0

Control yield=730Kg/ha.; No. of trials=8

Etawah

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.	245	81	149	331	460	650	520	48.9

Control yield=1191Kg/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.	212	95	160	335	331	680	682	54.1

Control yield=1242Kg/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 inKg/ha.	243	97	165	405	516	679	747	41.0

Control yield=1307Kg/ha.; No. of trials=15

Etah

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.	194	78	114	142	223	301	277	25.4

Control yield=702Kg/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.	200	49	85	217	240	342	356	37.0

Control yield=754Kg/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 grain in Kg/ha.	127	113	829	266	292	370	339	40.9

Control yield=863Kg/ha.; No. of trials=6

Jalaun

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.	261	30	45	76	174	142	248	76.4

Control yield=760Kg/ha.; No. of trials=4

Mathura

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.	261	30	45	76	174	142	748	76·4

Control yield=806Kg/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.	196	56	97	244	261	447	3600	28·8

Control yield=736Kg/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.	243	39	47	245	292	385	288	23·7

Control yield=694Kg/ha.; No. of trials=15

Aligarh

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.	144	—66	—34	143	167	302	275	84·0

Control yield=709Kg/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 grain in Kg/ha.	398	118	120	443	513	746	650	74·6

Control yield=977Kg/ha.: No. of trials=8

Crop :- Bajra (*Kharif*). **Ref :- U.P. 65 (403).**

Site :- Govt. Agri. Res. Farm, Fatehabad. **Type :- MV.**

Object: —To study the response of hybrid Bajra to N levels and to determine the economic Nitrogen rate.

1. BASAL CONDITIONS :

(i) (a) Nil (b) Oats and Barley (c) 44.8Kg/ha of N as Urea (ii) Sandy loam. (iii) 29.7.65 (iv) (a) 1 ploughing by S.T.P. and 1 ploughing by *Deshi* plough (b) Behind the plough. (c) 9Kg/ha. (d) Rows 60cm apart (e)— (v) 50Kg/ha. of P_2O_5 as Super. + 50Kg/ha. of K_2O as Mur. Pot. (vi) As per treatments (vii) Irrigated (viii) 1 thinning, 1 weeding and 1 hoeing (ix) 64.9cm (x) 5.11.65.

2. TREATMENTS:

Main plot treatments :

2 Varieties : V_1=Local and V_2=Hybrid Bajra No. 1

Sub-plot treatments :

5 levels of N as A/S: N_0=0, N_1=40, N_2=80, N_3=120 and N_4=160Kg/ha.

1/2 N at sowing time and 1/2 N top dressed on 31.8.65.

3. DESIGN:

(i) Split—plot (ii) (a) 2 main plots/replication, 5 sub-plots/main-plot (b) 13.00m × 19.00m. (iii) 5 (iv) (a) 6.00m × 3.00m (b) 6.00m × 1.80m (v) One row on either side discarded. (vi) Yes.

4. GENERAL :

(i) Good (ii) Nil (iii) Yield of grain (iv) (a) 1965—contd. (b) No. (c) Nil. (v) to (vii) Nil.

5. RESULTS:

(i) 3607Kg/ha. (ii) (a) 915.7Kg/ha. (b) 786.4Kg/ha. (iii) Main effect of V and N are highly significant and interaction V × N is significant. (iv) Av. yield of grain in Kg/ha.

	N_0	N_1	N_2	N_3	N_4	mean
V_1	1856	2569	3069	3506	3393	2879
V_2	2154	3561	4348	5644	5967	4335
mean	2005	3065	3708	4575	4680	3607

C.D. for V marginal means=719.0Kg/ha.

C D. for N marginal means=716.7Kg/ha.

C.D. for V means at the same level of N=1267.7Kg/ha.

C.D. for N means at the same level of V=1013.5Kg/ha.

Crop :- Bajra (*Kharif*). **Ref :- U.P. 61(260)**

Site :-R.B.S. College, Bichpuri. **Type :- 'D'.**

Object :— To study the effect of chemical and mechanical methods of weed control in Bajra.

1. BASAL CONDITIONS :

(i) (a) to (c) Nil (ii) Sandy loam (iii) 20.7.61 (iv) (a) 2 ploughings by tractor (b) In lines by seed drill. (d) Rows 26cm. apart (e) — (v) 44.8Kg/ha of N as A/S top dressed on 15.8.61 (vi) Local (vii) Nil (viii) Irrigated (ix) 60.1cm (x) 24.10.61.

2. TREATMENTS :

All co nbin ations of (1) and (2) + 2 extra treat ments.

(1) 4 concentrations of 2, 4—D. D_1=0.56, D_2=1.12, D_3=1.68 and D_4=2.24Kg/ha.

(2) 3 times of application : T_1=At pre-emergence (on 22.7.61), T_2=At post-emergence (on 6.9.61) and T_3=½ dose at pre-emergence and ½ dose at post-emergence.

Extra treatments : E_0=control and E_1=Hand weeding.

674 litres/ha of water was used.

3. DESIGN :

(i) R.B.D. (ii) (a) 14 (b) N.A. (iii) 3 (iv) (a) 12 19m×5.79m (b) 10.99m×4.57m (v) 61cm.×61cm. (vi) Yes.

4. GENERAL :

(i) Good (ii) Nil (iii) Yield of grain (iv) (a) 1961—only (b) and (c) Nil. (v) to (vii) N.A.

5. RESULTS :

(i) 689.0Kg/ha (ii) 345.9Kg/ha (iii) Main effect of D is significant. (iv) Av. yield of grain in Kg/ha.

Treatment:	T_1	T_2	T_3	D_1	D_2	D_3	D_4	E_0	E_1
Av. yield:	823	567	669	976	762	504	502	373	1040

C.D. for D marginal means=335.2Kg/ha.

Crop :- Bajra (*Kharif*). **Ref :- U.P. 63(73).**

Site :- Govt. Agri. College, Kanpur. **Type :- 'D'**

Object :—To test the efficency of different seed-dressing fungicides on germination at two sowing dates.

1. BASAL CONDITIONS :

(i) Nil (b) and (c) N.A. (ii) Sandy loam (iii) 24.7.63, N.A. (iv) (a) and (b) N.A. (c) 25 seeds/row (d) and (e) Nil (v) N.A. (vi) N.A. (vii) Unirrigated (viii) N.A. (ix) 46.2cm (x) N.A.

TREATMENTS :

6 fungicides : F_0=Control, F_1=Ceresan, F_2=Hexasan, F_3=Thirrum, F_4=Flit 406 and F_5=Agrosan G.N.

3. DESIGN:

(i) R.B.D. (ii) (a) 6 (b) N.A. (iii) 2 (iv) (a) and (b) One row of 5m. length (v) Nil (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Germination counts (iv) (a) 1963—only (b) and (c) Nil. (v) to (vii) Nil.

5. RESULTS :

Ist sowing :

(i) 40.7 degrees (ii) 11.0 degrees (iii) Treatment differences are not significant. (iv) Av. germination in degree.

Treatment	F_0	F_1	F_2	F_3	F_4	F_5
Mean angle	34.5	21.9	27.8	56.9	55.1	47.7

II sowing:

(i) 28.4 degrees (ii) 11.5 degrees (iii) Treatment differences are not signlficant. (iv) Av. germination in degree.

Treatment	F_0	F_1	F_2	F_3	F_4	F_5
Mean angle :	35.9	20 0	21.9	49.2	22.9	20.4

Crop :- Bajra (*Kharif*). **Ref:- U.P. 64(65)**

Site :- Govt. Res. Farm, Kanpur. **Type :- 'D'.**

Object :—To study the effect of different seed-dressing fungicides on germination and stand.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Sandy loam (iii) 10.8.64 (iv) (a) N.A. (b) Line sowing (c) 50 seedes / row (d) 10cm. between plants (e) — (v) to (viii) N.A. (ix) 66.8cm (x) N.A.

2. TREATMENTS :

All combinations of (1) and (2) + Control

(1) 4 fungicides : F_1=Agrosan G.N.—0.28 %, F_2=Flit 406—0.20%, F_3=Thiram—0.28% and F_4=Ceresan —0.33%.

(2) 3 times of seed treatment : T_1=At sowing, T_2=One week before sowing and T_3=Two weeks before sowing.

3. DESIGN :

(i) R.B.D. (ii) (a) 13 (b) N.A. (iii) 4 (iv) (a) and (b) Single row of 5 metres length (v) Nil (vi) Yes.

4. GENERAL:

(i) and (ii) N.A. (iii) Germination % and stand (iv) (a) 1964—only (b) and (c) Nil (v) to (vii) Nil.

5 RESULTS :

Percentage Germination data :

(i) 63.1 degrees (ii) 4 3 degree (iii) Main effect of F and control *vs.* others are highly significant. (iv) Mean germination in degrees.

Control=51.1 degree

	F_1	F_2	F_3	F_4	mean
T_1	65.1	61.7	61.1	63.9	62.9
T_2	69.9	61.8	62.2	67.5	65.4
T_3	68.0	57.8	63.3	66.7	63.9
mean	67.7	60.4	62.2	66.0	64.1

C.D. for F marginal means=3.6 degrees

C.D. for control *vs.* others=4.5degrees

Percentage stand data :

(i) 59.9 degree (ii) 4.8 degree (iii) Control *vs.* others is highly significant. (iv) Mean angle of stand in degrees.

Control=47.9 degrees

	F_1	F_2	F_3	F_4	mean
T_1	62.8	60.4	59.1	62.1	61.1
T_2	66.1	60.1	60.2	57.4	60.9
T_3	64.2	57.7	59.9	60.6	60.6
mean	64.4	59.4	59.7	60.0	60.9

C.D. for control *vs*, others=5.1 degrees

Crop :- Maize (*Kharif*). **Ref :- U.P. 63 (143).**

Site :- Govt. Reg. Agri. Res. Stn., Hardoi. **Type :- 'M'**

Object : —To study the effect of levels of fertilizers on the yield of Maize.

1. BASAL CONDITIONS :

(i)(a) Maize—Wheat (b) and (c) N.A. (ii) Sandy loam (iii) 13.7.63 (iv) (a) N.A. (b) Line sowing (c) 15Kg/ha (d) 30cm×30cm (e) — (v) Nil (vi) T—41 (Medium) (vii) Unirrigated (viii) Weeding by *Khurpi* (ix) 59.7cm (x) 5.10.63.

2. TREATMENTS :

3 levels of fertilizer : F_0=Control, F_1=44.8Kg/ha of N+44.8Kg/ha of P_2O_5+44.8Kg/ha of K_2O+ 92.2Q/ha compost and F_2=2×F_1.

3. DESIGN :

(i) R.B.D. (ii) (a) 9 (for each treatment there were 3 plots corresponding to 3 irrigational treatments for the suceeding experiment on wheat crop during *Rabi*) (b) N.A. (iii) 2 (iv) (a) and (b) 7.92m × 5.03m (v) Nil (vi) Yes.

4. GENERAL :

(i) Good (ii) Nil (iii) Yield of grain (iv) (a) 1963—only (b) and (c) Nil (v) and (vi) Nil (vii) This experiment is the part of experiment on wheat crop during rabi—kindly see 63 (144).

5. RESULTS :

(i) 1515Kg/ha (ii) 283.3Kg/ha (iii) Treatment differences are highly significant (iv) Av. yield of grain in Kg/ha.

Treatment:	F_0	F_1	F_2
Av. yield :	740	1464	2342

C.D. = 1219.0 Kg/ha.

Crop :- Maize *(Kharif)*, **Ref :- U.P. 64 (559).**

Site :-Govt. Res. Farm, Kalai. **Type :- 'M'.**

Object :—To study the response of Maize to application of trace-elements.

1. BASAL CONDITIONS :

(i) (a) Nil (b) *Moong* (c) Nil (ii) Loam (iii) 4.7.64 (iv) (a) 2 ploughings by S.T.P. and 5—6 ploughings by *Deshi* plough (b) Behind the plough (c) 58Kg/ha (d) 91cm × 46cm (e) — (v) 100Kg/ha of mixture No. 2 (60Kg A/S/ha + 40Kg Super/ha) applied on 4.7.64 as soil application. Green manuring by *Moong* (vi) T-41 (vii) Nil (viii) 1—2 weedings and earthing (ix) N.A. (x) 25.11.64.

2. TREATMENTS:

All combinations of (1), (2), (3) and (4) + 1 extra treatments in each block.

(1) 3 levels of Mn as Manganese Sul. : $M_0=0$, $M_1=16.8$ and $M_2=33.6$Kg/ha.

(2) 3 levels of Zn as Zinc Sul. : $Z_0=0$, $Z_1=16.8$ and $Z_2=33.6$Kg/ha.

(3) 3 levels of B as Borax : $B_0=0$, $B_1=11.2$ and $B_2=22.4$Kg/ha.

(4) 3 levels of Cu. as Copper Sul. : $C_0=0$, $C_1=11.2$ and $C_2=22.4$Kg/ha.

Extra treatment : Spartin at 370.7Kg/ha.

3. DESIGN:

(i) 3^4 confd. (ii) (a) 9 blocks/replication, 10 plots/block (b) 24.38m × 18.29m (iii) 1 (iv) (a) 4.27m × 7.77m (b) 3.35m × 6.86m (v) 46cm × 46cm (vi) Yes.

4. GENERAL:

(i) Good (ii) No. (iii) Yield of grain (iv) (a) 1964—only (b) and (c) Nil (v) to (vii) Nil.

5. RESULTS :

(i) 2557Kg/ha. (ii) 455.2Kg/ha. (iii) Main effect of M is significant. (iv) Av. yield of grain in Kg/ha.

Spartin=2737Kg/ha

	Z_0	Z_1	Z_2	C_0	C_1	C_2	B_0	B_1	B_2	mean
M_0	2493	2542	2522	2513	2556	2489	2392	2643	2522	2519
M_1	2547	2778	2875	2933	2865	2402	2537	2923	2740	2733
M_2	2547	2368	2165	2353	2431	2295	2503	2411	2162	2360
mean	2529	2563	2521	2600	2617	2395	2477	2659	2475	2537
B_0	2373	2513	2547	2624	2484	2324				
B_1	2793	2959	2426	2522	2909	2547				
B_2	2421	2416	2590	2653	2460	2315				
C_0	2720	2629	2450							
C_1	2489	2677	2687							
C_2	2377	2382	2426							

C.D. for M marginal means=249.3Kg/ha

Crop. :- Maize (*Kharif*). **Ref. :- U.P. 63(46).**

Site :- Instt. of Crop Physiology, Dilkusha, Lucknow. **Type :- 'M'**

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

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Sandy loam to loam (iii) N.A. (iv) (a) N.A. (b) Behind the plough in lines (c) and (d) N.A. (e) — (v) 89.6Kg/ha of N as A/S+33.6Kg/ha of P_2O_5 as Super + 33.6Kg/ha of K_2O. (vi) T—41 (vii) and (viii) N.A. (ix) 63.2cm (x) 29.9.63.

2. TREATMENTS:

9 trace-elements T_0=Control, T_1=5.6Kg/ha of Fe as Iron Sulphate, T_2=22.4Kg/ha of Mn as Manganese Sul., T_3=16.8Kg/ha of Zn as Zinc Sul., T_4=11.2Kg/ha of Cu as Copper Sul., T_5=11.2Kg/ha of B as Borax, T_6=1.12Kg/ha of Mo as Sodium Molybdate, T_7=Mixture of above all and T_8=224Kg/ha. of Spartin B.

3. DESIGN :

(i) R.B.D. (ii) (a) 9 (b) N.A. (iii) 4 (iv) (a) and (b) 3.66m×3.05m (v) Nil (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of cob. and strow (iv) (a) 1963—only (b) and (c) Nil. (v) and (vi) Nil (vii) Yield of grain not recorded.

5. RESULTS:

(i) 5190Kg/ha (ii) 2084.8Kg/ha (iii) Treatment differences are not significant (iv)Av. yield of cobs in Kg/ha.

Treatment :	T_0	T_1	T_2	T_3	T_4	T_5	T_6	T_7	T_8
Av. yield :	6144	3095	5830	6234	5090	4664	6144	5315	4193

Crop :- Maize (*Kharif*). **Ref :-U.P. 65(293).**

Site :- G.B. Pant University of Agri. & Technology, Pantnagar. **Type :- 'M'**

Object:—To study the effect of levels and sources of N on hybrid *Maize*.

1. BASAL CONDITIONS:

(i) (a) Maize—Wheat (b)Wheat (c)Nil, (ii) Silty clay loam (iii) 20.7.65 (iv) (a) 1 ploughing by tractor drawn-disc, one cross harrowing and levelling (b) In furrows opened by Planet Junior plough (c) N.A. (d) Rows 75cm apart (e) — (v) 80Kg/ha P_2O_5 as Super + 60Kg/ha of K_2O as Mur. Pot. at sow time, (vi) Ganga Hyb. *Makka*—3 (vii) Unirrigated (viii) Thinning 2 weeding (ix) 62.7cm (x) 1.11.65.

2. TREATMENTS :

All combination of (1) and (2) + one control.

(1) 3 levels of N : N_1=50, N_2=100 and N_3=150Kg/ha.

(2) 4 Forms of N: F_1=A/S, F_2=C/A/N., F_3=A/S/N. and F_4=Urea.

Full dose of N was applied before sowing on 14.7.65.

3. DESIGN :

(i) R.B.D. (ii) (a) 13 (b) 42.0m×12.0m (iii) 3 (iv) (a) 10.00m×6.00m (b) 10.00m×4.00m (v) One row on either side (vi) Yes.

4. GENERAL :

(i) N.A. (ii) Nil (iii) Germination %, plant count, height of plant, dry weight/plant, yield of grain (iv) (a) 1965—only (b) and (c) Nil. (v) and (vi) Nil (vii) Plot-wise yield data N.A.

5. RESULTS :

(i) 2557Kg/ha (ii) 600.3Kg/ha (iii) Main effect of N and 'Control *vs.* others' are significant. (iv) Av. yield of grain in Kg/ha.

Treatments :	N_1	N_2	N_3	F_1	F_2	F_3	F_4	Control
Av. yield :	1830	2530	3577	2523	2910	2437	2710	1497

C.D. for N marginal means=505.8Kg/ha.

C.D. for 'Control *vs.* others'=744.6Kg/ha.

Crop :- Maize (*Kharif*). **Ref :- U.P. 62 (180), 63(171), 64 (169), 65 (60).**

Site :- State Soil Cons. Res., Demons. and Trg. Ce tre, Rehmankhera. **Type :- 'M'**

Object :—To study N, P and K requirements of eroded land for Maize Crop.

1. BASAL CONDITIONS :

(i) (a) Wheat—Maize (b) Wheat (c) 44.8Kg/ha of N as A/S/Urea (ii) Sandy loam—eroded soil (iii) 22.7.62; N.A; 30.7.64; Ist week of July, 1965 (iv)(a) 2 ploughings by disc harrow with the help of Tractor and 1 ploughing by mould board plough for 65; 2 ploughings by tractor and 3 ploughings by *Deshi* plough for others. (b) Behind the plough in lines. (c) 25Kg/ha for 65; 23Kg/ha for others (d) Rows 45cm apart (e) — (v) Nil (vi) T−41 (medium) (ii) Irrigated for 64 and urrigated for others (viii)1 weeding (ix)70.2cm; 52.5cm; 30.5cm; 76.9cm (x) 3rd week of Sept. 62;N.A; N.A.; 1st week of Oct. 65.

2. TREATMENTS :

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

(1) 2 levels of N : N_0=0 and N_1=44.8Kg/ha.

(2) 2 levels of P_2O_5 as Super P_0=0 and P_1=44.8Kg/ha.

(3) 3 levels of K_2O : K_0=0, K_1=44.8 and K_2=89.6Kg/ha.

N as Urea for 62; C/A/N for others. K_2O as Pot. chloride for 65 and Mur. Pot. for others. N broadcasted; P and K, placed deep with the help of a funnel behind the U.P. plough. Manuring done before sowing.

3. DESIGN:

(i) Fact. in R.B.D. (ii) (a) 12 (b) 9.00m×95.50m for 65 and N.A. for others. (iii) 4 (iv) (a) and (b) 12.19m×7.62m; N.A.; 7.62m×9.14m; 9.00m×7.50m. (v) Nil (vi) Yes.

4. GENERAL:

(i) 50% germination for 62; N.A., Fair; Poor (ii) White ants attacked the plants due to long dry-spell for 65; Nil for others. (iii) Yield of grain (iv) (a) 1962—66 (b) No (c) Nil (v) Nil (vi) Adverse weather conditions for 62; scanty and uneven distribution of rain for 65. (vii) As the expt is contd. beyond 65 , results of induvidual years have been presented under 5 Results.

5. RESULTS :

62 (180)

(i) 365.5Kg/ha (ii) 155.2Kg/ha (iii) Main effect of N is highly significant. (iv) Av. yield of grain in Kg/ha.

	P_0	P_1	K_0	K_1	K_2	mean
N_0	246,7	353 4	265.1	297.4	337.7	300.0
N_1	411.7	450.3	418.5	507.3	367.3	431.0
mean	329.2	401.9	341.8	402.3	352.5	365.5
K_0	290.6	392.9				
K_1	401.0	403.7				
K_2	296.0	409.0				

C.D. for N marginal means=91.2Kg/ha.

63 (171)

(i) 1026Kg/ha (ii) 246.7Kg/ha (iii) Main effect of N and interaction N×P are highly significant. (iv) Av. yield of grain in Kg/ha.

	P_0	P_1	K_0	K_1	K_2	mean
N_0	951	849	888	952	859	900
N_1	966	1340	1288	1071	1100	1153
mean	958	1095	1088	1012	976	1026
K_0	967	1210				
K_1	938	1086				
K_2	970	988				

C.D. for N marginal means=144.9Kg/ha.

C.D. for body of N×P table=205.0Kg/ha.

64 (169)

(i) 1392Kg/ha (ii) 442.9Kg/ha (iii) Main effect of P is highly significant. (iv) Av. yield of grain in Kg/ha.

	P_0	P_1	K_0	K_1	K_2	mean
N_0	1216	1419	1127	1657	1168	1317
N_1	1174	1761	1459	1585	1359	1468
mean	1195	1590	1293	1621	1264	1392
K_0	1185	1402				
K_1	1520	1721				
K_2	879	1648				

C.D. for P marginal means=260.3Kg/ha.

65 (60)

(i) 463.9Kg/ha (ii) 215.6Kg/ha (iii) Main effect of N is significant. (iv) Av. yield of grain in Kg/ha.

	P_0	P_1	K_0	K_1	K_2	mean
N_0	337.2	395.0	281.4	417.5	399.4	366.1
N_1	467.9	655.1	559.2	619.8	505.5	561.5
mean	402.5	525.1	420.3	518.7	452.4	463·8
K_0	339.8	500.9				
K_1	458.3	579.0				
K_2	409.6	495.3				

C.D. for N marginal means=126.7Kg/ha.

Crop :- Maize (*Kharif*). **Ref :-U.P. 63(170).**

Site :- State Soil Cons. Res. Demons. & Trg. Centre, Rehmankhera. **Type :-'M'.**

Object :—To study the response of different doses and depths of placement of Super on Maize crop.

1. BASAL CONDITIONS:

(i) (a) Maize—Wheat (b) Wheat (c) 44.5Kg/ha of N as A/S Urea (ii) Sandy loam (iii) N.A; (iv) (a) 2 ploughings by tractor and 3 ploughing by *Deshi* plough, 2 ploughing by disc-harrow with the help of tractor and ploughing with mould-board plough. (b) Behind the plough (c) 23Kg/ha (d) Rows 46cm. apart. (e) — (v) 67Kg/ha of N as A/S (vi) T-41 (medium) (vii) Unirrigated (viii) 1 weeding (ix) 52.5cm, (x) N.A.;

2. **TREATMENTS :**

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

(1) 2 levels of P_2O_5 as Super : P_1=44.8 and P_2=89.6Kg/ha.

(2) 4 depths of application of super : D_0=0 (broadcast), D_1=10 2cm, D_2=15.2cm and D_3=20.3cm.

Super applied at different depths with the help of *Deshi* plough and *Kudali*.

3. **DESIGN :**

(i) R.B.D. (ii) (a) 9 (b) N.A. (iii) 4 (iv) (a) 6.10m×3.66m (b) 6.10m×3.66m (v) Nil; (vi) Yes.

4. **GENERAL:**

(i) Fair (ii) Nil (iii) Yield of grain (iv) (a) 1963—only (b) No (c) Nil (v) to (vii) Nil.

5. **RESULTS :**

(i) 1285Kg/ha (ii) 162.5Kg/ha (iii) 'Control *vs.* others' is highly significant. (iv) Av. yield of grain in Kg/ha.

Control=729Kg/ha.

	D_0	D_1	D_2	D_3	Mean
P_1	1233	1368	1144	1194	1235
P_2	1435	1491	1177	1794	1474
Mean	1334	1430	1160	1494	1354

C.D. for 'control *vs.* others' = 396.8Kg/ha.

Crop:- Maize (*Kharif*). **Ref:- UP. 62 (306).**

Site :- Res. Farm, College of Agri. B.H.U., Varanasi. **Type :- 'M'.**

Object :—To find out the suitable levels of N and P for Maize.

1. **BASAL CONDITIONS :**

(i) (a) N.A. (b) Fallow (c) Nil (ii) Loam (iii) July, 62 (iv) (a) 1 ploughing each by heavy soil-turning plough and hight soil-turning plough + 4 ploughings by *Deshi* plough, planking (b) Behind the plough in lines (c) N.A. (d) Row 36cm apart (e) — (v) Nil (vi) N.A. (vii) Irrigated (viii) Hoeing (ix) 96.9cm (x) N.A.

2. **TREATMENTS :**

All combinations of (1) and (2)

(1) 4 levels of N as A/N : N_1=33.6, N_2=67.2, N_3=100.8 and N_4=134.4Kg/ha.

(2) 3 levels of P_2O_5 as super : P_1=33.6, P_2=67.2, and P_3=100.8Kg/ha.

3. **DESIGN :**

(i) Fact. in R.B.D. (ii) (a) 12 (b) N.A. (iii) 3 (iv) (a) and (b) 5.79m×4.89m (v) Nil (vi) Yes.

4. **GENERAL :**

(i) Good (ii) Nil (iii) Yield of grain (iv) (a) 1962—only (b) and (c) — (v) to (vii) Nil.

5. **RESULTS :**

(i) 1805Kg/ha (ii) 731.0Kg/ha (iii) None of the effects is significant. (iv) Av. yield of grain in Kg/ha.

	N_1	N_2	N_3	N_4	mean
P_1	1281	1801	1943	1979	1751
P_2	1307	1907	1978	2049	1810
P_3	1413	1943	1978	2084	1855
mean	1334	1884	1966	2037	1805

Crop:- Maize (*Summer*). **Ref :- U.P. 65 (154).**

Site :- Res. Farm, College of Agri. B.H.U., Varanasi. **Type :- 'M'.**

Object :—To study the relative efficacy of different times of N application and methods of plosplorus placement on the growth, yield and composition of Hybrid Maize.

1. BASAL CONDITIONS:

(i) (a) N.A. (b) Sugarcane (ratoon) (c) N.A. (ii) Clay loam (iii) 7.3.65 (iv) (a) One ploughing by soil turning plough, 5 ploughings fallowed by planking (b) Behind the plough (c) Nil (d) Rows 61cm apart (e) — (v) Nil (vi) Gnnga—1 (vii) Irrigated (viii) 2 hoeing and weedings (ix) 201.7cm (x) 26.6.65.

2. TREATMENTS :

All combinations of (1) and (2)

(1) 3 times of application of N : N_1=Basal application of whole amount, N_2=Split-application in two equal doses and N_3=Split application 3 equal doses.

(2) 3 methods of plecement of P : P_1=Plough sole placement, P_2=Band placement and P_3=plout sole and band placement.

Source and doses of fertilizers—N.A.

3. DESIGN :

(i) Fact in R.B.D. (ii) (a) 9 (b) N.A. (iii) 4 (iv) (a) 10.36m×7.32m (b) 9.14m×6.09m (v) 61cm×61cm (vi) Yes.

4. GENERAL:

(i) N.A. (ii) Attack by short-borer, 0.25% D.D.T. was dusted 3 times. (iii) Yield of grain and straw. (iv) (a) 1965—only (b) and (c) Nil. (v) to (vii) Nil.

5. RESULTS:

(i) 4045Kg/ha (ii) 198.2Kg/ha (iii) Main effects of N and P and interaction N×P are highly significant. (iv) Av. yield of grain in Kg/ha.

	P_1	P_2	P_3	mean
N_1	2184	3153	3358	2898
N_2	3627	4407	3074	3703
N_3	4965	5514	6121	5533
mean	3592	4358	4184	4045

C.D. for N or P marginal means=166.9Kg/ha.

C.D. for body of table=289.2Kg/ha.

Crop :- Maize (*Kharif*). **Ref :- U.P. 64(M.A.E.).**

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

Object :—Type II : To study the effect of manurial requirement for Maize crop.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Loam (iii) 11.7.64 (iv) (a) to (d) N.A. (e) — (v) As per treatments (vi) G–101 (110 days) (vii) Unirrigated (viii) and (ix) N.A. (x) 3.11.64.

2. TREATMENTS:

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

(1) 3 levels of N as A/S : N_0=0, N_1=120 and N_2=240Kg/ha.

(2) 3 levels of P_2O_5 as Super : P_0=0, P_1=60 and P_2=120Kg/ha.

(3) 3 levels of K_2O as Mur. Pot. : K_0=0, K_1=60 and K_2=120Kg/ha.

(4) 2 levels of F.Y.M. : F_0=0 and F_1=5600Kg/ha.

3. DESIGN :

(i) Confd. (ii) (a) 9 plots/block, 6 blocks/replication (b) N.A. (iii) N.A. (iv) (a) 1/200ha (b) 1/250ha (v) N.A. (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) yield of grain (iv) (a) 1964—only (b) — (c) Nil. (v) to (vii) Nil.

5. RESULTS:

(i) 3145Kg/ha (ii) 693.9Kg/ha (iii) Main effect of N is highly significant and interactions N×P is significant. (iv) Av. yield of grain in Kg/ha.

	N_0	N_1	N_2	P_0	P_1	P_2	K_0	K_1	K_2	mean
F_0	2636	2915	3513	3246	3255	2563	2674	3278	3111	3027
F_1	2638	3399	3770	3492	3018	3297	3156	3250	3401	3269
mean	2637	3157	3641	3369	3136	2930	2915	3264	3256	3145
K_0	2406	3253	3087	3155	3026	2564				
K_1	2719	3239	3835	3539	2895	3358				
K_2	2787	2980	4002	3413	3487	2869				
P_0	2458	3756	3894							
P_1	2653	2731	4024							
P_2	2800	2985	3006							

Crop :- Maize (*Kharif*). **Ref :- U.P. 64, 65 (M.A.E.).**

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

Object :—Type XI : To determine the response of micro-nutrients application and to study their relative merits on the yield of Maize.

1. BASAL CONDITIONS:

(i) (a) to (c) N.A. (ii) Loam (iii) 1.7.64; N.A. (iv) (a) to (d) N.A. (e) — (v) N.A. (vi) GNG—101 (vii) Unirrigated (viii) and (ix) N.A. (x) 1.11.64; N.A.

2. TREATMENTS:

15 micro-nutrient treatments :

T_0=Control (no fertilizer), T_1=NPK applied to soil only, T_2=T_1+Spartin at 395Kg/ha, T_3=T_1+Mn as Mn So_4 at 60Kg/ha, T_4=T_1+Zn as Zn So_4 at 30 Kg/ha; T_5=T_1+Cu as Cu So_4 at 30Kg/ha, T_6=T_1+Bo as Borax at 17.5Kg/ha, T_7=T_1+Mo as Sod. Moly bedate at 1.25Kg/ha, T_8=T_1+Mn+Zn+Cu+Bo+Mo, T_9=T_1+Mn as Mn So_4 at 17.5Kg/ha, T_{10}=T_1+Zn So_4 at 12.5Kg/ha, T_{11}=T_1+Cu as Cu So_4 at 12.5Kg/ha, T_{12}=T_1+Bo as Borox at 6.2Kg/ha, T_{13}=T_1+Mo as Sod. Molybedate at 0.62Kg/ha and T_{14}=T_1+Mn+Zn+Cu+Bo+Mo.

Treatments T_2 to T_8 applied as soil application and T_9 to T_{14} appliedes foliar spray. T_1=33.6Kg/ha of N+33.6Kg/ha of P_2O_5+33.6Kg/ha of K_2O for 64 and 35Kg/ha N+35Kg/ha of P_2O_5+35Kg/ha of K_2O for 65.

3. DESIGN :

(i) R.B.D. (ii) (a) 15 (b) N.A. (iii) 4 (iv) (a) 1/200ha (b) 1/250ha (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) Nil (vi) N.A. (vii) Nil.

5. RESULTS:

1964

(i) 3241Kg/ha (ii) N.A. (iii) N.A. (iv) Av. yield of grain in Kg/ha.

Treatments:	T_0	T_1	T_2	T_3	T_4	T_5	T_6	T_7	T_8	T_9	T_{10}	T_{11}
Av. yield :	3021	3543	2874	3718	4148	3083	3174	3291	3027	4119	3785	2855

T_{12}	T_{13}	T_{14}
3359	2840	1770

1965

(i) 5208Kg/ha (ii) N.A. (iii) N.A. (iv) Av. yild of grain in Kg/ha.

Treatment :	T_0	T_1	T_2	T_3	T_4	T_5	T_6	T_7
Av. yield :	5268	4861	5249	5357	5131	5513	4980	4822

T_8	T_9	T_{10}	T_{11}	T_{12}	T_{13}	T_{14}
5592	5122	4996	5975	5428	5171	4662

Crop :- Maize (*Kharif*). **Ref :- U.P. 64, 65 (M.A.E.).**

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

Object : Type XII : To study the effect of different festilizer treatment and their methods of application on the yield of Maize.

1. BASAL CONDITIONS:

(i) (a) to (c) N.A. (ii) Tarai soil (iii) 22.7.64; N.A. (iv) (a) to (d) N.A. (e) — (v) N.A. (vi) G—101 (vii) Unirrigated (viii) and (ix) N.A. (x) 9.11.64; N.A.

2. TREATMENTS :

Main-plot treatments:

4 festilizer treatments : F_1=44.8Kg/ha of N as A/S, F_2=22.4Kg/ha of P_2O_5 as Super, $F_3=F_1+F_2$ and $F_4=F_3+22$ 4Kg/ha of K_2O.

Sub-plot treatments : All combinations of (1) and (2) +2 extra treatments.

(1) 3 methods of application : M_1=Soil application, M_2=Foliar application and M_3=Soil application and foliar application.

(2) 2 levels of fertilizers : $L_1=\frac{1}{2}$ dose and L_2=Full dose.

Extra treatments : C_1=Water spray and C_2=Absolute control.

3. DESIGN:

(i) Split-plot (ii) (a) 4 main-plots/replication; 8 sub-plots/main-plot. (b) N.A. (iii) 4 (iv) (a) 1/200ha (b) 1/250ha (v) N.A. (vi) Yes.

4. GENERAL :

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

5. RESULTS :

1964

(i) 2638Kg/ha (ii) (a) N.A. (b) N.A. (iii) N.A. (iv) Av. yield of grain in Kg/ha.

C_1=1590 and C_2=2015Kg/ha.

	L_1M_1	L_2M_1	L_1M_2	L_2M_2	L_1M_3	L_2M_3	mean
F_1	2708	3922	2534	2415	3326	4038	3157
F_2	1805	2519	1704	2349	1729	1987	2016
F_3	2723	3599	2112	2790	2758	4142	3020
F_4	3333	4393	3077	3501	2085	4470	3476
mean	2642	3608	2357	2764	2475	3659	2917

C.D. for F marginal means=1124Kg/ha.

C.D. fot LM marginal means=673Kg/ha

1965

(i) 5159Kg/ha (ii) (a) N.A. (b) N.A. (iii) N.A. (iv) Av. yield of grain in Kg/ha.

C_1=4880 and C_2=5139Kg/ha.

	L_1M_1	L_2M_1	L_1M_2	L_2M_2	L_1M_3	L_2M_3	mean
F_1	4272	4739	5089	4467	4830	4078	4579
F_2	4395	6209	5237	5260	5742	5813	5442
F_3	4499	4825	5206	5069	5478	4378	4909
F_4	5530	6257	5917	5931	6206	5581	5904
mean	4674	5507	5362	5182	5564	4963	5209

C.D. for F marginal means=1240Kg/ha.
C.D. for LM marginal means=593 Kg/ha.

Crop :- Maize (*Kharif*). **Ref :- U.P. 60 to 61 (S.F.T.) foy Meerut, Muzzafarnagar, and 60 (S.F.T.) for Bulandshahr and Aligarh.**

Site :- District : Meerut, Muzaffarnagar, Bulandshahr and Aligarh. **Type :- 'M'**

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

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Alluvial (iii) to (x) N.A.

2. TREATMENTS :

8 manurial treatments : O=Control (no manure), N=22.4Kg/ha. of N, P=22.4Kg/ha. of P_2O_5, K=22.4Kg/ha. of K_2O, NP=22.4Kg/ha. of N+22.4Kg/ha. of P_2O_5, NK=22.4Kg/ha. of N+22.4Kg/ha. of K_2O, PK=22.4Kg/ha. of P_2O_5+22.4Kg/ha. of K_2O and NPK=22.4Kg/ha. of N+22.4Kg/ha. of P_2O_5+22.4Kg/ha. of K_2O.

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) 1/98.8ha. (b) 1/197.7ha. (iv) Yes.

4. GENERAL

(i) and (ii) N.A. (iii) Yield of grain (iv) (a) 1960 to 61 for Meerut; Muzaffer Nagar and 1960 for Bulandshahr and Aligarh (iv) (b) to (vii) N.A.

5. RESULTS :

60 (S.F.T.)

District	No. of trials	Control yield in Kg/ha	Av. response in Kg/ha. N	P	K	S.E.	NP	NK	PK	NPK	S.E.
Meerut	12	1440	220	150	90	18.0	30	10	50	10	13.0
Muzaffarnagar	8	890	260	180	70	12.0	20	—10	0	40	16.0
Bulandshahr	8	1130	170	60	30	18.0	20	—20	0	20	11.0
Aligarh	7	930	180	140	—30	18.0	—80	30	30	—50	11.0
61 (S.F.T.)											
Meerut	10	750	210	140	60	12.0	0	20	30	20	9.0
Muzaffarnagar	16	670	270	140	60	8.0	—10	20	20	20	5.0

Crop :- Maize (*Kharif*) **Ref :- U.P. 61(S.F.T.).**

Site :- Meerut and Muzaffar Nagar. **Type :-'M'.**

Object :—Type B : To investigali the relative efficiency of N fertilizers at different doses.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Alluvial (iii) to (x) N.A.

2. TREATMENTS:

7 manurial treatments :

O—Control (no manure), N_1—22.4Kg/ha. of N as A/S, N_2—44.8Kg/ha. of N as A/S, N_1'—22.4Kg/ha. of N as Urea, N'_2—44.8Kg/ha. of N as Urea, N_1''—22.4Kg/ha. of N as C/A/N, and N_2''—44.8Kg/ha. of N as C/A/N.

3. DESIGN :

Same as in Type A conducted on *Maize* crop and presented on Page No. 837

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of grain (iv) (a) 1961—only (b) and (c) N.A. (v) to (vii) N.A.

5. RESULTS :

Av. response in Kg/ha.

District	No. of trials	Control yield in Kg/ha.	N_1	N_2	N_1'	N_2'	N_1''	N_2''	S.E.
Meerut	9	780	180	530	170	460	200	470	28.0
Muzaffarnagar	16	820	290	500	320	500	300	520	21.0

Crop :- Maize (*Kharif*). **Ref :- U.P. 60 (S.F.T.).**

Site :-District : Meerut, Bulandshahr, Muzaffarnagar and Aligarh. **Type :- 'M'.**

Object :— Type B : To investigate the relative efficiency of N fertilizers at different levels.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Alluvial (iii) to (x) N.A.

2. TREATMENTS :

7 manurial treatments:

O=Control (no manure), N_1=22.4Kg/ha. of N as A/S, N_2=44.8Kg/ha of N as A/S, N_1'=22.4Kg/ha of N as Urea, N_2'=44.8Kg/ha. of N as Urea, N_1''=22.4Kg/ha. of N as A/S/N, and N_2''=44.8/ha of N as A/S/N.

3. DESIGN:

Same as in Type A conducted on Maize crop and presented on page No. 837

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of grain (iv) (a) 1960—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_1	N_2	N_1'	N_2'	N_1''	N_2''	S.E.
Meerut	12	1290	250	630	360	590	340	610	35.0
Bulandshahr	8	1140	100	210	90	180	120	180	30.0
Muzaffarnagar	8	870	550	810	480	750	530	870	53.0
Aligarh	7	1250	180	460	260	610	130	370	32.0

Crop :- Maize (*Kharif*). **Ref. :-U P. 63 (S.F.T.) for Saharanpur and Meerut, 63, 65 (S.F.T.) for Jaunpur, Muzaffarnagar and 63, 65 (S F.T.) for Bulandshahr.**

Site :- District : Saharanpur, Jaunpur Muzaffarnagar, Meerut and Bulandshahr. **Type :-'M'**

Object : Type A_1 : To study the response of important cereals, cash and oil seed crops to N applied singly and in combination with other nutrients.

1. BASAL CONDITIONS:

(i) to (vi) N.A. (vii) Irrigated (viii) to (x) N.A.

2. TREATMENTS :

8 manurial treatments :

O=Control (no manure), N_1=60Kg/ha. of N, N_2=120Kg/ha. of N, P_1=35Kg/ha. of P_2O_5, N_1P_1= 60Kg/ha. of N+35Kg/ha. of P_2O_5, N_2P_1=120Kg/ha. of N+35Kg/ha. of P_2O_5, N_2P_2=120Kg/ha. of N+70Kg/ha. of P_2O_5 and $N_2P_2K_1$=120Kg/ha. of N+70Kg/ha. of P_2O_5+35Kg/ha. of K_2O.

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 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) 1/100ha. (b) 1/200ha (iv) Yes.

4. GENERAL:

(i) and (ii) N.A. (iii) Yield of grain (iv) (a) 1962—66 (Expts. conducted from 1962 to 65 as given under Results. Expts not conducted in Saharanpur and Jaunpur in 1966) (b) No (c) Nil (v) to (vii) Nil.

5. RESULTS:

Saharanpur

63 (S.F.T.) Av. response in Kg/ha.

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.	263	453	162	347	526	649	703	84.6

Control yield=1068Kg/ha.; No. of trials=4

Jaunpur

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.	405	807	163	534	889	1015	1100	61.3

Control yield=2314Kg/ha.; No. of trials=8

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.	615	982	178	790	1245	1397	1348	50·0

Control yield=1853Kg/ha.; No. of trials=20

Muzaffarnagar

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.	220	364	84	356	469	566	580	24·2

Control yield=993Kg/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	$N_2P_2K_1$	S.E
Av. response of grain in Kg/ha.	329	659	111	480	793	893	925	30.6

Control yield=985Kg/ha.: No. of trials=16

Meerut

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.	148	323	75	227	425	604	563	40·5

Control yield=1223Kg/ha.: No. of trials=10

Bulandshahr

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.	286	366	80	290	323	435	471	97·1

Control yield=1534Kg/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 grain in Kg/ha.	374	589	196	457	670	778	777	56.9

Control yield=1269Kg/ha.: No. of trials=12

Crop :- Maize (*Kharif*) **Ref :- U.P. 63, 64 (S.F.T.) for Muzaffarnagar and Saharanpur; 64, 65 (S.F.T.) for Meerut and Farrukhabad, 64(S.F.T) for Bulandshahr and Bahraich; 63, 65 (S.F.T.) for Jaunpur, 65(S.F.T.) for Mainpuri.**

Site :- District : Mnzaffarnagar, Meerut, Bulandshahr, Farrukhabad, Jaunpur, Mainpuri, Saharanpur and Bahraich. **Type :- 'M'**

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

1. BASAL CONDITIONS :

(*i*) to (*vi*) N.A. (*vii*) Unirrigated (*viii*) to (x) N.A.

2. TREATMENTS: & 3. DESIGN :

Same as in Type A_1 Conducted under irrigated conditions on Maize crop and presented on page No. 840

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of grain (iv) (a) 1962—66 (Expts. conducted from 1962 to 65 as given under Results. Expts not conducted at Saharanpur in 1966.) (b) No. (c) Nil (v) to (vii) N.A.

5. RESULTS :

Muzaffarnagar

63 (S.F.T.) Av. response in Kg/ha.

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.	69	161	23	127	190	231	239	10·9

Control yield=392Kg/ha.; No. of trials=4

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.	208	358	91	243	418	497	508	19·4

Control yield=790Kg/ha.; No. of trials=16

Meerut

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.	50	77	10	104	181	220	234	40.3

Control yield=1151Kg/ha.; No. of trials=8

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	398	595	209	507	659	785	796	38 7

Control yield=1330Kg/ha.; No. of trials=15

Bulandshahr

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.	152	286	50	789	322	362	388	29 8

Control yield=1038Kg/ha.; No. of trials=11

Farrukhabad

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.	169	384	89	336	558	786	1094	47·4

Control yield=1115Kg/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.	353	542	100	431	600	733	759	23·3

Control yield=1156Kg/ha.; No. of trials=24

Jaunpur

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.	380	611	123	489	701	847	968	137.7

Control yield=1754Kg/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.	495	859	157	644	952	1071	1164	38·5

Control yield=1806Kg/ha.; No. of trials=20

Mainpuri

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.	178	430	135	176	470	413	624	101.2

Control yield=1747Kg/ha.: No. of trials=11

Saharanpur

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. rerponse of gra n in Kg/ha.	261	476	82	331	559	673	738	24.9

Control yield=1168Kg/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.	154	242	63	177	259	365	385	41.2

Control yield=736Kg/ha.; No. of trials=8

Bahraich

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.	703	800	877	1122	1413	1650	1937	138·0

Control yield=1700Kg/ha.; No. of trials=5

Crop :- Maize (*Kharif*).

Ref :- U.P. 63, 65(S.F.T.) for Bulandshahr, Muzaffarnagar and Jaunpur; 65(S.F.T.) for Mainpuri; 63(S.F.T.) for Meerut.

Site :- District : Bulandshahr, Muzaffarnagar, Mainpur, Meerut & Jaunpur.

Type :- 'M.'

Object :—Type A_2 : To study the response curves of important cereals, cash and oil seed crops to P applied singly and in combination with other nutrients.

1. BASAL CONDITIONS:

(i) to (vi) N.A. (vii) Irrigated (viii) to (x) N.A.

2. TREATMENTS:

8 manurial treatments :

O=Control (no manure), N_1=60Kg/ha of N, P_1=35Kg/ha of P_2O_5, P_2=70Kg/ha of P_2O_5, N_1P_1=60Kg/ha of N+35Kg/ha of P_2O_5, N_1P_2=60Kg/ha of N+70Kg/ha of P_2O_5, N_2P_2=120Kg/ha of N+70Kg/ha of P_2O_5 and $N_2P_1K_2$=120Kg/ha of N+70Kg/ha of P_2O_5+70Kg/ha of K_2O.

3. DESIGN :

Same as in Type A_1 conducted under irrigated conditions on Maize crop and present on page No. 840

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of grain (iv) (a) 1962–66 (Expts conducted from 1962 to 65 as given under Results) (b) No. (c) Nil (v) to (vii) N.A.

5. RESULTS :

Bulandshahr

63 (S.F.T.)

Av. response in Kg/ha.

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.	366	115	138	307	349	588	695	119.5

Control yield=1316Kg/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.	389	185	282	514	438	795	841	70.9

Control yield=1220Kg/ha.; No. of trials=10

Muzaffarnagar

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.	273	54	190	309	385	555	525	40.2

Control yield=1101Kg/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 grain in Kg/ha.	346	106	181	473	547	847	886	37.1

Control yield=1017Kg/ha.; No. of trials=15

Mainpuri

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.	191	78	548	328	494	822	747	92.0

Control yield=1677Kg/ha.; No. of trials=11

Meerut

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.	146	93	126	289	331	553	557	41.8

Control yield=1232Kg/ha.; No. of trials=10

Jaunpur

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.	349	161	239	496	619	888	994	78.4

Control yield=1833Kg/ha.; No. of trials=8

Badaun

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.	555	123	257	728	855	1331	1460	48·5

Control yield=1778Kg/ha.; No. of trials=20

Crop :- Maze (*Kharif*). **Ref :- U.P. 64(S.F.T.) for Bulandshahr and Bahraich; 64, 65(S.F.T.) for Farrukhabad and Meerut; 63, 64(S.F.T.) for Muzaffarnagar, Jaunpur and Saharanpur.**

Site :- District : Bulandshahr, Farrukhabad, Muzaffarnagar, Meerut, Banraich, Jaunpur and Saharanpur. Type :- 'M'.

Object : Type A_2 : To study the respose curves of important cereals, cash and oil seed crops to P applied singly and in combination with other nutrients.

1. BASAL CONDITIONS :

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

2. TREATMENTS: & 3. DESIGN

Same as in Type A_1 conducted under irrigated conditions on Maize crop and presented on page No. 840

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of grain (iv) (a) 1962–66 (Expt. conducted from 1962 to 65 as given under Results. Expts. not conducted at Saharanpur in 1966.) (b) No. (c) Nil (v) to (vii) N.A.

5. RESULTS :

Bulandshar

64 (S.F.T.) Av. response in Kg/ha.

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.	180	83	82	157	224	377	372	18.5

Control yield=950Kg/ha.: No. of the trials=14

Farrukhabad

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.	191	116	112	310	415	629	1009	62.7

Control yield=1171Kg/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.	409	126	198	482	528	692	788	25.5

Control yield=5191Kg/ha.; No. of trials=24

Muzaffarnagar

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.	189	44	90	240	275	378	377	25·5

Control yield=636Kg/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 grain in Kg/ha.	161	83	1	200	237	377	413	47·3

Control yield=840Kg/ha.; No. of trials=16

Meerut

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 grian in Kg/ha.	63	9	27	112	149	236	265	23·2

Control yield=1224 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.	302	175	222	431	459	777	843	23·1

Control yield=1536Kg/ha.; No. of trials=12

Bahraich

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.	666	852	1091	1423	1577	1628	2129	151.4

Control yield=1559Kg/ha.; No. of trials=5

Jaunpur

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.	307	149	219	477	629	841	1032	85.7

Control yield=2415Kg/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 grain in Kg/ha.	499	134	217	666	770	1038	1184	44.4

Control yield=1774Kg/ha.; No. of trials=19

Saharanpur

63 (S.F.T.)

Tre tment	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.	272	89	111	317	448	641	713	49.9

Control yield=1122Kg/ha.; No. of trials=12

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.F.
Av. response of grain in Kg/ha.	289	120	146	283	310	544	500	49.2

Control yield=780Kg/ha.; No. of trials=6

Crop :- Maize (*Kharif*). **Ref :- U.P. 63, 65(S.F.T.) for Muzaffarnagar and Jaunpur ; 63(S.F.T.) for Meerut and 65(S.F.T.) for Mainpuri.**

Site:-District : Muzaffarnagar, Meerut, Jaunpur and Mainpuri. **Type:-'M'**

Object : Type A_1 :To study the response curves of important cerials, cash and oil seed crops to K applied singly and in combination with other nutrients.

1. BASAL CONDITIONS:

(i) to (vi) N.A. (vii) Irrigated (viii) to (x) N.A.

2. TREATMENTS:

8 manurial treatments :

O=Control (no manure), N_1=60Kg/ha. of N, K_1=35Kg/ha. of K_2O, K_2=70Kg/ha. of K_2O, N_1K_1=60Kg/ha. of N+35Kg/ha. of K_2O, N_1K_2=60Kg/ha. of N+70Kg/ha. of K_2O, N_2K_2=120Kg/ha. of N+70Kg/ha. of K_2O and $N_1P_1K_1$=60Kg/ha. of N+35Kg/ha. of P_2O_5+35Kg/ha. of K_2O.

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 groud 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) 1/100ha. (b) 1/200ha (iv) Yes.

4. GENERAL:

(i) and (ii) N.A. (iii) Yield of grain (iv) (a) 1962—66 (Expts. conducted from 1962 to 65 as given under Results. Expts not conducted at Meerut and Jaunpur in 1966.) (b) No. (c) Nil (v) to (vii) N.A.

5. RESULTS:

Muzaffarnagar

Av. response in Kg/ha.

63 (S.F.T.)

	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.	219	49	85	276	276	492	441	26.3

Control yield=1101 Kg/ha.; No. of trials=8

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.	351	22	32	370	370	659	569	26.0

Control yield=955Kg/ha.; No. of trials=16

Meerut

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.	186	36	73	232	257	506	443	27.5

Control yield=1140Kg/ha.; No. of trials=10

Jaunpur

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.	312	37	67	373	418	718	455	28.2

Control yield=1651 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.	523	94	171	624	737	1076	858	36.3

Control yield=1628Kg/ha.; No. of trials=20

Mainpuri

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.	178	107	149	237	284	467	362	45.9

Control yield=1295Kg/ha.; No. of trials=9

Crop :- Maize (*Kharif*). **Ref :- U.P. 63, 64 (S.F.T.) for Jaunpur, Muzaffarnagar, Saharanpur, 64, 65 (S.F.T.) for Bulandshahr, Farrukhabad, Meerut and 64 (S.F.T.) for Bahraich.**

Site :- District : Jaunpur, Muzaffarnagar, Saharanpur, Bulandshahr, Farrukhabad, Meerut and Bahraich. Type :- 'M'.

Object :—Type A_2: To study the response curves of important cereals, cash and oil seed crops to K applied singly and in combination with other nutrients.

1. BASAL CONDITIONS :

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

2. TREATMENTS & 3. DESIGN :

Same as in Type A_2 conducted under irrigated conditions on Maize crop and presented on page No. 848.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of grain (iv) (a) 1962—66 (Expts. conducted from 1962 to 65 given as under Results. Expts. not conducted at Saharanpur and Meerut in 1966.) (b) No (c) Nil (v) to (vii) N.A.

3. RESULTS :

Jaunpur

63 (S.F.T.) Av. response in Kg/ha.

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.	414	121	170	516	586	853	646	58·5

Control yield=1796Kg/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 grain in Kg/ha.	474	191	263	604	782	1113	991	40·2

Control yield=1746Kg/ha.; No. of trials=21

Muzaffarnagar

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.	222	2	16	248	262	366	302	22·1

Control yield=727Kg/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 grain in Kg/ha.	152	5	11	174	184	306	250	12·2

Control yield=721Kg/ha.; No. of trials=16

Saharanpur

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.	309	71	130	307	417	584	593	29·2

Control yield=942Kg/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.	217	59	38	264	227	462	391	41·1

Control yield=838Kg/ha.; No. of trials=8

Bulandshahr

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.	124	16	30	159	180	291	207	11·3

Control yield=814Kg/ha.; No. of trials=15

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.	339	29	45	391	379	622	458	30·3

Control yield=903Kg/ha.; No. of trials=10

Farrukhabad

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.	222	50	126	325	390	607	814	42·6

Control yield=1084Kg/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.	371	128	218	443	507	700	589	18·2

Control yield=1663Kg/ha.; No. of trials=23

Meerut

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.	87	28	64	100	132	247	226	20·8

Control yield=1355Kg/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.	354	96	98	323	336	677	544	84.1

Control yield=1369Kg/ha.: No. of trials=11

Bahraich

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.	753	660	968	1176	1571	1642	2026	138.2

Control yield=1557Kg/ha.; No. of trials=5

Crop :- Maize (*Kharif*). **Ref :- U.P. 64(172).**

Site :- Govt. Agri. Farm, Chandauli. **Type :-'MV'.**

Object :—To study the effect of levels of N on the yield of different varieties of Maize.

1. BASAL CONDITIONS:

(i) (a) Nil (b) Wheat (c) 92.2Q/ha. of compost + 22.4Kg/ha of N as A/S (ii) Sandy loam (iii) 1.7.64 (iv) (a) 1 ploughing by soil turning plough and 2 by *Deshi* plgugh (b) In furrows behind *Deshi* plough (c) 25Kg/ha (d) 76cm×25cm (e) — (v) N.A. (vi) As per treatments (vii) Unirrigated (viii) Gap filling (ix) 95.3cm. (x) 28.9.64.

2. TREATMENTS:

Main-plot treatments :

5 levels of N : N_0=0, N_1=28, N_2=56, N_3=84 and N_4=112Kg/ha.

Sub-plot treatments :

3 varieties : V_1=Local (Jaunpuri), V_2=K. 14I and V_3=Hybrid Ganga 101.

3. DESIGN:

(i) Split-plot (ii) (a) 5 main-plots/replication; 3 sub-plots/main-plot (b) N.A. (iii) 4 (iv) (a) 1.22m×3.04m (b) 1.04m×2.29m (v) 97cm×37cm (vi) Yes.

4. GENERAL:

(i) Good (ii) Nil (iii) Yield of grain (iv) (a) 1964—only (b) and (c) Nil (v) to (vii) Nil.

5. RESULTS :

(i) 3303Kg/ha. (ii) (a) 934.6Kg/ha. (b) 493.2Kg/ha. (iii) Main effects of V is highly significant (iv) Av. yield of grain in Kg/ha.

	N_0	N_1	N_2	N_3	N_4	mean
V_1	3756	3593	3823	4547	4167	3977
V_2	2456	2841	3337	3625	2945	3041
V_3	1821	2570	3176	3406	3555	2906
mean	2678	3001	3445	3859	3556	3308

C.D. for V marginal means=321.8 Kg/ha.

Crop :- Maize (*Kharif*). **Ref :- U.P. 62 (257).**

Site:-Govt. Reg. Agri. Res. Stn., Meerut. **Type :- 'MV'.**

Object :—To study the effect of different varities under two levels of fertility.

1. BASAL CONDITIONS :

(i) (a) N A. (b) *Berseem* for fodder (c) 10Kg/ha of N as A/S+40Kg/ha of P_2O_5 as Super (ii) Loam (iii) 30.6.62 (iv) (a) 1 ploughing by soil turning plough and 4 ploughings by *Deshi* plough (b) By dibbling (c) 7 to 9Kg/ha (d) 76cm × 30cm (e) 2 seeds/hole (v) 89.6Kg/ha. of P_2O_5 + 44.8Kg/ha of K_2O prior to sowing (vi) As per treatment (vii) Irrigated (viii) Weeding and hoeing (ix) 60.0cm. (x) 5.10.62.

2. TREATMENTS

Main-plot treatments :

9 varieties : V_1=Ganga 1, V_2=Ganga 101, V_3=Ranjit, V_4=Deccan, V_5=V.L. 54, V_6=Malan White, V_7=Rudrapur White, V_8=Indore and V_9=Local T. 41.

Sub-plot treatments :

2 levels of fertilizers : F_1=22.4Kg/ha of N at the time of seeding + 22.4Kg/ha of N when plant are 90cm high and F_2=22.4Kg/ha of N at the time of seeding + 44.8Kg/ha of N when plant are about 90cm high + 44.8Kg/ha of N when plants flower.

Note : - Manuring done on 31.7.62 and 17.8.62.

3. DESIGN :

(i) Split-plot (ii) (a) 9 main-plots/relecation, 2 sub-plots/main-plot (b) 9.14m × 109.73m (iii) 3 (iv) (a) 9.14m × 6.09m (b) 8.23m × 4.57m (v) 46cm × 76cm (vi) Yes.

4. GENERAL :

(i) Not satisfactory, crop sufficiently lodged (ii) Attack of borer, Spraying with 0.25% D.D.T. at 1.4Kg in 673.8 litres of water/ha on 30.7.62 and 14.8.62, (iii) % germination, and yield of grain (iv) (a) 1962—only (b) and (c) Nil (v) to (vii) Nil.

5. RESULTS :

(i) 2052Kg/ha (ii) (a) 930.9Kg/ha. (b) 627.6Kg/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	V_8	V_9	mean
F_1	1849	1427	1770	1609	1145	2432	2573	2533	1648	1887
F_2	2050	1709	1468	2110	2069	2614	3276	2955	1709	2218
mean	1649	1568	1619	1860	1607	2523	2924	2744	1679	2052

Crop :- Maize (*Kharif*). **Ref. :- U.P.65 (289).**

Site :-G.B. Pant University of Agri. & Technology, Pantnagar. **Type :- 'MV'.**

Object :—To study the response of several germ plasms to additions of micro-nutrient fertilizer.

1 BASAL CONDITIONS:

(i) (a) to (c) N.A. (ii) N.A. (iii) 12.7.65 (iv) (a) 1 ploughing and 1.2 harrowings (b) By dibbling (c) — (d) 75cm × 25cm (e) 2 seeds/hole (v) Nil (vi) As per treatments (vii) Unirrigated (viii) Thinning, weeding and earthing (ix) 69.4cm (x) 14 10.65.

2. TREATMENTS

Main-plot treatments :

7 Germ plasms : V_1=Pusa culture, V_2=Maxican June composite, V_3=S_1 S_1 III, V_4=Amnillo de cuba. V_5=Darado, V_6=Hybrid and V_7=Local.

Sub-plot treatments :

6 Micro-nutrients : M_0=Control, M_1=10Kg/ha of Borex, M_2=15Kg/ha of Copper Sul. M_3=17.5Kg/ha of Mg. Sul. M_4=65/ha of Mn. Sul. and M_5=15Kg/ha of Zn. Sul.

3. DESIGN:

(i) Split-plot (ii) (a) 7 main-plots/replication, 6 sub-plots/main-plot. (b) N.A. (iii) 3 (iv) (a) 10.00m × 3.00m (b) 10.00m × 1.50m (v) Two rows on either side (vi) Yes.

4. GENERAL:

(i) Good (ii) Incidence of pest, spraying with Endrin (iii) Yield of grain (iv) (a) 1965—67 (b) No (c) Nil (v) and (vi) Nil. (vii) Plot-wise yield data N.A.

5. RESULTS:

(i) 3424Kg/ha (ii) (a) 363.7Kg/ha (b) 190.5Kg/ha (iii) Main effect of V is highly significant (iv) Av. yield of grain in Kg/ha .

Treatments :	V_1	V_2	V_3	V_4	V_5	V_6	V_7
Av. yield :	3270	2930	3160	2750	2630	4860	4370

Treatments:	M_0	M_1	M_2	M_3	M_4	M_5
Av. yield:	3510	3580	3320	3210	3490	3364

C.D. for V means=670.0Kg/ha.

Crop :- Maize (*Kharif*). **Ref :- U.P. 64 (477), 65(287)**

Site :. G.B. Pant University of Agri. & Technology, Pantnagar. **Type :-'MV'**

Object : —To study the response of three hybrids and one open pollinated variety of Maize to different rates of N.

1. BASAL CONDITIONS:

(i) (a) N.A. (b) Fallow; Wheat (c) N.A. (ii) N.A. (iii) 17/18.7.64; 5.7.65 (iv) (a) One ploughing by mould—board plough followed by two harrowings and one levelling (b) By dibbling; by hand corn planter (c) N.A. (d) 91cm × 20cm; 75cm × 25cm (e) 2 seeds/hole (v) 80Kg/ha of P_2O_5 as Super and 80Kg/ha of K_2O as Mur. Pot. at sowing (vi) As per treatments (vii) Unirrigated; irrigated (viii) 3 weedings, earthing and thining for 64; 1 weeding for 65 (ix) 138.4cm; 69.9cm (x) 1.11.64; 24.10.65.

2. TREATMENTS

Main-plot treatments :

4 varieties : V_1=Ganga Hybrid Mabba-101, V_2=Ganga Hybrid Mabba-3, V_3=Ganga Safed Hybrid Mabba-2 and V_4=Rudrapur local.

Sub-plot treatments :

5 levels of N as A/S : N_0=0, N_1=50, N_2=100, N_3=150 and N_4=200Kg/ha. of N.
1/3 dose of N at sowing, 1/3 dose of N topdressed at bnee high crop stage and 1/3 dose of N at the time of tassaling.

3. DESIGN:

(i) Split-plot (ii) (a) 4 main-plots/replication; 5 sub-plots/main-plot. (b) N.A.; 21.30m × 58.00m (iii) 4 (iv) (a) 60 sq. m. ; 10.00m × 5.50m (b) 30 sq. m; 10.00m × 3.60m (v) N.A.; 45cm either side (vi) Yes.

4. GENERAL :

(i) N.A., Good (ii) *Chilo Zonellus* in Boths years ; 6Kg Endrid grounds/ha in the whorles of plants in 64 and 7.5Kg Endin grounds in the wholes of plants applied in 65. (iii) Germination %, height of plant; No. of green leaves, dry weight of plants; total plant stand; No. of preliminary cobs and grain yield (iv) (a) 1964—65 (b) N.A. (c) Nil (v) and (vi) Nil (vii) The expt. was sprayed with Tafazine (SOW) at 2.5Kg. in 909 litres of water/ha. in 1965. As the sub-plot error variancee are heterogeneous, the results of the individual years have been presented under 5. Results.

5. RESULTS :

64 (477)

(i) 4064Kg/ha (ii) (a) 761.6Kg/ha (b) 540.0Kg/ha (iii) Main effect of V is significant (iv) Av. yield of grain in Kg/ha.

	N_0	N_1	N_2	N_3	N_4	mean
V_1	3505	3557	3241	3530	3772	3522
V_2	4129	4409	4706	4033	4714	4398
V_3	4893	4197	5244	4920	4783	4807
V_4	3519	3731	3197	3607	3591	3529
mean	4011	3974	4097	4023	4215	4064

C.D. for V marginal means=544.7Kg/ha.

65 (287)

(i) 4475Kg/ha (ii) (a) 1134.5Kg/ha (b) 842.2Kg/ha (iii) Main effect of N alone is significant. (iv) Av. yield of grain Kg/ha.

	N_0	N_1	N_2	N_3	N_4	mean
V_1	1965	4305	4297	5550	5109	4245
V_2	2185	4364	5087	6337	6855	4966
V_3	3313	3678	5120	4598	5129	4368
V_4	3177	4507	4072	4772	5075	4321
mean	2660	4214	4644	5314	5542	4475

C.D. for N marginal means = 599.2Kg/ha

Crop :- Maize (*Kharif*). **Ref. :- U.P. 64 (177).**

Site :- Govt. Reg. Agri. Res. Stn., Varanasi. **Type :- 'MV'**

Object : — To study the effect of different levels of N and spartin on different varieties of Maize.

1. BASAL CONDITIONS:

(i) (a) N.A. (b) Wheat (c) 92.2Q/ha of compost + 22.4Kg/ha of N as A/S (ii) Sandy loam (iii) 5.7.64 (iv) (a) One ploughing by Care plough and one by *Deshi* plough (b) Sown behind *Deshi* plough (c) 25Kg/ha (d) 61cm × 23cm (e) — (v) 74Kg/ha of P_2O_5 as Super + 49.4Kg/ha of K_2O as Pot. Sul. (vi) As per treatments (vii) Nil (viii) Hoeing and weeding (ix) 95.3cm (x) 23.9.64.

2. TREATMENTS :

Main-plot treatments :

4 varieties : V_1 = Jaunpuri, V_2 = KT. 41, V_3 = Ganga Hyb. 1 and V_4 = Ganga Hyb. 101.

Sub-plot treatments: All the combinations (1) and (2)

(1) 2 levels of Spartin : $S_0 = 0$ and $S_1 = 370.7$Kg/ha of Spartin.

(2) 4 levels of N as A/S : $N_0 = 0$, $N_1 = 20$, $N_2 = 40$ and $N_3 = 60$Kg/ha.

Note : $\frac{1}{2}$ N and Spartin applied at sowing and $\frac{1}{2}$ N top dressed on 25.7.64.

3. DESIGN :

(i) Split-plot (ii) (a) 4 main-plots/replication; 8 sub-plots/main-plot (b) 18.28m × 26.82m (iii) 2 (iv) (a) 3.88m × 2.43m (b) 3.05m × 1.22m (v) 41cm × 61cm (vi) Yes.

4. GENERAL :

(i) Good (ii) Nil (iii) Yield of grain and green plants (iv) (a) 1964—only (b) and (c) Nil. (v) and (vii) Nil (vii) Being late in maturity Ganga 101 was damaged by birds after harvest of other varieties Ganga 1 was also harvested a little earlier when it started maturing. to avoid bird damage.

5. RESULTS :

(i) 4276Kg/ha (ii) (a) 1217.4Kg/ha (b) 559.2Kg/ha (iii) Main effect of N is highly significant and interaction V×S is significant (iv) Av. yield of grain in Kg/ha.

	S_0	S_1	N_0	N_1	N_2	N_3	mean
V_1	5267	5200	3312	4071	6013	7538	5234
V_2	3275	3705	1310	2849	4575	5227	3490
V_3	4468	3739	1727	3541	4844	6302	4104
mean	4337	4215	2116	3487	5144	6356	4276
N_0	2490	1742					
N_1	3507	3467					
N_2	4967	5321					
N_3	6383	6329					

C.D. for N marginal means=474.8Kg/ha.

C.D. for S means at the same level of V=581.6Kg/ha.

C.D. for V means at the same level of S=170.5Kg/ha.

Crop :- Maize (*Kharif*). **Ref :- U.P. 65(538).**

Site :- Allahabad Agri. Instt., Allahabad. **Type :- 'C'**

Object :— To study the comparative performance of seed-bed preparation practices on the yield of Maize.

1. BASAL CONDITIONS :

(i) (a) Nil (b) and (c) N.A. (ii) Sandy loam (iii) 22.7.65 (iv) (a) As per treatments (b) Sown with a bullock drawn seed-cum-fertilizer drill (c) N.A. (d) 61cm×15cm (e) — (v) 56Kg/ha. of N as A/S+54Kg/ha of P_2O_5 as Super+54Kg/ha of K_2O as Pot. Sul. (vi) Jaunpur yellow (vii) Irrigated (viii) One interculture by wheel hoe. (ix) 14.2cm (x) N.A.

2. TREATMENTS:

8 cultural treatments :

T_1=Field cultivator ran 4 times, T_2=Field cultivator ran 8 times, T_3=Field cultivator ran 12 times, T_4=Ploughings once and disc harrowings twice, T_5=Ploughing once and disc harrowings thrice, T_6=Ploughings twice and disc harrowings thrice, T_7=Pata—Tillage once and T_8=Ploughing once.

3. DESIGN

(i) R.B.D. (ii) (a) 8 (b) N.A. (iii) 3 (iv) (a) 12.20m×6.10m (b) 40 square meter (v) N.A. (vi) Yes.

4. GENERAL:

(i) Lodging occured after 5 weeks of planting to the extent of 26 to 35% (ii) N.A. (iii) Yield of grain (iv) (a) 1965—only (b) and (c) Nil (v) and (vi) N.A. (vii) Plot-wise yield data N.A.

5. RESULTS

(i) 4866Kg/ha (ii) N.A. (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	T_6	T_7	T_8
Av. yield :	4500	4800	4800	4880	4850	4610	5460	5460

Crop :- Maize (*Kharif*) **Ref :- U.P. 62(468).**

Site.-Allahabad Agri. Instt., Allahabad. **Type :- 'C'.**

Object : To see the influence of associated crops on the growth and yield of maize.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Sandy loam (iii) 3rd week of June, 62 (iv) (a) to (c) N.A. (d) 60cm × 30cm for maize and one row of other crops on between two rows of maize (e) — (v) 22.4Kg/ha of N+33.6Kg/ha of P_2O_5 +22.4Kg/ha of K_2O applied in two equal instelments (vi) Maize Rangit (Hyb.) (vii) and (viii) N.A. (ix) 115.6cm (x) N.A.

2. TREATMENTS

T_0=Maize alone, T_1=Maize grown in association withs *Guar* (for folder), T_2=Maize grown in association with *Til* (harvested for grain) and T_3=Maize grown in association with *Sannhemp* (for seed).

3. DESIGN:

(i) R.B.D. (ii) (a) 4 (b) N.A. (iii) 4 (iv) and (v) N.A. (vi) Yes.

4. GENERAL:

(i) Due to vigorous growth of *Sannhemp*, Maize plants in T_4 were weak and small. (ii) N.A. (iii) Yield of cobs and grain. (iv) (a) 1962—only (b) and (c) Nil (v) to (vii) Nil.

5. RESULTS:

(i) 1247Kg/ha. (ii) N.A. (iii) Treatment differences are not significant (iv) Av. yield of Maize grain in Kg/ha.

Treatment:	T_0	T_1	T_2	T_3
Av. yield :	1024	1703	1413	846

Crop :- Maize (*Kharif*). **Ref :-U.P. 60 (128)**

Site :- Govt. Reg. Agri. Res. Stn., Hardoi **Type :-'C'.**

Object :—To study the effect of inter—cultures on the yield of Maize.

1. BASAL CONDITIONS :

(i) (a) Nil (b) and (c) N.A. (ii) Sandy loam (iii) 21.7.60 (iv) (a) to (c) N.A. (d) Rows 61cm apart (e) — (v) Nil (vi) T—41 (vii) Unirrigated (viii) As per treatments (ix) 56.7cm (x) 14.10.60.

2. TREATMENTS

3 intercultural treatments : T_0=Nil, T_1=2 and T_2=4 intercultures.

3. DESIGN :

(i) R.B.D. (ii) (a) 3 (b) N.A. (iii) 3 (iv) (a) and (b) 2.74m×14.63m (v) Nil (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of grain (iv) (a) 1960—only (b) and (c) Nil (v) to (vii) Nil.

5. RESULTS :

(i) 242.6Kg/ha (ii) 121.7Kg/ha (iii) Treatment differences are not significant (iv) Av. yield of grain in Kg/ha.

Treatment :	T_0	T_1	T_2
Av. yield :	166.8	217.3	343.7

Crop :- Maize (*Kharif*). **Ref :- U.P. 60 (12), 61 (8), 62 (14)**

Site :- State Soil Cons. Res., Demons and Trg. Centre, Rehmankhera. **Type :-'C'.**

Object :—To study the effect of sowing Maize on flat plots and on ridges 46cm. apart from centre to centre across the slope and up and down the slope.

1. BASAL CONDITIONS :

(i) (a) Maize—Barley + Gram/Gram (b) Gram + Barley for 61; Gram for others (c) Nil (ii) Loamy sand (iii) 19.7.60; 12.7.61; 16.7.62 (iv) (a) N.A. (b) As per treatments in lines opened by hand hoe. (c) 18.5Kg/ha (d) 46cm×23cm (e) — (v) 33.6Kg/ha of N as A/S broadcasted and mixed in' 60; 22.4Kg/ha of N as G.N.C. broadcasted and mixed with cultivator in 61; 22.4Kg/ha of N as cal. Amm., Sul. top—dressed at weeding in 62 (vi) Type—41 (vii) N.A. (viii) As per treatments + 1 weeding (ix) N.A. (x) 7.10.60; 25.27.9.61; N.A.

2. TREATMENTS:

All combinations of (1) and (2):

(1) 3 methods of sowing: M_1=Sown by broadcast, M_2=Sown on flat up and down the slope and M_3=Sown on flat across the slope.

(2) 2 earthings: E_0=No earthing and E_1=Earthing.

Note: Earthing done 1–2 weeks after germination; Slope=1.79% in 60, 2.12% in '61 and '62.

3. DESIGN:

(i) Fact. in R.B.D. (ii) (a) 6 (b) 38.10m×21.34m (iii) 4 (iv) (a) 18.29m×6.71m (b) 17.07×5.49m (v) 61cm×61cm (vi) Yes.

4. GENERAL

(i) Good (ii) Attack of *Blister beetle*; crow and jackals in 60 (iii) Germination %, yield of grain and strow (iv) (a) 1960–62 (b) Yes. (c) Nil (v) and (vi) Nil (vii) Residual effect tested on Gram crop in '60, on Barley + Gram mixture in 61 and' 62. As the error variances are heterogeneous and Treatments×years interaction is absent, the results of individual years have been presented under 5- Results.

5. RESULTS:

60 (12)

(i) 2882Kg/ha (ii) 321.2Kg/ha (iii) None of the effects is significant. (iv) Av. yield of grain in Kg/ha

	M_1	M_2	M_3	mean
E_0	2676	2933	2737	2782
E_1	2854	3039	3053	2982
mean	2765	2986	2895	2882

61 (8)

(i) 2436Kg/ha (ii) 258.0Kg/ha. (iii) None of the effects is significant. (iv) Av. yield of grain in Kg/ha.

	M_1	M_2	M_3	mean
E_0	2248	2630	2454	2444
E_1	2282	2569	2433	2428
mean	2265	2599	2443	2436

62 (14)

(i) 1390Kg/ha (ii) 149.4Kg/ha (iii) Only interaction E×M is significant. (iv) Av. yield of grain in Kg/ha.

	M_1	M_2	M_3	mean
E_0	1381	1298	1392	1357
E_1	1181	1530	1560	1424
mean	1281	1414	1476	1390

C.D. for the body of M×E table=225.1Kg/ha.

Crop :- Maize (*Kharif*) **Ref :- U.P. 60 (368); 61 (377); 62 (403); 63 (475); 64 (578)**

Site : -Central Soil Cons. Res. Stn., Selakui. **Type :- 'C'.**

Object :—To develope a system of conservation farming on terraced land. To evolve suitable spacifications of channel terraces in respect of vertical interval and channel grade and to study the performance of board —based and narro—based bunds from maintenance point of view.

1. BASAL CONDITIONS:

(i) (a) Maize—Wheat (b) Wheat (c) 44.8Kg/ha of N+44 8Kg/ha of P_2O_5 for 60 and 61, 48Kg/ha of N+58Kg/ha of P_2O_5 for others (ii) Silty loam to silty clay loam (iii) 5 to 15.7.60 resowing—4th week of July 60; 22.6.61 ; 22.6.62; 25.6.63; 1.7.64 (iv) (a) 1—2 ploughings by disc. plough and 2 –4 harrowings. (b) Sown by seed drill in lines (c) 23Kg/ha for 60 and 35Kg/ha for others (d) Rows 60cm. apart. (e)— (v) 15Kg/ha of N+96Kg/ha of P_2O_5 as Super; ½ N as basal and 1/2 N top dressed with 1st weeding; 1½ trucks load of city compost/ha was also applied (vi) American hybrid for 60; Local for 61 and 62; Chakrota for 63 and N.A. for 64 (vii) Unirrigated (viii) 2 weedings (ix) 116.9cm; 146.9cm; 145.7cm; 129.6cm; 130.2cm (x) 15.10.60; 22.9 to 2.10.61; 2nd week of Oct, 62; 20.9.63; 10.10.64.

2. TREATMENTS:

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

(1) 2 Terrace spacings (vertical interval) : A_1=S/2+2 and A_2=S/2+3, whose S is slope %.

(2) 2 Terrace sections : B_1=Broad—based (cross section 6268 Sq. cm and B_2=Narrow—based (cross section 6969 sq. cm.

(3) 2 Channel Grades : C_1=12.2cm/3048cm and C_2=18.3cm/3048cm.

3. DESIGN:

(i) 2^3 confd., second order interaction confounded (ii) (a) 4 plots/block: 2 blocks/replication (b) Different sizes as no regular shape is available. (iii) 1 (iv) (a) — (b) Different plot sizes from 0.6878ha to 1.11.29ha. (v) Nil (vi) Yes.

4. GENERAL :

(i) Normal (ii) Damage by wild pigs for 61, Damage due to locust, pigs and monkeys in 62 (iii) Run off and soil loss meesured from June to Sept., yield of grain; yield of stalk for 63 and 64 (iv) (a) 1959—Contd. (1n 1965 (*Kharif*) was taken *Moong* for G.M. continued.) (b) Yes (c) Nil. (v) and (vi) Nil (vii) Weeds were a seviour problem. Plot wise yield data—N.A.

5. RESULTS:

60 (368)

(i) 595.2 Kg/ha. (ii) 143.6Kg/ha. (iii) None of the effects is significant (iv) Av. yield of grain in Kg/ha.

Treatment :	A_1	A_2	B_1	B_2	C_1	C_2
Av. yield :	661.2	529.2	572.2	618.1	600.2	590.2

61 (377)

(i) 563.9Kg/ha. (ii) 130.6Kg/ha. (iii) None of the ffects is significant (iv) Av. yield of grain in Kg/ha.

Treatment :	A_1	A_2	B_1	B_2	C_1	C_2
Av. yield :	576.8	551.1	602.5	525.4	609.4	518.5

62 (403)

(i) 541.5Kg/ha (ii) 68.5Kg/ha (iii) Main effects of A is significant (iv) Av. yield of grain in Kg/ha.

Treatment :	A_1	A_2	B_1	B_2	C_1	C_2
Av. yield :	626.7	456.5	569.9	513.2	513.3	569.8

C.D. for A marginal means=154.1 Kg/ha.

63 (475)

(i) 203.0Kg/ha. (ii) 66.8Kg/ha (iii) None of the effects is significant (iv) Av. yield of grain in Kg/ha.

Treatment :	A_1	A_2	B_1	B_2	C_1	C_2
Av. yield :	262.4	143.7	246.6	159.5	204.6	201.5

64 (578)

(i) 479.4Kg/ha (ii) 71.7Kg/ha (iii) None of the effects is signlficant (iv) Av. yield of grain in Kg/ha.

Treatment :	A_1	A_2	B_1	B_2	C_1	C_2
Av. yield :	498.3	460.4	451.9	506.9	493.0	465.7

Crop:-Maize (*Kharif*). **Ref.:-U.P. 65 (434).**

Site:-Central Soil Cons. Res. Stn. Selakin. **Type :-'C'**

Object :—To determines the relative efficiency of mechanical practices on slopping cultivated lands.

1. BASAL CONDITIONS :

(i) (a) Wheat—Maize—Pea (b) Wheat (c) 45Kg/ha of N+22.5Kg/ha of P_2O_5 (ii) Loam (iii) 3 -8.7.65 (iv) (a) One ploughing by disc harrow and 2 harrowings (b) By seed—drill (c) 19.8Kg/ha (d) Rows 60cm apart (e) — (v) 90Kg/ha of N as C/A/N+45Kg/ha of P_2O_5, 1/2 N as basal and 1/2 N top—dressed (vi) Hybrid Maize (vii) Unirrigated (viii) 2 weedings, 1 earthing (ix) 102.6cm (x) 26.10.65.

2. TREATMENTS:

4 cultural treatments : T_0=Up and down cultivation (control), T_1=Contour farming, T_2=Channel terraces with contour farming and T_3=Channel terraces with graded furrow.

3. DESIGN:

(i) R.B.D. (ii) (a) 4 (b) N.A. (iii) 2 (iv) (a) and (b) 100.00m×20.00m (v) Nil (vi) Yes.

4. GENERAL :

(i) Normal (ii) Nil (iii) Yield of grain and straw (iv) (a) 1965—contd. (b) Yes. (c) Nil. (v) and (vi) Nil (vii) Land slop=4%. Maize and Pea rotation is followed in this Expt.

5. RESULTS :

(i) 920.0Kg/ha (ii) 250.2Kg/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:	747.5	825.0	537.5	1570.0

Crop:- Maize (*harif*). **Ref:- U.P. 62 (414); 63 (496); 64 (607); 65 (460).**

Site: State Soil Cons. Res. Demons and Trg. Centre, Majkhali. Type :-'CV'.

Object :—To find out the suitable time of sowing Maize crop.

1. BASAL CONDITIONS :

(i) (a) Maize—Wheat—Wheat (b) Wheat (c) N.A. (ii) Sandy loam (iii) As per treatments (iv) (a) 2 ploughings by *Deshi* plough and 2 diggings by spade (b) Line sowing (c) 23Kg/ha (d) 46cm×23cm (e) — (v) 44.8Kg/ha of N as town compost broadcasted+67.3Kg/ha of N as C/A/N broad casted and top—dressed+89.7Kg/ha of P_2O_5 as Super for 62 to 64. 45Kg/ha of N+45Kg/ha of P_2O_5+45Kg/ha of K_2O for 65 (vi) As per treatments (vii) Unirrigated (viii) 2.3 weedings by '*Kutata* (ix) N.A. (x) 17.9.62 to 20.11.62; N.A. for others.

2. TREATMENTS :

All combinations of (1) and (2)

(1) 2 varieties : V_1=Local and V_2=VL—54

(2) 3 Dates of sowing : D_1=7th June, D_2=22nd June and D_3=7th July.

3. DESIGN:

(i) Fact ia R.B.D. (ii) (a) 6 (b) N.A. (iii) 6 (iv) (a) and (b) 4.57m×2.44m (v) Nil (vi) Yes.

4. GENERAL :

(i) Good (ii) Nil (iii) Yield of grain and fodder (iv) (a) 1962—Contd. (b) Yes (c) Nil (v) and (vi) Nil (vii) As the expt. is contd. beyond 65, the results of individual years have been presented under 5. Results.

5. RESULTS :

62 (414)

(i) 5002Kg/ha (ii) 2079.1Kg/ha (iii) Main effects of V and D are highly significant. (iv) Av. yield of grain in Kg/ha.

	D_1	D_2	D_3	mean
V_1	4917	2810	181	2636
V_2	11614	6846	3647	7369
mean	8265	4828	1914	5002

C.D. for V marginal means=1427.6Kg/ha

C.D. for D marginal means=1749.1Kg/ha.

63 (496)

(i) 3154Kg/ha. (ii) 723.2Kg/ha (iii) Main effects of V and D and interaction V×D are highly significant. (iv) Av. yield of grain in Kg/ha.

	D_1	D_2	D_3	mean
V_1	1822	1417	311	1183
V_2	8049	4956	2366	5124
mean	4935	3187	1338	3154

C.D. for V marginal means=496.6Kg/ha.

C.D. for D marginal means=608.1Kg/ha.

C.D. for the body table=860.0Kg/ha.

64 (607)

(i) 4098Kg/ha (ii) 1268.5Kg/ha (iii) Main effects of V and D are highly significant. (iv) Av. yield of grain in Kg/ha.

	D_1	D_2	D_3	mean
V_1	4462	1324	1659	2482
V_2	7742	4200	5201	5715
mean	6102	2762	3430	4098

C.D. for V marginal means=870.9Kg/ha.

C.D. for D marginal means=1066.6Kg/ha.

65 (460)

(i) 3877Kg/ha (ii) 445.2Kg/ha (iii) Main effects of V and D are highly significant. (iv) Av. yield of grain in Kg/ha.

	D_1	D_2	D_3	mean
V_1	2847	2272	2078	2399
V_2	6188	5176	4702	5355
mean	4518	3724	3390	3877

C.D. for V marginal means=305.7Kg/ha.

C.D. for D marginal means=374.4Kg/ha

Crop :- Maize (*Kharif*). **Ref :- U.P. 64 (476)**

Site :- G.B. Pant University of Agri. & Technology, Pantnagar **Type :- 'CV'.**

Object :—To study the response of various germplasms sources to dates of planting.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) N.A. (iii) As per treatments (iv) (a) One ploughing and 1—2 harrowings (b) By dibbling (c)— (d) 75cm×25cm (e) One seed/hole (v) Nil (vi) As per treatments (vii) Irrigated (viii) Thinning, weeding and earthing (ix) 146.7cm (x) 26.9.64 to oct. 64.

2. TREATMENTS:

Main-plot treatments :

5 Dates of sowing : D_1=10th June, D_2=20th June, D_3=30th June, D_4=10th July and D_5=20th July.

Sub-plot treatments :

7 germ plasms : V_1=Pusa culture×Bosi, V_2=Maxiean June composite, V_3=S.S. III, V_4=Adecuba, V_5=Doeto, V_6=G. 101 and V_7=Local.

3. DESIGN :

(i) Split-plot (ii) (a) 5 main-plots/replication, 7 sub-plots/main-plots (b) N.A. (iii) 4 (iv) (a) 3.00m × 10.00m (b) 1.50m × 10.00m. (v) One row on either side (vi) Yes.

4. GENERAL:

(i) Good (ii) Incidence by pests, spraying with Endrine (iii) Height, day required silking, lodging and yield of grain (iv) (a) 1964—Contd. (N.A. for 65) (b) No (c) Nil (v) and (vi) Nil (vii) Plot—wise yield data N.A.

5. RESULTS :

(i) 3079Kg/ha (ii) (a) and (b) N.A. (iii) Main effects of D and V are highly significant. (iv) Av. yield of grain in Kg/ha.

Treatment :	D_1	D_2	D_3	D_4	D_5
Av. yield :	4403	3293	3191	2799	1707

Treatment :	V_1	V_2	V_3	V_4	V_5	V_6	V_7
Av. yield :	3253	3399	2037	2872	2674	4143	3175

Crop :- Maize (*Kharif*). **Ref :- U.P. 65(151)**

Site :- R.B.S. College, Bichpuri. **Type :- 'CM'.**

Object :—To study the effect of methods of sowing, plant density and levels of N on growth, yield and quality of Maize.

1. BASAL CONDITIONS :

(i) (a) Nil (b) Wheat (c) N.A. (ii) Sandy loam (iii) 20.6.65 (lv) (a) Palewa and 1 ploughing 2 harrowings by tractor (b) As per treatments (c)— (d) Row to row 75cm plant to plant 22.5, 28.0 and 37.5cm (e)— (v) 90Kg/ha of P_2O_5 as Super + 90Kg/ha of K_2O as Mur. Pot. at sowing (vi) Ganga No. 3 (hybrid) (vii) Irrigated (viii) 2 weedings and gap filling (ix) 40 26cm (x) N.A.

2. TREATMENTS :

Main-plot treatments :

3 methods of sowing : M_1=Sowing behind the plough (furrow sowing), M_2=Sowing behind the plough followed by earthing (at Knee-high stage) M_3=Sowing on sidges (8cm deep placement).

Sub-plot treatments : All combinations of (1) and (2) :

(1) 4 levels of N as A/S : N_0=0, N_1=60, N_2=120 and N_3=180Kg/ha.

(2) 3 plant densities : D_1=35555, D_2=47619 and D_3=59259 plants/ha.

N was applied in 3 split doses 40% at sowing, 40% at Knee high stage (24.7.65). and 20% on 15.8.65.

3. DESIGN :

(i) Split-plot (ii) (a) 3 main-plots/replication and 12 sub-plots/main-plot (b) 91.50m×32.00m (iii) 3 (iv) (a) 10.50m×7.50m (b) 9.00m×6.00m (v) 75cm×75cm (vi) Yes.

4. GENERAL :

(i) Good (ii) Insects infestation (iii) Yield of cobs and grain (iv) (a) and (b) 1965—only (c) Nil (v) to (vi) Nil (vii) Plot—wise yield data N.A.

5. RESULTS :

(i) 1363Kg/ha (ii) (a) 1432.3Kg/ha (b) 599.1Kg/ha (iii) Main effects of N and D are significant (iv) Av. yield of grain in Kg/ha.

Treatment	M_1	M_2	M_3	N_0	N_1	N_2	N_3
Av. yield :	1433	1553	1103	1240	1280	1320	1610

Treatment :	D_1	D_2	D_3
Av yield:	1210	1370	1509

C.D. for N means=320.8Kg/ha

C.D, for D means=277.8Kg/ha.

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Crop :- Maize (*Kharif*). **Ref :- U.P. 62 (259)**

Site :- Govt. Reg. Agri. Res. Stn., Meerut. **Type :- 'CM'.**

Object :—To determine the factors for maximising production of Maize.

1. BASAL CONDITIONS:

(i) (a) Nil (b) and (c) As per treatments (ii) Loam (iii) 29.6.62 (iv) (a) One ploughing by soil turrning plough and 3 -4 ploughings by *Deshi* plough (b) Behind the plough in lines (c) 14Kg/ha (d) 45cm apart (e) — (v) Nil (vi) Maize T-41 (vii) Irrigated (viii) Weeding, hoeing and thinning (ix) 33.4 cm. (x) 11.9.62.

2. TREATMENTS :

Main-plot treatments :

3 crop rotations : C_1=Wheat—Maize, C_2=Potato—Maiz and C_3=Pea—Maize.

Sub-plot treatments : All combinations of (1) and (2)

(1) 3 levels of Irrigation applied to *Rabi* crops : I_1=3 weeks after sowing for wheat and Pea; after every 3 weeks for Potato, I_2=3 and 6 weeks after sowing for wheat and Pea; After every fortnight for Potato and I_3=3 and 6 weeks after sowing and at milky stage for wheat and Pea; After every week for Potato.

(2) 3 levels of fertility applied to *Rabi* and *Kharif* crops : F_0=Nil, F_1=22.4Kg/ha of N+22.4Kg/ha of P_2O_5+22.4Kg/ha of K_2O+45Q/ha of F.Y.M. for Wheat; 5.6Kg/ha of N+28Kg/ha of P_2O_5 for Pea; 44.8Kg/ha of N+44.8Kg/ha of P_2O_5+44.8Kg/ha of K_2O+92Q/ha of F.Y.M. for Potato and Maize and $F_2=2\times F_1$.

Note : N as A/S, P_2O_5 as Super and K_2O as Pot. chloride. The intensity of Irrigation for Maize during *Kharif* season will be the same for all plots.

3. DESIGN:

(i) Split-plot (ii) (a) 3 main-plots/replication; 9 sub-plots/main-plot (b) 47.09m × 66.14m (iii) 2 (iv) (a) and (b) 15.09m × 6.40m (v) Nil (vi) Yes.

4. GENERAL:

(i) Good (ii) Attack of top borer, 0.25% D.D.T. at 3.37Kg. in 667 liters of water/ha. sprayed on 1,8.62 (iii) Yield of grain (iv) (a) 1962—64 (Expt. failed in 63 and 64 due to heavy and combinations raims) (b) Yes (c) Nil (v) N.A. (vi) and (vii) Nil.

5. RESULTS:

(i) 1121Kg/ha (ii) (a) 284.8Kg/ha (b) 261.3Kg/ha (iii) Main effect of F is highly significant and interaction C×I is significant. (iv) Av. yield of grain in Kg/ha.

	I_1	I_2	I_3	F_0	F_1	F_2	mean
C_1	1092	1366	1123	1088	1092	1401	1194
C_2	994	924	1200	951	1092	1075	1039
C_3	1082	916	1394	820	1382	1190	1131
mean	1056	1069	1239	953	1189	1222	1121
F_0	875	1049	936				
F_1	1167	963	1437				
F_2	1127	1194	1345				

C.D. for F marginal means=226.8Kg/ha.

C.D. for C at the same level of I=366.0Kg/ha.

C.D. for I means at the same levels of C=311.4Kg/ha.

Crop :- Maize (*Kharif*). **Ref :-U.P. 64 (466).**

Site :- G.B. Pant University of Agri. and Technology.

Pantnagar. **Type :- 'CM'.**

Object :—To study the effect of soil compaction and fertility levels on soil properties and performance of Hybrid - Maize.

1. BASAL CONDITIONS:

(i) (a) Nil (b) Fallow (c) Nil (ii) Sandy loam (iii) 14.7.64 (iv) (a) One ploughing and two cross harrowings in Ist week of July and levelling (b) By dibbling (c) — (d) 91cm × 20cm (e) 2 seeds/hole (v) 67.3Kg/ha of P_2O_5 as Super at sowing (vi) Ganga Hyb. Makka—3 (vii) Nil (viii) 3 weedings on 2, 3rd Aug, 21, 22nd Aug. and 7/8 Sept. 64 Thinning on 29.7.64 (ix) 121.2cm (x) 31.10.64.

2. TREATMENTS :

Main-plot treatments :

3 Methods of compaction :

C_1=Normal compaction (as found under normal Maize culture) C_2=Moderate compaction (20 movements of light tractor sear wheels locked forth) C_3=Severe compaction (13 movements of heavy troctor sear wheel back and forth).

Sub-plot treatments :

2 levels of N as A/S : N_0=0 and N_1=136Kg/ha of N.

Note :—2/3 dose of N was applied at sowing, remaing 1/3 dose at Knee—high stage as top dress. Compaction treatment were given after fertilizer application and a day before sowing.

3. DESIGN :

(i) Split-plot (ii) (a) 3 main-plots/replication; 2 sub-plots/main-plot (b) N.A. (iii) 6 (iv) (a) 7.32m×9.14m (b) 3.66m×9.14m (v) 2 rows on either side (vi) Yes.

4. GENERAL :

(i) Good (ii) Nil (iii) Plant population containing, lodged and normal plants counting, girth measurement, total dry matter,/plot, (iii) Yield of grain and stray (iv) (a) 1964—only (b) and (c) Nil (v) and (vi) N.A. (vii) Nil.

5. RESULTS :

(i) 3489Kg/ha (ii) (a) 266.8Kg/ha (b) 182.6Kg/ha (iii) Main effects of C and N are significant. (iv) Av. yield of grain in Kg/ha.

	C_1	C_2	C_3	mean
N_0	3876	3285	2480	3214
N_1	4321	3706	3263	3763
mean	4099	3496	2872	3489

C.D. for C Marginal means=242.7Kg/ha

C.D. for N Marginal means=129.7 Kg/ha

Crop :- Maize (*Kharif*) **Ref :- U.P. 64 (472)**

Site :- G.B. Pant University of Agri. and Technology, Pantnagar. **Type :- 'CM'.**

Object :—To study the effect of methods of planting and levels of N on the performance of Hybride Maize in *Tarai* region.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) N.A. (iii) 15.7.64 (iv) (a) One ploughing and 1 - 2 harrowings (b) Dibbling (c) — (d) 75cm×25cm (e) 2 seeds/hole (v) Nil (vi) Ganga—3 (Early) (vii) Unirrigated (viii) Weeding, thinning and earthing (ix) 138.4cm (x) 15.10.64.

2. TREATMENTS:

Main-plot treatments :

3 methods of planting: M_1=Ridge planting, M_2=Flat planting and earthing afterwards and M_3=Flat planting and no earthing.

Sub-plot treatments:

3 levels of N : N_0=0, N_1=100 and N_2=200Kg/ha.

3. DESIGN :

(i) Split-plot (ii) (a) 3 main-plots/replication; 3 sub-plots/main-plot (b) N.A. (iii) 4 (iv) (a) 3.00×10.00m (b) 1.50m×10.00m (v) One row on either side (vi) Yes.

4. GENERAL :

(i) N.A. (ii) Incidence by pests, Spraying with Endrin (iii) Yield of grain (iv) (a) 1964—only (b) and (c) — (v) to (vii) Nil.

5. RESULTS :

(i) 3542Kg/ha (ii) (a) 1077.3Kg/ha. (b) 419.1Kg/ha (iii) Main effect of M is significant. (iv) Av. yield of grain in Kg/ha.

	N_0	N_1	N_2	mean
M_1	2666	2869	2705	2747
M_2	4105	3992	4038	4045
M_3	3847	4108	3554	3836
mean	3539	3656	3432	3542

C.D for M marginal means=1076.1Kg/ha

Crop :- Maize (*Kharif*). **Ref :- U.P. 64 (465).**

Site :- G.B. Pant University of Agri. & Technology, Pantnagar. **Type :- 'CM'.**

Object : — To study the effect of four plant populations and five rates of Nitrogen fertilization on the performance of Hybrid Maize in *Tarai* conditions.

1. BASAL CONDITIONS:

(i) (a) to (c) N.A. (ii) N.A. (iii) 11.7.64 (iv) (a) One deep ploughing followed by two harrowings by tractor and levelling (b) By dibbling (c) — (d) As per treatments (e) 2 seeds/hole (v) 80Kg/ha of P_2O_5 as Suder+ 60Kg/ha of K_2O as Mur. Pot. at sowing time (vi) Ganga safed Hyb. *Makka*—2 (vii) Nil (viii) 1—2 weedings, thinning and two earthings (ix) 109.9cm (x) 22 10.64.

2. TREATMENTS :

Main-plot treatments :

4 plant population : P_1=40000 plants/ha (plant spacing 33.33cm), P_2=50000plants/ha (plant spacing 26.66cm), P_3=60000 plants/ha (plant spacing 22.22cm) and P_4=70000 plants/ha (plant spcing 19.05cm).

Sub-plot treatments :

5 levels of N as A/S : N_0=0, N_1=50, N_2=100, N_3=150 and N_4=200Kg/ha.

Note :—2/3 dose of N applied at sowing time and remaining 1/3 dose of N top dressed at knee high stage on 8.8.64.

3. DESIGN:

(i) Split-plot (ii) (a) 4 main-plots/replication; 5 sub-plots/main-plote (b) 55.50m×17.00m (iii) 4 (iv)(a) 10.00×4.50m (b) 10.00m×3.00m. (v) One row on either side (vi) Yes,

4. GENERAL:

(i) N.A. (ii) *Chilo Zonnellus*, Endrin grannules @ 10Kg/ha (ii) Germination count, plant stand, height of plants, incidence of stalk-rot, length of ear, grains/ear, wt. of 1000 Kennels, yield of grain (iv) (a) and (b) 1964—only (c) Nil (v) to (vii) Nil.

5. RESULTS :

(i) 4908Kg/ha (ii) (a) 873.3Kg/ha (b) 746.7Kg/ha (iii) None of the effects is significant. (iv) Av. yield of grain in Kg/ha.

	N_0	N_1	N_2	N_3	N_4	mean
P_1	4753	4313	4811	4343	4617	4567
P_2	4860	5064	4821	4780	4796	4864
P_3	4692	5086	5445	5268	5501	5198
P_4	5099	5035	4952	5079	5219	5077
mean	4851	4875	5007	4868	5033	4908

Crop :- Maize (*Kharif*). **Ref. :-U.P. 60(81), 61(86), 62(75).**

Site :- State Soil Cons. Res., Demons. & Trg. Centre, Rehmankhera. **Type .-'CM'.**

Object :—To study the effect of shrallow and deep cultivation on the yield of Maize while using differen spacings and different levels of fertility.

1. BASAL CONDITIONS :

(i) (a) Maize–Barley/Gram (b) Barley for 60; Gram for' 61 (c) Nil (ii) Loamy sand to sandy loam (iii) 27.7.60; 19-20.7.61; 20.7.62 (iv) (a) As per treatments (b) Sown in furrows opened by hand hoe. (c) N.A. (d) Rows as per treatments and plants 23cm apart (e) 2 seeds/hole thinned to 1 plant/hill (v) 138Q/ha of F.Y.M. for 60; 11Q of G.M. in whole field for 61 and Nil for 62 (vi) T—41 (vii) Unirrigated (viii) 1 - 2 weedings (ix) N.A. (x) 8.10.60; 4.10.61; 11.10.62.

2. TREATMENTS :

Main-plot treatments :

2 types of ploughing : C_1=Shallow ploughings (10cm. deep) with the help of country plough and cultivators and C_2=Deep ploughings (20cm. deep) with the help of inverting plough and tractor disc harrow.

Sub-plot treatments :

3 row spacings : S_1=23, S_2=46 and S_3=91cm.

Sub-Sub-plot treatments :

3 levels of N : N_0=0, N_1=56 and N_2=112Kg/ha.

Sub-Sub-Sub-plot treatments :

2 levels of P_2O_5 as Super : P_0=0 and P_1=44.8Kg/ha.

N as A.S.N. in 60, 61 and C/A/N in 62—Super. placed at about 13 cm. deep with the help of soil turning ploughing (U.P. No. 2) through funnal along the length of the row and N broadcasted at the time of last ploughing.

3. DESIGN :

(i) Split-plot (ii) (a) 2 main-plots/replication, 3 sub-plots/main-plot, 3 sub-sub-plots/sub-plot, 2 sub-sub-sub-plots/sub-sub-plot. (b) 98.76m×29.26m (iii) 3 (iv) (a) 9.14m×7.32m (b) 8,53m×6.71m (v) 30cm×30cm (vi) Yes.

4. GENERAL :

(i) Crop water logged in 60 crop poor in some plots in 61. Crop growth satisfactory but slightly lodged in some plots in 62. (ii) Attacks of Blister bettle, crow and jackal for 60. Nil for 61; Damage by crow and rats in 62. (iii) Germination %, stand, yield of grain and *bhusa* (iv) (a) 1960 - 62 (b) Yes (c) The results of combined analysis have been presented under 5. Results. (v) Nil (vi) Residual effect tested on Gram in 60 and on Barley in 61 and 62. (vii) All the error variances are homogeneous. Main-plot treatment ×years interaction is absent; sub-plot treatments×years interaction is present; sub-sub-plot treatments× years interaction is present and Sub-sub-sub-plot treatments×years interaction is absent.

5. RESULTS :

Pooled results :

(i) 2187Kg/ha (ii) (a) 1062Kg/ha ((based on 8 d.f made up of pooled error and C×year interaction) (b) 1285Kg/ha (based on 8 d.f. made up of S×years and (C×S)×years interaction) (c) 1158Kg/ha (based on 16 d.f. made up of (C×N)×years, N×years and (N×S)× years interactions) (d) 279.1Kg/ha (based on 120 d.f. made up of pooled error and P×years; (P×C)×years; (P×S)×years and (P×N)×years interactions) (iii) Main effects of S, N and interaction N×P are highly significant and that of P is significant. (iv) Av. yield of grain in Kg/ha.

	S_1	S_2	S_3	N_0	N_1	N_2	P_0	P_1	mean
C_1	2275	2445	1735	1564	2312	2580	2144	2160	2152
C_2	2475	2393	1801	1646	2347	2676	2165	2281	2223
mean	2375	2419	1768	1605	2329	2628	2154	2220	2187
P_0	2356	2412	1695	1634	2220	2609			
P_1	2395	2425	1841	1575	2439	2647			
N_0	1608	1813	1393						
N_1	2520	2675	1793						
N_2	2998	2768	2118						

C.D. for N marginal means=290.0Kg/ha.

C.D. for S marginal means=403.1Kg/ha.

C.D. for P marginal means=334.0Kg/ha.

C.D. for P means at the same level of N=106.3Kg/ha.

C.D. for N means at the same levels of P=342.4Kg/ha.

Individual results :

Treatment	C_1	C_2	Sig.	S_1	S_2	S_3	Sig.	N_0	N_1	N_2	Sig.
Year 1960	2067	2309	N.S.	2018	2529	2017	**	1366	2309	2889	*
1961	2432	2500	N.S.	2967	2563	1868	**	2306	2526	2566	*
1962	1956	1860	N.S.	2141	2164	1419	**	1142	2153	2429	**
Pooled	2152	2223	N.S.	2375	2419	1768	**	1605	2329	2628	**

P_0	P_1	Sig.	G.M.	S.E./plot Main	Sub	Sub-sub	Sub-sub-sub
2172	2204	**	2187	1029	676.1	468.2	303.5
2471	2461	N.S.	2466	904	373.4	398.4	224.1
1820	1996	**	1908	1366	576.6	290.7	277.8
2154	2220	*	2187	1062	1285	1158	273.6

Crop :- Maize (*Kharif*). **Ref:-U.P. 63 (479)**

Site :- Central Soil Cons. Res. Stn., Selakui. **Type :- 'CM'.**

Object :—To study the residual effect of micro-nutrients applied to grasses on Maize.

1. BASAL CONDITIONS :

(i) (a) Nil (b) and (c) As per treatments (ii) Loam (iii) 30.6.63 (iv) (a) 1 ploughing by disc-plough and 2 harrowings (b) By seed-drill (c) 19.8Kg/ha (d) Rows 61cm apart (e) — (vi) Nil (vi) Local (vii) Unirrigated (viii) 3 weedings (ix) 112.3cm (x) Middle of Oct., 1963.

2. TREATMENTS :

All combinations of (1) and (2)

(1) 3 previous crops : G_1=Chloris gayana (Rhodes gress), G_2=Bracharia mutica (Para gress) and G_3=Cynodon plectostachyum (Giant Stargren).

(2) 10 micro-nutrient treatments : T_1=No fertilizer T_2=Basal dose of 45Kg/ha of N+67.5Kg/ha of P_2O_5/ha T_3=T_2 + all micros (Cu, Mo, Zu, B, Mn, Mg) T_4==T_3 minus Cu, T_5=T_3 minus Mo, T_6=T_3 minus Zn, T_7=T_3 minus B, T_8=T_3 minus Mn, T_9=T_3 minus Mg and T_{10}=T_2+Mo only.

Micro-nutrient doses : The micro-nutrients were applied at the rate of : Cu. at 22.5Kg/ha as Copper Sul. Mo at 40g/ha as Ammonium Molybdate, Zn, at 11.25Kg/ha as Zinc sul. B at 2.25Kg/ha as Borax, Mn at 5.5Kg/ha as Maganess Sul. Mg at 28.1Kg/ha as Magnesium Sul. The micro-nutrients were applied as broadcasted to grass in 1959 only.

3. DESIGN :

(i) Fact. in R.B.D. (ii) (a) 30 (b) 45.11m×60.34m (iii) 3 (iv) (a) and (b) 14.63m×5.49m (v) Nil (vi) Yes.

4. GENERAL:

(i) and (ii) N.A. (iii) Height of plants, No. of leaves, Yield of grain and stalk (iv) (a) 1963—only (b) and (c) Nil (v) and (vi) — (vii) The expt. on grasses was conducted from 1959 to 62.

5. RESULTS:

(i) 480.0Kg/ha (ii) 164.7Kg/ha (iii) None of the effects is significant. (iv) Av. yield of grain in Kg/ha.

	T_1	T_2	T_3	T_4	T_5	T_6	T_7	T_8	T_9	T_{10}	mean
G_1	444.1	477.3	431.6	693.1	439.9	435.8	643.3	581.0	581.0	518.8	524.6
G_2	452.4	361.1	726 3	585.2	601.8	589.3	348.6	415.0	415 0	294.7	478.9
G_3	311.3	473.1	452.4	427.5	352.8	684 8	498.0	340.0	318.6	477.3	436.6
mean	402.6	437.1	536 8	568 6	464.8	570.0	496.6	445.4	488.2	430.2	480 0

Crop :- Maize (*Kharif*). **Ref- U.P. 63(482), 64(582), 65(427).**

Site :-Central Soil Cons. Res. Stn., Selakaui. **Type :-'CM'.**

Object:—To investigate the minimum possible ploughings necessary for Maize cultivation in addition to fertilization.

1. BASAL CONDITIONS

(i) (a) Maize—Pea (b) Scrub forest for 63, Pea for others (c) Nil (ii) Loam (iii) 296.63; 30.6.64; 4.7.65 (iv) (a) As per treatments (b) Drilling in lines (c) 20Kg/ha (d) Rows 60cm apart (e) N.A. (v) Nil (vi) Local Maize (vii) Unirrigated (viii) One weeding for 64, 65; hoeing and earthing for 65 (ix) 110.8 cm; 130.2cm; 101.0cm (x) 24.9.63; 30.9.64; 2.10.65.

2. TREATMENTS:

Treatments in one direction :

3 manurial treatments : M_1=90Kg/ha of N+45Kg/ha P_2O_5 (Normal dose) $M_2=1.5\times M_1$ and $M_3=2\times M_1$

Treatments in orthogonal direction :

5 tillage treatments : T_0=No ploughing, T_1=One, T_2=Two, T_3=Three, T_4=Four ploughings with *Deshi* plough.

3. DESIGN :

(i) Strip-plot (ii) (a) 3 strips in one direction and 5 strips in orthogenal direction (b) 33.22m×22.56m (iii) 4 (iv) (a) and (b) 7.31m×6.40m (v) Nil (vi) Yes.

4. GENERAL :

(i) Good; crop lodged due to rains on 11.8.64 (11.4mm) and on 12.8.64 (49.2mm) and crop could not raise itself in 64 (ii) Nil, (iii) No. of leaves, plant height for 63 ; Yield of grain and stalk. (iv) (a) 1963—65 (b) Yes (c) Nil. (v) and (vi) Nil (vii) As error variances for M×T interaction is heterogeneneous, the results for the invividual years have been presented under 5. Results.

5. RESULTS :

63 (482)

(i) 2291Kg/ha (ii) (a) 1033.8Kg/ha (b) 466.6Kg/ha (c) 340.3Kg/ha (iii) None of the effects is significant. (iv) Av. yield of grain in Kg/ha.

	M_1	M_2	M_3	mean
T_0	2181	2433	2353	2322
T_1	2647	2321	2196	2388
T_2	1955	2160	2056	2057
T_3	2203	2643	2282	2376
T_4	2460	2375	2110	2315
mean	2289	2386	2199	2291

64 (582)

(i) 702Kg/ha (ii) (a) 640.0Kg/ha (b) 288.1Kg/ha (c) 196.9Kg/ha (iii) None of the effects is significant. (iv) Av. yield of grain in Kg/ha.

	M_1	M_2	M_3	mean
T_0	658	1139	647	815
T_1	518	769	473	587
T_2	595	842	604	680
T_3	458	971	505	645
T_4	514	1175	662	784
mean	549	979	578	702

65 (427)

(i) 3224Kg/ha (ii) (a) 580.1Kg/ha (b) 574.7Kg/ha (c) 413.4Kg/ha (iii) None of the effects is significant. (iv) Av. yield of grain in Kg/ha.

	M_1	M_2	M_3	mean
T_0	2906	3062	3454	3141
T_1	2756	3540	3497	3264
T_2	2912	3320	2810	3014
T_3	3282	3701	3358	3447
T_4	3051	3180	3524	3252
mean	2981	3361	3329	3224

———

Crop :- Maize (*Kharif*). **Ref :- U.P. 64(730).**

Site :- Govt. Reg. Agri. Res. Stn., Amrukh **Type :- "CMV.**

Object: —To find out suitable date of sowing and levels of N o i different varieties of Maize.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) *Kabar* and *Parwa* (iii) As per treatments (iv) (a) 2 to 3 ploughings by *Bakhar* plough (b) Line sowing (c) — (d) N.A. (e) — (v) Nil (vi) As per treatments (vii) Irrigated (viii) Hoeing and weeding (ix) 106.6cm (x) 28.9.64, 3, 20, 22.10.64.

2. TREATMENTS :

Main-plot treatments :

2 dates of sowing : S_1=21.6.64 and S_2=23.7.64.

Sub-plot treatments :

5 levels of N : N_0=0, N_1=28, N_2=56, N_3=84 and N_4=112Kg/ha.

Sub-Sub-plot treatments :

4 varieties : V_1=Local, V_2=Maize T—41, V_3=Ganga hybrid—101 and V_4=Ganga hybrid—1

3. DESIGN:

(i) Split-plot (ii) (a) 2 main-plots/replication; 5 sub-plot/main-plot; 4 sub-sub plot/sub-plot (b) N.A. (iii) 3 (iv) (a) 9.14m×5.49m (b) 8.53m×4.27m (v) 30.5cm×61.0cm. (vi) Yes.

4. GENERAL:

(i) Good (ii) Nil (iii) Yield of grain (iv) (a) 1964—only (b) and (c) Nil (v) to (vi) Nil. (vii) V_4 was excluded from analysis.

5. RESULTS :

(i) 1618Kg/ha (ii) (a) 458.2Kg/ha (b) 445.9Kg/ha (c) 420.9Kg/ha (iii) Main effect of N is highly significant. (iv) Av. yield of grain in Kg/ha.

	N_0	N_1	N_2	N_3	N_4	V_1	V_2	V_3	mean
S_1	1488	2022	2504	2111	2358	2041	2091	2160	2097
S_2	504	803	1431	1330	1626	1097	1295	1023	1138
mean	996	1413	1968	1721	1992	1569	1693	1592	1618
V_1	999	1305	1923	1735	1891				
V_2	1043	1579	1822	1960	2061				
V_3	949	1354	2160	1471	2029				

C.D. for V marginal means=272.9Kg/ha.

Crop:-Maize (*Kharif*). **Ref :- U.P. 64 (292).**

Site :- Govt. Res. Agri. Res. Stn., Meerut. **Type :-'CMV'.**

Object :—To find out the suitable dates of sowing and levels of N for different varieties of Maize.

1. BASAL CONDITIONS :

(i) (a) Nil (b) Wheat (c) N.A. (ii) Loam (iii) As per treatments (iv) (a) One ploughing by soil turning plough and 3– 4 ploughings by *Deshi* plough (b) Behind the plough in lines (c) 23Kg/ha (d) Rows 61cm apart (e) One plant/hole after thinning (v) 67.3Kg/ha of P_2O_5 as Super applied as basal placement (vi) As per treatments (vii) Irrigated (viii) 2 weedings and thinning (ix) 103.5cm (x) 16.9 to 25.10.64.

2. TREATMENTS :

Main-plot treatments :

2 dates of sowing : S_1=Sowing on breack of monsoon (19.7.64) and S_2=Sowing on 15th June with irrigation (16.6.64).

Sub-plot treatments :

5 levels of N : N_0=0, N_1=28, N_2=56, N_3=84 and N_4=112Kg/ha. of N.

Sub-sub-plot treatments :

4 varieties : V_1=Local, V_2=K T—41, V_3=Hybrid Ganga—1 and V_4=Hybrid Ganga—101.

3/10 part of N at sowing and 7/10 part of N as top dressing when plants were 30—61cm tall. Topdressing of N in S_1 on 28.8.64 and in S_2 on 20.7.64.

3. DESIGN :

(i) Split-plot (ii) (a) 2 main-plots/replication, 5 sub-plots/main-plot, 4 sub-sub-plots/sub-plot (b) 104.85m × 22.55m (iii) 3 (iv) (a) 4.27m × 12.49m (b) 3.05m × 11.89m (v) 61cm × 30cm (vi) Yes.

4. GENERAL :

(i) Good in S_2 and poor in S_1 (ii) Shoot-borer in early stapes, Endrin applied (iii) Germination %, No. of plants at harvesting and yield of grain. (iv) (a) 1964—65 modified in 65 (b) No. (c) Nil (v) to (vii) Nil.

5. RESULTS :

(i) 534.5Kg/ha (ii) (a) 177.7Kg/ha (b) 225.8Kg/ha (c) 199.6Kg/ha. (iii) Main effects of N and V are highly significant. Interactions S×N and N×V are significant. (iv) Av. yield of grain in Kg/ha.

	V_1	V_2	V_3	V_4	N_0	N_1	N_2	N_3	N_4	mean
S_1	294.3	796.7	390.0	783.8	308.1	487.5	510.5	758.9	765.8	566.2
S_2	471.0	625.5	334.8	579.5	262.1	413.9	565.7	517.4	754.3	502.7
mean	382.7	711.1	362.4	681.7	285.1	450.7	538.1	638.2	760.1	534.5
N_0	239.1	349.5	243.7	308.1						
N_1	335.7	607.1	312.7	547.3						
N	482.9	694.5	386.3	588.7						
N_3	367.9	791.1	427.7	965.9						
N_4	487.5	113.1	441.5	998.1						

C.D. for N marginal means=142.1Kg/ha.

C.D. for V marginal means=102.9Kg/ha.

C.D. for S means at the same level of N=381.2Kg/ha.

C.D. for N means at the same level of S=200.5Kg/ha.

C.D. for N means at the same level of V=189.4Kg/ha.

C.D. for V means at the same level of N=230.3Kg/ha.

Crop :- Maize (*Kharif*). **Ref :- U.P. 65(103).**

Site :-Govt. Reg. Agri. Res. Stn., Meerut. **Type :- 'CMV'**

Object : To find out the suitable dates of sowing and levels of N for different varieties of Maize.

1. BASAL CONDITIONS:

(i) (a) Nil (b) Wheat (c) N.A. (ii) Sandy loam (iii) As per treatments (iv) (a) 1 ploughing with soil turning plough, 2 ploughing by *Deshi* plough and 2 plankings with *Deshi Patu* (b) Dibbling by *Khurpi* (c) 15Kg/ha (d) 61cm×30cm (e) 1 plant/hole after thinning (v) 28Kg/ha of N as NS+45Kg/ha of P_2O_5 as Super+ 34Kg/ha of K_2O as Pot. Sul. + 92.2Q/ha of Compost (vi) As per treatments (vii) Irrigated (viii) 3 weedings by *Khurpi* (ix) 56.2cm (x) For S_1: V_1=4.9.65, V_2=9.9.65, V_3=27.9.65, V_4=21.9.65 and for S_2 : V_1=18.9.65, V_2=22.9.65, V_3=29.9.65, V_4=29.9.65.

2. TREATMENTS :

Main-plot treatments :

2 dates of sowing : S_1=Sowing with the break of *Monsoon* (2.7.65, gap filling on 13.7.65) and S_2=Sowing on 15th June with irrigation (18.6.65, gap filling on 28.6.65).

Sub-plot treatments :

4 varieties : V_1=Local Maize, V_2=K.T--41, V_3=Ganga No—101 and V_4=Safeda—2.

Sub-sub-plot treatments :

4 levels of N as A/S : N_0=0, N_1=28, N_2=56 and N_3=84Kg/ha of N.

3. DESIGN :

(i) Split-plot (ii) (a) 2 main-plots/replication; 4 sub-plots/main-plot; 4 sub-sub-plots/sub-plot (b) 104.85m × 17.98m (iii) 3 (iv) (a) 4.27m × 12.50m (b) 3.05m × 11.89m (v) 61cm × 30cm (vi) Yes.

4. GENERAL :

(i) Good (ii) Inciden of stem—borer, controlled by spraying of 0.025% Endrin on 19.7.65 and 30.7.65 (iii) Total No. of plants/plot, total No. plants bearing cobs, germination of No. of cobs/plot, and yield of dry cobs (iv) (a) 1964-65 (Modified in 1965) (b) No (c) Nil (v) and (vi) Nil (vii) Yield of grain was calculated by taking it equal to 75% of dry cobs.

5. RESULTS :

(i) 1693Kg/ha (ii) (a) 1118.6Kg/ha (b) 740.0Kg/ha (c) 322.8Kg/ha (iii) Main effects of V and N and Interaction V × N are highly significant. (iv) Av. yield of grain in Kg/ha.

	V_1	V_2	V_3	V_4	N_0	N_1	N_2	N_3	mean
S_1	1291	1820	616	1282	1023	1103	1248	1636	1252
S_2	2629	2447	1399	2059	1804	1891	2371	2468	2134
mean	1960	2134	1008	1671	1414	1497	1810	2052	1693
N_0	1521	2142	519	1471					
N_1	1944	1700	933	1411					
N_2	1880	2201	1163	1995					
N_3	2496	2491	1416	1806					

C.D. for V marginal means=465.5 Kg/ha.

C.D. for N marginal means =187.5Kg/ha.

C.D. fer N means at the same level of V=375.1Kg/ha.

C.D. for V means at the same level of N=567.2Kg/ha.

Crop :- Maize (*Kharif*). **Ref:-U.P. 65(31).**

Site :- Govt. Res. Agri. Res. Stn., Nawabgunj. **Type:- 'CMV'.**

Object :—To find out the best dates of sowing and N levels for diffrent varieties of Kybrid Maize.

1. BASAL CONDITIONS :

(i) (a) Nil (b) Potato (c) N.A. (ii) Clay loam (iii) As per treatments (iv) (a) Two ploughings and application of *Pata* (b) Behind the plough in lines (c) 25Kg/ha (d) 61cm×30cm (e) - (v) 92Q/ha of F.Y.M+44.8Kg/ha of P_2O_5+33.6Kg/ha of K_2O (vi) As per treatments (vii) Irrigated (viii) 3 hoeings and weedings (ix) N.A. (x) 25.9.65 to 7.10.65.

2. TREATMENTS :

Main-plot treatments :

2 dates of sowing : S_1=Pre-*Monsoon* sowing (20.6.65) and S_2=At the break of *Monsoon* (1.7.65).

Sub-plot treatments :

4 levels of N: N_1=28, N_2=56, N_3=84 and N_4=112Kg/ha.

Sub-sub-plot treatments :

5 varieties : V_1=Local Maize, V_2=Maize T 41, V_3=Maize Hy. Ganga 3, V_4=Maize Hy. Ganga 101 and V_5=Maize Hy. Suffaid 2.

3. DESIGN :

(i) Split-plot (ii) (a) 2 main-plots/replication; 4 sub-plots/main-plot; 5 sub-sub-plots/sub-plot (b) N.A. (iii) 3 (iv) (a) 9.14m×4.88m (b) 8.53m×3.66m (v) 30cm×61cm (vi) Yes.

4. GENERAL :

(i) Good (ii) Nil (iii) Yield of grain (iv) (a) 1964 –only (b) and (c) – (v) to (vii) Nil.

5. RESULTS :

(i) 2834Kg/ha (ii) (a) 367.6Kg/ha (b) 952.3Kg/ha (c) 590.0Kg/ha (iii) Main effect of V alone is highly significant. (iv) Av. yield of grain in Kg/ha.

	N_1	N_2	N_3	N_4	V_1	V_2	V_3	V_4	V_5	mean
S_1	3086	3396	3342	3033	2790	1842	4031	2990	4418	3214
S_2	2712	2517	2352	2233	1749	1695	3135	2204	3485	2454
mean	2899	2956	2847	2633	2269	1769	3583	2597	3952	2834
V_1	2563	2403	2082	2029						
V_2	1735	1762	2029	1548						
V_3	3839	3753	3406	3334						
V_4	2389	2635	2638	2726						
V_5	3970	4229	4082	3527						

C.D. for V marginal means=340.4Kg/ha.

Crop :- Maize (*Kharif*). **Ref :- U.P. 65 (48)**

Site :- Govt. Reg. Agri. Res. Stn., Varanasi. **Type :- 'CMV'**

Object : To find out the suitable time of sowing and manurial dose for five varieties of Maize for Eastern region of U.P.

1. BASAL CONDITIONS:

(i) (a) (b) Wheat and *Arhar* (c) N.A. (ii) (a) Loam. (iii) As per treatments (iv) (a) 3 to 4 ploughings by *Deshi* plough (b) Line sowing (c) 19.8Kg/ha (d) 30cm×75cm (e) - (v) 44.8Kg/ha of P_2O_5+33.6Kg/ha of K_2O. (vi) As per treatments (vii) Irrigated (viii) One hoeing by *Kudali* (ix) N.A. (x) 13 to 25.9.65.

2. TREATMENTS:

Main-plot treatments :

2 dates of sowing : D_1=20.6.65 (Pre-*monsoon* sowing with *Palewa*) and D_2=6.7.65 (*Monsoon* sowing).

Sub-plot treatments :

5 levels of N : N_1=28, N_2=56, N_3=84, N_4=112 and N_5=140Kg/ha.

Sub-sub-plot treatments :

5 varieties : V_1=Jaunpuri, V_2=K.T. 41, V_3=Ganga Hyb. 3, V_4=Ganga Hyb. 101 and V_5=Ganga a Hyb. Suffaid.

3. DESIGN:

(i) Split-plots (ii) 2 main-plots/replication, 5 sub-plots/main-plot and 5 sub-sub-plots/sub-sub-plot (iii) 3 (iv) (a) and (b) 9.14m×2.28m (v) Nil (vi) Yes.

4. GENERAL:

(I) Good (ii) Nil (iii) Yield of grain (iv) (a) 1965—only (b) and (c) Nil (v) to (vii) Nil.

5. RESULTS:

(i) 3862Kg/ha (ii) (a) 1908.9Kg/ha (b) 764.8Kg/ha (c) 466.9Kg/ha (iii) Main effect of N and V and interaction D×V and N×V are highly significant. (iv) Av. yield of grain in Kg/ha.

	N_1	N_2	N_3	N_4	N_5	V_1	V_2	V_3	V_4	V_5	mean
D_1	2723	3487	4309	4475	4823	4187	3283	4295	3687	4365	3963
D_2	2654	3499	3931	4157	4567	4345	3702	4145	2488	4129	3762
mean	2688	3493	4120	4316	4695	4266	3492	4220	3088	4247	3862
V_1	3004	4029	4703	4701	4892						
V_2	2803	3278	3834	3693	3853						
V_3	2827	3886	4398	4392	5596						
V_4	1902	2785	3130	3849	3771						
V_5	2905	3487	4535	4943	5363						

C.D. for N marginal means=418.4Kg/ha.
C.D. for V marginal means=240.2Kg/ha
C.D. for D means at the same level of V=1338.5Kg/ha.
C.D. for V means at the same level of D=339.8Kg/ha.
C.D. for N means at the same level of V=637.0Kg/ha.
C.D. for V means at the same level of N=537.2Kg/ha.

Crop :- Maize (*Kharif*). **Ref :- U.P. 64** (M.A.E.)

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

Object :—Type XIII—To study the effect of dates of sowing and levels of N, P and K on different varieties of Maize.

1. BASAL CONDITIONS :

(i) (a) to (c) N A. (ii) Loam (iii) As per treatments (iv) and (v) N.A. (e) — (vi) As per treatments (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 = Two weeks before normal date of planting, D_2 = Normal date of planting and D_3 = Two weeks after date of planting.

(2) 3 varieties : V_1 = Local (standard), V_2 = Hybrid—1 and V_3 = Hybrid 2.

(3) 3 levels of N : N_0 = 0, N_1 = 70 and N_2 = 140Kg/ha.

All combinations of (1) and (2)

(1) 2 levels of P_2O_5 : P_0 = 0 and P_1 = 20Kg/ha.

(2) 2 levels of K_2O : K_0 = 0 and K_1 = 100Kg/ha.

3. DESIGN :

(i) Split-plot confd. (ii) (a) 3 blocks/replication, 9 main-plots/block, 4 sub-plots/main-plot (b) N.A. (iii) 1 (iv) (a) 1/200ha. (b) 1/250ha (v) N A. (vi) Yes.

4. GENERAL :

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

5. RESULTS :

(i) 4067Kg/ha (ii) (a) 997.6Kg/ha (b) 459.8Kg/ha (iii) Main effects of V, and N are highly significant. (iv) Av. yield of grain in Kg/ha.

	D_1	D_2	D_3	V_1	V_2	V_3	N_0	N_1	N_2	P_0	P_1	mean
K_0	4245	4254	3788	3273	4923	4090	3256	4345	4685	4198	3993	4096
K_1	4567	3979	3571	2985	4797	4335	2877	4356	4883	4096	3982	4039
mean	4406	4117	3679	3129	4860	4213	3067	4351	4784	4147	3988	4067
P_0	4479	4253	3710	3122	4884	4435	3212	4436	4793			
P_1	4333	3981	3649	3136	4836	3991	2922	4266	4775			
N_0	3283	3063	2854	2325	3632	3244						
N_1	4892	4230	3931	3526	5115	4412						
N_2	5043	5057	4252	3536	5833	4983						
V_1	3197	3377	2813									
V_2	5696	4822	4062									
V_3	4325	4151	4163									

C.D. for V or N marginal means—576Kg/ha.

Crop :- Maize (*Kharif*). **Ref :- U.P. 62 (469).**

Site :- Allahabad Agri. Instt.; Allahabad. **Type :- 'D'.**

Object: To study the effect of two different herbicides as compared to weeding with and without nitrogen on the yield of Maize.

1. BASAL CONDITIONS.

(i) (a) to (c) N.A. (ii) Sandy loam (iii) to (viii) N.A. (ix) 45.6cm (x) 20.10.62.

2. TREATMENTS:

Main-plot treatments:

2 levels of N : N_0=0 and N_1=67.2Kg/ha.

Sub-plot treatments:

4 weedings : W_0=Unweeded, W_1=Complete weeding, W_2=2, 4 D pre-emergence application of spontox @ 1.1Kg/ha W_3=Eptan pre-emergence application of Eptan 6E @ 9Kg/ha.

3. DESIGN :

(i) Split-plot (ii) (a) 2 main-plots/replication; 4 Sub-plots/main-plot (b) 18.29m×24.38m (iii) 4 (iv) (a) and 6.10m×9.14m (v) Nil (vi) Yes.

4. GENERAL:

(i) and (ii) N.A. (iii) No. of plants/plot on different dates, weedes/sq. m., height of plants, No of cobs plants population and yield of stover and cobs. (iv) (a) 1962—only (b) and (c) Nil (v) to (vii) N.A.

5. RESULTS:

(i) 2861Kg/ha. (ii) (a) 1182.7Kg/ha. (b) 578.1Kg/ha (iii) Main effects of N and W are highly significant. (iv) Av. yield of grain in Kg/ha.

	W_0	W_1	W_2	W_3	mean
N_0	565	983	2050	732	1083
N_1	4498	4414	6067	3577	4639
mean	2531	2699	4058	2155	2861

C.D. for N marginal means=1330.5Kg/ha.

C.D. for W marginal means=607·3Kg/ha.

Crop :- Maize (*Kharif*). **Ref :- U.P. 63(72).**

Site :- Govt. Agri. College, Kanpur. **Type :- 'D'.**

Object :—To test the efficency of different seed—dressing fungicides on germination.

1. BASAL CONDITIONS :

(i) (a) Nil (b) and (c) N.A. (ii) Sandy loam (iii) 24.7.63 for I series and 30.8.63 for II series. (iv) (a) and (b) N.A. (c) 25 seeds/row (d) N.A. (e) — (v) to (viii) N.A. (ix) 46.2cm. (x) N.A.

2. TREATMENTS :

6 fungicidal treatments: T_0=Control, T_1=Cerean, T_2=Hexasan, T_3=Thiran, T_4=Flit 406, and T_5=Agrosan G.N.

3. DESIGN :

(i) R.B.D. (ii) (a) 6 (b) N.A. (iii) 2 (iv) (a) and (b) N.A. (v) Nil (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) % Germination (iv) (a) 1963—only (b) and (c) Nil (v) to (vii) Nil.

5. RESULTS :

Series I

(i) 58.71 degrees (ii) 8.35 degrees (iii) Treatment defferences are significant (iv) % germination in degrees.

Treatment :	T_0	T_1	T_2	T_3	T_4	T_5
Mean angle in degrees :	47.90	49.64	71.68	49.75	65.81	67.50

C.D.=21.5 degree

Series II

(i) 52.32 degrees (ii) 11.43 degrees (iii) Treatment differences are not significant. (iv) % germination in degrees.

Treatment :	T_0	T_1	T_2	T_3	T_4	T_5
Mean angle in degrees.	59.41	54.79	43.24	50.24	51.42	54.80

Crop :- Maize (*Kharif*) **Ref :-U.P. 64(60).**

Site :- Govt. Res. Farm. Kanpur. **Type :-'D'**

Object :—To study the effect of different seed—dressing fungicides on the germination,

1. BASAL CONDITIONS

(i) (a) to (c) N.A. (ii) Sandy loam (iii) 26.6.64 (iv) (a) N.A. (b) Line sowing (c) 20 seeds/row. (d) 46cm × 15cm (e) — (v) to (viii) N.A. (ix) 66.7cm (x) N.A.

2. TREATMENTS :

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

(1) 4 fungicides: F_1=0.28 %, Agrosan G.N. F_2=0.20%, Flit -406, F_3=0.28% Thiran and F_4=0.33% Ceresan.

(2) 3 times of application of seed treatments : T_1=Same day of sowing, T_2=One week before sowing and T_3=Two weeks before sowing.

3. DESIGN :

(i) R.B.D. (ii) (a) 13 (b) 3.7m×6.5m (iii) 4 (iv) (a) and (b) Single row of 3.7m length (v) Nil (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Germination counts on 2.7.64 and stand of plants on 5.9.64 (iv) (a) 1964—only (b) and (c) Nil (v) and (vi) Nil (vii) Germination poor in Rep. I due to birds.

5. RESULTS :

Germination percentage

(i) 42.46 degrees (ii) 6.93 degrees (iii) None of the effects is significant. (iv) % germination in degree.

Control=41.11 degrees

	F_1	F_2	F_3	F_4	mean
T_1	48.70	39.87	46.44	41.95	44.24
T_2	36.92	44.37	43.16	41.11	41.39
T_3	39.87	45.50	38.73	42.84	41.74
mean	41.83	43.25	42.78	41.97	42.46

Stand percentage

(i) 37.34 degree. (ii) 6.62 degree. (iii) None of the effects is significant. (iv) % stand in degrees.

Control=36.92 degrees

	F_1	F_2	F_3	F_4	mean
T_1	41.24	35.12	32.81	36.90	36.52
T_2	28.84	38.88	41.31	35.52	36.14
T_3	36.92	39.77	40.17	40.54	39.35
mean	35.67	37.92	38.10	37.65	37.34

Crop :- Maize (*Kharif*) **Ref. U.P. 65 (393)**

Site :- Govt. Res. Farm Kanpur. **Type :- 'D'.**

Object :—To find out the relative efficiency of different weedicides for control of weeds and their effects on yield and economics.

1. BASAL CONDITIONS:

(i) (a) Nil (b) *Jowar* (c) Nil (ii) Sandy loam (iii) 1st week of Jan. 65 (iv) (a) 1 *palewa*, 1 ploughing with victory plough and 2 ploughings with *Deshi* plough (b) Behind the plough (c) 10Kg/ha (d) Rows 50cm apart (e) — (v) 25Kg/ha of N as A/S+40Kg P_2O_5/ha as Super. applied as basal+25Kg/ha of N as A/S topdressed (vi) T. 41 (vii) Irrigated (viii) As per treatments. (ix) 34.9cm (x) 31.8.65.

2. TREATMENTS:

Main-plot treatments: All combinations (1) and (2):

(1) 3 pre-emergence sprayings: A_0=control, A_1=Simazine at 1.12Kg/ha. and A_2=Simazine at 2.24Kg/ha

(2) 3 post-cultivation treatments. B_0=Control, B_1=Inter-row cultivation but no weeding, B_2=Inter-cultivation and hand weeding as well with in rows immediately after each inter row cultivation.

Sub-plot treatments:

3 post-emergence sprayings: C_0=0, C_1=0.84Kg/ha a.i/ha of Sodium 2, 4—D and C_2=1.68Kg a.i/ha of Sodium 2,4—D.

3. DESIGN:

(i) Split-plot (ii)(a) 9 main-plots/replication; 3 sub-plots/main-plot (b) 39.00m×25.00m (iii) 4 (iv)(a) 4.00m×7.50m (b) 3.00m×6.50m (v) 50cm×50cm (vi) Yes.

4. GENERAL:

(i) Good (ii) Nil (iii) % control of different weeds and yield of grain (iv) (a) 1965 only (b) and (c) Nil (v) to (vii) Nil.

5. RESULTS:

(i) 2798Kg/ha (ii) (a) 985.3Kg/ha (b) 422.5Kg/ha (iii) Main effects of A, B and C are highly significant. (v) Av. yield of grain Kg/ha.

	B_0	B_1	B_2	C_0	C_1	C_2	mean
A_0	1472	1698	2389	1504	1776	2280	1853
A_1	2829	3147	3729	2714	3062	3928	3235
A_2	2996	3394	3531	2788	3165	3968	3307
mean	2432	2746	3216	2335	2668	3392	2798
C_0	2100	2341	2563				
C_1	2214	2697	3092				
C_2	2982	3200	3994				

C. D. for A or B marginal means=479.8 Kg/ha.

C. D. for C marginal means=199.8 Kg./ha.

Crop :- Maize (*Kharif*). **Ref:- U.P. 60 (239).**

Site :- Govt. Reg. Agri. Res. Stn., Meerut. **Type :- 'D'.**

Object :—To find out on effective method for the control of weeds in Maize.

1. BASAL CONDITIONS

(i) (a) Nil (b) Wheat (c) 28Kg/ha of N as A/S (ii) Silt loam (iii) 21.6.60 (iv) (a) One ploughing by soil turning plough and two ploughings by *Deshi* plough (b) Behind the plough (c) 27.7Kg/ha (d) 61cm × 46cm (e)— (v) 33 6Kg/ha of N as A/S as to dressing (vi) T—1 (Medium) (vii) Unirrigated (viii) As per treatments (ix) 97 8cm (x) 5.10.60.

2. TREATMENTS :

5 weedicidal treatments:

T_0 = No weeding but sprayed with water (control), W_1 = Weeded and sprayed with water, W_2 = One spraying with Planotox, W_3 = Two spraying with Planotox and W_4 = Three sprayings with Planotox.

Note :—Planotox containg 70% of 2, 4—D as Butoxyethyl was applied @ 1.05Kg/ha; Dates of spraying;—26.7.60, 14.8.60 and 29.8 60.

3. DESIGN :

(i) R.B.D. (ii) (a) 5 (b) 7.92m × 25.00m (iii) 4 (iv) (a) 7.92m × 4.26m (b) 6.71m × 3.05m (v) 1 row on either side and 61cm at each end discarded (vi) Yes.

4. GENERAL

(i) Bad condition due to excessive rains and water logging conditions (ii) Nil (iii) Germination count, weeds control and a yield of cobs and grain (iv) (a) 1960—only (b) and (c) Nil (v) Nil (vi) Healy Rain. (vii) Nil.

5. RESULTS:

(i) 1414Kg/ha (ii) 990.7Kg/ha. (iii) Treatment differences are not significant. (iv) Av. yield of grain Kg/ha.

Treatment :	W_0	W_1	W_2	W_3	W_4
Av. yield :	1769	1772	1380	740	1411

———

Crop :-Maize (*Kharif*) **Ref :-U.P. 64(464).**

Site:- G.B. Pant University of Agri. & Technology, Pantnagar. Type :-'D'

Object :—To study the effect of certain herbicides in Maize and its residual effect on Pea.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Sandy loam (iii) 13.7.64 (iv) (a) One disc ploughing and two harrowings followed by levelling (b) Dibbling (c)— (d) 90cm × 23cm (e) 2 seeds/hol. (v) 100Kg/ha of N (½ at sowing + ½ at knee high stage) + 65Kg/ha of P_2O_5 + 45Kg/ha of K_2O at planting (vi) As per treatments (vii) Unirrigated (viii) As per treatments (ix) 121.2cm (x) 26.10.64.

2. TREATMENTS:

Main-plot treatments :

2 Varieties : V_1=Hybrid Ganga—3 and V_2=Rudrapur local white.

Sub-plot treatments :

8 weedicidal—cum—cultural treatments: W_0=Control (unweeded), W_1=Hand weeding (twice), W_2=Hoeing (twice); $W_3=W_1+W_2$, W_4=Pre-emergence application of Simazine at 1.12Kg/ha, W_5=Pre-emergence application of Simazine at 2.24Kg/ha, W_6=Pre-emergence application of EPTC at 3.36Kg/ha and W_7=Pre emergence application of EPTC at 6.72Kg/ha.

Herbicides applied before sowing on 13 7.64 weeding and hoeing on 30.7.64 and 16.8.64

3. DESIGN :

(i) Split-plot (ii) (a) 2 main-plots/replication; 8 sub-plots/main-plot (b) N.A. (iii) 4 (iv) (a) 9.15m×5.50m (b) N.A. (v) N.A. (vi) Yes.

4. GENERAL;

(i) N.A. (ii) Nil (iii) Weed counts; population of weeds; height of plant, No. of leaves/plant; No of grain bearing cobs and yield of grain (iv) (a) 1964—only (b) and (c) Nil (v) to (vii) Nil.

5. RESULTS:

(i) 4134Kg/ha (ii) (a) 108.8Kg/ha (b) 226.5Kg/ha (iii) Main effects of V and W are highly significant (iv) Av. yield of grain in Kg/ha.

	W_0	W_1	W_2	W_3	W_4	W_5	W_6	W_7	mean
V_1	3262	4912	4251	4941	4947	5397	4177	4604	4561
V_2	2633	4418	3027	4054	3813	4374	3688	3655	3708
mean	2947	4665	3639	4497	4380	4886	3933	4129	4134

C.D. for V marginal means=86.55Kg/ha.

C.D. for W marginal means=228.8Kg/ha.

Crop :- Maize (*Kharif*). **Ref :- U.P. 65(291).**

Site :- G.B. Pant University, of Agri. & Technology, Pantnagar.

Type - 'D'

Object :—To study the effect of Atrazine, Simazine and EPTC herbicides on Maize and their residual effect on subsequent crops.

1. BASAL CONDITIONS :

(i) (a) Maize—Wheat (c) 40Kg/ha of N+40Kg/ha of P_2O_5+40Kg/ha of K_2O (ii) Sandy loam (iii) 22.7.65 (iv) (a) One ploughing, 4 cross harrowings by tractor drawn disc-harrow and levellings (b) By Dibbling (c) — (d) Rows 76cm. apart (e) 2 (v) 50Kg/ha of N+60Kg/ha of P_2O_5+60Kg/ha of K_2O in furrows before planting and 50Kg/ha of N/ha applied when crop was knee high stage (vi) Ganga Hyb. *Makka* No. 3 (vii) Unirrigated (viii) As per treatments (ix) 69.4cm (x) 30.10.65.

2 TREATMENTS:

13 weedicidal treatments i

T_0=No weeding, T_1=2 hand weedings, T_2=2 hoeings, T_3=T_1+T_2, T_4=1.12Kg/ha of Simazine, T_5=2.24Kg/ha of Simazine, T_6=3.36Kg/ha of Simazine, T_7=1.12Kg/ha of Atrazine, T_8=2.25Kg/ha of Atrazine, T_9=3.36Kg/ha of Atrazine, T_{10}=2.24Kg/ha of EPTC, T_{11}=4.48Kg/ha of EPTC and T_{12}=6.72Kg/ha of EPTC.

Simazine and Atrazine were applied as pre-emergence application one day after planting. EPTC was applied as pre-planting applicatlon 2 days before planting.

3 DESIGN:

(i) R.B.D. (ii) (a) 13 (b) N.A. (iii) 3 (iv) (a) 9.15m×5.49m (b) 6.10m×5.49m (v) 1 52cm on either side along breadth. (vi) Yes.

4. GENERAL·

(i) N.A. (ii) Nil (iii) Population of weeds, dry wight of weeds, height of plant, yield of grain, (iv) (a) 1965— only (b) and (c) Nil (v) to Nil.

5. RESULTS :

(i) 6371Kg/ha. (ii) 1220.5Kg/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 :	5694	6778	6253	7035	6635	5933	6602
Treatment:	T_7	T_8	T_9	T_{10}	T_{11}	T_{12}	
Mean value :	6751	6533	6438	6214	5617	6342	

Crop :-Maize (*Kharif*). **Ref :- U.P. 65 (292)**

Site :- G.B. Pant University of Agri. & Technology, Pantnagar.

Type :- 'D'.

Object :—To study the effect of Atrazine and EPTC herbicides on Maize and their residual effect on subsequent crops.

1. BASAL CONDITIONS

(i) (a) Maize—Wheat (b) Wheat (c) 40Kg/ha of N+40Kg/ha of P_2O_5+40Kg/ha of K_2O (ii) Sandy loam (iii) 23.7.65 (iv) (a) One ploughings, 4 harrowings by tractor drawn disc harrow and one levelling (b) Dibbling (c) — (d) Rows 76cm apart. (e) 2 (v) 50Kg/ha of N+60Kg/ha of P_2O_5+60Kg/ha K_2O infurrows before planting+50Kg/ha of N/ha at knee high stage as top dressing (vi) Ganga Hyb. Makka No. 3 (vii) Unirrigated (viii) As per treatments (ix) 69.4cm (x) 31.10.65.

2. TREATMENTS :

13 weedicidal treatments :

T_0=No weeding, T_1=Simazine at 1.12Kg/ha 3 days after planting, T_2=Simazine 1.12K/ha 6 days after planting, T_3=Hand weeding+Simazine @ 1.12Kg/ha 6 days after planting, T_4=Simazine @ 1.12Kg/ha 9 days after planting, T_5=Hand weeding+Simazine @ 1.12Kg/ha 9 days after planting, T_6=Hand weeding

+Simazine @ 1.12Kg/ha 15 days after planting, T_7=Atrazine @ 1.12Kg/ha 3 days after planting, T_8=Atrazine @ 1.12Kg/ha 6 days after planting, T_9=Hand Weeding+Atrazine@1.12Kg/ha 6 days planting, T_{10}=Atrazine 1.12Kg/ha 9 days after planting, T_{11}=Hand weeding+Atrazine @ 1.12Kg/ha 9 days after planting and T_{12}=Hand weeding+Atrazine @ 1.12Kg/ha 15 days after planting.

Note :—Water used—800 letre/ha.

3. DESIGN:

(i) R.B.D. (ii) (a) 13 (b) N.A. (iii) 3 (iv) (a) 9.15m×5.49m (b) 6.10m×5.49m (v) 2 rows on either side along breadth (vi) Yes.

4. GENERAL :

(i) N.A. (ii) Nil (iii) Population of weeds, dry weight weeds, height of plant, yield of grain, (iv) (a) 1965—only (b) and (c) Nil (v) to (vii) Nil.

5. RESULTS :

(i) 6780Kg/ha. (ii) 954.2Kg/ha (iii) Treatment differances 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 :	6262	6865	7331	7608	7214	6492	7352

Treatment :	T_7	T_8	T_9	T_{10}	T_{11}	T_{12}
Av. yield :	6524	6587	5826	6564	6874	6626

Crop :- Mandua (*Kharif*). **Ref :- U.P. 65(507).**

Site :- Govt. Reg. Agri. Res. Stn., Majhera. **Type :- 'M'**

Object :—To see the response of K with and without N and P.

1. TREATMENTS:

(i) (a) N.A. (b) Lentil (c) 22.4Kg/ha of N as F.Y.M.+22.4Kg/ha of N as C/A/N+22.4Kg/ha of P_2O_5 as Super (ii) Sandy loam (iii) 20.7.65 (iv) (a) One ploughing by soil turning plough, deaning by Singh *pata* and harrowing by cultivator (b) Line sowing (c) 12Kg/ha (d) Rows 23cm. apart (e) – (v) As per treatments (vi) 59/1 (vii) Unirrigated (viii) One weeding (ix) N.A. (x) 18 to 20.10.65.

2. TREATMENTS:

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

(1) 2 levels of N as C/A/N : N_0=0 and N_1=30Kg/ha.

(2) 2 levels of P_2O_5 as Super : P_0=0 and P_1=15Kg/ha.

(3) 2 levels of K_2O as Mur. Pot. : K_0=0 and K_1=15Kg/ha.

3. DESIGN :

(i) Fact. in R.B.D. (ii) (a) 8 (b) N.A. (iii) 4 (iv) (a) and (b) 4.50m×3.45m (v) Nil. (vi) Yes.

4. GENERAL :

(i) Poor (ii) Ragi blast and Grass hopper (iii) Yield of grain (iv) (a) 1965—contd. (b) N.A. (c) Nil (v) to Nil.

5. RESULTS :

(i) 438.7Kg/ha. (ii) 158.4Kg/ha (iii) Main effect of N is highly significant. (iv) Av. yield of grain in Kg/ha

	P_0	P_1	K_0	K_1	mean
N_0	338.7	234.1	280.5	292.2	286.4
N_1	617.6	564.5	643.3	538.7	591.0
mean	478.1	399.3	461.9	415.4	438.7
K_0	498.9	425.0			
K_1	457.4	373.5			

C.D. for N marginal means=116.5Kg/ha.

Crop :- Mandua (*Kharif*). **Ref :-U.P. 60 (423), 61 (436).**

Site :- Govt. Reg. Agri. Res. Stn., Majhera. **Type :-'M'.**

Object :—To study the efficiency of organic and inorganic manures with and without P on *Mandua* crop.

1. BASAL CONDITIONS:

(i) (a) Nil (b) Wheat; N.A. (c) N.A. (ii) Sandy loam; (iii) 6.6.60; 7.6.61 (iv) (a) N.A. (b) Line sowing (c) 9Kg/ha (d) Rows 23cm. apart (e) — (v) Nil (vi) T—28—B (vii) Unirrigated (viii) 2 hoeing and weedings for 60; N.A. for 61 (ix) N.A. (x) 9.10.60; 22 to 29.9.61.

2. TREATMENTS :

All combinations (1), (2) and (3) + one control.

(1) 2 forms of N : F_1=Urea and F_2=F.Y.M.

(2) 2 levels of N : N_1=16.8 and N_2=33.6Kg/ha.

(3) 2 levels of P_2O_5 as Super : P_0=0 and P_1=22.4Kg/ha.

3. DESIGN :

(i) R.B.D. (ii) (a) 9 (b) N.A. (iii) 4 (iv) (a) and (b) 7.62m×1.52m (v) Nil (vi) Yes.

4. GENERAL :

(i) Satisfactory (ii) N.A. (iii) Yield of grain (iv) (a) 1959—61 (b) No. (c) Nil (v) and (vi) Nil. (vii) Expt. No. 59 (394) has also been considered while combining the results. As the error variances are heterogeneous and Treatments× years interaction is absent, the results of individual years have been presented under 5. Results.

5. RESULTS :

60 (423)

(i) 1069Kg/ha (ii) 156.2Kg/ha (iii) Main effect of P and control *vs.* others are significant. (iv) Av. yield of grain in Kg/ha.

Control=881Kg/ha.

	P_0	P_1	N_1	N_2	mean
F_1	1070	1228	1108	1190	1149
F_2	970	1100	962	1108	1035
mean	1020	1164	1035	1149	1092
N_1	982	1089			
N_2	1057	1240			

C.D. for P marginal means=113.9Kg/ha.
C.D. for control *vs.* others=171.0Kg/ha.

61 (436)

(i) 795.8Kg/ha (ii) 292.7Kg/ha (iii) None of the effects is significant. (iv) Av. yield of grain in Kg/ha.

Control=667.1Kg/ha.

	P_0	P_1	N_1	N_2	mean
F_0	761.5	981.8	830.8	912.6	871.7
F_1	692.3	811.9	648.2	855.9	752.1
mean	726.9	896.9	739.5	884.3	811.9
N_1	641.9	837.1			
N_2	811.9	956.6			

Crop :-Mandua (*Kharif*). **Ref :- U.P. 62 (461), 63(537), 64 (656).**

Site:- Govt. Reg. Agri. Res. Stn., Majhera **Type :- 'M'.**

Object :—To find out the standard manurial dose of organic and inorganic nitrogeneous manures with and without P.

I. BASAL CONDITIONS:

(i) Wheat—*Mandua* for 62; N.A. for others (b) Wheat for 62 & 64; N.A. for 63 (c) N.A. (ii) Sandy loam (iii) 16.6.62; 17.6.63; 4.6.64 (iv) (a) 2 ploughings (b) Line sowing (c) 9Kg/ha (d) Rows 23cm. apart (e) — (v) As per treatments (vi) T—28—B for 64; N.A. for others (vii) N.A. (viii) Weedings and hoeings (ix) N.A. (x) N.A.; 19/20.10.63; 24.10.64.

2. TREATMENTS:

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

(1) 3 forms of N: F_1=A/S, F_2=F.Y.M. and F_3=½ A/S+½ F.Y.M.

(2) 2 levels of P_2O_5 P_0=0 and P_1=44.8Kg/ha.

(3) 2 levels of N: N_1=28 and N_2=56Kg/ha.

Extra treatments : E_0=Control, E_1=44.8Kg/ha of P_2O_5.

3. DESIGN :

(i) R B D. (ii) (a) 14 (b) N.A. (iii) 3 for 64; 4 for others (iv) (a) and (b) 2.74 m × 1 83m (v) Nil (vi) Yes.

4. GENERAL :

(i) Good (ii) Attack of defulated pestla for 63; N.A. for other (iii) Yield of grain (iv) (a) 1962 – 64 (b) Yes. (c) Results of combined analysis have been presented under 5. Results (v) N.A. (vi) Nil (vii) Error variances are homogeneous and Treatments × years interaction is present.

5. RESULTS :

Pooled results

(i) 697Kg/ha. (ii) 270.4Kg/ha (based on 22 d.f. made up of Treatments × years interaction) (iii) None of the effects is significant. (iv) Av. yield of grain in Kg/ha.

E_0=611 and E_1=623Kg/ha

	F_1	F_2	F_3	N_1	N_2	mean
P_0	665	819	698	707	748	727
P_1	639	710	728	712	672	692
mean	652	764	713	710	710	710
N_1	676	787	667			
N_2	628	741	760			

Individual results :

Treatment	P_0	P_1	Sig.	F_1	F_2	F_3	Sig.	N_1	N_2	Sig.
years 1962	432	378	N.S.	342	476	397	N.S.	428	382	N.S.
1963	935	963	N.S.	907	951	989	N.S.	949	949	N.S.
1964	845	751	N.S.	726	900	768	N.S.	767	829	N.S.
Pooled	727	692	N.S.	652	764	713	N.S.	710	710	N.S.

	E_0	E_1	Sig.	G.M.	S.E./plot
	324	418	N.S.	400	189.9
	882	887	N.S.	940	224.6
	631	545	N.S.	768	213.6
	611	623	N.S.	697	270.4

Crop :- Mandua. (*Kharif*). **Ref:-U.P. 60 (427), 61 (440)**

Site :- Govt. Reg. Agri. Res. Stn., Majhera. **Type :- 'C'.**

Object :—To study the effect of proper spacings for ***Mandua*** crop in hills.

1. BASAL CONDITIONS:

(i) (a) to (c) N.A. (ii) Sandy loam (iii) N.A.; 8.6.61 (iv) (a) N.A. (b) Line sowing (c) 14Kg/ha. (d) As per treatments (e) —(v) N.A.;299Kg/ha of A/S+299Kg/ha of super+75Kg/ha of A/N for 61 (vi) T—28—B (vii) Unirrigated (viii) One hoeing and weeding; N.A. (ix) N.A. (x) 16.10.60; 1/2.10.61.

2. TREATMENTS:

All combinations of (1) and (2) + a Control (Broadcasting)

(1) 2 row-spacings: R_1=23 and R_2=30cm.

(2) 3 plant-spacings : P_1=15, P_2=23 and P_3=30cm.

3. DESIGN:

(i) R.B.D. (ii) (a) 7 (b) 7.92m×17.68m; 2.44m×55.47m (iii) 4 (iv) (a) and (b) 7.32m×1.83m (v) Nil (vi) Yes.

4. GENERAL:

(i) Very good (ii) Nil (iii) Number of plants and yield of grain. (iv) (a) 1959—61 (b) No. (c) The results of combined analysis have been presented under 5. Results. (v) and (vi) Nil (vii) Expt. No 59 (390) has also been considered while combining the results. Error variances are heterogeneous and Treatments×years interaction is present.

5. RESULTS:

Pooled results:

(i) 1379Kg/ha (ii) 592.3 (based on 12 d.f. mode up of Treatments×years intraction) (iii) None of the effects is significant. (iv) Av. yield of grain in Kg/ha.

Control=1448Kg/ha.

	P_1	P_2	P_3	mean
R_1	1556	1191	1325	1360
R_2	1499	1231	1390	1373
mean	1532	1211	1358	1367

Individual results :

Treatment	R_1	R_2	Sig.	P_1	P_2	P_3	Sig.	Control	Sig.
years									
1960	842	1088	*	860	882	1154	**	1088	N.S.
1961	1383	1422	N.S.	1453	1252	1502	N.S.	1382	N.S.
Pooled	1360	1373	N.S.	1532	1211	1358	N.S.	1448	N.S.

G.M.	S.E./plot
983	226.1
1399	236.1
1379	592.3

Crop :- Mandua (*Kharif*). **Ref :- U.P. 60 (424), 61 (437).**

Site :- Govt. Reg. Agri. Res. Stn., Majhera. **Type :- 'C'**

Object : –To study the comparative preformance of different methods of sowing for *Madua* crop in hills.

1. BASAL CONDITIONS :

(i) (a) Wheat—*Mandua* (b) Wheat (c) N.A. (ii) Sandy loam (iii) 1.6.60; 13.6.61 (iv) (a) N.A. (b) As per treatments (c) 9.2Kg/ha (d) N.A. (e)— (v) N.A. (vi) T—28—B (vii) Unirrigated (viii) One weeding and hoeing; N.A. (ix) N.A. (x) 8.10.60; 30.9.61 to 30.10.61.

2. TREATMENTS :

3 methods of sowing: M_1=Line sowing, M_2=Broadcasting and M_3= Transplanting.

3. DESIGN :

(i) R.B.D. (ii) (a) 3 (b) 18 29m×6.17m (iii) 6 (iv) (a) and (b) 6.17m×6.00m (v) Nil (vi) Yes.

4. GENERAL :

(i) Normal; Satisfactory (ii) Nil (iii) Yield of grain (iv) (a) 1960—61 (b) Yes (c) Nil (v) and (vi) Nil (vii) As the error variances are heterogeneous and Treatments×years interaction is abbent, the results of individual years have been presented under 5. Results.

5. RESULTS :

60(424)

(i) 1047Kg/ha (ii) 130.2Kg/ha. (iii) Treatment differences are highly significant. (iv) Av. yield of grain in Kg/ha.

Treatment :	T_1	T_2	T_3
Av. yield :	1163	1134	845

C.D.=167.5Kg/ha.

61 (437)

(i) 1239 Kg/ha (ii) 271.7 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 :	1331	1245	1140

Crop :- Ragi *(Kharif)*, **Ref :-U.P. 61(53).**

Site:- Sialdey Block Farm, Almora (c.f.) **Type :- 'D'.**

Object : -To find out a suitable control measure against kurmula white grabs of beetles.

1. BASAL CONDITIONS:

(i) (a) to (c) N.A. (ii) Sandy loam to loamy scnd (iii) to (vi) N.A. (vii) Unirrigated (viii) carthing (ix) and (x) N.A

2. TREATMENTS:

7 inseeticidal treatments : T_0=Control, T_1=5% Aldrin dust, T_2=10% D.D.T. dust, T_3=10% B.H.C. dust, T_4=3% Micro Heptachlore dust, T_5=D.D. soil fumigant and T_6=Lime.

3. DESIGN:

(i) R.B.D. with 4 replication (ii) and (iii) N.A. (iv) Yes.

4. GENERAL:

(i) N.A, (ii) Under study (iii) Pop. of alive and dead grubs before and after treatments. (iv) (a) 1961—only (b) and (c) — (v) to (vii) Nil.

5. RESULTS:

(i) 0 91 $\sqrt{x+\frac{1}{2}}$/plot, (ii) 0.30 $\sqrt{x+\frac{1}{2}}$/plot (iii) Treatment differences are not significant (iv) Main value of $\sqrt{x+\frac{1}{2}}$/plot, where x=population after application of treatments on 4.5.62.

Treatment :	T_0	T_1	T_2	T_3	T_4	T_5	T_6
Mean value of $\sqrt{x+\frac{1}{2}}$:	0.96	0.97	0.93	1.09	0.71	0.84	0.84

Crop :- Gram *(Rabi)* **Ref :- U.P. 64 (46).**

Site :-Govt. Agri. Farm, Attarra. **Type :- 'M'.**

Object : —To find out suitable deses of N, P and K on the yield of Gram.

1. BASAL CONDITIONS:

(i) (a) Gram—*Chari* (b) *Chari* (c) Nil (ii) Kabar (iii) 18.11.64 (iv) (a) 2 ploughings, one harrowing and 4 applications of pata (b) Line sowing behind the plough (c) 80Kg/ha (d) Rows apart (e)— (v) Nil (vi) N.A. (vii) Irrigated (viii) Nil (ix) 3.6cm (x) 5.4.65.

2. **TREATMENTS**:

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

(1) 3 levels of N : N_0=0, N_1=44.8 and N_2=89.6Kg/ha.

(2) 3 levels of P_2O_5 : P_0=0, P_1=22.4 and P_2=44.8Kg/ha.

(3) 3 levels of K_2O: K_0=0, K_1=22.4 and K_2=44.8Kg/ha.

3. DESIGN :

(i) 3^3 confd. (ii) (a) 9 plots/block, 3 blocks/replication (b) N.A. (iii) 2 (iv) (a) 12.34m×8.23m (b) 12.34m×8.23m. (v) Nil (vi. Yes.

4. GENERAL :

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

5. RESULTS :

(i)323.0Kg/ha (ii) 158.3Kg/ha. (iii) None of the effects is signiucant. (iv) Av. yield of grain in Kg/ha.

	P_0	P_1	P_2	K_0	K_1	K_2	mean
N_0	367.5	329.7	257.5	297.7	321.5	335.5	318.2
N_1	367.5	365.8	255.1	319.9	266.6	401.9	329.5
N_2	351.0	300.2	312.5	251.0	420.0	292.8	321.2
mean	362.0	331.9	275.0	289.5	336.0	343.4	323.0
K_0	343.7	270.7	254.3				
K_1	391.2	278.0	338.7				
K_2	351.0	447.0	232.1				

Crop :- Gram (*Rabi*). **Ref :- U.P. 64 (142).**

Site :- Govt. Reg. Agri. Stn., Hardoi. **Type :- 'M'.**

Object: —To determine the factors for maximizing production.

1. BASAL CONDITIONS :

(i) (a) Nil (b) N.A. (c) N.A. (ii) Sandy Loam (iii) 7.11.64 (iv) (a)N.A. (b) Line sowing (c) 81Kg/ha (d) and (e) N.A. (v) Nil (vi) T—2 (vii) Irrigated (viii) N.A. (ix) 2.0cm (x) N.A.

2. TREATMENTS :

3 levels of fertilizers : F_0=No fertilizer F_1=5.6Kg/ha of N+28.0Kg/ha of P_2O_5 and F_2=2×F_1.

3. DESIGN:

(i) R.B.D. (ii) (a) 3 (b) N.A. (iii) 4 (iv) (a) and (b) 19.20m×3.66m (v) Nil (vi) Yes.

4. GENERAL :

(i) Good (ii) Nil (iii) Yield of grain (iv) (a) 1964—only (b) and (c) Nil. (v) N.A. (vi) Yield of plots corresponding to F_0 and F_1 in Rep IV and corresponding to F_2 in Rep III were damaged by water logging and the crop in these plots failed. (vii) The experiment has been analysed as completely randomized experiment because there is not much difference in the totals of two replication (not containing missing yields) and also due to the fact that there are only 9 plots for which yield is available.

5. RESULTS :

(i) 2583Kg/ha. (ii) 288.9Kg/ha (iii) Treatment differences are not significant (iv) Av. yield of grain in Kg/ha.

Treatment :	F_0	F_1	F_2
Av. yield :	2458	2743	2549

Crop :- Gram (*Rabi*). **Ref :- U.P. 64(118), 65 (8)**

Site :- Govt. Reg. Agri. Res. Stn., Hardoi. **Type :- 'M'**

Object :—To study the most suitable combination of N. P and K for cultivation of Gram.

1. BASAL CONDITIONS :

(i) (a) Nil (b) *Jowar*; *Sainai* (green fodder) (c) N.A, (ii) Sandy loam (iii) 31.10.64; 20.10.65 (iv) (a) N.A. (b) broadcast; Line sowing behind the plough (c) 75Kg/ha (d)—; Rows 50cm apart (e) — (vi) T—3 (vii) Irrigated (viii) Weeding and hoeing (ix) 2.0cm; 0.9cm (x) 30.4.65; 14, 15.3.66.

2. TREATMENTS :

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

(1) 3 levels of N : N_0=0, N_1=11.2 and N_2=22.4Kg/ha.

(2) 3 levels of P_2O_5 : P_0=0, P_1=22.4 and P_2=44.8Kg/ha.

(3) 3 levels of K_2O : K_0=0, K_1=11.2 and K_2=22.4Kg/ha.

3. DESIGN:

(i) Fact. in R.B.D. (ii) (a) 27 (b) N.A. (iii) 3 (iv) (a) and (b) 7.31m×1.52m; 6.50m.×3.50m (v) Nil (vi) Yes.

4. GENERAL :

(i) N.A.; Good (ii) N.A.; Nil (iii) yield of grain (iv) (a) 1964—65 (b) No. (c) Results of comined analysis have been presented under 5 Results. (v) and (vi) Nil (vii) Error variances are homogeneous and Treatments×years interaction is present.

5. RESULTS :

Pooled Results :

(i) 3339Kg/ha (ii) 689.3Kg/ha (based on 18 d.f. made up of Treatments×years interaction) (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	2923	3352	3250	3126	3274	3125	3175
N_1	3516	3336	3179	3329	3354	3338	3344
N_2	3313	3410	3771	3617	3521	3356	3498
mean	3251	3366	3400	3361	3383	3273	3339
K_0	3306	3423	3353				
K_1	3373	3308	3468				
K_2	3074	3367	3378				

Individual results :

Treatment	N_0	N_1	N_2	Sig.	P_1	P_2	P_3	Sig.	K_0	K_1	K_2	Sig.
Year 1964	3359	3787	3927	**	3352	3804	3817	**	3608	3787	3678	N.S.
1965	2991	2899	3069	N.S.	3349	2927	2982	N.S.	3113	2978	2868	N.S
Pooled	3175	3344	3498	N.S.	3251	3366	3400	N.S.	3361	3383	3273	N.S.

G.M.	S.E./plot
3691	380.3
2986	434.4
3339	689.3

Crop :- Gram (*Rabi*). **Ref :- U.P. 60 (149), 61 (151)**

Site :- Govt. Reg. Agri. Res. Stn., Hardoi. **Type :- 'M'**

Object :—To study the effect of phosphatic manuring of legume crop (Gram).

1. BASAL CONDITIONS:

(i) (a) Gram—Paddy (b) Paddy (c) N.A. (ii) Sandy loam (iii) 16.11.60; N.A. (iv) (a) N.A. (b) Line sowing behind plough (c) 69.2Kg/ha (d) Rows 46cm. apart (e) — (v) Nil (vi) T_1 (vii) and (viii) N.A. (ix) 5.8cm; N.A. (x) N.A.

2. TREATMENTS :

3 levels of P_2O_5 as Phosphoric acid : P_0=0, P_1=44.8 and P_2=89.7Kg/ha.

3. DESIGN :

(i) R.B.D. (ii) (a) 3 (b) N.A. (iii) 3 (iv) (a) and (b) 24.69m × 7.16m (v) Nil (vi) Yes.

4. GENERAL :

(i) Good (ii) Nil (iii) Yield of grain (iv) (a) 1960–61 (b) Yes (c) Results of combined analysis have been presented under 5. Results (v) Nawabgunj (vi) Nil (vii) Error variances are homogeneous and Treatments × years interaction is absent.

5. RESULTS :

Pooled results

(i) 2140 Kg/ha (ii) 316.5 Kg/ha. (based on 10 d.f. made up of pooled error and Treatment × years interaction) (iii) Treatment differences are not singnificant (iv) Av. yield of grain in Kg/ha.

Treatment :	P_0	P_1	P_2
Av. yield :	2313	2149	1958

Individual results

Treatment / Year	P_0	P_1	P_2	Sig.	G.M.	S.E./plot
1960	2745	2573	2359	**	2559	410.0
1961	1881	1724	1558	N.S.	1721	285.5
Pooled	2313	2149	1958	N.S.	2140	316.5

Crop :- Gram (*Rabi*) **Ref :- U.P. 64 (567), 65 (405)**

Site :- Govt. Agri. Res. Farm, Kalianpur. **Type :- 'M'**

Object :—To find out suitable dose of N,P, and K in maximising the yield of Gram.

1. BASAL CONDITIONS:

(i) (a) Nil (b) Nil; N.A. (c) N.A. (ii) Loam (iii) 10.11.64; N.A. (iv) (a) One ploughing each by soil turning plough, cultivator and *Deshi* plough (b) Behind the plough (c) 75Kg/ha (d) Rows 50cm. apart (e) – (v) Nil (vi) T–3 (Late) (*vii*) Unirrigated (*viii*) One hoeing by cultivator (*ix*) 5.9cm; 0.2cm (x) 29.4.65; N.A.

2. TREATMENTS:

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

(1) 3 levels of N as A/S : N_0=0, N_1=5 and N_2=10Kg/ha.

(2) 3 levels of P_2O_5 as Super : P_0=0, P_1=20 and P_2=40Kg/ha.

(3) 3 levels of K_2O as Mur. Pot. : K_0=0, K_1=10 and K_2=20Kg/ha.

N,P and K. applied in open furrows before sowing.

3. DESIGN :

(i) Fact. in R.B.D. (ii) (a) 27 (b) N.A. (iii) 3 (iv) (a) and (b) 6.10m × 3.66m (v) Nil (vi) Yes.

4. GENERAL :

(i) Good ii) Nil (iii) Yield of grain (iv) (a) 1964–65 (b) No (c) Nil (v) Nil (vi) – (vii) As the experiment is continued beyond 65, results of individual years have been presented under 5. Results.

5. RESULTS :

64 (567)

(i) 1247Kg/ha (ii) 590.4Kg/ha. (iii) Main effect of N is highly significant. (iv) Av. yield of grain in Kg/ha.

	P_0	P_1	P_2	K_0	K_1	K_2	mean
N_0	1403	1503	1428	1453	1603	1279	1445
N_1	1115	1105	861	1030	831	1219	1027
N_2	1304	1304	1199	1110	1274	1423	1269
mean	1274	1304	1163	1198	1236	1307	1247
K_0	1364	1393	836				
K_1	1095	1110	1503				
K_2	1364	1408	1150				

C.D. for N marginal means=322.3Kg/ha.

65 (405)

(i) 2947Kg/ha. (ii) 386.7Kg/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	2981	2976	2986	2991	2852	3101	2981
N_1	3160	2986	2906	3175	3001	2877	3018
N_2	2732	2852	2941	2896	2882	2747	2842
mean	2958	2938	2945	3021	2911	2908	2947
K_0	3066	3066	2931				
K_1	2921	2862	2951				
K_2	2887	2887	2951				

Crop :- Gram (*Rabi*). **Ref :- U.P. 60 (415) 61 (343).**

Site :- Gov. Reg. Agri. Res. Stn., Meerut. **Type :- 'M'**

Object :—To study the effect of direct application of phosphate on legumes (Pea and Gram) and its residual effect on the succeeding cereal (Paddy) crop under irrigated conditions.

1. BASAL CONDITIONS :

(i) (a) As per treatments—Paddy (b) Paddy (c) N.A. for 60; as per treatments (ii) Loam (iii) 26.10.60; 4.11.61 (iv) (a) 4 ploughing by soil turning plough and *Deshi* plough (b) Line sowing behind the plough (c) 86.5Kg/ha (d) Rows 45cm. apart (e)— (v) Nil (vi) T. 87 (vii) Irrigated (viii) Gap filling, hoeing and weeding (ix) 6.3cm: 10.7cm. (x) 11.4.61; 26.4.62.

2. TREATMENTS:

Main-plot treatments :

All combinations of (1) and (2) +one fallow plot. for *Rabi* crop.

(1) 3 levels of P_2O_5 as Super applied to legumes : P_0=0, P_1=44.8 and P_2=89.6Kg/ha.

(2) 2 legume crops : C_1=Gram and C_2=Pea.

Sub-plot treatments : (Applied to the succeeding Paddy crop).

3 levels of N: N_0=0, N_1=16.8 and N_2=33.6Kg/ha.

Note :—In this experiment, only the effect of levels of P_2O_5, applied to Gram crop, have been analysed.

3. DESIGN :

(i) Split-plot (R.B D. for present the experiment) (ii) (a) 7 main-plots/rep., 3 sub-plots/main-plot (3 plots/block for the present expt. (b) 21.95m×82.30m; 21.03m×82.30m (iii) 3 (iv) (a) and (b) 10.97m×6.71m.; 10.97m×6.40m (v) Nil (vi) Yes.

4. GENERAL :

(i) Good (ii) Nil (iii) Germination %, yield of grain (iv) (a) 1960–62 (Expt. failed in 62) (b) Yes (c) Nil (v) Varanasi (vi) and (vii) Nil.

5. RESULTS:

60 (415)

(i) 1318Kg/ha. (ii) 283.1Kg/ha. (iii) Treatment differences are not significent. (iv) Av. yield of grain in Kg/ha.

Treatment :	P_0	P_1	P_2
Av. yield:	1125	1409	1509

61 (343)

(i) 1235Kg/ha. (ii) 55.6Kg/ha. (iii) Treatment differences are not significant. (iv) Av. yield of grain in Kg/ha.

Treatment :	P_0	P_1	P_2
Av. yield :	1390	1070	1244

Crop:- Gram (*Rabi*). **Ref :- U.P. 61 (163).**

Site :- Govt. Reg. Agri. Res. Stn., Nawabgunj. **Type :- 'M'.**

Object :—To see the effect of phosphate manuring on the yield of gram.

1. BASAL CONDITIONS:

(i) (a) Gram—Paddy (b) Paddy (c) N.A. (ii) Clay loam (iii) 20.11.61 (iv) (a) N.A. (b) Line sowing behind plough (c) 92.0Kg/ha (d) Rows 30cm. apart (e) — (v) Nil (vi) T—87 (vii) N.A (viii) Interculturings (ix) 10.6cm. (x) 19.4.62.

2. TREATMENTS:

3 levels of P_2O_5 as Super : P_0=0, P_1=44 8 and P_2=89.7Kg/ha.

3. DESIGN:

(i) R.B.D. (ii) (a) 3 (b) N.A. (iii) 3 (iv) (a) and (b) 9 10m×7.31m (v) Nil (vi) Yes.

4. GENERAL:

(i) Good (ii) Nil (iii) Yield of grain (iv) (a) 1960—61 (Experiment failed in 60) (b) No (c) Nil (v) Hardol (vi) and (vii) Nil.

5. RESULTS:

(i) 992.0Kg/ha (ii) 108.1Kg/ha (iii) Treatment differences are not significant (iv)Av. yield of cobs in Kg/ha.

Treatment :	P_0	P_1	P_2
Av. yield :	710	1126	1140

C.D.=245.0Kg/ha

Crop :- Gram (*Rabi*). **Ref :- U.P. 61 (190)**

Site :- Govt. Reg. Agri. Res. Stn., Varanasi. **Type :- 'M'**

Object: —To study the effect of direct application of Super phosphate on Legumes *Vs.* effect of Nitrogen to the succeeding cereal crop of Paddy.

1. BASAL CONDITIONS:

(i) (a) Gram/Pea—Paddy (b) and (c) N.A. (ii) Loam (iii) N.A. (iv) (a) 3 ploughings (b) Line sowing behind the furrows (c) 93Kg/ha (d) Rows 30cm. apart (e)— (v) and (vi) N.A. (vii) Irrigated (viii) Nil (ix) 4.1cm (x) N.A.

2. TREATMENTS :

Main-plot treatments: All combinations of (1) and (2) + one fallow plot for *Rabi* crop.

(1) 2 levels of P_2O_5 applied to legumes : P_0=0, P_1=44.8 and P_2=89.6Kg/ha.

(2) 2 legumes crops: C_1=Gram and C_2=Pea.

Sub-plot treatments (applied to the succeeding Paddy crop) :

3 levels of N : N_0=0, N_1=16.8 and N_2=33.6Kg/ha.

Note :—In this experiment, only the effect of levels of P_2O_5, applied to gram crop, have been analysed.

3. DESIGN:

(i) Split-plot. (R B.D. for present expt.) (ii) (a) 7 main-plots/replication, 3 sub-plots/main-plot. (3 plots/block for the present expt.) (b) N.A. (iii) 3 (iv) (a) N.A. (b) 1/49.42 ha (v) N.A (vi) Yes.

4. GENERAL :

(i) Good (ii) Nil (iii) Yield of grain (iv) (a) 1960—61 (Expt failed in 61) (b) and (c) — (v) Meerut (vi) and (vii) Nil.

5. **RESULTS :**

(i) 981Kg/ha (ii) 107.1Kg/ha (iii) Treatment differences are not significant. (iv) Av. yield of grain in Kg/ha.

Treatment :	P_0	P_1	P_2
Av. yield :	695	1117	1130

C.D.=224.7Kg/ha

Crop :- Gram (*Rabi*). **Ref :-U.P. 62 (302).**

Site :- Res. Farm; College of Agri. B.H.U., Varanasi **Type :- 'M'.**

Object :—To find out suitable levels of N and P for Ggram.

1. BASAL CONDITIONS:

(i) (a) N.A. (b) Barley (c) Nii (ii) Loam (iii) Oct, 62 (iv) (a) One ploughings by a heavy turn over plough after harvest of Barley followed by light soil inverting plough in Augest. Preperation of tillage started in September—4 additional ploughing followed by planking (b) Behind *Deshi* plough in furrows (c) N.A. (d) Rows 23cm. apart (e) — (v) Nil (vi) N.A. (vii) Irrigated (viii) Nil (ix) 5.5cm (x) April, 63.

2. TREATMENTS :

All *combinations of* (1) and (2)

(1) 3 levels of N as A/N : N_1=33.4, N_2=67.2 and N_3=100.8Kg/ha.

(2) 4 levels of P_2O_5 as Super : P_1=33.4, P_2=67.2, P_3=100.8 and P_4=134.4Kg/ha.

Fertilizers applied at planting.

3. DESIGN:

(i) Fact. in R.B.D. (ii) (a) 12 (b) N.A. (iii) 3 (iv) (a) and (b) 5.79m×4.88m (v) Nil (vi) Yes.

4. GENERAL :

(i) Good (ii) Nil (iii) Yield of grain and straw (iv) (a) No (b) and (c) Nil (v) to (vii) Nil.

5. RESULTS :

(i) 1946Kg/ha (ii) 172.2Kg/ha (iii) Main effects of N and P are highly significant, and interaction N×P is significant. (iv) Av. yield of grain in Kg/ha.

	P_1	P_2	P_3	P_4	mean
N_1	1486	1557	1663	2230	1734
N_2	1522	1699	2442	2442	2026
N_3	1593	1982	2300	2442	2079
mean	1534	1746	2135	2371	1946

C.D. for N marginal means=145.8Kg/ha.

C.D. for P marginal means=168.3Kg/ha.

C.D. for body of table=291.6Kg/ha.

Crop :- Gram (*Rabi*).

Ref :- U.P. 60 to 61 (S.F.T.) for Pilibhit Hakhimpur Kheri, Fatihpur, Ka-pur, Farrukhabad, Moradabad and Rampur and 61 (S.F.T.) for others,

Site :- District: Pilibhit, Lakhimpur Kheri, Fatehpur, Kanpur, Farrukhabad Moradabad, Rampur, Agra, Aligarh, Bande, Barabanki, Bareilly, Hardoi, Jhansi, Jaluan, Lucknow, Mathura, Saharanpur, Sitapur, Shahjahanpur and Varanasi

Type :- 'M'

Object: Type C : To compare of response to different sources and levels of Phosphate.

1. BASAL CONDITIONS

(i) to (x) N.A.

2. TREATMENTS:

7 manurial treatments:

O=Control (no manure), P_1=33.6Kg/ha of P_2O_5 as Super, P_2=67.3Kg/ha of P_2O_5 as Super, N_1P_1=7.7Kg/ha of N+33.6Kg/ha of P_2O_5 as Super, N_2P_2=15.4Kg/ha of N+67.3Kg/ha of P_2O_5 as Super, P_1'=33.6Kg/ha of K_2O_5 as Monoammonium Phosphate and P_2'=67.3Kg/ha of P_2O_5 as Monoammonium Phasphate.

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. Residdual effects 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) 1/98.8ha. (b) 1/197.7ha. (iv) Yes.

4. GENERAL:

(i) and (ii) N.A. (iii) Yield of grain (iv) (a) 1960–61 for Pilibhit, Lakhimpur Kheri, Fatehpur, Kanpur, Moradabad, Rampur and Farrukhabad and 1961—for others (b) and (c) N.A. (iv) (b) to (vii) N A.

5. RESULTS:

Av. response in Kg/ha.

60 (S.F.T.)

District	No. of trials	Control yield in Kg/ha	P_1	P_2	N_1P_1	N_1P_2	P_1'	P_2'	S.E.
Pilibhit	9	830	230	420	340	550	340	450	21.0
Lakhimpur Kheri	12	810	200	360	340	590	310	580	26.0
Fatihpur	12	1180	170	330	350	510	410	610	40.0
Kanpur	9	1570	170	280	330	500	280	410	71.0

District	No. of trials	Control yield in Kg/ha.	P_1	P_2	N_1P_1	N_1P_2	P_1'	P_2'	S.E.
Moradabad	12	870	220	350	280	470	350	480	32.0
Rampur	12	1270	210	350	400	610	390	550	52.0
Farrukhabad	6	1170	180	420	350	930	460	650	74.0

61 (S.F.T.)

Pilibhit	7	850	230	350	300	350	530	490	188.0
Lakhimpur Kheri	9	960	220	290	340	400	480	480	56.0
Fatehpur	6	1280	100	220	150	240	400	260	41.0
Kanpur	7	1040	220	280	390	380	390	510	45.0
Moradabad	3	940	100	430	250	200	480	340	44.0
Rampur	5	810	70	250	210	150	370	330	18.0
Farrukhabad	3	1260	100	200	160	250	650	660	70.0
Agra	11	1220	430	530	540	620	730	710	55.0
Aligarh	2	640	220	220	210	250	260	100	90.0
Banda	6	640	210	270	280	390	550	490	38.0
Barabanki	3	1260	460	580	800	760	800	800	62.0
Bareilly	8	930	130	330	380	260	420	510	77.0
Hardoi	12	730	210	180	230	290	310	360	30.0
Jhansi	4	1310	270	450	530	570	870	950	40.0
Jalaun	6	1120	220	340	420	410	580	640	40.0
Lucknow	6	580	1140	200	240	180	280	320	67.0
Mathura	11	1080	170	320	280	310	470	380	69.0
Saharanpur	8	1010	200	350	330	490	670	670	44.0
Sitapur	11	810	220	370	350	510	530	550	71.0
Shahjahanpur	6	750	140	310	260	270	400	320	34.0
Varanasi	3	1110	210	190	410	410	470	660	82.0

Crop :- Gram (*Rabi*) **Ref : U.P. 64(365).**

Site :- Res. Farm, College of Agri. B.H.U, Varanasi. **Type :- 'MV'.**

Object : — To study the response of some varieties of Gram to varying levels and placement of phosphatic fertilizers.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) *Jowar* for fodder (c) Nil (ii) Loam (iii) 23.1.64 (iv) (a) One ploughing by mould-bond plough and 4 by *Deshi* plough followed by planking. (b) Behind the plough (c) 69Kg/ha (d) Row 30cm. apart (e)— (v) Nil (vi) As per treatments (vii) Irrigated (viii) One weeding (ix) 5.2cm (x) 22.3.65.

2. TREATMENTS :

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

(1) 2 varieties : V_1=T$-_1$ and V_2=T.87.

(2) 3 levels of P_2O_5 as Super : P_1=22.4, P_2=44.8 and P_3=67.2Kg/ha.

(3) 2 Methods of placement of Super : M_1=plough sole-placement before sowing and M_2=Side band-placement after 21 days after sowing.

3. DESIGN:

(i) Fact. in R.B.D. (ii) (a) 12 (b) 68.28m×50.29m (iii) 4 (iv) (a) 8.23m×7.62m (b) N.A. (v) N.A. (vi) Yes.

4. GENERAL :

(i) Good (ii) Nil (iii) Yield of grain (iv) (a) No (b) and (c) Nil (v) to (vii) Nil.

5. RESULTS :

(i) 3263Kg/ha. (ii) 347.7Kg/ha. (iii) Main effects of V, P and M are highly significant (iv) Av. yield of grain in Kg/ha.

	V_1	V_2	M_1	M_2	mean
P_1	2718	3124	2800	3120	2960
P_2	3120	3420	3220	3320	3270
P_3	3406	3714	3460	3660	3560
mean	3102	3425	3160	3366	3263

P_1	2964	3340
P_2	3240	3500

C.D. for V or M marginal means=204.3Kg/ha.

C.D. for P marginal means=250.2Kg/ha.

Crop :- Gram (*Rabi*). **Ref :- U.P. 65(168)**

Site :-College of Agri. B.H.U., Varanasi **Type :- 'MV'.**

Object: —To study the relative response of some Gram varieties to phosphatic fertilizer.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) *Jowar* for fodder (c) N.A. (ii) Loam (iii) 15.10.65 (iv) (a) 4 ploughings by *Deshi* plough followed by plankings and one harrowing. (b) Behind the plough (c) 99Kg/ha for V_1; 86Kg/ha for V_2; 124Kg/ha for V_3 (d) Row 23cm apart (e) — (v) 22.4Kg/ha placement of N as A/S+22.4Kg/ha of P_2O_5 as Super+22.7Kg/haKg/ha of K_2O as Mur. Pot. (vi) As per treatments (vii) Irrigated (viii) 2 to 3 hoeings and weedings (ix) 4.5cm (x) 29.3.66.

2. TREATMENTS :

All combinations of (1) and (2)

(1) 2 levels of P_2O_5 as Super : P_1=22.4 and P_2=44.8Kg/ha.

(2) 3 varieties : V_1=T_1, V_2=Green and V_3=Kebuli.

3. DESIGN :

(i) Fact in R.B.D. (ii) (a) 6 (b) N.A. (iii) 3 (iv) (a) and (b) 12.19m×7.32m (v) Nil (vi) Yes.

4. GENERAL :

(i) Good (ii) Nil (iii) Yield of grain and *Bhusa* (iv) (a) No (b) and (c) Nil (v) to (vii) Nil.

5. RESULTS:

(i) 1093Kg/ha (ii) 164.7Kg/ha (iii) Main effects of V and interaction V×P are highly significant. (iv) Av. yield of grain in Kg/ha.

	V_1	V_2	V_3	mean
P_1	1569	1195	284	1016
P_2	1889	1247	373	1170
mean	1729	1221	329	1093

C.D. for V marginal means=211.9Kg/ha.

C.D. for body of table=299.6Kg/ha.

Crop :- Gram (*Rabi*). **Ref :- U.P. 65(164).**

Site :- Research Farm, College of Agri. B.H.U., Varanasi. Type :- 'MV'.

Object:—To study the relative response of some Gram varieties to fertilization with Muriate of Potash.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Loam (iii) 22.10.65 (iv) (a) 2 ploughings by care plough and *Deshi* plough followed by one harrowing. Besides this stubbles and weeds were removed from the field in order to get clean field (b) In open furrow behind the plough followed by planting (c) 100Kg/ha for V_1 and 80Kg/ha for others (d) Rows 23cm. apart. (e) — (v) 22.5Kg/ha of N as A/S and 22.50Kg/ha of P_2O_5 as Super (vi) As per treatments (vii) Irrigated (viii) One weeding (ix) 4.5cm (x) 2.4.66.

2. TREATMENTS:

All combinations of (1) and (2)

(1) 3 varieties: V_1=Kabuli Gram, V_2=Gram T_1 and V_3=Gram green.

(2) 3 levels of K_2O as Mur. Pot. : K_0=0, K_1=22.50 aad K_2=45.00Kg/ha

3. DESIGN :

(i) Fact. in R.B.D. (ii) (a) 9 (b) N.A. (iii) 4 (iv) (a) 8.50m×5.50m (b) 8.00m×5.00m (v) 25cm×25cm (vi) Yes.

4. GENERAL:

(i) Good (ii) Two dustings with germination to protect crop from insets and pests (iii) Yield of grain (iv) (a) N.A. (b) and (c) Nil (v) to (vii) Nil.

5. RESULTS :

(i) 2214Kg/ha (ii) 96.8Kg/ha (iii) Main effect of V is highly significant and that of K is significant. (iv) Av. yield of grain in Kg/ha.

	K_0	K_1	K_2	mean
V_1	1993	2155	2200	2116
V_2	2318	2513	2730	2520
V_3	1813	2080	2125	2006
mean	2041	2249	2352	2214

C.D. for V or K marginal means=81.6Kg/ha.

Crop :- Gram (*Robi*). **Ref :- U.P. 65 (156).**

Site :- Res. Farm, College of Agriculture, B.H.U,, Varanasi **Type :- 'MV'**

Object : —To study the relative efficiency of different techniques of Phosphate fertilization on some Gram varieties.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) *Jowar*+Bajra (c) Nil (ii) Loam (iii) 6.11.65 (iv) (a) Once ploughing by mould-board plough+3 ploughings by *Deshi* plough, All plouging fallowed by planking. (b) Behind the plough (c) 75Kg/ha (d) Row 30cm. apart (e) — (v) Nil (vi) As per treatments. (vii) Irrigated (viii) Hoeing and weeding (ix) 4.5cm. (x) 10.4.66.

2. TREATMENTS :

All the combination of (1) and (2)

(1) 4 varieties : V_1=T_1, V_2=T. 87, V_3=Green gram and V_4=Gram kabuli.

(2) 3 placements: M_1=Plough sole-placement before sowing M_2=Broadcasting before sowing and M_3=Side banding after 40 days of sowing.

Note :—Dose of P_2O_5 applied —N.A. plough sole placement of the fertilizer was done by applying the fertilizer in the furrows opened by a *Deshi* plough before sowing while fertilizer was broadcast in the second method. Band-placement of fertilizer was done in 5cm deep furrows, opened by kudali at a dis-ance of 7.5cm oneither side of the rows, 40 days after sowing.

3. DESIGN :

(I) Fact. in R.B.D. (ii) (a) 12 (b) 26.75m×21.00m (iii) 4 (iv) (a) 6.00m×5.50m (b) 5.50m×5.00m (v) 25cm×25cm (vi) Yes.

4. GENERAL:

(i) Good (ii) Nil (iii) Yield of grain and *bhusa*, (iv) (a) 1965—only (b) and (c) — (v) to (vii) Nil.

5. RESULTS :

(i) 1414Kg/ha (ii) 169.8Kg/ha (iii) Main effect of V, M and interaction V×M are significant. (iv) Av. yield of grain in Kg/ha.

	V_1	V_2	V_3	V_4	mean
M_1	1777	1822	1387	695	1420
M_2	1640	1635	1267	542	1271
M_3	1960	1995	1447	802	1551
mean	1792	1817	1367	680	1414

C.D. for V marginal means=141.1Kg/ha.

C.D. for M marginal means=122.2Kg/ha.

C.D. for body of table=244.4Kg/ha.

Crop :- Gram (*Rabi*). **Ref :- U.P. 60(398).**

Site :- State Soil Cons. Res., Demons. and Trg. Centre, Rehmankhera.

Type :- 'C'.

Object :—To see the residual effect of sowing Maize on contour.

1. BASAL CONDITIONS :

(i) (a) Maize—Barley+Gram/Gram (b) Maize (c) 34Kg/ha of N as A/S/N (ii) Loamy sand to sandy loam (iii) 16/17.10.60 (iv) (a) N.A. (b) N.A. (c) 69Kg/ha (d) N.A. (e)— (v) Nil (vi) T—87 (vii) Unirrigated (viii) Nil (ix) Nil (x) 11.4.61.

2. TREATMENTS :

All combinations of (1) and (2)

(1) 3 methods of sowing : M_1=Broadcasting, M_2=Sown on flat up and down the slope and M_3=Sown on flat accross the slope.

(2) 2 levels of earthing : E_0=No earthing and E_1=Earthing after two weeks of germination.

These treatments were applied to the precceeding Maize crop.

3. DESIGN :

(i) Fact in R.B.D. (ii) (a) 6 (b) 37.81m×21.34m (iii) 4 (iv) (a) 18.29m×6.71m (b) 17.07m×5.49m (v) 61cm×61cm (vi) Yes.

4. GENERAL:

(i) Good (ii) Crow and Jaekals damaged the crop. (iii) Yield of grain and *bhusa* (iv) (a) 1960—only (b) and (c) Nil. (v) and (vi) N.A. (vii) The slope of the field is 1.79%.

5. RESULTS:

(i) 1451Kg/ha (ii) 239.6Kg/ha (iii) None of the effects is significant. (iv) Av. yield of grain in Kg/ha.

	E_1	E_2	mean
M_1	1503	1346	1424
M_2	1400	1368	1384
M_3	1562	1627	1544
mn	1455	1447	1451

Crop :- Gram (*Rabi*). **Ref :- U.P. 61 (254), 63 (299), 65 (149).**

Site :- R.B.S. College, Bichpuri. **Type:- 'CM'**

Object :—To study the effect of preparatory cultivation and N and P fertilization on Gram.

1. BASAL CONDITIONS:

(i) (a) Nil (b) *Jowar* (fodder) for 61; Bajra (fodder) for others. (c) N.A. (ii) Light loam for 61; Sandy loam for others (iii) 3.10.61; 18.10.63; 20.10.65 (iv) (a) As per treatments (b) Behind *Deshi* plough (c) 80Kg/ha for 65; 78.6Kg/ha for others (d) Rows 30cm apart (e) — (v) Nil (vi) T—87 (vii) Irrigated for 65; unirrigated for others (viii) Nil for 61; weeding by *Khurpi* for others (ix) 6.4cm; 0.8cm; 2.3cm (x) 28.3.62; 25.3.64; 23.3.66.

2. TREATMENTS:

Main-plot treatments :

3 preparatory cultivations : $C_1=1$, $C_2=2$, $C_3=3$ ploughings.

Sub-plot treatments : All combinations of (1) and (2)

(1) 2 levels of N as A/S : $N_0=0$ and $N_1=22.5$Kg/ha.

(2) 3 levels of P_2O_5 as Super : $P_0=0$, $P_1=45$ and $P_2=90$Kg/ha.

3. DESIGN:

(i) Split-plot (ii) (a) 3 main-plots/replication and 6 sub-plots/main-plot (b) N.A. (iii) 3 (iv) (a) 9.75m×5.48m; 11.20m×5.70m; 10.50m×5.50m (b) 8.83m×3.72m; 10.00m×4.50m; 10.00m×5.00m (v) 46cm×88cm; 60cm×60cm; 25cm×25cm (vi) Yes.

4. GENERAL:

(i) Good for 61 and poor for others (iii) Yield of grain (iv) (a) 1961—65 (Expts. for 1962 and 64 are N.A.) (b) and (c) Nil (v) and (vi) Nil (vii) Plot-wise yield data not available. As the two-way lables of yield for all the years are available, combining of results has not been done and the results of individual years have been presented under 5. Results.

5. RESULTS :

61 (254)

(i) 897.0Kg/ha (ii) (a) 168.9Kg/ha (b) 152.9Kg/ha (iii) None of the effect is significaut. (iv) Av. yield of grain in Kg/ha.

	N_0	N_1	P_0	P_1	P_2	mean
C_1	687	580	615	650	635	633
C_2	1173	1050	935	1195	1205	1112
C_3	1080	813	800	960	1080	947
mean	980	814	783	935	973	897
P_0	910	656				
P_1	1050	820				
P_2	980	967				

63 (299)

(i) 1261Kg/ha (ii) (a) 476.2Kg/ha (b) 153.2Kg/ha (iii) Main effect of N, P and interaction N×P are highly significant. (iv) Av. yield of grain in Kg/ha.

Treatment :	C_1	C_2	C_3	N_0	N_1	P_0	P_1	P_2
Av. yield:	1366	1171	1246	1022	1499	1055	1357	1371

C.D. for N means=85.1Kg/ha.

C.D. for P means=104.3Kg/ha.

64 (149)

(i) 371.0Kg/ha (ii) (a) 186.8Kg/ha (b) 60.0Kg/ha (iii) Main effect of N and P are highly significant. (iv) Av. yield of grain in Kg/ha.

Treatment:	C_1	C_2	C_3	N_0	N_1	P_0	P_1	P_2
Av. yield :	360	377	376	334	408	256	440	417

C.D. for N means=33.3Kg/ha.

C.D. for P means=40.8Kg/ha.

Crop :- Gram (*Rabi*). **Ref :-U.P. 66(79).**

Site :- State Soil Cons. Res. Demons. & Trg. Centre, Rehmankhera. **Type :-'CM'.**

Object :—To study the residual effect of shallow and deep cultivation while using different levels of N and P and spacings in Maize on the yield of gram.

1. BASAL CONDITIONS:

(i) (a) Maize—Gram/Barley (b) Maize (c) As per treatments+138Q/ha of F.Y.M. (ii) Loamy Sand to Sandy Loam (iii) 14.10.60 (iv) (a) N.A. (b) Behind the plough (c) 69Kg/ha (d) 46cm between rows (e)— (v) Nil (vi) N.A. (vii) Unirrigated (viii) 1 weeding (ix) and N.A.

2. TREATMENTS:

Main-plot treatments :

2 types of ploughings : C_1=Shallow ploughings (10cm. deep) with the help of country plough and cultivators and C_2=Deepploughings (20cm. deep) with the help of soil-inverting plough and tractor disc-harrow.

Sub-plot treatments :

3 row spacings : S_1=23, S_2=46 and S_3=91cm.

Sub-sub-plot treatments :

3 levels of N : N_0=0, N_1=56 and N_2=112Kg/ha.

Sub-sub-sub-plot treatments :

2 levels of P_2O_5 as Super : P_0=0 and P_1=44.8Kg/ha.

Note : These treatments were applied to Maize crop during preceeding *Kharif* season.

3. DESIGN :

(i) Split-plot (ii) (a) 2 main-plots/replication, 3 sub-plots/main-plot, 3 sub-sub-plots/sub-plot and 2 sub-sub-sub-plots/sub-sub-plot (b) 98.76m × 29.26cm (iii) 3 (iv) (a) 9.14m × 7.32m (b) 8.53m × 6.71m (v) 30cm × 30cm (vi) Yes.

4. GENERAL :

(i) Satisfactory (ii) Blister beetle, crows and jackals damaged the crop. (iii) Yield of grain and *bhusa* (iv) (a) 1960– only (b) and (c) N.A. (v) and (vi) Nil (vii) N.A.

5. RESULTS :

(i) 2265Kg/ha (ii) (a) 1226.3Kg/ha (b) 517.4Kg/ha (c) 290.2Kg/ha (d) 178.5Kg/ha (iii) Only interaction S×N is significant. (iv) Av. yield of grain in Kg/ha.

	S_1	S_2	S_3	N_0	N_1	N_2	P_0	P_1	mean
C_1	2387	2395	2100	2307	2354	2220	2280	2308	2294
C_2	2230	2346	2132	2355	2175	2178	2223	2249	2236
mean	2309	2371	2116	2331	2265	2199	2251	2279	2265
P_0	2279	2368	2107	2313	2253	2182			
P_1	2338	2373	2125	2343	2276	2217			
N_0	2486	2429	2079						
N_1	2326	2251	2216						
N_2	2114	2433	2053						

C.D. for N means at the same level of S=244.5Kg/ha.

C.D. for S means at the same level of N=344.4Kg/ha.

Crop :- Gram (*Rabi*). **Ref :- U.P. 61(307), 62 (331).**

Site :- Govt. Agri. Flood Res. Stn., Gogragh at. **Type :- 'GMV'**

Object :—To work out optimum cultural practices for the successful raising of Gram in the flood effected areas.

1. BASAL CONDITIONS:

(i) (a) Nil (b) *Jowar* for fodder (c) Nil (ii) Sandy loam (iii) 8.12.61; 4.12.62 (iv) (a) 2 to 3 ploughings (b) Behind the plough (c) 69Kg/ha (d) Rows 30cm apart (e) — (v) Nil (vi) As per treatments (vii) Unirrigated (viii) As per treatments (ix) 7.5cm; 4.4cm (x) 24.4.62; N.A.

2. TREATMENTS :

Main-plot treatments :

2 varieties : V_1=Type—1, V_2=Type—2.

Sub-plot treatments : All combinations of (1) and (2).

(1) 3 levels of manuring : M_0=Control, M_1=28Kg/ha of P_2O_5 and $M_2=M_1+5.6$Kg/ha of N.

(2) 2 levels of hoeings : H_0=Nil and H_1=4 hoeings.

Note: N as A/S, P_2O_5 as Super. A/S broadcasted. Super. drilled at sowing time.

Hoeings for 61=8.1.62, 23.1.62, 23.1.62, 2.2.62, 13.2.62 and for 62=19.1.63, 29.1.63, 8.2.63, 18.2.63.

3. DESIGN:

(i) Split-plot (ii) (a) 2 main-plots/replication and 6 sub-plots/main-plot. (b) 13.41×30.48m; 19.51m×14.33m(b) (iii) 3 (iv) (a) and (b) 6.10m×3.05m; 4.57m×6.40m (v) Nil (vi) Yes.

4. GENERAL :

(i) Satisfactory (ii) Nil (iii) Yeild of grain (iv) (a) 1961—62 (b) No. (c) Nil (v) and (vi) Nil (vii) Main-plot error variances are homogeneous but as sub-plot error variences are heterogeneous, results of the individual years have been presented under 5. Results.

5. RESULTS :

61 (307)

(i) 520Kg/ha (ii) (a) 263.0Kg/ha (b) 162.8Kg/ha (iii) None of the effects is significant. (iv) Av. yield of grain in Kg/ha.

	M_0	M_1	M_2	H_0	H_1	mean
V_1	354	504	462	417	463	440
V_2	519	553	725	626	573	599
mean	437	529	593	521	518	520
H_0	434	521	608			
H_1	440	536	579			

62 (331)

(i) 456Kg/ha (ii) (a) 431.0Kg/ha (b) 408.0Kg/ha (iii) None of the effects is significant. (iv) Av. yield of grain in Kg/ha.

	V_1	V_2	V_3	V_4	H_0	H_1	mean
V_1	612	60	882		530	870	700
V_2	180	137	318		212	211	211
mean	396	372	600		371	541	456.
H_0	438	242	433				
H_1	354	502	767				

Crop :- Gram (*Rabi*). **Ref:-U.P. 61(482), 62 (450), 63 (622), 64 (727).**

Site :- Govt. Reg. Agri. Res. Stn., Amrukh. **Type:- 'IM'.**

Object :—To find out suitable combination of levels of irrigations and fertilizers, which maximises the yield of Gram,

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Paddy (c) N.A. (ii) *Kabar* and *Parwa* (iii) 2.12.61; N.A.; 14.11.63; 30.10.64 and 1.11.64 (iv) (a) 2 to 3 ploughings (b) Line sowing behind the plough. (c) 80Kg/ha (d) Rows 30cm apart (e) — (v) Nil (vi) T_1 (vii) As per treatments (viii) Nil (ix) 1.5cm for 63; N.A. for others (x) N.A.; 25.3.63; 10.4.64; 10, 11.4,65.

2. TREATMENTS :

All combinations of (1) and (2).

(1) 3 levels of Irrigations : I_1=One irrigation, after 2 weeks of sowing, I_2=Two irrigations; Ist after 2 weeks, 2nd after 6 weeks of sowing and I_3=Three irrigations.; Ist after 3 weeks, 2nd after 6 weeks of sowing, 3rd at tillering stage.

(2) 3 levels of fertilizers : F_0=No fertilizer : F_1=5.6Kg/ha of N+28Kg/ha of P_2O_5 and $F_2=2\times F_1$.

3. DESIGN :

(i) Fact. in R.B.D. (ii) (a) 9 (b) N.A. (iii) 2 (iv) (a) and (b) 12.19m×8.23m (v) Nil (vi) Yes.

4. GENERAL :

(i) Good (ii) Nil (iii) Yield of grain (iv) (a) 1961—64 (b) Yes (c) Nil (v) Hardoi and Attara, (vi) Nil (vii) Irrigational treatments could not be tried for 64 and hence not considerad for combining the results. As error variances are heterog means and Trea.ments × years interaction is absent, the results of individual years have been presented under 5. Results.

5. RESULTS :

61 (482)

(i) 604Kg/ha (ii) 124.7Kg/ha (iii) None of the effects is significant. (iv) Av. yield of grain in Kg/ha.

	I_1	I_2	I_3	mean
F_0	563	543	483	530
F_1	693	643	528	621
F_2	653	553	772	659
mean	636	580	595	604

62 (450)

(i) 697Kg/ha. (ii) 239.5Kg/ha (iii) None of the effects is significant (iv) Av. yield of grain in Kg/ha.

	I_1	I_2	I_3	Mean
F_0	613	483	603	566
F_1	822	708	633	721
F_2	842	907	663	804
mean	759	699	633	697

63 (622)

(i) 1204Kg/ha. (ii) 90.7Kg/ha. (iii) Main effect of F alone is significant. (iv) Av. yield of grain in Kg/ha.

	I_1	I_2	I_3	mean
F_0	1356	1070	1084	1170
F_1	1388	1426	1226	1347
F_2	1125	1028	1130	1094
mean	1290	1175	1147	1204

C.D. for F marginal means=120.7Kg/ha.

64 (727)

(i) 1005Kg/ha. (ii) 410.6Kg/ha. (iii) Treatment differences are not significant. (iv) Av. yield of grain in Kg/ha.

Treatment :	F_0	F_1	F_2
Av. yield :	766	1131	1117

Crop :-Gram (*Rabi*). **U.P. 61 (840), 62 (499), 64 (725).**

Site :- Govt. Agri. Farm, Atarra. **Type :- 'IM'**

Object :—To find out suitable combination of irrigation and fertilizers which maximises the yield of Gram.

1. BASAL CONDITIONS :

(i) (a) Nil (b) and (c) N.A. (ii) *Parwa*-soil (iii) 20.11.61; 24.11.62; 20.11.64 (iv) (a) 2 to 3 ploughings (b) Line sowing behind the plough (c) 69Kg/ha (d) Rows 30cm apart (e) – (v) Nil (vi) I_1 (vii) As per treatments (viii) Nil (ix) N.A. (x) N.A. 28.3.63; 6/7.4.65.

2. TREATMENTS:

All combinations of (1) and (2)

(1) 3 levels of irrigation : I_1=One irrigation after 3 weeeks of sowing, I_2=Two irrigations; Ist after 3 weeks, 2nd after 6 weeks of sowing and I_3=Three irrigations; Ist and 2nd after 3 and 6 weeks of sowing and 3rd at milky stage.

(2) 3 levels of fertilizers : F_0=No fertilizers, F_1=5.6Kg/ha of N+28Kg/ha of P_2O_5 and $F_2=2\times F_1$.

3. DESIGN :

(i) Fact. in R.B.D. (ii) (a) 9 (b) N.A. (iii) 2 (iv) (a) and (b) 7.92m×12.80m (v) Nil (vi) Yes.

4. GENERAL:

(i) Good (ii) Nil (iii) Yield of grain (iv) (a) 1961—64 (Expt. failed in 63) (b) Yes (c) Nil (v) Amrukh, and Hardoi (vi) Nil (vii) As the error variances are heterogeneours and Treatments×years interaction is absent, the results of individual yearshave been presented under 5. Results.

5. RESULTS :

61 (480)

(i) 1163Kg/ha (ii) 135.9Kg/ha (iii) None of the effects is significant. (iv) Av. yield of grain in Kg/ha.

	I_1	I_2	I_3	mean
F_0	966	1178	1272	1138
F_1	1129	976	1148	1084
F_2	1385	1212	1203	1267
mean	1160	1122	1207	1163

62 (499)

(i) 1506Kg/ha (ii) 397.7Kg/ha (iii) None of the effects is significant. (iv) Av. yield of grain in Kg/ha.

	I_1	I_2	I_3	mean
F_0	1562	1947	1552	1687
F_1	1010	1503	1602	1372
F_2	1750	1025	1607	1460
mean	1441	1492	1587	1506

64 (725)

(i) 666.0Kg/ha (ii) 181.0Kg/ha (iii) None of the effect is significant. (iv) Av. yield of grain in Kg/ha.

	I_1	I_2	I_3	mean
F	540	589	860	663
F_1	606	646	614	622
F_2	739	700	702	714
mean	628	645	725	666

Crop :- Gram (*Rabi*). **Ref :- U.P. 61 (134), 62 (115), 63 (147).**

Site :- Govt. Reg. Agri. Res. Stn., Hardoi. **Type :- '1M'.**

Object :—To determine the levels of factors of irrigation and fertility to get maximum production of Gram.

1. BASAL CONDITIONS :

(i) (a) Nil (b) *Moong* for G.M.; N.A.; Early Paddy (c) Nil (ii) Sandy loam (iii) 27.11.61; 23.11.62; 8.11.63 (iv) (a) N.A. (b) Behind the plough (c) 81Kg/ha; 37Kg/ha; 69Kg/ha (d) N.A. (e) Nil (v) Nil (vi) T_1; T 87 (vii) As per treatments (viii) and (ix) N.A. (x) 15.4.62; 19.4.63; 9.4.64.

2. TREATMENTS:

Same as in Expt. No. 61 (480), 62 (499), 64 (725) and presented on page No. 917.

3. DESIGN :

(i) Fact. in R.B.D. (ii) (a) 9 (b) N.A. (iii) 2 (iv) (a) and (b) 9.14m×7.6m; 8.69m×7.32m for 62 and 63. (v) — (vi) Yes.

4. GENERAL :

(i) Good (ii) Nil (iii) Yield of grain (iv) (a) 1961—64 (Expt-failed in 64) (b) N.A. (c) The results of combined analysis have been presented under 5. Results. (v) Amrukh and Atarra (vi) N.A. (vii) Error variances are heterogeneous and Treatments × years interaction is present.

5. RESULTS :

Pooled results :

(i) 1658Kg/ha (ii) 549.4Kg/ha (based on 16 d.f. made up and Treatments × years interaction). (iii) Main effect of F is highly sign ficant (iv) Av. yield of grain in Kg/ha.

	F_0	F_1	F_2	mean
I_1	1149	1566	1922	1545
I_2	1345	1766	2040	1717
I_3	1444	1768	1920	1711
mean	1313	1700	1960	1658

C.D. for F marginal means—388.4Kg/ha

Individual results :

Treatment	I_1	I_2	I_3	Sig	F_0	F_1	F_2	Sig.	G M.	S E./plot
Years										
1961	1266	1361	1347	N.S.	1493	1187	1294	*	1325	155.3
1962	2057	2240	2086	**	1339	2413	2631	**	2128	41.6
1963	1314	1550	1699	N.S	1107	1500	1956	**	1521	310 0
Pooled	1545	1717	1711	N.S.	1313	1700	1960	**	1658	549.4

Crop :- Gram (*Rabi*). **Ref :- U.P. 60 (264), 61 (258).**

Site :-R.B.S. College, Bichpuri. **Type :- 'D'.**

Object :—To study the control of cyperus rotundus in fallow—gram rotation.

1. BASAL CONDITIONS :

(i) (a) Fallow—gram (b) Fallow (c) N.A. (ii) Sandy loam (iii) 14.10.60; 3.10.61 (iv) (a) As per treatments (b) By tractor drawn seed-drill (c) 69.2Kg/ha; 80.7Kg/ha (d) N.A. (e) — (v) Nil (vi) T -87 (vii) Nil (viii) As per treatments (ix) 7.7cm, 6.4cm (x) 11.4 61; 4.4.62.

2. TREATMENTS :

All combinations of (1), (2), (3) and (4) + a Control (unweeded) :

(1) 3 weedicedes : W_1=Sodium salt of 2, 4—D, W_2=Amine form of 2, 4—D and W_3=Ethyl Ester of 2, 4—D.

(2) 3 doses of weedicide : D_1=1.7, D_2=2.2 and D_3=2.8Kg and equivalent/hactare.

(3) 3 times of application of weedicides : T_1=once, T_2=twice and T_3=thrice.

(4) 3 tillage treatments : C_1=one, C_2=two and C_3=three tillage operations with *Deshi* plough.

Note :— The treatments of weedicides application and tillage operations were given alternatively, starting from Ist spraying after the emergence of weeds followed by the Ist tillage operation.

3. DESIGN:

(i) 3^4 confounded factorial design with control in each block (ii) (a) 9 blocks/replication, 10 plots/block (b) N.A. (iii) one (iv) (a) 6.71m×6.71m (b) 5.49m×5.49m (v) 61cm×61cm (vi) Yes.

4. GENERAL

(i) Good (ii) Nil (iii) Yield of grain (iv) (a) 1960—61 (b) and (c) Nil (v) and (vi) Nil (vii) Plot—wise yield data N.A. Only following results are available.

5. RESULTS:

60 (264)

(i) N.A. (ii) 457.2Kg/ha. (iii) None of the effects is significant. (iv) Av. yield of grain in Kg/ha.

Control=N.A.

Treatment :	W_1	W_2	W_3	D_1	D_2	D_3
Av. yield :	1152	1121	964	1089	1121	1027

Treatment:	T_1	T_2	T_3	C_1	C_2	C_3
Av. yield :	1089	1089	1058	1152	1058	1027

61 (258)

(i) 725.3Kg/ha (ii) 299.9Kg/ha. (iii) Only main effect of T is significant. (iv) Av. yield of grain in Kg/ha.

Control=706.0Kg/ha

Treatment:	W_1	W_2	W_3	D_1	D_2	D_3
Av. yield:	704	776	701	771	724	686
Treatment:	T_1	T_2	T_3	C_1	C_2	C_3
Av. yield:	835	744	603	736	674	772

C.D. for T means=164.9Kg/ha

Crop :- Gram (*Rabi*) **Ref :-U.P. 61 (231).**

Site :- Govt. Reg. Agri. Res. Stn., Meerut. **Type :- 'D'**

Object : – To study the Intensity of wilt in Gram.

1. BASAL CONDITIONS:

(i) (a) Nil (b) *Chari* (c) Nil (ii) Loam (iii) 27.10.61 (iv) (a) One ploughing by soil turning plough and 2–3 ploughings by *Deshi* plough (b) Behind the plough (c) 81Kg/ha (d) Rows 46cm apart (e) — (v) N.A. (vi) T. 87 (vii) and (viii) Nil (ix) 10.7cm (x) 26.4.62.

2. TREATMENTS :

T_1=untreated seeds and T_2= Mustard oil treated seeds.

3. DESIGN:

(i) R.B.D. (ii) (a) 2 (b) 16.76m×6.40m (iii) 2 (iv) (a) 7.92m×6.40m (b) 7.32m×5.49m (v) 30cm×46cm (vi) Yes.

4. GENERAL :

(i) Good germination (ii) Under study (iii) No. of plantes germinated, No. of wilted plant and yield of grain (iv (a) 1961—only (b) and (c) — (v) No (vi) and (vii) Nil.

5. RESULTS :

Data of wilted plants :

(i) 20.1 degree (ii) 4.6 degree (iii) Treatment differences are not significant. (iv) Mean angle in degrees;

Treatment :	T_1	T_2
Mean angle :	23.9	16.2

Yield data:

(i) 497.7Kg/ha (ii) 199.1Kg/ha (iii) Treatment differences are not significant. (iv) Av. yield of grain in Kg/ha.

Treatments	T_1	T_2
Av. yield	435.5	559.9

Crop :- Gram (*Rabi*). **Ref :- U.P. 64 (668).**

Site :- Govt. Regional Agri. Res. Stn., Rudrapur. **Type :- 'D'**

Object :—To study the effect of insecticides against Gram pod borer.

1. BASAL CONDITIONS:

(i) (a) to (c) N.A. (ii) N.A. (iii) N.A. (iv) (a) N.A. (b) Behind the plough (c) N.A. (d) Rows 50cm. apart (e) — (v) N.A. (vi) T. 87 (vii) to (x) N.A.

2. TREATMENTS:

3 insecticidal treatments : T_0=Control (no treatment), T_1=Dusting with 2.0% Imidan and T_2=Dusting with 2.0% Trithion dust.

Treatments applied on 29.3.65

3. DESIGN :

(i) R.B.D. (ii) (a) 3 (b) 13.00m × 20.40m (iii) 3 (iv) (a) and (b) 13.00m × 6.00m (v) Nil (vi) Yes.

4. GENERAL :

(i) N.A. (ii) Under study (iii) % of damaged pods (iv) (a) 1964—only (b) and (c) — (v) to (vii) Nil.

5. RESULTS :

(i) 11.5 degree (ii) 1.8 degree (iii) Treatment differences are not significant. (iv) Mean infestation in degree.

Treatments:	T_0	T_1	T_2
Degree:	9.7	11.5	13.2

Crop :-Urd (*Kharif*). **Ref:-U.P. 62 (109).**

Site :- Govt. Reg. Agri. Res. Stn., Hardoi. **Type :-'M'**

Object:—To study the residual effect of organic and inorganic nitrogenous manures with and without phosphatic fertiiizer applied to wheat crop during the preceeding season.

1. BASAL CONDITIONS :

(i) (a) Wheat–*Urd* (b) Wheat (c) 'As per treatments' (ii) Sandy loam (iii) N.A. (iv) (a) to (d) N.A. (e) Nil (v) N.A. (vi) T—9 (vii) Unirrigated (viii) N.A. (ix) 67cm (x) 13.10.62.

2. TREATMENTS :

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

(1) 3 sources of N : F_1=A/S/N, F_2=Compost and F_3=A/S/N + Compost.

(2) 2 levels of N : N_1=28 and N_2=56Kg/ha.

(3) 2 levels of P_2O_5 as Super : P_0=0 and P_1=44.8Kg/ha.

2 extra treatments : E_0=Control and E_1=44.8Kg/ha of P_2O_5 as Super.

These treatments were applied to Wheat crop.

3. DESIGN :

(i) R.B.D. (ii) (a) 14 (b) N.A. (iii) 4 (iv) (a) and (b) 10.52m×4.80m (v) Nil (vi) Yes.

4. GENERAL :

(i) N.A. (ii) Disease infection (Details– N.A.), crop damaged (iii) Yield of grain (iv) (a) 1962–63 (Expt. failed in 63) (b) Yes (c) – (v) N.A. (vi) Nil (vii) The crop badly damaged due to wat lodging.

5. RESULTS :

(i) 258.6Kg/ha (ii) 199.1Kg/ha (iii) None of the effects is significant (iv) Av. yield of grain in Kg/ha.

E_0=386.4 and E_1=247.6Kg/ha

	N_1	N_2	F_1	F_2	F_3	mean
P_0	317.0	173.4	170.9	304.7	260.0	245.2
P_1	226.2	279.0	175.8	275.0	307.0	252.6
mean	271.6	226.2	173.4	289.9	283.5	248.9
F_1	195.6	151.1				
F_2	272.6	307.1				
F_3	346.6	220.4				

Crop :- Urd (*Kharif*). **Ref :- U.P. 62 (460), 63 (534), 64 (655).**

Site :- Govt. Reg. Agri. Res. Stn., Majhera. **Type :- 'M'.**

Object :—To find out a standard dose of organic and inorganic nitrogeneous manures with and without P.

1. BASAL CONDITIONS:

(i) (a) Wheat –*Urd*; N.A.; Wheat (b) Wheat for 64; N.A. for others (c) 33.6Kg/ha of N+17.9Kg/ha of P_2O_5 for 64 and N.A. for others (ii) Sandy loam for others (iii) 19.7.62; 27.6.63; 31.7.64 (iv) (a) 3 ploughings with *Deshi* plough; one ploughing by soil-turning plough (b) Line sowing (c) 19.8Kg/ha (d) N.A.; Rows 15.2cm and 45.7cm apart for 63 and 64 (e) — (v) Nil (vi) T_9—5/13 for 64 and N.A. for others (vii) Unirrigated (viii) N.A ; 3 weedings by *Khurpi*; 2 weedings and one hoeing (ix) N.A. (x) 17.10.62; 21 and 25.9.63; 18 to 25.10.64.

2. TREATMENTS :

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

(1) 3 forms of N : F_1=A/S, F_2=F.Y.M F_3=½ F.Y.M.+½ A/S.

(2) 2 levels of N : N_1=28 and N_2=56Kg/ha.

(3) 2 levels of P_2O_5 : P_0=0 and P_1=44.8Kg/ha.

2 extra treatments : E_0=Control, E_1=44.8Kg/ha of P_2O_5.

3. DESIGN :

(i) Fact. in R.B.D. (ii) (a) 14 (b) 47.55m×1.83m for 62 and N.A. for others (iii) 4 (iv) (a) and (b) 2.74m×1.83m for 62 and 4.57m×3.66m for others (v) Nil (vi) Yes.

4. GENERAL :

(i) Satisfactory for 63 and N.A. for others (ii) N.A. for 62 and attack of hairy catter for others (iii) Yield of grain (iv) (a) 1962—64 (b) No (c) Results of combined analysis have been presented under 5. Results. (v) and (vi) N.A. (vii) Error variances are homogeneous and Treatments×years interaction is present.

5. RESULTS :

Pooled results :

(i) 393.9Kg/ha. (ii) 223.7Kg/ha (based on 22 d.f. made up of Treatments×years interaction) (iii) None of the effects is significant. (iv) Av. yield of grain in Kg/ha.

E_0=339.0 and E_1=304.5Kg/ha.

	P_0	P_1	N_1	N_2	mean
F_1	389.0	403.0	428.0	364.0	396.0
F_2	404.3	396.3	367.0	433.6	400.3
F_3	427.6	415.6	436.0	407.3	421.6
mean	407.0	405.0	410.3	401.6	406·0
N_1	410.0	410.6			
N_2	404.0	399.3			

Individual results :

Treatment	F_1	F_2	F_3	Sig.	P_0	P_1	Sig.	N_1	N_2	Sig.	E_0	E_1	Sig.	G.M.	S.E./plot
Year 1962	323	320	362	N.S.	338	332	N.S.	329	341	N.S.	199.3	214.2	N.S.	316.4	178.4
1963	449	440	508	N.S.	427	511	N.S.	455	483	N.S.	557.6	400.6	N.S.	470.5	168.4
1964	416	431	395	N.S.	456	372	N.S.	447	381	N.S.	260.1	298.9	N.S.	394.9	164.9
Pooled	396.0	400.3	421.6	N.S.	407.0	405.0	N.S.	410.3	401.6	N.S.	339.0	304.5	N.S.	393.9	223.7

Crop :- Urd (*Kharif*). **Ref :- U.P. 60 (426), 61 (439)**

Site :- Govt. Reg. Agri. Res. Stn., Majhera. **Type :- 'M.'**

Object :—To study the effect of organic and inorganic manures with different doses of N.

1. BASAL CONDITIONS :

(i) (a) *Sarson—Urd*; N.A. (b) Sarson; N.A. (c) N.A. (ii) Sandy loam (iii) 12.8.60; 21.7.61 (iv) (a) N.A. (b) Line sowing behind *Kassi*. (c) 9.2Kg/ha (d) N.A. (e) — (v) Nil (vi) 9 -5/13 (vii) Unirrigated (viii) Weeding and hoeing (ix) N.A. (x) 10.11.60; N.A.

2. TREATMENTS :

All combinations of (1) and (2) + one Control:

(1) 2 sources of N : S_1 = Urea and S_2 = F.Y.M.

(2) 3 levels of N : N_1 = 28, N_2 = 44.8 and N_3 = 67.2Kg/ha.

Time of application—12.8.60 for 1960, 21.7.61 for 1961.

3. DESIGN:

(i) R.B.D. (ii) (a) 7 (b) 6.10m × 32.00m (iii) 4 (iv) (a) and (b) 6.10m × 3.66m (v) Nil (vi) Yes.

4. GENERAL:

(i) Satisfactory (ii) Nil (iii) Yield of grain (iv) (a) 1960 –61 (b) No (c) Nil (v) and (vi) Nil (vii) As error variances are heterogenous and Treatments × years interaction is absent, the results of individual years have been presented under 5 Results.

5. RESULTS :

60 (426)

(i) 537.4Kg/ha (ii) 257.5Kg/ha (iii) None of the effects is significant. (iv) Av. yield of grain in Kg/ha.

Control = 483.3Kg/ha.

	N_1	N_2	N_3	mean
S_1	496.3	744.5	561.6	600.8
S_2	346.1	542.0	587.7	491.9
mean	421.2	643.3	574.7	546.4

61 (439)

(i) 416.1Kg/ha (ii) 149.0Kg/ha (iii) None of the effects is significant. (iv) Av. yield of grain in Kg/ha.

Control = 385.3Kg/ha.

	N_1	N_2	N_3	mean
S_1	378.8	411.4	483.3	424.5
S_2	535.5	287.3	431.0	417.9
mean	457.1	349.4	457.1	421.2

Crop :- Urd (*Kharif*). **Ref- U.P. 63(48).**

Site :-Instt. of crop Physiology, Dilkusha, Lucknow. **Type :-'D'.**

Object :—To study the effect of harmones on pod filling and seed-setting in Urd.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Sandy loam to loam (iii) 15.7.63 (iv) (a) to (e) N.A. (v) N.A. (vi) T—9 (vii) and (viii) N.A. (ix) 45.5cm (x) 2 pickings (dates—N.A.).

2. TREATMENTS :

8 harmones: H_0=Control, H_1=PCA—5 p.p.m., H_2=IBA—20 p.p.m., H_3=PCA+IBA mixture in 1 : 4 ratio, H_4=NOA—50 p.p.m., H_5=NAA—20 p.p.m., H_6=Gebberellic acid—10 p.p.m. and H_7=2, 4, 5—T—20 p.p.m.

I spray done at 1st flower appearance and II at full bloom.

3. DESIGN :

(i) R.B.D. (ii) (a) 8 (b) N.A. (iii) 3 (iv) (a) and (b) 2.74m×1.83m (v) Nil (vi) Yes.

4. GENERAL:

(i) and (ii) N.A. (iii) Height of vines, No. of pods, Yield of grain and straw (iv) (a) 1963—only (b) and (c) — (v) to (vii) Nil

5. RESULTS:

(i) 1757Kg/ha (ii) 279.2Kg/ha (iii) Treatment differences are significant. (iv) Av. yield of grain in Kg/ha.

Treatments :	H_0	H_1	H_2	H_3	H_4	H_5	H_6	H_7
Av. yield :	1722	1944	1846	1798	1952	1738	2011	1042

C.D.=488.9Kg/ha.

Crop. :- Moong (*Kharif*). **Ref. :- U.P. 62(255), 63 (272)**

Site :- Govt. Reg. Agri. Res. Stn., Meerut **Type :- 'M'**

Object :—To study the residual effect of N, P and K fertilizers applied to wheat on *Moong*.

1. BASAL CONDITIONS :

(i) (a) Nil for 62 *Moong*/Bajra—Wheat for 63 (b) Wheat (c) As per treatments (ii) Loam (iii) 24.4.62, gap filling on 7.5.62; 3.5.63; (iv) (a) 1 ploughing by victory plough & 2 ploughings by *Deshi* plough (b) Behind the plough in lines (c) 15Kg/ha (d) Rows 46cm apart (e) Nil (v) Nil (vi) T—1 (vii) Irrigated (viii) 1 weeding and hoeing except in 62 (ix) 12.8cm; 11.4cm; (x) 28.7.62 to 13.8.62; 27—29.6.63.

2. TREATMENTS :

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

(1) 3 levels of N : N_0=0, N_1=44.8 and N_2=89.6Kg/ha of N.

(2) 3 levels of P_2O_5 : P_0=0, P_1=22.4 and P_2=44.8Kg/ha of P_2O_5.

(3) 3 levels of K_2O: K_0=0, K_1=22.4 and K_2=44.8Kg/ha of K_2O.

These treatments were applied to Wheat crop during the previous Rabi season.

3. **DESIGN:**

(i) 3^3 confounded; (ii) (a) 9 plots/block; 3 blocks/replication (b) 17.07m × 45.72m (iii) 2 (iv) (a) 17.07m × 4.27m (b) 17.07m × 4.27m (v) Nil (vi) Yes.

4. **GENERAL:**

(i) Satisfactory (ii) Nil (iii) Yield of grain (iv) (a) 1962—64 (Expt. failed in 64) (b) No (c) Nil. (v) and (vi) Nil (vii) As error vearianees are heterogeneous and Treatments × years Interaction is absent, the results of individual years have been presented under 5. Results.

5. **RESULTS:**

62 (255):

(i) 639.7Kg/ha (ii) 83. Kg/ha (iii) Main effect of N alone 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	669.9	672.7	683.4	653.5	661.0	711.6	675.3
N_1	57 · 8	558.1	632.9	552.6	642.5	569.7	655.6
N_2	578.0	678.2	710.5	675.4	695.8	595.4	588.3
mean	607.2	636.3	675.6	627.2	666.4	625.6	639.7
K_0	619.8	605.9	655.8				
K_1	636.5	625.1	737.7				
K_2	565.4	678.0	633.3				

C D. for N marginal means=57.6Kg/ha.

63 (272):

(i) 472.6Kg/ha (ii) 121.4Kg/ha (iii) Main effect of N alone 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	466.8	517.4	604.0	480.5	544.6	562.9	529.3
N_1	450.7	505.7	489.6	524.0	437.0	485.1	482.0
N_2	350.1	457.6	411.8	437.0	439.3	343.2	406.5
mean	422.5	493.5	501.8	480.5	473.6	463.7	472.6
K_0	405.0	473.6	562.9				
K_1	469.0	439.3	512.5				
K_2	393.5	567.4	430.1				

C.D. for N marginal means=83.9Kg/ha.

Crop:-Moong (*Kharif*). **Ref :- U.P. 64 (591).**

Site :- Govt. Res. Agri. Res. Stn., Varanasi. **Type :-'M'.**

Object:—To study the residual effect of organic and inorganic manures with and without P applied to Wheat crop.

1. BASAL CONDITIONS:

(i) (a) Nil (b) Wheat (c) As per treatments (ii) Loam (iii) July, 64 (iv) (a) 1 ploughing by care plough, 3—4 ploughings by *Deshi* ploughing (b) Sown behind the plough in lines (c) 12.4Kg/ha (d) Rows 46cm apart (e) Nil (v) Nil (vi) T—1 (vii) and (viii) Nil (ix) 74.3cm (x) 14.9.64.

2. TREATMENTS :

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

(1) 2 levels of P_2O_5 as Super : P_0=0 and P_1=44.8Kg/ha.

(2) 2 levels of N : N_1=28 and N_2=56Kg/ha.

(3) 3 sources of N: S_1=A/S, S_2=F.Y.M. and S_3=½ A/S+½ F.Y.M.

2 extra treatments : E_0=Control (no manure) and E_1=44 8Kg/ha of P_2O_5 as Super.

3. DESIGN :

(i) R.B.D. (ii) (a) 14 (b) 11.89m×69.49m (iii) 4 (iv) (a) and (b) 11.89m×4.11m (v) Nil (vi) Yes.

4. GENERAL :

(i) Satisfactory (ii) Nil (iii) Yield of grain (iv) (a) 1964—only (b) and (c) — (v) to (vii) Nil.

5. RESULTS :

(i) 413.2Kg/ha (ii) 115,5Kg/ha (iii) None of the effects is significant. (iv) Av. yield of grain in Kg/ha.

E_0=421.2 and E_1=385.9Kg/ha.

	N_1	N_2	S_1	S_2	S_3	mean
P_0	437.7	396.6	422.0	409.7	419.9	417.2
P_1	403.3	421.5	416.8	415.3	405.0	412.4
mean	420.5	409.1	419.4	412.5	412.5	414.8
S_1	481.2	357.5				
S_2	368.8	456.2				
S_3	411.4	413.5				

Crop :- Moong (*Kharif*) **Ref :- U.P. 65 (578)**

Site :- Govt. Agri. College, Kanpur. **Type :- 'D'.**

Object : —To test the effect of different insecticides against the vector white Fly for controlling yellow mosaic of moong and there by to see the incidence of the disease.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Loam (iii) As per treatments (iv) (a) N.A. (b) Brodcasting (c) 15Kg/ha (d) and (e) Nil (v) N.A. (vi) T—1 (vii) Unirrigated (viii) N.A. (ix) 4 1.4cm (x) 1.7.65, 15.7.65, 1.8.65.

2. TREATMENTS:

All combinations of (1) and (2) + 3 controls:

(1) 3 insecticides : I_1=0.1% Metasystose, I_2=0.1% Hexatin, I_3=0.02% Dimecron.

(2) 3 dates of sowing : S_1=15.5.65, S_2=1.6.65 and S_3=15.6.65.

Insticides were sprayed at weekly interval a fortnight after germination.

Time of application=Weekly spraying.

Method of Application =Spraying with sprayer.

3. DESIGN:

(i) R.B D. (ii) (a) 12 (b) 8.50m×3.50m (iii) 4 (iv) (a) and (b) 1.50m×1.00m (v) Nil (vi) Yes.

4. GENERAL :

(i) Good (ii) Under study (iii) Percentage of Infection (iv) (a) 1965—only (b) and (c) — (v) N.A. (vi) Draught conditions. (vii) Nil.

RESULTS :

(i) 50.4 degrees (ii) 12.5 degrees (iii) Main effects of S, interaction I×S and control *Vs.* others are highly significant. (iv) Mean infection in degrees.

Control=59.0 degrees

	S_1	S_2	S_3	mean
I_1	58.7	49.1	31.1	46.3
I_2	61.6	55.2	33.9	50.2
I_3	55.8	49.2	32.9	46.0
mean	58.7	51.2	32.6	47.5

C.D. for S Marginal means=10.4 degrees

C.D. for body of table=17.9 degrees.

C.D. for control *Vs.* others=8.5 degrees

Crop:- Moong (*Kharif*) **Ref:- UP. 64 (19).**

Site :- Govt Agri. College, Kanpur. **Type :- 'D'.**

Object :—To study the effect of insecticides on the control of mosaic of Moong.

1. BASAL CONDITIONS:

(i) (a) to (c) N.A. (ii) Loam (iii) As per treatments (iv) (a) N.A. (b) Broadcasting (c) 15Kg/ha (d) — (e)— (v) F.Y.M. applied (vi) T—1 (vii) and (viii) N.A. (ix) 36.2cm. (x) 20.7.64, 2.8.64 and 16.8 64.

2 TREATMENTS :

All combinations of (1) and (2) :

(1) 3 sowing dates : D_1=15.6.64, D_2=15.7.64 and D_3=15.8.64.

(2) 4 insecticidal sprays: S_0=Control (No treatment), S_1=0.2%, Basudin 20 E, S_2=0.2% Folidol E 605 and S_3=0.2% Metasystox.

3. DESIGN:

(i) Fact. in R.B.D. (ii) (a) 12 (b) 3.50m×1[illegible].50m (iii) 4 (iv) (a) and (b) 1.50m×1.50m (v) Nil (vi) Yes.

4. GENERAL:

(i) N.A. (ii) Under study (iii) Total no. of plants and no. of plants infected (iv) (a) 1964 —only (b) and (c)— (v) to (vii) Nil.

5. RESULTS :

(i) 21.5 degrees (ii) 5.6 degrees (iii) Main effect of D, S and interaction D×S are highly significant. (iv) Mean infection in degrees.

	S_0	S_1	S_2	S_3	mean
D_1	49.4	39.0	35.1	33.7	39.3
D_2	38.3	18.1	13.2	11.5	20.3
D_3	3.1	4.8	7.0	5.0	5.0
mean	30.3	20.6	18.4	16.7	21.5

C.D. for D marginal means=4.03 degrees

C.D. for S marginal means=4.7degrees

C.D. for the body of D×S table=8.1degrees

Crop :- Moong (*Kharif*). **Ref :- U.P. 64(295).**

Site :- Govt. Reg. Agri. Res. Stn., Meerut **Type :- 'D'.**

Object :—To control the Mosaic of legumes by the application of spartine Insecticide, Trace-elements and secondary elements.

1. BA ·AL CONDITIONS:

(i) (a) Nil (b) Wheat (c) N.A. (ii) Loam (iii) 30.7.64 (iv) (a)1 ploughing by soil turning plough, 4 ploughings by *Deshi* plough (b) Line sowing behind the plough (c) 19Kg/ha (d) 30cm. apart (e) –(v) 11.2Kg/ha of N as A/S+28Kg/ha of P_2O_5 as Super (vi) T—1 (vii) Nil (viii) Weeding and hoeing (ix) 60.8cm (x) 10.10.64.

2 TREATMENTS :

16 Chemical treatments :

T_0=Control, T_1=Spraying of 0.02% Folidol solution, T_2=Spraying of Basudin (1: 600) solution, T_3=Spraying of D.D.T. E.C. 0.025% solution, T_4=Application of spartin @ 247Kg/ha, T_5=T_4+T_1, T_6=T_4+T_2, T_7=T_4+T_3, T_8=T_4+Water, T_9=Spraying of magnesium as Magnessim Sul.T_{10}=Spraying of manganese as Manganese Sul, T_{11}=Spraying of Fe as Fe. Sul. of 0.5% strenght, T_{12}=Spraying of B as Boric Acid (H_3BO_3) of 0.2% strength, T_{13}=Sprayingof Copper as Copper Sul., of 0.2% strngth, T_{14}=Spraying of Zine as Zinc Sul. of 0.25% stength, T_{15}=Spraying of water.

I spraying on 29.8.64, II sprayige on 15.9.64.

3. DESIGN :

(i) R.B.D. (ii) (a) 16 (b) 72.54m×12.65m (iii) 3 (iv) (a) 3.96m×12.65m (b) N.A. (v) N.A. (vi) Yes.

4. GENERAL:

(i) Good (ii) Nil (iii) Yield of grain and yellowing of leaves (iv) (a) 1964—only (b) and (c) Nil (v) to (vii) Nil.

5. RESULTS :

Yield data:

(i) 259.3Kg/ha (ii) 75.6Kg/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 :	177.5	282.6	214.1	246.0	262,6	250.0	289.3	222.7

	T_8	T_9	T_{10}	T_{11}	T_{12}	T_{13}	T_{14}	T_{15}
	187.5	316.5	312.5	282.6	252.7	287.3	311.2	259.3

Infection data:

(i) 73.1 degrees (ii) 4.3 degrees (iii) Treatment differences are not significant. (iv) Mean infestation in degrees.

Treatments:	T_0	T_1	T_2	T_3	T_4	T_5	T_6	T_7	T_8	T_9	T_{10}	T_{11}
Mean angle :	71.6	74.9	75.7	70.3	72.1	73.8	67.1	71.2	72.5	75.3	75.8	75.0

T_{12}	T_{13}	T_{14}	T_{15}
75,7	75.0	73.9	69.6

Crop :- Lentil (*Rabi*). **Ref. :-U.P. 65 (196).**

Site :- Govt. Agri. Flood Res. Stn., Gogràghat. **Type :-'M'.**

Object :—To find out the suitable dose of fertilizers før Lentil for flood effected area of eastern U.P

1. BASAL CONDITIONS:

(i) (a) Fallow—Lentil (b) Fallow (c) Nil (ii) Loam (iii) 30.10.65 (iv) (a) 3 ploughings by soil turning plough + 3 ploughings by *Deshi* plough each followed by pataying (b) Behind the *Deshi* plough (c) 62Kg/ha (d) Rows 25cm apart (e) Nil (v) Nil (vi) T −6 (vii) Unirrigated (viii) Nil (ix) 4.5cm (x) 5.4.66.

2. TREATMENTS :

All combinations of (1) and (2):

(1) 3 levels of N as A/S : N_0=0, N_1=10 and N_2=20Kg/ha.

(2) 4 levels of P_2O_5 as Super : P_0=0, P_1=20, P_2=40 and P_3=60Kg/ha.

A/S was broadcasted before sowing and Super was drilled in furrows at the time of sowing.

3. DESIGN :

(i) Fact. in R B.D. (ii) (a) 12 (b) 16.50.n×32.50m. (iii) 4 (iv) (a) and (b) 8.00m×32.50m (v) Nil (vi) Yes.

4. GENERAL:

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

5 RESULTS :

(i) 876.9Kg/ha (ii) 301.9Kg/ha (iii) None of the effects is significant. (iv) Av. yield of grain in Kg/ha.

	P_0	P_1	P_2	P_3	mean
N_0	746.3	916.9	753.8	736.9	788.4
N_1	958.1	819.4	857.5	705.6	835.2
N_2	1020.0	1047.5	1344.4	616.3	1007.0
mean	908.1	927.9	985.2	686.3	876.9

Crop :- Lentil (*Rabi*). **Ref :- U.P. 60(155)**

Site :- Govt. Reg. Agri. Res. Stn., Nawabgunj. **Type :- 'M'.**

Object:—To study the residual effect of organic and inorganic manures applied to Paddy crop on succeeding Lentil crop.

1. BASAL CONDITIONS:

(i) (a) Paddy—Lentil (b) Paddy (c) As per treatments (ii) Cley Loam (iii) 22.10.60 (iv) (a) N.A. (b) Broadcasted in standing paddy crop (c) N.A. (d) — (e) — (v) Nil (vi) T—36 (vii) Irrigated (viii) N.A. (ix) 5.6cm (x) 29 to 31.3.61.

2. TREATMENTS:

10 manurial treatments :

T_0=Control, T_1=22.4Kg/ha of N as A/S, T_2=44.8Kg/ha of N as A/S, T_3=22.4Kg/ha of N as A/S+ 44.8Kg/ha of P_2O_5 as Super, T_4=22.4Kg/ha. of N as F.Y.M., T_5=44.8Kg/ha of N as F.Y.M., T_6= 22.4Kg/ha of N as F.Y.M.+44.8Kg/ha of P_2O_5 as Super, T_7=44.8Kg/ha of N, ½ as A/S and ½ as F.Y.M., T_8=44.8Kg/ha of N, ½ as A/S and ½ as F.Y.M+44.8Kg/ha of P_2O_5 as Super, T_9=44.8Kg/ha of P_2O_5 as Super.

Treatments were applied to the previous paddy crop during Kharif. 1960.

3. DESIGN :

(i) R.B.D. (ii) (a) 10 (b) N.A. (iii) 4 (iv) (a) 12.34m×4.11m (b) 11 43m×3.66m (v) 46cm×23cm (vi) Yes.

4. GENERAL :

(i) Poor (ii) Nil (iii) Yield of grain (iv) (a) 1960—only (b) and (c) — (v) to (vii) Nil.

5. RESULTS :

(i) 393.9Kg/ha (ii) 205.5Kg/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 :	323.3	344.8	491.2	267.7	342.4	386.6
Treatment :		T_6	T_7	T_8	T_9	
Av. yield :		383.6	508.5	498.4	393.2	

———

Crop :- Lentil (*Rabi*) **Ref :- U.P. 61(167).**

Site :- Govt. Reg. Agri. Res. Stn., Nawabgunj. **Type :-'M'.**

Object :—To study the residual effect of placement of Super to Paddy crop on the succeeding Lentil crop.

1. BASAL CONDITIONS :

(i) (a) Paddy—Lentil (b) Paddy (c) As per treatments (ii) Clay loam. (iii) 27.10.61 (iv) (a) N.A. (b) Broadcasted in standing Paddy crop (c) N.A. (d) and (e) – (v) Nil (vi) T –15 (Medium) (vii) Unirrigated (viii) N.A. (ix) 10.6cm (x) 31.3.62.

TREATMENTS:

All combination of (1) and (2) + one control :

(1) 2 levels of P_2O_5 as Super : P_1=44.83 and P_2=66.25Kg/ha.

(2) 2 Methods of application of P_2O_5 : M_1=Pelletmethod and M_2=broadcast.

Treatments were applied to the previous Paddy crop.

3. DESIGN :

(i) R.B.D. (ii) (a) 5 (b) N.A. (iii) 4 (iv) (a) and (b) 18.29m×5.49m (v) Nil (vi) Yes.

4. GENERAL :

(i) Good (ii) Nil (iii) Yield of grain (iv) (a) 1961 —only (b) and (c) — (v) to (vii) N.A.

5. RESULTS :

(i) 744.2Kg/ha (ii) 152.2Kg/ha (iii) None of the effects is significant. (iv) Av. yield of grain in Kg/ha.

Control=673.7Kg/ha.

	M_1	M_2	mean
P_1	777.4	750.0	763.7
P_2	857.1	662.8	760.0
mean	817.7	706.4	761.8

———

Crop :- Lentil (*Rabi*). **Ref:- U.P. 65(160)**

Site :- Res. Farm, College of Agri., B.H.U., Varanasi. **Type :- 'M'.**

Object :—To study the effect of P and K in the presence of N on the growth, yield and Nitrogen—uptake.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Loam (iii) 26.10.65 (iv)(a) 2 ploughings by *Deshi* plough (b) Furrow opened by *Kudali* and seed drilled into these furrows (c) N.A. (d) Rows 25cm apart (e) — (v) 22.4Kg/ha as A/S broadcasted uniformly at the time of sowing (vi) T—36 (vii) Irrigated (viii) Nil (ix) 4.5cm (x) April, 66.

2. TREATMENTS :

All combinations of (1) and (2) :

(1) 3 levels of P_2O_5 as Super : P_1=22.4, P_2=44.8 and P_3=66.7Kg/ha.

(2) 3 levels of K_2O as Mur. Pot. : K_1=11.2, K_2=22.4 and K_3=33.6Kg/ha of K_2O

Fertilisers applied at sowing :

3. DESIGN :

(i) Fact. in R.B D. (ii) (a) 9 (b) 18.44 m × 17.07m (iii) 4 (iv) (a) 4.88m × 4.88m (b) 4.27m × 4.27m (v) 30cm × 30cm (vi) Yes.

4. GENERAL:

(i) Good (ii) Nil (iii) Yield of grain (iv) (a) 1965—only (b) and (c) — (v) to (vii) Nil.

5 RESULTS :

(i) 2680Kg/ha. (ii) 261.6Kg/ha (iii) Main effects of P and K are highly significant. (iv) Av. yield of grain in Kg/ha.

	K_1	K_2	K_3	mean
P_1	1961	2307	2340	2203
P_2	2614	2653	2702	2656
P_3	2894	3158	3493	3182
mean	2490	2706	2845	2680

C.D. for P or K marginal means=220.4Kg/ha.

Crop :- Lentil (*Rabi*). **Ref :- U.P. 65 (161).**

Site :- Res. Farm, College of Agri, B.H.U., Varanasi. **Type :-'M'.**

Object :—To study the effect of P and K without N as the growth, yield and Nitrogen up-take in Lentil.

1. BASAL CONDITIONS :

(i) (a) N.A. (b) *Jowar* (c) Nil (ii) Loam (iii) 26.10.65 (iv) (a) 3 ploughings with a *Deshi* plough (b) Behind the plough (c) N.A. (b) Rows 25.4cm. apart (e) — (v) Nil (vi) T—36 (vii) Irrigated (viii) No hoeing and weeding (ix) 4.5cm (x) 19.3.66.

2. TREATMENTS:

All the combination of (1) and (2):

(1) 3 levels of P_2O_5 as Super : P_1=22.4, P_2=44.8 and P_3=66.7Kg/ha.

(2) 3 levels of K_2O as Mur. Pot.: K_1=11.2, K_2=22.4 and K_3=33.6Kg/ha.

Fertilizers applied at sowing.

3. DESIGN:

(i) Fact. in R.B.D. (ii) (a) 9 (b) 18.44m×17.07m (iii) 4 (iv) (a) 4.88m×4.88m (b) 4.27m×4.27m (v) 30cm×30cm (vi) Yes.

4. GENERAL:

(i) Good (ii) Nil (iii) Yield of grain (iv) (a) 1965—only (b) and (c) — (v) to (vi) Nil.

5. RESULTS:

(i) 2342Kg/ha (ii) 271.9Kg/ha (iii) Main effects of P and K are highly significant. (iv) Av. yield of grain in Kg/ha.

	K_1	K_2	K_3	mean
P_1	1637	1686	2065	1796
P_2	2147	2257	2367	2257
P_3	2636	2922	3361	2973
mean	2140	2288	2598	2342

C.D. for P or K marginal means=229.1 Kg/ha.

Crop :- Lentil (*Rabi*). **Ref:-U.P. 65 (195)**

Site :- Govt. Agri. Flood Res. Stn., Gogragat. **Type :- 'C'.**

Object:—To find out the most suitable number of weedings for obtaing higher yield of Lentil.

1. BASAL CONDITIONS:

(i) (a) Nil (b) Maize (c) N.A. (ii) Sandy loam (iii) 11.11.65 (iv) (a) 2 ploughings by tractor followed by planking by *Deshi* Pata (b) Behind the *Deshi* plough (c) 62Kg/ha (d) Rows 30cm. apart (e)—(v) Nil (vi) T—6 (vii) Unirrigated (viii) As per treatments (ix) 3.4cm (x) 5.4.66.

2. TREATMENTS:

3 weeding treatments : W_0=Control, W_1=One weeding and W_2=Two weedings.

3. DESIGN:

(i) R.B.D. (ii) (a) 3 (b) 4.50m×27.55m (iii) 8 (iv) (a) and (b) 8.85m×4.50m (v) Nil.

4. GENERAL:

(i) Fair (ii) Nil (iii) Yield of grain and Bhusa. (iv) (a) 1965–67 (b) No (c) Nil (v) No (vi) Plants died due to lack of moisture (vii) Nil.

5. RESULTS :

(i) 442.5Kg/ha (ii) 269.8Kg/ha (iii) Treatment differences are significant. (iv) Av. yield of grain in Kg/ha.

Treatment ;	W_0	W_1	W_2
Av. yield :	254.2	420.5	652.8

C.D. = 289.4Kg/ha

Crop:- Lentil (*Rabi*) **Ref :-U.P. 64 (568), 65 (406).**

Site :- Govt. Agri. Res. Farm, Kalianpur. **Type :- 'CV'**

Object :—To find out the approximate seed-rate and suitable distance for a bold, medium and small seeded lentil.

1. BASAL CONDITIONS :

(i) (a) Nil (b) and (c) N.A. (ii) Loam (iii) 11.11.64; N.A. (iv) (a) 1 ploughing by soil turning plough and 2 ploughings by *Deshi* and cultivator (b) Behind the plough (c) and (d) As per treatments (e) — (v) Nil (vi) As per treatments (vii) Nil (viii) 1 weeding and 2 hoeings (ix) 2.7cm; 2.0cm (x) 31.3.65; N.A.

2. TREATMENTS:

Main-plot treatments :

3 varieties : V_1=T—5 (Bold seeded), V_2=T—8 (Medium seeded) and V_3=T—6 (small seeded).

Sub-plot treatments :

All combinations of (1) and (2):

(1) 3 row spacings : S_1=23cm, S_2=30cm and S_3=38cm-

(2) 3 seed rates : R_1=49, R_2=74 and R_3=99Kg/ha.

3. DESIGN :

(i) Split plot (ii) (a) 3 main-plots/replication, 9 sub-plots/main-plot, (b) 6.10m×48.46m (iii)4 (iv) (a) 6.10m×4.57m (b) 6.10m×4.57m (v) Nil (vi) Yes.

4. GENERAL :

(i) Fair (ii) Nil (iii) Yield of grain (iv) (a) 1964—66 (b) No (c) Nil (v) and (vi) Nil (vii) As the experiment is continued beyond 65, the results of indivldual years have been presented unders 5. Results.

5. RESULTS:

64 (568)

(i) 1197Kg/ha (ii) (a) 271.6Kg/ha (b) 300.7Kg/ha (iii) Main effects of V and S are highly significant. Interaction V×S is significant. (iv) Av. yield of grain in Kg/ha.

	S_1	S_2	S_3	R_1	R_2	R_3	mean
V_1	810	716	649	632	718	825	725
V_2	1603	1248	1130	1411	1272	1298	1327
V_3	1486	1682	1446	1574	1529	1510	1538
mean	1300	1215	1075	1206	1173	1211	1197
R_1	1235	1266	1117				
R_2	1331	1123	1066				
R_3	1334	1257	1042				

C.D. for V marginal means=156.6 Kg/ha.

C.D. for S marginal means =141.5Kg/ha.

C.D. for S marginal means at the same level of V=245.0Kg/ha.

C.D. for V marginal means at the same levels of S=252.9Kg/ha.

65 (406)

(i) 1412Kg/ha (ii) (a) 213.9Kg/ha (b) 230.8Kg/ha (iii) Main effect of V alone is highly significant. (iv) Av. yield of grain in Kg/ha.

	S_1	S_2	S_3	R_1	R_2	R_3	mean
V_1	1647	1650	1459	1564	1612	1582	1586
V_2	1597	1447	1498	1609	1513	1420	1514
V_3	1172	1148	1085	1115	1151	1339	1135
mean	1472	1415	1347	1429	1425	1380	1412
R_1	1447	1378	1462				
R_2	1582	1441	1253				
R_3	1387	1426	1328				

C.D. for V marginal means=123.4Kg/ha.

Crop :- Lentil (*Rabi*). **Ref :- U.P. 65 (603)**

Site :- Govt. Reg. Agri. Res. Stn., Amrukh. **Type :- 'CM'.**

Object :—To find out the suitable levels of N, P and seed—rates for the yield of Lentil.

1. BASAL CONDITIONS:

(i) (a) to (c) N.A. (ii) *Kabar* and *Parwa* (iii) 4.11 65 (iv) (a) 2 to 3 ploughing by *Bakhar* plough (b) Line sowing (c) As per treatments (d) Rows 30cm apart (e) — (v) Nil (vi) N.A. (vii) Irrigated (viii) Nil (ix) 0.2cm (x) 24.3.66.

2. TREATMENTS:

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

(1) 3 seed – rates : S_1=46, S_2=69 and S_3=92Kg/ha.

(2) 3 levels of N : N_0=0, N_1=44.8 and N_2=89.6Kg/ha.

(3) 3 levels of P_2O_5 : P_0=0, P_1=22.4 and P_2=44.8Kg/ha.

3. DESIGN :

(i) Fact in R.B D. (ii) (a) 27 (b) N A. (iii) 2 (iv) (a) 5.18m×4.27m (b) 4.57×3.66m (v) 30cm×30cm (vi) Yes.

4. GENERAL :

(i) Good (ii) Nil (iii) Yield of grain (iv) (a) 1965—only (b) and (c) — (v) to (vii) Nil.

5. RESULTS:

(i) 478.3Kg/ha. (ii) 209.3Kg/ha. (iii) None of the effects is significant. (iv) Av. yield of grain in Kg/ha.

	N_0	N_1	N_2	P_0	P_1	P_2	mean
S_1	393.6	433.5	453.4	388.6	508.2	383.7	426.9
S_2	593.0	558.1	578.0	553.1	513.2	662.7	576.4
S_3	453.4	388.6	453.4	453.4	398.6	443.5	431.8
mean	480.0	460.1	495.0	465.1	473.4	496.6	478.3
P_0	393.6	568.0	433.5				
P_1	523.2	428.5	468.4				
P_2	523.2	383.7	583.0				

Crop :- Lentil (*Rabi*). **Ref :-U.P. 64 (199).**

Site :- Govt. Reg. Agri. Res. Stn., Nawabgunj. **Type :- 'CM'.**

Object :—To study the effect of seed-rates, N and P on the yield of Lentil.

1. BASAL CONDITIONS :

(i) (a) Nil (b) Mesta for fibre (c) N.A. (ii) Cley loam (iii) 17.12.64 (iv) (a) N.A. (b) Behind the plough in lines (c) N.A. (d) Rows 30cm apart (e) Nil (v) N.A. (vi) C—3 (vii) No (viii) Weeding by *Khurpi* (ix) 16.3cm (x) 7.4.65.

2. TREATMENTS :

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

(1) 3 levels of N : N_0=0, N_1=5.6 and N_2=11.2Kg/ha.

(2) 3 levels of P_2O_5 : P_0=0, P_1=22.4 and P_2=44.8Kg/ha.

(3) 3 seed—rates: R_1=49, R_2=74 and R_3=99Kg/ha.

3. DESIGN:

(i) Fact. in R.B.D. (ii) (a) 27 (b) N.A. (iii) 2 (iv) (a) 3.66m×6.10m (b) 3.35m×5.49m (v) 15cm×30cm (vi) Yes.

4. GENERAL:

(i) Good (ii) Nil (iii) Yield of grain (iv) (a) 1964—Contd. (Modified in 65) (b) and (c) Nil (v) to (vii) Nil.

5. RESULTS :

(i) 438.1Kg/ha (ii) (a) 141.9Kg/ha (iii) Main effect of P is highly significant. (iv) Av. yield of grain in Kg/ha.

	P_0	P_1	P_2	R_1	R_2	R_3	mean
N_0	322.5	418.5	522.7	370.5	451.2	442.1	421 3
N_1	318.0	509.2	433 9	391.4	452.1	417.6	420.4
N_2	359.7	483.8	574.4	500.1	435.8	482.0	472.6
mean	333.4	470.5	510.4	420.7	446.3	447.2	438.1
R_1	317.1	463.8	481.1				
R	322.5	525.5	491.0				
R_3	360.6	422.2	559.0				

C.D. for P marginal means=97.2Kg/ha.

Crop :- Lentil (*Rabi*). **Ref :- U.P. 65 (269).**

Site :-Govt. Reg. Agri. Res. Stn., Nawabgunj **Type :- 'CM'**

Object :—To study the effect of seed rate, N and P on the yield of Lentil.

1. BASAL CONDITIONS:

(i) (a) Nil (b) Paddy (c) N.A. (ii) Clay loam (iii) 2.12.65 (iv) (a) 2 ploughings by Mould board and *Deshi* plough (b) Behind the plough (c) As per treatments (d) Rows 30cm apart (e) Nil (v) Nil (vi) T—36 (vii) Nil (viii) 1 weeding (ix) 5.8cm (x) 28 to 30.3.66.

2. TREATMENTS :

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

(1) 3 levels of N as A/S : N_0=0, N_1=5 and N_2=10Kg/ha.

(2) 3 levels of P_2O_5 as Super : P_0=0, P_1=20 and P_2=40Kg/ha.

(3) 3 Seed Rates : R_1=50, R_2=75 and R_3=100Kg/ha.

N and P_2O_5 applied as basal on 2.12.65.

3. DESIGN

(i) Fact. in R.B.D. (ii) (a) 27 (b) 20 00m×51.20m (iii) 2 (iv) (a) 6.00m×4.80m (b) 5.50m×4.50m (v) 25cm×15cm. (vi) Yes.

4. GENERAL :

(i) Average (ii) Nil (iii) Yield of grain and straw (iv) (a) 1964—Conted (modified in 65) (b) No (c) Nil (v) to (vii) Nil.

5. RESULTS :

(i) 440.9Kg/ha (ii) 218.3Kg/ha (iii) Main effect of P alone is significant. (iv) Av. yield of grain in Kg/ha

	P_0	P_1	P_2	R_1	R_2	R_3	mean
N_0	318.5	567.0	475.4	569.6	439.0	352.1	453.6
N_1	382.4	531.3	501.0	459.2	483.5	472.0	471.6
N_2	301.6	453.8	437.0	322.5	465.3	404.7	397.5
mean	334.2	517.3	471.1	450.5	462.6	409.6	440.9
R_1	327.9	576.4	447.1				
R_2	364.9	549.4	473.4				
R_3	309.7	426.2	492.9				

C.D. for P marginal means=149.6Kg/ha.

Crop :- Lentil (*Rabi*) **Ref :- U.P. 64(360).**

Site :- Res. Farm, College of Agri., B H.U., Varanasi. **Type :- 'CM'.**

Object :—To study the effect of P and K on growth, yield and nitrogen up-take in lentil at two levels of seed-rate.

1. BASAL CONDITIONS

(i) (a) N.A. (b) Fallow (c) N.A. (ii) Light Loam (iii) 15.11.64 (iv) (a) 6 ploughings were done by country plough followed by meeton plough. (b) In furrow opened by kudali (c) As per treatments (d) Rows 25cm apart (e) — (v) 22.4Kg/ha of N as A/S at the time of preparation of lard by broadcast (vi) Local (vii) Irrigated (viii) No hoeing (ix) 5.2cm (x) 16.3.65.

2. TREATMENTS :

Main-plot treatments :

2 seed-rates : R_1=22 and R_2=45Kg/ha.

Sub-plot treatments : All the combinations of (1) and (2) :

(1) 3 levels of P_2O_5 as super : P_1=22.4, P_2=44.8 and P_3=67.2Kg/ha.

(2) 2 levels of K_2O as Mur. Pot. : K_1=22.4 and K_2=44.8Kg/ha.

P and K applied by broadcast at the time of sowing.

3. DESIGN :

(i) Split-plot (ii) (a) 2 main-plots/replication, 6 sub-plots/main-plot (b) N.A. (iii) 3 (iv) (a) 3.05m×4.27m (b) 2.44m×3.66m (v) 30cm×30cm (vi) Yes.

4. GENERAL:

(i) Good (ii) Nil (iii) Yield of grain (iv) (a) 1964—only (b) and (c) — (v) to (vii) Nil.

5. RESULTS:

(i) 1674Kg/ha (ii) (a) 168.9Kg/ha (b) 200.2Kg/ha (iii) Only main effect of K is significant. (iv) Av. yield of grain in Kg/ha.

	P_1	P_2	P_3	K_1	K_2	mean
R_1	1635	1713	1713	1646	1728	1687
R_2	1680	1635	1669	1523	1799	1661
mean	1658	1674	1691	1585	1764	1674
K_1	1467	1612	1669			
K_2	1848	1736	1713			

C.D. for K marginal means=139.2 Kg/ha.

Crop :-Lentil (*Rabi*) **Ref :-U.P. 64(359)**

Site :-Res. Farm, College of Agri., B.H.U., Varanasi. **Type:-'1M'**

Object :—To study the effect of phosphate on growth, yield and nitrogen up-take in lentil at three level of irrigation.

1. BASAL CONDITIONS:

(i) (a) N.A. (b) Fallow (c) N.A. (ii) Light Loam (iii) 15.11.64 (iv) (a) 6 ploughings by country plough followed by meeton plough (b) Furrow opened by *Kudali* and seed were drilled (c) 74.1Kg/ha (d) Rows 25.4cm apart (e) — (v) 22.4Kg/ha of N as A/S+22.4Kg/ha of K_2O as Mur. Pot. at the time of sowing by broadcasting (vi) Local (vii) Irrigated (viii) N.A. (ix) 5.2cm (x) 16.3.65.

2. TREATMENTS:

Main-plot treatments :

3 levels of irrigation : I_1=One, I_2=Two and I_3=Three irrigations.

Sub-plot treatments:

3 levels of P_2O_5 as Super : P_1=22.4, P_2=44.8 and P_3=67.2Kg/ha.

3. DESIGN :

(i) Split-plot (ii) (a) 3 main-plots/replication, 3 sub-plots/main-plot (iii) 3 (iv) (a) 4.27m × 3.05m (b) 3.66m × 2.44m (v) 30cm × 30cm (vi) Yes.

4. GENERAL:

(i) Good (ii) Nil (iii) Yield of grain (iv) (a) 1960—only (b) and (c) — (v) to (vii) Nil.

5. RESULTS:

(i) 1827Kg/ha (ii) (a) 274.3Kg/ha (b) 250.4Kg/ha (iii) None of the effects is significant. (iv) Av. yield of grain in Kg/ha.

	I_1	I_2	I_3	mean
P_1	1657	1713	1680	1683
P_2	1657	2049	1792	1833
P_3	1792	1792	2307	1964
mean	1702	1851	1926	1827

Crop :- Lobia (*Kharif*). **Ref :- U.P. 61 (159)**

Site :- Govt. Reg. Agri. Res. Stn., Nawabganj. **Type:-'M.'**

Object :—To find out residual effect of organic and inorganic nitrogenous manures with and without Super applied to Wheat crop on succeeding Lobia crop.

1. BASAL CONDITIONS:

(i) (a) Wheat—*Lobia* (b) Wheat (c) As per treatments (ii) Clay Loam (iii) 25.6.61 (iv) (a) N.A. (b) Line sowing behind the plough (c) 23Kg/ha (d) Rows 30cm. apart (e) Nil (v) Nil (vi) 5269 (vii) Irrigated (viii) Hoeing and weeding (ix) 164.1cm (x) 8 to 10.8.61.

2. TREATMENTS:

10 manurial treatments :

T_0=Control T_1=28Kg/ha of N as A/S, T_2=56Kg/ha of N as A/S, T_3=56Kg/ha of N as A/S+44.8Kg/ha of P_2O_5 as Super, T_4=28Kg/ha of N as F.Y.M., T_5=56Kg/ha of N as F.Y.M., T_6=56Kg/ha of N as F.Y.M.+ 44.8Kg/ha of P_2O_5 as super, T_7=56Kg/ha of N, $\frac{1}{2}$ as A/S+$\frac{1}{2}$ as F.Y.M., T_8=56Kg/ha of N, $\frac{1}{2}$ as A/S+$\frac{1}{2}$ as F Y.M+44.8Kg/ha of P_2O_5 as Super, T_9=44.8Kg/ha of P_2O_5 as super.

Treatments were applied to the previous Wheat crop.

3. DESIGN :

(i) R.B.D. (ii) (a) 10 (b) N.A. (iii) 4 (iv) (a) and (b) 4.57m × 10.97m (v) Nil (vi) Yes.

4. GENERAL :

(i) Good (ii) Nil (iii) Yield of grain (iv) (a) 1961 only (b) — (c) — (v) to (vii) N.A.

5. RESULTS :

(i) 1506Kg/ha. (ii) 371.2Kg/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	T_8	T_9
Av. yield :	1302	1441	1546	1592	1534	1465	1441	1941	1454	1348

Crop:- Lobia (*Kharif*). **Re :- U.P. 64(587), 65(431).**

Site :- Central Soil Conseration Res. Stn., Selakui (Dehra Dun).

T ype :- 'CMV'

Object :—To study the superiority of Russion Giant **Cowpea** over local variety of Cowpea with respect to ground cover and yield and to know the response to phosphatic fertilizer and to find out the proper time of sowing particulary to know if dry sowing can be done.

1. BASAL CONDITIONS:

(i) (a) Nil (b) Scrub forest; *Fallow* (c) Nil (ii) Loam (iii) As per treatments (iv) (a) 1 Hot weather cultivation, 2 harrowing and 1 planking (b) Dibbling (c) - (d) 30cm × 20cm (e) 2 seeds/point (v) Nii (vi) As per treatment (vii) Unirrigated (viii) hoeing and weeding (ix) 13.1cm; 10.3cm. (x) 10 11.64; Nov.; 65.

2. TREATMENTS:

Main treatments:

3 dates of sowing: D_1=Dry sowing on 22nd June, D_2=Dry sowing on 26th June, D_3=Sowing at on set of monsoon or Dry sowing on 30th June.

Sub treatments : All combinations of (1) and (2):

(1) 2 varieties: V_1=Cowpea—local and V_2=Copea—Russion Giant (T_4).

(2) 2 levels of P_2O_5 as Super : P_0=0 and P_1=45Kg/ha.

Fertilizers applied before sowing on 20.6.64 and 21.6.65.

3. DESIGN:

(i) Split-plot (ii) (a) 3 main-plots/replication and 4 sub-plots/main-plot (b) 9.00m × 8 00m; 43.00m × 11.00cm (iii) 4;6 (iv) (a) and (b) 2.00m × 3.00m; 10.00m × 3.00m (v) Nil (vi) Yes.

4. GENERAL:

(i) Normal (ii) Nil; Infection of Aphids on 18.8 65 canopy % of Cowpea was observed on different dates (iii) Yield of grain and green stalk (iv) (a) 1964 (continued) (b) and (c) Nil. (v) and (vi) Nil (vii) As the Expt. is continued beyond 1965, results of years have been presented under 5. Results.

5. RESULTS:

64 (587)

(i) 2048Kg/ha. (ii) (a) 705.8Kg/ha. (b) 469.0Kg/ha. (iii) Main effects of 'V' is highly significant. (iv) Av. yield of grain in Kg/ha.

	V_1	V_2	P_0	P_1	mean
D_1	1447	2593	1832	2208	2021
D_2	1260	2905	2135	2030	2083
D_3	1249	2833	2010	2072	2041
mean	1319	2777	1992	2104	2048
P_0	1396	2590			
P_1	1242	2965			

C.D. for V marginal means=277.8Kg/ha.

65 (431)

(i) 1329Kg/ha (ii) (a) 487 6Kg/ha (b) 333.0Kg/ha (iii) Only the main effects of 'V' is highly significan (iv) Av. yield of grain in Kg/ha.

	V_1	V_2	P_0	P_1	mean
D_1	786	1861	1300	1347	1324
D_2	922	1875	1383	1414	1399
D_3	708	1819	1280	1247	1264
mean	805	1852	1321	1336	1329
P_0	785	1857			
P_1	826	1846			

C.D. for V marginal means=158.2 Kg/ha.

Crop :- Pea (*Rabi*) **Ref :- U.P. 64(723), 65 (610).**

Site :- Govt. Reg. Agri. Res. Stn., Amrukh. **Type :- 'M'.**

Object : To find out suitable combination of N, P and K manures for *Pea* crop.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) *Kabar* and *Parwa* soil (iii) 2.10.64; 22.11.65 (iv) (a) 2 to 3 ploughings by Bakhar plough and *Pata* (b) Line sowing behind *Nari* plough (c)74.1Kg/ha (d) Rows 30cm apart (e) Nil (v) Nil (vi) T—163 (vii) Irrigated (viii) Nil (ix) 3.6cm; 0.2cm (x) 22 to 24.3.65; 3/4.4.66.

2. TREATMENTS :

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

(1) 3 levels of N : N_0=0, N_1=11.2 and N_2=22.4Kg/ha.

(2) 3 levels of P_2O_5 : P_0=0, P_1=22.4 and P_2=44.8Kg/ha.

(3) 2 levels of K_2O : K_0=0 and K_1=22.4Kg/ha.

3. DESIGN :

(i) Fact. in R.B.D. (ii) (a) 18 (b) N.A. (iii) 3 (iv) (a) 4.57m×9.14m (b) 3.96m×8.53m (v) 30cm×30cm (vi) Yes.

4. GENERAL :

(i) Not good; good (ii) Nil (iii) Yield of grain (iv) (a) 1964- Contd. (b) Yes (c) Nil (v) to (vi) Nil (vii) As the experiment is continued beyond 65, the results of individual years have been presented under 5. Results.

5. RESULTS:

64 (723)

(i) 1022Kg/ha (ii) 378.0Kg/ha (iii) Main effect of P alone is highly significant. (iv) Av. yield of grain in Kg/ha.

	P_0	P_1	P_2	K_0	K_1	mean
N_0	803	1158	1168	1120	966	1043
N_1	715	862	1257	1019	871	945
N_2	877	927	1429	976	1180	1078
mean	798	982	1285	1038	1005	1022
K_0	683	1022	1410			
K_1	913	943	1160			

C.D. for P marginal means=256.2Kg/ha.

65 (610)

(i) 538 8Kg/ha (ii) 163.5Kg/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	mean
N_0	418.9	500.2	584.0	533.9	468.2	501.0
N_1	463.2	569.2	539.6	507.6	540.4	524.0
N_2	561.8	554.4	657.9	556.9	625.9	591.4
mean	481.3	541.3	593.8	532.8	544.8	538.8
K_0	465.5	542.1	589.7			
K_1						
K_2	496.1	540.4	597.9			

Crop :- Pea (*Rabi*). **Ref :- U.P. 60 (402), 61(311)**

Site :- Govt. Reg. Agri. Res. Stn., Hardoi. **Type :- 'M'**

Object :—To study the effect of phosphatic manuring of legume crop.

1. BASAL CONDITIONS :

(i) (a) Pea—Paddy (b) Paddy (c) N.A. (ii) Sandy loam (iii) 16.11.60; N.A. (iv) (a) N.A. (b) Line sowing behing plough (c) 69.2Kg/ha (d) Rows 46cm. apart (e)— (v) Nil (vi) T—163 (vii) and (viii) N.A. (ix) 5.8cm. N.A. (x) N.A.

2. TREATMENTS :

3 levels of P_2O_5 as phosphoric acid : P_0=0, P_1=44.8 and P_2=89.7Kg/ha.

3. DESIGN:

(i) R.B.D. (ii) (a) 3 (b) N.A. (iii) 3 (iv) (a) and (b) 24.59m×7.16m. (v) Nil (vi) Yes.

4. GENERAL:

(i) Good (ii) Nil (iii) Yield of peas (iv) (a) 1960—61 (b) Yes (c) Resuts of combined analysis have been presented under 5. Results. (v) and (vi) Nil (vii) Error variances are homogeneous and Treatments × years interaction is absent.

5. RESULTS:

Pooled results

(i) 3222Kg/ha (ii) 516.1Kg/ha (based on 10 d.f. made up of pooled error and Treatments × years interaction) (iii) Treatment differences are not significant. (iv) Av. yield of peas in Kg/ha.

Treatment :	P_0	P_1	P_2
Av. yield :	3484	3316	2866

Individual results

Treatment	P_0	P_1	P_2	Sig.	G.M.	S.E./plot
years						
1960	4079	3643	2856	**	3526	537.1
1961	2889	2990	2877	N.S.	2919	318.3
Pooled	3484	3316	2866	N.S.	3222	516.1

Crop :- Pea (*Rabi*) **Ref :- U.P. 64 (115).**

Site :- Govt. Reg. Agri. Res. Stn., Hardoi. **Type:- 'M'**

Object :—To study the most suitable combination of N, P and K for cultivation of Pea.

1. BASAL CONDITIONS:

(i) (a) Nil (b) Bhindi (c) N.A. (ii) Sandy loam (iii) 31.10.64 (iv) (a) and (b) N.A. (c) 74Kg/ha (d) N.A. (e) Nil (v) Nil (vi) T -163 (vi) N.A. (vii) Weeding and hoeing (ix) 2.0cm (x) 31.3.65 and 4.4.65.

2. TREATMENTS:

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

(1) 3 levels of N: N_0=0, N_1=5.6 and N_2=11.2Kg/ha.

(2) 3 levels of P_2O_5 : P_0=0, P_1=22.4 and P_2=44.8Kg/ha.

(3) 2 levels of K_2O : K_0=0 and K_1=22.4Kg/ha.

Sources of N, P_2O_5 and K_2O, method of application and time of application—N.A.

3. DESIGN:

(i) Fact. in R.B.D. (ii) (a) 18 (b) N.A. (iii) 3 (iv) (a) N.A. (b) 3.06m × 5.79m. (v) N.A. (vi) Yes.

4. GENERAL:

(i) and (ii) N.A. (iii) Yield of grain (iv) (a) 1954—only (b) N.A. (c) Nil (v) to (vii) Nil.

5. RESULTS :

(i) 2160Kg/ha (ii) 336.5Kg/ha (iii) None of the effect is significant. (iv) Av. yield of grain in Kg/ha.

	P_0	P_1	P_2	K_0	K_1	mean
N_0	1785	2191	2181	2071	2033	2052
N_1	2124	2398	2361	2197	2392	2294
N_2	2172	1898	2332	2046	2222	2134
mean	2027	2162	2291	2105	2216	2160
K_0	1926	2216	2172			
K_1	2128	2109	2411			

Crop:- Pea (*Rabi*). **Ref:- U.P. 63 (62).**

Site: Govt. Vegetable Res. Stn., Kalianpur. **Type :-'M'.**

Object :—To study the effect of different levels of Boron and Molybdenum in presence and absence of phasphorous on Pea crop.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Sandy loam, (iii) 4.12.63 (iv) (a) N.A. (b) Dibbling (c) N.A. (d) 61cm×15cm (e) 2 (v) 11.2Kg/ha of N as A/S (vi) T−19 (vii) Irrigated (viii) N.A. (ix) 1.3cm (x) N.A.

2. TREATMENTS:

All combinations of (1) and (2)

(1) 6 trace elements treatments : T_1=5.60, T_2=11.2. T_3=16.8Kg/ha of Boron as Borase, and T_4=0.28, T_5=0.56, T_6=1.12Kg/ha of Molyadenum as Ammo. Molybdate.

(2) 2 levels of P_2O_5 as super, P_0=0 and P_1=44.8Kg/ha.

Super applied in furrows and trace elements mixed with the soil and applied as topdressing on 13.2.64.

3. DESIGN:

(i) Fact. in R.B.D. (ii) (a) 12 (b) N.A. (iii) 4 (iv) (a) and (b) 8.23m×6.70m (v) Nil (vi) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Yield of pea seed (iv) (a) 1963—only (b) No (c) Nil (v) to (vii) Nil.

5. RESULTS :

(i) 560Kg/ha (ii) 210.6Kg/ha (iii) None of the effects is significant. (iv) Av. yield of pea in Kg/ha.

	T_1	T_2	T_3	T_4	T_5	T_6	mean
P_0	555	545	655	519	746	534	592
P_1	475	515	506	555	535	579	527
mean	515	530	581	537	641	556	560

Crop :- Pea (*Rabi*). **Ref:-U.P. 64 (76), 65 (380).**

Site :- Govt. Vegetable Res. Stn., Kalianpur. **Type:- 'M'**

Object :—To study the effect of Boron and Molybdenum in presence and absence of P_2O_5 on Pea crop.

1. BASAL CONDITIONS:

(i) (a) Nil (b) *Lobia*; Onion (c) N.A.; Sanai G.M. (ii) Sandy loam (iii) 10.11.64; 1.11.65 (iv) (a) 1 ploughing by S.T.P. and 4—5 ploughings by *Deshi* plough (b) *Khurpi*; Dibbling (c) 23Kg/ha (d) 30cm×15cm; Rows 50cm. apart (e) 2 (v) *Lobia* G.M.; Nil (vi) Bonne–ville (Medium) (vii) N.A.; Irrigated (viii) N.A.; 2—3 weedings and earthings (ix) 2.7cm; 0.2cm (x) 20.3.65; 17.3.66.

2. TREATMENTS:

All combinations of (1) and (2)

(1) 2 levels of P_2O_5 as super : P_0=0 and P_1=44.8Kg/ha

(2) 7 levels of trace-dements : T_0=Control, T_1=5.6, T_2=11.2, T_3=16.8Kg/ha of Boron as Borox , and T_4=0.28, T_5=0.56, T_6=1.12Kg/ha of Amm. Molybdate.

Trace elements applied to soil as top dressing on 10.11.64 and 1.11.65.

3. DESIGN:

(i) Fact. in R.B.D. (ii) (a) 14 (b) 8.84m×23.16m; 6.50m×29.80m (iii) 4 (iv) (a) and (b) 4.27m×3.05m; 4.00m×3.00m (v) Nil (vi) Yes.

4. GENERAL:

(i) Good; N.A. (ii) Nil; N.A. (iii) Yield of grain (iv) (a) 1963—Contd. (modified in 64) (b) No (c) Nil (v) and (vi) Nil (vii) As the experiment is continued beyond 65, the results of individual years have been presented under 5. Results.

5. RESULTS:

64(76)

(i) 2000Kg/ha (ii) 378.4Kg/ha (iii) Main effect of P is highly significant and that of T is significant. (iv) Av. yield grain in Kg/ha.

	T_0	T_1	T_2	T_3	T_4	T_5	T_6	mean
P_0	1682	1740	1922	1605	1922	2037	2134	1863
P_1	2095	2028	1749	1913	2374	2691	2114	2138
mean	1888	1884	1836	1759	2148	2364	2124	2000

C.D. for P marginal means=204.4 Kg/ha.

C.D. for T marginal means=382.4 Kg./ha.

65 (380)

(i) 2351Kg/ha (ii) 329.6Kg/ha (iii) None of the effects is significant. (iv) Av. yield of grain in Kg/ha.

	T_0	T_1	T_2	T_3	T_4	T_5	T_6	mean
P_0	2021	2250	2437	2396	2208	2292	2354	2280
P_1	2208	2333	2458	2542	2479	2583	2354	2423
mean	2115	2292	2448	2469	2344	2437	2354	2351

Crop :- Pea (*Rabi*). **Ref. :- U.P. 64 (75) 65 (379).**

Site :- Govt. Vegetable Res. Stn., Kalianpur. **Type :- 'M'**

Object :—To study the effect of foliar spray of Boron and Molybdenum in presence and absence of phosphate on Pea crop.

1. BASAL CONDITIONS:

(i) (a) Nil (b) *Lobia*; Onion (c) N.A.; Sanai G.M. (ii) Sandy Loam (iii) 10.11.64; 1.11.64 (iv) (a) N.A.; 1 ploughing by S.T.P. and 4 – 5 ploughings by *Deshi* plough (b) By *Khurpi*; dibbing (c) 23Kg/ha (d) 30cm × 15cm; 50cm × 25cm (e) 2 (v) *Lobia* G.M. N.A. (vi) Bonne ville (Medium) (vii) Irrigated (viii) 2—3 weedings and earthings (ix) 2.7cm; 0.2cm (x) 20 3.65; 17.3.66.

2. TREATMENTS:

All combinations of (1) and (2)

(1) 2 levels of P_2O_5 as Super : P_0=0 and P_1=44.8Kg/ha.

(2) 3 trace-delements : T_0=Control, T_1=0.2% Boron and T_2=0.1%Molybderum.

Super applied as soil application on 10.11.64 and 1.11.65 and foliar sprays on 18.12.64 and 18.1.66.

3. DESIGN :

(i) Fact. in R.B.D. (ii) (a) 6 (b) 6.40m × 13.41m; 6.50m × 12.60m (iii) 4 (iv) (a) and (b) 4.27m × 3.05m; 4.00m × 3.00m (v) Nil (vi) Yes.

4. GENERAL:

(i) Satisfactory (ii) N.A. (iii) Yield of grain (iv) (a) 1964—Contd (b) No. (c) Nil (v) and (vi) Nil (vii) As the experiment is continued beyond 65, the results of individual years have been presented under 5. Results.

5. RESULTS:

64 (75)

(i) 1933Kg/ha (ii) 339.6Kg/ha (iii) None of the effects is significant. (iv) Av. yield of grain in Kg/ha.

	T_0	T_1	T_2	mean
P_0	1816	1864	1740	1807
P_1	2009	1768	2403	2060
mean	1912	1816	2072	1933

65 (379)

(i) 1983Kg/ha (ii) 407.9Kg/ha. (iii) None of the effects is significant. (iv) Av. yield of grain in Kg/ha.

	T_0	T_1	T_2	mean
P_0	1729	2104	1958	1930
P_1	1833	2208	2062	2035
mean	1781	2156	2010	1983

Crop :- Pea (*Rabi*). **Ref :-U.P. 60 (226), 61 (224), 62 (239).**

Site :- Govt. Reg. Agri. Res. Stn., Meerut. **Type :-'M'.**

Object :—To study the effect of direct application of phasphate on legumes (Pea and gram) and its effect on succeeding cereal (Paddy) under irrigated conditions.

1. BASAL CONDITIONS :

(i) (a) As per treatments—Paddy (b) Paddy (c) N.A. for 60; As per treatments for others (ii) Loam (iii) 26.10.60; 4.11.61; 20/21.11.62 (iv) (a) 1 ploughing by soil turning plough and 3 ploughings by *Deshi* plough (b) Line sowing behind plough (c) 86.5Kg/ha (d) Rows 45cm. apart (e) -- (v) Nil (vi) T. 163 (vii) Irrigated (viii) Hoeing, gap filling and weeding (ix) 6.3cm; 10.7cm; 5 2cm (x) 3.4.61; 2.4.62; 1 and 2.4.63.

2. TREATMENTS:

Main-plot treatments:

All combinations of (1) and (2) + 1 fallow plot during rabi.

(1) 3 levels of P_2O_5 as super applied to legumes: P_0=0, P_1=44.8 and P_2=89.6Kg/ha of P_2O_5 as super.

(2) 2 legume crops : C_1=Gram, and C_2=Pea

Sub-plot treatments (applied to succeeng Paddy crop):

3 levels of N=No=0. N_1=16.8 and N_2=33.6Kg/ha.

Note :—In this experiment, only the effect of levels of P, applied to Pea crop, have been analysed.

3. DESIGN:

(i) Split-plot (R.B.D. for present experiment) (ii) (a) 7 main-plots/sep., 3 sub-plots/main-plot (3 plots/block for present expt.) (b) 21.95m×82.30m for 60;21.03m×82.30m per others (iii) 3 (iv) (a) and (b) 3 (13.97m×6.71m) for 60 and 3 (10.97m×6.40m) for others (v) Nil (vi) Yes.

4. GENERAL :

(i) Good (ii) Nil (iii) Yield of grain (iv) (a) 1960—62 (b) No. (c) Nil (v) Varanasi (vi) and (vii) Nil.

5. RESULTS :

60 (226)

(i) 2049Kg/ha (ii) 166.4Kg/ha (iii) Treatment differences are highly significant (iv) Av. yield of grain in Kg/ha.

Treatment :	P_0	P_1	P_2
Av. yield :	1689	1982	2477

C.D.=377.2Kg/ha.

61 (224)

(i) 1883Kg/ha. (ii) 248.9Kg/ha. (iii) Treatment differences are not significent. (iv) Av. yield of grain in Kg/ha.

Treatment :	P_0	P_1	P_2
Av. yield:	1510	2238	1902

62 (239)

(i) 999Kg/ha. (ii) 85.9Kg/ha. (iii) Treatment differences are highly significant. (iv) Av. yield of grain in Kg/ha.

Treatment :	P_0	P_1	P_2
Av. yield :	525	1193	1280

C.D.=194.7Kg/ha.

Crop:- Pea (*Rabi*). **Ref :- U.P. 60 (234).**

Site :- Govt. Reg. Agri. Res. Stn., Meerut. **Type :- 'M'.**

Object :—To test the residual effect of organic and inorganic nitrogenous fertilizers with and without Superphasphate applied to Paddy on Pea.

1. BASAL CONDITIONS:

(i) (a) Nil (b) Paddy (c) As per treatmants (ii) Sandy (iii) 6.11.60 (iv) (a) 1 ploughings by soil turning plough and 3 ploughings by *Deshi* plough (b) Line sowing behind the plough (c) 67Kg/ha (d) Rows 23cm. apart (e) Nil (v) Nil (vi) T—163 (vii) Irrigated (viii) Nil (ix) 0.4cm (x) 21.3.61.

2. TREATMENTS :

10 manurial treatments :

T_0=Control, T_1=28Kg/ha of N as A/S, T_2= 56Kg/ha of N as A/S, T_3=44.8Kg/ha of P_2O_5 as super, T_4=28 Kg/ha of N as F.Y.M., T_5=56Kg/ha of N as F.Y.M, T_6=T_3+T_3, T_7=T_4+T_1: T_8=T_4+T_1+T_3, T_9=T_2+T_3.

Treatments were applied to the previous paddy crop.

3. DESIGN:

(i) R.B.D. (ii) (a) 10 (b) 71.93m×11.89m (iii) 4 (iv) (a) 11.89m×6.10m (b) 10.97m×5.18m (v) 46cm×46cm (vi) Yes.

4. GENERAL:

(i) Good (ii) Nil (iii) Germination %, Yield of grain (iv) (a) 1960—only (b) — (c) Nil (v) N.A. (vi) and (vii) Nil.

5. RESULTS:

(i) 1084Kg/ha (ii) 189.5Kg/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	T_5	T_6	T_7
Av. yield:	878	1132	985	1122	937	912	1409	1057

Treatment:	T_8	T_9
Av. yield:	1222	1182

C.D.=274.9Kg/ha

———

Crop :- Pea (*Rabi*). **Ref :-U.P. 62 (242), 63 (256), 64 (284).**

Site :- Govt. Reg. Agri. Res Stn., Meerut. **Type :- 'M'.**

Object :—To study the residual effect of N, P and K fertilizer on Pea.

1. BASAL CONDITIONS:

(i) (a) Paddy—Pea (b) Paddy (c) As per treatments (ii) Loam (iii) 24.11.62; 22.11.63; 20.11.64 (iv) (a) One ploughing by soil turning plough and by *Deshi* plough then one planking by *pata* (b) Behind the plough (c) 86.5Kg/ha (d) Rows 45cm apart (e) Nil (v) Nil (vi) T—163 (medium) (vii) Irrigated (viii) Weeding; Hoeing; Nil. (ix) 5.0cm; 1.0cm; 7.0em (x) 5/6.4.63; 3.4.64; 3.4.65.

2. TREATMENTS:

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

(1) 3 levels of N: N_0=0, N_1=44.8 and N_2=89.6Kg/ha of N.

(2) 3 levels of P_2O_5: P_0=0, P_1=22.4 and P_2=44.8Kg/ha of P_2O_5.

(3) 3 levels of K_2O: K_0=0, K_1=22.4 and K_2=44.8Kg/ha of K_2O

All the fertilizers applied to previous Paddy crop.

3. DESIGN :

(i) 3^3 Partially confd. (Y and Z components of NPK effect confd.) (ii) (a) 3 blocks/replication and 9 plots/block (b) 17.07m×53.04m (iii) 2 (iv) (a) 17.07×5.49m (b) 16.15m×4.57m for 64 and 17.07m×5.49m for others (v) 46cm×46cm for 64 and Nil for others. (vi) Yes.

4. GENERAL :

(i) Fair for 62 and poor for others (ii) N.A. for 62 and Nil for others (iii) Yield of grain (iv) (a) 1962—64 (b) Yes (c) Results of combined analysis have been presented under 5 Results. (v) N.A. (vi) Low yield in 63 due to low temperature and frost. which continued for a number of days. (vii) Error variances are heterogeneenu and Treatments × years interaction in present for (PXK) and (KXN) table and absent for (N × P) table.

5. RESULTS :

Pooled results

(i) 376.3 Kg/ha (ii) 140.1 Kg/ha. (based on 28 d.f. made up of Treatment × years interaction) (iii) Main effect of K alone is highly singnificant (iv) Av. yield of grain in Kg/ha.

	N_0	N_1	N_2	P_0	P_1	P_2	mean
K_0	311.0	291.3	269.3	273.0	354.0	245.3	290.6
K_1	385.3	493.0	352.6	346.6	415.6	469.0	410.3
K_2	451.3	380.0	452.6	454.6	424.0	405.6	428.0
mean	382.5	388.2	358.2	358.1	397.9	373.3	376.3

C.D. for K marginal means = = 55.22 Kg/ha

Individual results (N × P Tables)

62(242)

	P_0	P_1	P_2	mean
N_0	528.5	580.1	526.8	545.1
N_1	512.5	597.9	546.3	552.3
N_2	551.7	567.7	562.3	560.6
mean	530.9	581.9	545.1	552.6

63(256)

	P_0	P_1	P_2	mean
N_0	313.2	293.6	231.3	279.4
N_1	224.2	318.5	407.5	316.7
N_2	218.9	238.4	220.6	226.0
mean	252.1	283.5	286.5	302.3

64(284)

	P_0	P_1	P_2	mean
N_0	340.7	372.3	257.2	323.4
N_1	275.3	320.4	291.0	295.6
N_2	257.2	291.0	315.9	288.0
mean	291.0	327.9	288.0	302.3

Crop :- Pea (*Rabi*). **Ref :- U.P. 64 (277), 65 (95).**

Site :- Govt. Reg. Agri. Stn., Meerut. **Type :- 'M'.**

Object: —To ndfi out the suitable dose of N, P and K fertilizer for Pea crop.

1. BASAL CONDITIONS:

(i) (a) Nil (b) Maize and *Lobia* for fodder in 64; Jowar for fodder in 65 (c) Nil (ii) Loam (iii) 20.10.64; 26.10.65 (iv) (a) 4 to 5 ploughings by soil turning plough or *Deshi* plough and 2—3 plankings (b) Behind the plbugh (c) 80.7Kg/ha (d) Rows 45cm. apart (e) — (v) Nil (vi) T—163 (vii) Irrigated (viii) Nil (ix) 4.7cm; 4.5cm (x) 21.3.65: 23.3.66.

2. TREATMENTS:

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

(1) 3 levels of N: N_0=0, N_1=5.6 and N_2=11.2Kg/ha of N as A/S.

(2) 3 levels of P_2O_5 : P_0=0, P_1=22.4 and P_2=44.8Kg/ha of P_2O_5 as Super.

(3) 2 levels of K_2O : K_0=0 and K_1=22.4Kg/ha of K_2O as K_2SO_4

Fartilizers applied at sowing.

3. DESIGN :

(i) Fact. in R.B.D. (ii) (a) 18 (b) 9.14m×46.03m; 63.00m×16.20m (iii) 3 (iv) (a) and (b) 9.14m×4.57m; 10.00m×5.00m (v) Nil (vi) Yes.

4. GENERAL:

(i) Good; Satisfactory (ii) Some plants affected by wilts were removed (iii) Germination %, No. of pods/plant, yield of grain (iv) (a) 1964—contd. (b) No. (c) Nil (v) N.A. (vi) Nil (vii) As the expariment is cotinued beyond 65, the results of the individual years have been presented under 5. Results.

5. RESULTS:

64 (277)

(i) 2742Kg/ha (ii) 350.5Kg/ha (iii) Only the main effect N is significant. (iv) Av. yield of grain in Kg/ha.

	P_0	P_1	P_2	K_0	K_1	mean
N_0	2805	2750	2666	2759	2721	2740
N_1	2646	3017	3033	2830	2966	2898
N_2	2338	2917	2506	2511	2663	2587
mean	2596	2895	2735	2700	2783	2742
K_0	2530	2977	2594			
K_1	2663	2812	2875			

C.D. for N marginal means=237.6Kg/ha

65 (95)

(i) 2426Kg/ha (ii) 314.0Kg/ha. (iii) None of the effects is signincant. (iv) Av. yield of grain in Kg/ha.

	P_0	P_1	P_2	K_0	K_1	mean
N_0	2350	2433	2667	2500	2467	2483
N_1	2416	2300	2432	2399	2366	2383
N_2	2367	2500	2367	2355	2467	2411
mean	2378	2411	2489	2418	2433	2426
K_0	2455	2366	2433			
K_1	2300	2456	2544			

Crop:- Pea (*Rabi*). **Ref :- U.P. 61 (157)**

Site :- Govt. Reg. Agri. Res. Stn., Nawabgunj. **Type :- 'M'**

Object :—To see the effect of phosphate manuring on the yield of Pea.

1. BASAL CONDITIONS:

(i) (a) Pea—Paddy (b) Paddy (c) N.A. (ii) Clay loam (iii) 20.11.61 (iv) (a) N.A. (b) Line sowing behind plough (c) 92.0Kg/ha (d) Rows 30cm apart (e) — (v) Nil (vi) T—19; T—163 (vii) Irrigated; N.A. (viii) 1 weeding; Interculturings (ix) 10.6cm (x) 1.4.62.

2. TREATMENTS :

3 levels of P_2O_5 as super : P_0=0, P_1=44.8 and P_2=89.7Kg/ha.

3. DESIGN :

(i) R.B.D. (ii) (a) 3 (b) N.A. (iii) 3 (iv) (a) and (b) 9.14m×7.31m (v) Nil (vi) Yes.

4. GENERAL:

(i) Very poor; good (ii) Nil (iii) Yield of grain (iv) (a) 1960—61 (Expt—failed in 60) (b) Yes (c) Nil (v) Hardoi (vi) and (vii) Nil.

5. RESULTS :

61 (157)

(i) 1707Kg/ha. (ii) 118.0Kg/ha. (iii) Treatment differences are highly significant. (iv) Av. yield of grain in Kg/ha.

Treatment :	P_0	P_1	P_2
Av. yield:	1437	1796	1887

C.D.=267.4Kg/ha.

Crop :- Pea (*Rabi*) **Ref :- U.P. 64(574), 65(420).**

Site.-Fertilizer Res. Stn., Pura. **Type :- 'M'.**

Object : To study the residual effect of long term use of organic and inorganic nitrogeneous manures alone and in combination with P and K applied to early paddy crop.

1. BASAL CONDITIONS :

(i) (a) Paddy—Pea (b) Paddy (c) As per treatments (ii) Sandy loam (iii) N.A. (iv) (a) 1 ploughing by soil turning plough., 1—2 ploughing by cultivator (b) Behind the plough (c) and (d) N.A. (e) — (v) to (x) N.A.

2. TREATMENTS

10 manurial treatments :

T_0=Control, T_1=40Kg/ha. of N as A/S, T_2=40Kg/ha of N as F.Y.M., T_3=20Kg/ha of N as A/S+20Kg/ha of N as F.Y.M., T_4=T_1+40Kg/ha of P_2O_5 as Super, T_5=T_2+40Kg/ha of P_2O_5 as Super, T_6=T_3+40Kg/ha of P_2O_5 as super, T_7=T_1+40Kg/ha of P_2O_5 as super+20Kg/ha of K_2O, T_8=T_2+40Kg/ha of P_2O_5 as super +20Kg/ha of K_2O, T_9=T_3+40Kg/ha of P_2O_5 as super+20Kg/ha of K_2O.

3. DESIGN:

(i) R.B.D. (ii) (a) 10 (b) N.A. (iii) 4 (iv) (a) and (b) 10.06m×6.71m (v) Nil (vi) Yes.

4. GENERAL:

(i) and (ii) N.A. (iii) Yield of grain and straw (iv) (a) 1964—Centd. (b) Yes (c) Nil (v) Nil (vi) Nil. (vii) As the experiment is continued beyond 65. the results of the individual years have been presented under 5. Results.

5. RESULTS:

64 (574)

(i) 1740Kg/ha. (ii) 200.8 Kg/ha (iii) Treatment differences are highly significant (iv) Av. yield of Maize grain in Kg/ha.

Treatment :	T_0	T_1	T_2	T_3	T_4	T_5
Av. yield :	1557	1153	1942	1431	1779	2131

Treatments :	T_6	T_7	T_8	T_9
Av. yield :	1994	1709	1927	1779

C.D.=291.4Kg/ha.

65 (420)

(i) 694.7Kg/ha (ii) 211.6Kg/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 :	663.4	363.2	882.1	748.7	682.0	715.3	769.1	567.1

Treatment :	T_8	T_9
Av. yield :	785.7	770.9

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Crop :- Pea (*Rabi*). **Ref :- U.P. 64 (185)**

Site :- Govt. Reg. Agri. Res. Stn., Varanasi. **Type :- 'M'**

Object: —To assess the N, P and K requirements of Pea.

1. BASAL CONDITIONS:

(i) (a) *Jowar* for fodde r—Pea (b) *Jowar* (c) N.A. (ii) Loam (iii) 24.10.64 (iv) (a) N.A. (b) Behind *Deshi* plough (c) 74Kg/ha (d) Rows 23cm apart (e) Nil (v) N.A. (vi) T—163 (vii) Irrigated (viii) Hoeing by sharma hoe (ix) 5.2cm (x) 4.3.65.

2. TREATMENTS :

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

(1) 3 levels of N : N_0=0, N_1=11.2 and N_2=22.4Kg/ha.

(2) 3 levels of P_2O_5 : P_0=0, P_1=22.4 and P_2=44.8Kg/ha.

(3) 2 levels of K_2O : K_0=0 and K_1=22.4Kg/ha.

N applied as A/S Basal on 4.10.64 and Top dressing on 4.12.64, P_2O_5 applied as super. basal on 24.10.64 K_2O applied as Mur. Pot. on 24.10.64.

3. DESIGN:

(i) Fact. in R.B.D. (ii) (a) 18 (b) 24.52m×25.60m (iii) 4 (iv) (a) 7.93m×3.66m (b) 7.93m×3.66m (v) Nil (vi) Yes.

4. GENERAL :

(i) Good (ii) Nil (iii) Yield of grain (iv) (a) 1964—Contd. Continued for 1965 in shlghter modified form. (b) and (c) Nil (v) to (vii) Nil.

5. RESULTS

(i) 2095Kg/ha (ii) 256.6Kg/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	mean
N_0	2170	2199	2099	2270	2042	2156
N_1	2099	2074	2023	2038	2093	2066
N_2	2031	2020	2142	2073	2256	2064
mean	2100	2098	2088	2127	2064	2095
K_0	2100	2188	2093			
K_1	2100	2008	2084			

Crop :- Pea (*Rabi*). **Ref :- U.P. 65(58).**

Site :- Govt. Reg. Agri. Res. Stn., Varanasi. **Type :-'M'.**

Object : To assess the N, P and K requirement of Pea.

1. BASAL CONDITIONS :

(i) (a) *Jowar* fodder—Pea (b) *Jowar* fodder (c) Nil (ii) Loam (iii) 22.10.65 (iv)(a) 1 palewa, 1—2 cultivations (b) Behind the plough (c) 74Kg/ha (d) Rows 30cm apart (e) N.A. (v) Nil (vi) T—63 (vii) Irrigated (viii) Nil (ix) 3.8cm (x) 28.2.66.

2. TREATMENTS :

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

(1) 3 levels of N as A/S: N_0=0, N_1=5.6 and N_2=11.2Kg/ha.

(2) 3 levels of P_2O_5 as super : P_0=0, P_1=22.4 and P_2=44.8Kg/ha.

(3) 2 levels of K_2O as Pot. Chloride : K_0=0, K_1=22.4Kg/ha.

Treatments applied as basal on 22.10.65.

3. DESIGN :

(i) Fact. in R.B.D. (ii) (a) 18 (b) 26.52m×25.60m (iii) 4 (iv) (a) and (b) 7.93m×3.66m (v) Nil (vi) Yes.

4. GENERAL :

(i) Normal (ii) Nil (iii) Yield of grain and straw (iv) (a) 1964—contd. (modified in 65) (b) and (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 1663Kg/ha (ii) 510.3Kg/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	mean
N_0	1664	1785	1499	1681	1617	1649
N_1	1543	1643	1556	1534	1627	1581
N_2	1691	1738	1846	1688	1828	1758
mean	1633	1722	1633	1635	1691	1663
K_0	1605	1786	1513			
K_1	1661	1659	1754			

Crop :- Pea (*Rabi*). **Ref :- U.P. 61(412)**

Site :-Govt. Reg. Agri. Res. Stn., Varanasi **Type :- 'M'.**

Object: —To study the effect of direct application of super phosphate on legumes *Vs.* nitrogen to the seecceeding cercal crop of Paddy.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Loam (iii) N.A. (iv) (a) 3 ploughings (b) Line sowing behind the plough (c) 93Kg/ha (d) Rows 30cm. apart (e) — (v) and (vi) N.A. (vii) 2 inter culturs and hoeings (viii) Nil (ix) 4.1cm (x) 7.4.62.

2. TREATMENTS:

Main-plot treatments :

All combinations of (1) and (2)+one fellow plot during Rabi crop.

(1) 2 levels of P_2O_5 applied to legumes : P_0=0, P_1=44.8 and P_2=89.6Kg/ha.

(2) 2 legume crops : C_1=Gram and C_2=Pea.

Sub-plot treatments (applied to succeeding Paddy crop):

3 levels of N : N_0=0, N_1=16.8 and N_2=33.6Kg/ha.

Note :—In this experiment, only the effect of levels of P, applied to Pea crop, have been analysed.

3. DESIGN:

(i) Split-plot (R.B.D. for present expt.) (ii) (a) 7 main-plots/rep., 3 sub-plots/main-plot, (8 plots) block for present expt. (b) N.A. (iii) 3 (iv) (a) N.A. (b) 1/49.42ha (v) N.A. (vi) Yes.

4. GENERAL :

(i) Good (ii) Nil (iii) Yield of grain (iv) (a) 1961—only (b) — (c) — (v) Meerut (vi) and (vii) Nil.

5. RESULTS :

(i) 1695Kg/ha. (ii) 111.3Kg/ha. (iii) Treatment differences are significant (iv) Av. yield of grain in Kg/ha.

Treatment :	P_0	P_1	P_2
Av. yield :	1432	1781	1871

C.D.=252.2Kg/ha

Crop :- Pea (*Rabi*).

Ref. :- U.P. 60 to 61 (S.F.T.) for Allahabad, Kanpur, Farrukhabad, Varanasi, Jaunpur, Gorakhpur, Deoria, Muzaffar Nagar, Meerut, Aligarh, Bulandshahr and 61 (S.F.T.) for others.

Site :- Disrict : Allahabad, Kanpur, Farrukhabad, Varanasi, Jaunpur, Gorakhpur, Deoria, Muzaffer Nagar, Meerut, Aligarh, Buland shahr, Azamgarh, Barabanki, Basti Etah, Faizabad, Ghazipur, Gonda, Mainpuri, Moradabad, Partapgarh, Raibareli, Sultanpur and Unnad.

Type:- 'M'.

Object :—Type C :To compare of response to different sources and levels of phosphate.

1. BASAL CONDITIONS:

(I) to (x) N.A.

2. TREATMENTS:

7 manurial treatments:

O=Control (no manure), P_1=33.6Kg/ha of P_2O_5 as Super, P_2=67.3Kg/ha of P_2O_5 as Super, N_1P_1=7.7Kg/ha of N+33.6Kg/ha of P_2O_5 as Super, N_2P_2=15.4Kg/ha of N+67.3Kg/ha of P_2O_5 as Super, P_1'=33.6Kg/ha of K_2O_5 as Monoammonium Phosphate and P_2'=67.3Kg/ha of P_2O_5 as Monoammonium Phasphate.

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. Residdual effects 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 8ha. (b) 1/197.7ha. (iv) Yes.

4. GENERAL:

(i) and (ii) N.A. (iii) Yield of grain (iv) (a) 1960–61 for Allahabad, Kanpur, Farrukhabad, Varanasi Faunpur, Gorakhpur, Deoria, Muzaffarnagar, Meerut, Aligarh, Buland shahr and 1961—only for others (b) to (c) N.A. (v) to (vii) N.A.

5. RESULTS:

Av. response in Kg/ha.

60 (S.F.T.)

District	No. of trials	Control yield in Kg/ha	P_1	P_2	N_1P_1	N_1P_2	P_1'	P_2'	S E.
Allahabad	12	1710	370	540	520	830	680	870	37.0
Kanpur	3	870	310	640	330	710	420	710	51.0
Farrukhabad	6	1860	530	850	700	1030	500	870	63.0
Varanasi	12	1350	290	590	850	700	800	640	41.0
Jaunpur	12	1530	340	630	340	590	330	450	52.0
Gorakhpur	12	1030	170	420	400	730	430	710	27.0
Deonia	12	1210	230	440	380	790	370	840	20.0
Muzaffar nagar	12	1400	250	650	390	790	380	730	41.0
Meerut	12	1470	400	630	490	890	480	830	98.0
Aligarh	9	1450	170	260	260	360	180	260	26.0
Buland shahr	12	1430	370	810	500	1090	410	890	33.0
61 (S.F.T.)									
Allahabad	11	1370	300	390	460	420	670	710	67.0
Kanpur	5	890	280	370	460	540	670	610	51.0

District	No. of trials	Control yield in Kg/ha.	P_1	P_2	N_1P_1	N_2P_2	P_1'	P_2'	S.E.
Farrukhabad	9	2100	440	590	660	730	920	970	42.0
Varanasi	6	1760	180	260	180	370	460	540	65.0
Jaunpur	12	1480	150	200	200	440	580	540	142.0
Gorakhpur	11	1220	270	460	460	480	730	770	42.0
Deoria	9	1200	310	400	390	460	580	600	91.0
Muzaffar Nagar	12	1620	440	570	440	780	1090	960	59.0
Meerut	12	1460	310	580	580	520	1170	840	38.0
Aligarh	26	1440	200	230	380	390	420	530	32.0
Bulandshahr	11	1530	390	520	510	780	920	970	55.0
Azamgarh	12	1230	180	430	380	390	600	530	43.0
Barabanki	5	1640	360	380	650	380	720	800	87.0
Basti	11	1340	160	190	180	340	410	440	61.0
Etah	8	1260	210	230	280	260	320	200	79.0
Etawah	12	1230	290	390	330	600	620	560	75.0
Faizabad	6	1780	400	120	130	120	50 0	460	105.0
Ghazipur	11	1990	220	290	270	450	480	500	73.0
Gonda	8	1610	110	160	160	210	310	310	53 0
Mainpuri	11	1550	220	590	430	393	700	250	138.0
Moradabad	3	870	40	180	250	120	330	280	69.0
Partap garh	6	1260	160	440	380	230	460	480	55.0
Rae-Bareli	12	1240	210	400	340	350	530	460	30.0
Sultanpur	8	1810	170	330	440	340	550	600	117.0
Unnao	9	1160	120	130	210	220	240	280	55.0

Crop :- Pea (*Rabi*) **Ref : U.P. 64(608).**

Site:- State Soil Cons. Res., Demond and Trg, Centre, Majhhali.

Type :- 'CV'.

Object :—To find out the suitable time of sowing for two varieties of Pea for hills.

1. BASAL CONDITIONS:

(i) (a) Maize—Pea (b) Maize (c) 67.3Kg/ha of N (ii) Sandy loam (iii) As per treatments (iv) (a) 2 to 3 diggings and levelling by spade. (b) Line sowing (c) 55Kg/ha (d) N.A. (e) — (v) 25.4Kg/ha of compost broadcasted and 44.8Kg/ha of super as basal (vi) As per treatments (vii) Unirrigated (viii) 3 weedings by *kutala* (ix) N.A. (x) 13 to 25.5.65.

2. TREATMENTS:

All combinations of (1) and (2)

(1) 2 varieties : V_1=T—163 and V_2=BR—12

(2) 3 dates of sowing : S_1=15th Sept., S_2=30th Sept. and S_3=15th Oct.

3. DESIGN:

(i) Fact. in R.B.D. (ii) (a) 6 (b) N.A. (iii) 6 (iv) (a) and (b) 4.57m×2.44m (v) Nil (vi) Yes.

4. GENERAL:

(i) Good (ii) Nil (iii) Yield of grain (iv) (a) 1962—contd. (failed in 62, 63 and 65) (b) Yes (c) Nil (v) No. (vi) Damage by frost and snow (vii) Nil.

5. RESULTS:

(i) 1080Kg/ha. (ii) 335.3Kg/ha (iii) Main effect of S alone is highly significant. (iv) Av. yield of grain in Kg/ha.

	S_1	S_2	S_3	mean
V_1	1526	883	1018	1142
V_2	1184	943	925	1017
mean	1355	913	972	1080

C.D. for S marginal means=281.9Kg/ha

Crop :- Pea (*Rabi*) **Ref :- U.P. 63 (483), 64 (583).**

Site : -Central Soil Cons. Res. Stn., Selakui. Type:- 'CM'.

Object :—To investigate the minimum possible ploughings neeessary for Maize cultivation in addition to fertilization and its residual effect on Pea crop.

1. BASAL CONDITIONS:

(i) (a) Maize—Pea (b) Maize (c) As per treatments (ii) Loam (iii) 23.10.63: 30.10.64 (iv) (a) 1 ploughing by disc plough and 2 harrowings by tractor (b) Broadcasting (c) 90Kg/ha (d) and (e) Nil (v) Nil (vi) T—63 (vii) Unirrigated (viii) Nil; one weeding (ix) 12.0cm; 34.6cm (x) 17.4.64; 21.4.65.

2. TREATMENTS:

Treatments in one direction :

3 mamurial treatments : M_1=90Kg/ha + 45Kg/ha of P_2O_5 (Normal dose) M_2=135Kg/ha of N+67.5Kg/ha of P_2O_5 ($1\frac{1}{2}$ times the normal dose) and M_3=180Kg/ha of N + 90Kg/ha of P_2O_5 (2 times the normal dose)
Treatments in orthogonal direction :

5 tillages by *Deshi* plough : T_0=No ploughing, T_1=1, T_2=2, T_3=3 and T_4=4 ploughings.

3. DESIGN :

(i) Strip-plot (ii) (a) 5 plots in one direction and 3 plots is orthogonal direction (b) 33.22m × 22.55m (iii) 4 (iv) (a) and (b) 7.32m × 6.40m (v) Nil (vi) Yes.

4. GENERAL :

(i) Good (ii) Nil (iii) Yield of grain and straw (iv) (a) 1963—65 (Expt. failed in 65) (b) Yes (c) Nil (v) and (vi) Nil (vii) As error variances are heterogeneous in the case of all the three errors, the results of individual years have been presented under 5. Results.

5. RESULTS :

63 (483)

(i) 334.0Kg/ha (ii) (a) 114.8Kg/ha. (b) 97.8Kg/ha (c) 82.7Kg/ha (iii) None of the effects is significant. (iv) Av. yield of grain in Kg/ha.

	T_0	T_1	T_2	T_3	T_4	mean
M_1	311	322	305	370	305	323
M_2	397	337	327	387	344	358
M_3	387	259	269	344	344	321
mean	365	306	300	367	331	334

64 (583)

(i) 982.0Kg/ha (ii) (a) 701.8Kg/ha (b) 520.6Kg/ha (c) 320.2Kg/ha (iii) None of the effects is significant. (iv) Av. yield of grain in Kg/ha.

	T_0	T_1	T_2	T_3	T_4	mean.
M_1	618	865	1021	843	967	863
M_2	1236	1091	1262	1316	1273	1236
M_3	768	951	688	1005	817	846
mean	874	969	990	1055	1019	982

Crop :- **Pea** (*Rabi*). **Ref** :- **U.P. 61 (481), 62 (501), 63 (621).**

Site:-**Govt. Reg. Agri. Res. Stn., Amrukh.** **Type** :- **'IM'.**

Object :—To find out suitable combination of levels of irrigation and fertilizers which maxinizes the yield

1. BASAL CONDITIONS :

(i) (a) N.A. (b) Paddy (c) N.A. (ii) *Kabar* and *Parwa* (iii) 20.12.61; N.A.; 14.11.63; (iv) (a) 2 ploughings by *Bakhar* plough and pata (b) Line sowing behind *Nari* plough (c) 70Kg/ha (d) Rows 30cm apart (e) N.A. (v) Nil (vi) T—163 (vii) As per treatments (viii) Nil (ix) N.A. for 61 and 62; 1.5cm; (x) N.A.; 25.3.63; 10.4.64.

2. **TREATMENTS :**

All combinations of (1) and (2)

(1) 3 levels of irrigations : I_1=one irrigation, after 2 weeks of sowing, I_2=two irrigation : Ist after 2 weeks and IInd after 6 weeks of sowing, and I_3=three irrigations : Ist after 3 weeks, IInd after cix weeks of sowing and IIIrd at tillering stage.

(2) 3 levels of fertilizers : F_0= No fertilizers, F_1=5.6Kg/ha of N, + 28Kg/ha of P_2O_5, and $F_2=2\times F_1$.

3. DESIGN:

(i) Fact in R.B.D. (ii) (a) 9 (b) N.A. (iii) 3 (iv) (a) and (b) 12.19m×8.23m (v) Nil (vi) Yes.

4. GENERAL :

(i) Good (ii) Nil (iii) Yield of grain (iv) (a) 1961—64 (Irrigational treatments not applied in 64) (b) No. (c) Nil (v) Hardoi and Atarra (vi) Nil (vii) As error variances are heterogeneous and treatments × years interaction is absent, the results of individual years have been* presented under 5. Results.

5. RESULTS:

61 (481)

(i) 431.9Kg/ha (ii) 150.6Kg/ha (iii) None of the effects is significant. (iv) Av. yield of grain in Kg/ha.

	I_1	I_2	I_3	mean
F_0	338.9	368.8	343.8	350.5
F_1	303.9	667.8	627.9	533.2
F_2	249.2	538.2	448.5	411.9
mean	297.3	524.9	473.4	431 9

62 (501)

(i) 439.6Kg/ha (ii) 106.6Kg/ha (iii) Main effect of F is highly significant. (iv) Av. yield of grain in Kg/ha.

	I_1	I_2	I_3	mean
F_0	333.9	418.6	289.0	347.2
F_1	274.1	363.8	358.8	332.2
F_2	558.1	802.3	558.1	639.5
mean	388.7	528.2	402.0	439.6

C.D. for F marginal means=141.9Kg/ha.

63 (621)

(i) 934.6Kg/ha (ii) 270.7Kg/ha (iii) Main effect of I alone is significant. (iv) Av. yield of grain in Kg/ha.

	I_1	I_2	I_3	mean
F_0	743.5	1121.2	882.5	915.7
F_1	718 1	1136.2	1050.5	968.3
F_2	563 1	1386.8	809.3	919.7
mean	674.9	1214.7	914.1	934.6

C.D. for I marginal means=360.3Kg/ha.

Crop :- Pea (*Rabi*). **Ref :- U.P. 61(479), 62 (498), 63 (619), 64 (724).**

Site :- Govt, Agri. Farm, Atara. **Type :- 'IM'.**

Object:—To find out suitable combination of irrigation and fertilizer which maximizes the yeild of Pea.

1. BASAL CONDITIONS :

(i) (a) Nil (b) and (c) N A. (ii) *Parwa* soil (iii) 19.11.61; 24.11.62; 15.12.63; 20.11.64 (iv) (a) 2 to 3 ploughing by *Bakhar* plough and pata sowing behind Nari plough (b) Line sowing behind the plough (c)$^{\infty}$ 0.7Kg/ha (d) Rows 30cm apart (e) N.A. (v) Nil (vi) N.A. (vii) As per treatments (viii) N.A. (ix) N.A. (x) 25.3.62; 24/25.3.63; 11.4.64; 23/24.3.65.

2. TREATMENTS:

All combinations of (1) and (2)

(1) 3 levels of irrigation : I_1=one irrigations after 3 weeks of sowing, I_2=two irrigations; Ist after 3 weeks and after 6 weeks of sowing, I_3=three irrigations; Ist and 2nd after 3 and 6 weeks of sowing and 3rd at milk stage.

(2) 3 levels of fertilizers : F_0=No fertilizer, F_1=5.6Kg/ha N+28Kg/ha of P_2O_5, $F_2=2\times F_1$.

3. DESIGN :

(i) Fact. in R B.D. (ii) (a) 9 (b) N.A. (iii) 2 (iv) (a) and b) 7.92m×12 80m (v) Nil (vi) Yes.

4. GENERAL :

(i) Good (ii) Nil (iii) Yield of grain (iv) (a) 1961—64 (b) Yes (c) Nil (v) Amrukh, and Hardoi (vi) Nil (vii) Since the error variances are heterogeneous and treatments×years interaction is absent, the results of individual years have been presented under 5. Results.

5. RESULTS :

62 (479)

(i) 1210Kg/ha. (ii) 205.5Kg/ha (iii) None of the effects is significant (iv) Av. yield of grain in Kg/ha.

	I_1	I_2	I_3	mean
F_0	1380	1528	1183	1364
F_1	1183	1035	1232	1150
F_2	1183	887	1281	1117
mean	1249	1150	1232	12 0

62 (498)

(i) 870.2Kg/ha. (ii) 114.7Kg/ha. (iii) None of the ffects is significant (iv) Av. yield of grain in Kg/ha.

	I_1	I_2	I_3	mean
F_0	931.5	862.5	803.4	865.8
F_1	946.3	847.7	990.6	928.2
F_2	739.3	739.3	970.9	816.5
mean	872.4	816.5	921,6	870.2

63 (619)

(i) 139.1 Kg/ha. (ii) 40.0Kg/ha. (iii) None of the effects is significan t (iv) Av. yield of grain in Kg/ha.

	I_1	I_2	I_3	mean
F_0	177.4	197.1	147.9	174.1
F_1	167.6	64.1	142.9	124.9
F_2	123.2	108.4	128.2	118.3
mean	156.1	123.2	138.0	139.1

64 (724)

(i) 290.5Kg/ha (ii) 178.7Kg/ha (iii) None of theeffects is significant (iv) Av. yield of grain in Kg/ha.

	I_1	I_2	I_3	mean
F_0	389.4	305.6	271.1	322.0
F_1	443.6	123.2	145.4	237.4
F_2	409.1	49.3	478.1	312.2
mean	414.0	159.4	298.2	290.5

Crop :- Pea (*Rabi*) **Ref :- U.P. 61 (136), 62 (114).**

Site :- Govt. Reg. Agri. Res. Stn., Hardoi. **Type :- 'IM'**

Object :—To determine the levels of Irrigation and fortility to get maximum yield.

1. BASAL CONDITIONS :

(i) (a) Nil (b) *Moong* for G.M.; N.A. (c) N.A. (ii) Sandy loam (iii) 27.11.61; 23.11.62 (iv) (a) and (b) N.A. (c) 81Kg/ha; 37Kg/ha (d) N.A. (e) Nil (v) *Moong* for G.M. (vi) T—163 (vii) As per treatments (viii) One interculturing (ix) 1.8cm; 2.3cm (x) 15.4.62; 5.4.63.

2. TREATMENTS :

All the combination of (1) and (2)

(1) 3 levels of irrigations : I_1=one irrigation after 3 weeks of sowing, I_2=two irrigations, one after 3 weeks and 2nd after 6 weeks of sowing; I_3=three irrigations, one after 3 weeks, 2nd after 6 weeks of sowing and 3rd at milkys stage.

(2) 3 levels of fertility : F_0=No fertilizer; F_1=5.6Kg/ha of N+28.0Kg/ha of P_2O_5 and $F_2=2\times F_1$.

3. DESIGN :

(i) Fact. in R.B.D. (ii) (a) 9 (b) N.A. (iii) 2 (iv) (a) and (b) 9.14m×7.60m; 8.69m×7.32m (v) Nil (vi) Yes.

4. GENERAL:

(i) Good (ii) N.A. (iii) Yield of grain (iv) (a) 1961—62 (b) No (c) The results of the combined analysis have been presented under 5 Results. (v) Amrukh, and Atara (vi) Nil (vii) Error variances are homogeneous and Treatments×years interaction is present.

5. RESULTS:

Pooled results :

(i) 1826Kg/ha (ii) 742.5Kg/ha (based on 8 d.f. made up Treatments×years interaction) (iii) None of the effects is significant. (iv) Av. yield of grain in Kg/ha.

	F_0	F_1	F_2	mean
I_1	1556	1697	1918	1724
I_2	62	1911	2041	1771
I_3	1751	1802	2396	1983
mean	1556	1803	2118	1826

Individual results

Treatment	I_1	I_2	I_3	Sig.	F_0	F_1	F_2	Sig.	G.M.	S.E./plot
Year 1961	1752	1464	1637	N.S.	1721	1563	1570	N.S.	1618	362.4
1962	1695	2078	2329	**	1391	2043	2666	**	2035	193.1
mean	1724	1771	1983	N.S.	1556	1803	2118	N.S.	1826	742.5

Crop :- Pea (*Rabi*). **Ref :- U.P. 63 (148).**

Site :- Govt. Reg. Agri. Res. Stn., Hardoi. **Type :- 'IM'**

Object :—To determine factors for maximizing production of Pea.

1. BASAL CONDITIONS :

(i) (a) Early Paddy—Pea (b) Early Paddy (c) N.A. (ii) Sandy loam (iii) 8.11.63 (iv) (a) N.A. (b) Behind the plough in lines (c) 69Kg/ha (d) Rows 46cm apart (e) Nil (v) Nil (vi) T −163 (vii) As per treatments (viii) N.A. (ix) 0.5cm (x) 3.4.64.

2. TREATMENTS :

All combinations of (1), and (2)

(1) 3 levels of irrigations : I_1=one irrigation after 6 weeks of sowing, I_2=2 irrigations : 6 and 9 weeks sowing and I_3=3 irrigations 3,6 and 9 weeks after sowing.

(2) 3 levels of fertilizers: F_0=No fertilizer F_1=5.60Kg/ha of N+28.0Kg/ha of P_2O_5 and $F_2=2\times F_1$.

3. DESIGN:

(i) Fact. in R.B.D. (ii) (a) 9 (b) N.A. (iii) 2 (iv) (a) and (b) 8.69m×7.32m (v) Nil (vi) Yes.

4. GENERAL :

(i) Good (ii) No disease (iii) yield of grain (iv) (a) 1963—only (b) — (c) — (v) to (vii) Nil.

5. RESULTS :

(i) 1640Kg/ha (ii) 100.7Kg/ha (iii) Main effect of F is highly significant and that of I is significant. (iv) Av. yield of grain in Kg/ha.

	F_0	F_1	F_2	mean
I_1	1235	1613	1310	1553
I_2	1408	1699	1810	1639
I_3	1605	1731	1849	1728
mean	1416	1681	1823	1640

C.D. for I or F marginal means=134.1Kg/ha.

Crop :- Pea (*Rabi*). **Ref :- U.P. 61 (175), 62 (154), 63 (153).**

Site :- Govt. Reg. Agri. Res. Stn., Nawabgunj. **Type :- 'IM'**

Object : —To determine factors for maximising production.

1. BASAL CONDITIONS:

(i) (a) Pea—Ecarly Paddy for 61 and Pea—Paddy for others (b) Paddy (c) N.A. for 61 and as per treatments for others (ii) Clay loam (iii) 26.11.61; 15.11.62; 18.10.63 (iv) (a) N.A. (b) Line sowing behind the plough (c) 91.6Kg/ha (d) Rows 30cm apart (e) Nil (v) Nil (vi) T—163 (vii) As per treatments (viii) N.A. (ix) 10.6cm; 3.1cm; 0.7cm (x) 3.3.62; 26.3.63; 15.3.64.

2. TREATMENTS:

All combinations of (1) and (2):

(1) 3 levels of irrigations: I_1=one irrigation after 3 weeks of sowing, I_2=two irrigations; Ist after 3 weeks and 2nd after 6 weeks of sowing and I_3=three irrigations, Ist after 3 weeks and 2nd after 6 weeks of sowing and 3rd at milky stage.

(2) 3 levels of fertility: F_0=No fertilizer, F_1=5.6Kg/ha N+28.0Kg/ha of P_2O_5+Residual effect of (22.4Kg/ha and of N, P and K+46.1Q/ha of F.Y.M.) applied to previous Paddy crop and F_2=11.2Kg/ha of N+56.0Kg/ha of P_2O_5+Residual effect of (44.8Kg/ha of each of N, P and K+92.2Q/ha of F.Y.M.) applied to previous Paddy crop.

3. DESIGN:

(i) Fact. in R.B D. (ii) (a) 9 (b) N.A. (iii) 2 (iv) (a) and (b) 7.32m×12.19m (v) Nil (vi) Yes.

4. GENERAL:

(i) Good (ii) Nil (iii) Yield of grain (iv) (a) 1961—63 (b) Yes (c) Nil (v) and (vi) Nil (vii) The experiment for 61 has no residual effect of previous crop hence it has not been considered for combining the results. As error variances are heterogeneous and Treatment×years interaction is absent, the results of individual years have been presented under 5. Results.

5. RESULTS:

61 (175)

(i) 1614Kg/ha (ii) 255.2Kg/ha (iii) None of the effects is significant (iv) Av. yield of grain in Kg/ha.

	F_0	F_1	F	mean
I_1	1598	1687	1811	1699
I_2	1295	1413	1648	1452
I_3	1833	1943	1598	1691
mean	1575	1581	1686	1614

62 (154)

(i) 1082 Kg/ha (ii) 356.1Kg/ha (iii) None of the effects is significant. (iv) Av. yield of grain in Kg/ha.

	F_0	F_1	F_2	mean
I_1	1173	1066	1464	1234
I_2	541	828	1146	838
I_3	1230	949	1344	1174
mean	981	948	1318	1082

63 (153):

(i) 364.4Kg/ha (ii) 96.3Kg/ha (iii) Main effect of F is significant. (iv) Av. yield of grain in Kg/ha.

	F_0	F_1	F_2	m
I_1	202.4	323.7	425.5	317-2
I_2	302.7	360.5	468.1	377.1
I_3	308.3	340.3	548.8	399.1
mean	271.1	341.4	480.8	364.4

C.D. for F marginal means=128.2Kg/ha

Crop :- Pea (*Rabi*). **Ref :- U.P. 61** ()

Site :- Govt. Reg. Agri. Res., Stn, Varanasi **Type :-'IM'.**

Object :—To study the effect of different levels of irrigation and fertility on the yield.

1. BASAL CONDITIONS:

(i) (a) to (c) N.A. (ii) Clayey loam (iii) 27.11.61 (iv) (a) N.A. (b) Behind the plough in lines (c) N.A. (d) Rows 30cm apart (e) Nil (v) Nil (vi) T—163 (vii) As per treatments (viii) N.A. (ix) 4.2cm (x) 15.4.62

2. TREATMENTS :

All combinations of (1) and (2)

(1) 2 levels of irrigation : I_0=Nil, I_1=1 and I_2=2 irrigations.

(2) 3 levels of fertility : F_0=No manure, F_1=5.6Kg/ha of N as A/S+28Kg/ha of P_2O_5 as Super and $F_2=2\times F_1$.

Dates of irrigation : 25.12.61 (I_1+I_2) and 22.1.62 (I_2)

Dates and methods of application of fertilizers—N.A.

3. DESIGN:

(i) Fact. in R.B.D. (ii) (a) 9 (b) 17.22m×51.21m+12.80m×8.23m (iii) 2 (iv) (a) 12.80m×8.23m (b) 12.19m×7.62m (v) 30cm×30cm (vi) Yes.

4. GENERAL:

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

5. RESULTS:

(i) 1443Kg/ha (ii) 487.2Kg/ha (iii) None of the effects is significant (iv) Av. yield of grain in Kg/ha.

	I_0	I_1	I_2	mean
F_0	1055	884	1765	1235
F_1	1394	1685	1814	1631
F_2	1496	946	1943	1462
mean	1315	1172	1841	1443

Crop :- Pea (*Rabi*). **Ref :- U.P. 62(470).**

Site :- Allahabad Agri. Instt., Allahabad. **Type :- 'D'.**

Object :—To study the effective ness of 2—melhyl—4—chlorophenoxy. Butryic Acid (MCPB) herbicide in pea, using different rates and times of application.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Sandy loam (iii) 23.10.62 (iv) (a) and (b) N.A. (c) 35Kg/ha (d) N.A. (e) Nil (v) N. A. (vi) T—163 (vii) N.A. (viii) Nil (ix) 58.9cm (x) N.A.

2. TREATMENTS :

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

(1) 3 rates of herbicide (MCPB) : R_1=0.84, R_2=1.14 and R_3=1.41Kg active ingradient/ha

(2) 3 times of application : T_1=4 weeks, T_2=6 weeks and T_3=8 weeks after sowing.

3. DESIGN :

(i) Fact in R.B.D. (ii) (a) 10 (b) N.A. (iii) 4 (iv) (a) and (b) 6.86m×5.49m (v) Nil (vi) Yes.

4. GENERAL:

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

5. RESULTS :

(i) 1155Kg/ha (ii) 158.5Kg/ha (iii) None of the effects is significant. (iv) Av. yield of grain in Kg/ha.

	T_1	T_2	T_3	mean
R_0	1049	1043	1153	1081
R_1	1279	1118	1210	1203
R_2	1210	1136	1203	1189
mean	1179	1106	1188	1158

Crop :- Pea (*Rabi*). **Ref :- U.P. 63(543).**

Site :- Allahabad Agri. Instt., Allahabad. **Type :- 'D'**

Object :— To study the effectiveness of 2—methyl 4—chlorophenoxy. Butyric Acid (MCPB) in Pea, using different rates and times of Application.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Clay loam (iii) 6.11.63 (iv) (a) and (b) N.A. (c) 35Kg/ha (d) Rows 4cm apart (e) Nil (v) N. A. (vi) T—163 (vii) N.A. (viii) Nil (ix) 22.9cm (x) 19.3.64.

2. TREATMENTS:

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

(1) 3 rates of herbicide (MCPB): R_1=1,12, R_2=1,68 and R_3=2.24Kg active ingradient/ha.

(2) 2 times of application: T_1=4 weeks and T_2=6 weeks after sowing.

2 extra treatments

Control (1) = unweeded, Control (2)=Weeded.

3. DESIGN :

(i) Fact. in R.B.D. (ii) (a) 8 (b) 12.19m × 42.98m (iii) 4 (iv) (a) 12.19m × 4.57m (b) 11.28m × 3.66m (v) 46cm × 46cm (vi) Yes.

4. GENERAL:

(i) N A. (ii) N.A. (iii) Yield of grain and straw (iv) (a) 1963—only (b) and (c) — (v) and (vi) N.A. (vii) Peaplants showed distinct injury symptome when the herbicide was applied at the rate of 1.68 to 2.24Kg active ingredient/ha. The plants tapered downward from top after 2½ hours of herbicidal Treatment but other 11 days they recovered.

5. RESULTS :

(i) 1382Kg/ha (ii) 171.5Kg/ha (iii) None of the effects is significant. (iv) Av. yield of grain in Kg/ha.

Control (1)=1291 and Control (2)=1309Kg/ha

	R_1	R_2	R_3	mean
T_1	1424	I364	1436	1408
T_2	1406	1430	1394	1410
mean	1415	1397	1415	1409

Crop :- Pea (*Rabi*). **Ref :- U.P. 65 (699).**

Site :- Gov. A[illegible].Farm, Bharari. **Type :- 'D'**

Object :—To find out an effective and economic method of control against pea pod borer.

1. BASAL CONDITIONS:

(i) to (v) N.A. (vi) Type –163 (vii) to (x) N.A.

2. TREATMENTS:

6 insecticides : T_0=*Control* (2 plots), T_1=spraying with 0.6Kg of actual Endrin mixed with water, T_2=spraying with 0.07% Parathion, T_3=spraying with 0.07% Diazinon+0.5% D.D.T., T_4=spraying with 0.3% Lindane emulsion, T_5=Dusting with 10% B.H.C. dust @ 34Kg/ha.

3 DESIGN:

(i) R.B.D. (ii) (a) 7 (b) N.A. (iii) 4 (iv) (a) and (b) 10.00m × 10.00m (v) Nil (vi) Yes.

4. GENERAL :

(i) N.A, (ii) Under study (iii) % Infection before and after 15 days of Treatment (iv) (a) 1965–only (b) and (c) Nil (v) Rudrapur (vi) and (vii) Nil.

5. RESULTS:

(i) 21.5 degrees (ii) 8.8 degrees (iii) Treatment differences are not significant. (iv) Mean infestation in degrees.

Treatments:	T_0	T_1	T_2	T_3	T_4	T_5
Mean in degrees ;	29.8	13.1	17.7	15.7	21.6	23.1

Crop :- Pea (*Rabi*). **Ref. :- U.P.64 (670).**

Site :-Govt. Agri. Farm, Bharari. **Type :- 'D'.**

Object :–To find out the effective measure of control against *Etiella Zinckenella* Tr., Pea pod borer.

1. BASAL CONDITIONS :

(i) to (x) N.A.

2. TREATMENTS :

6 insecticides: T_0=Control (2 plots), T_1=spraying with 0.6Kg of actual Endrin @ 570 litres/ha, T_2=spraying with 0.07% Parathion+1% ovicide @ 570 litres/ha, T_3=spraying with 0.07% Diazinon+0.5% D.D.T. 570 liters/ha, T_4=spraying with 0.25% Lindane emelsion @ 570 litres/ha, T_5=Dusting with 10% @ 34Kg/ha.

3. DESIGN:

(i) R.B.D. (ii) (a) 7 (b) N.A. (iii) 4 (iv) (a) and (b) 10.00m×10.00m (v) Nil (vi) Yes.

4. GENERAL:

(i) N.A. (ii) Under treatment (iii) % of infestation of pods after 7 days of application (iv) (a) 1964–only (b) and (c) Nil (v) to (vii) N.A.

5. RESULTS :

(i) 18.5 degrees (ii) 6.2 degrees (iii) Treatment differences are not significant (iv) Infestation in degrees.

Treatments :	T_0	T_1	T_2	T_3	T_4	T_5
Mean angles :	20.8	14.6	11.3	17.8	22.5	21.8

Crop :- Pea (*Rabi*). **Ref :- U.P. 60 (262).**

Site :. R.B. S. College, Bichpuri. **Type :-'D'**

Object :—To study the effect of Pre and post emergence applications of three MCPB concentrations, on weeds grown in association with two varieties of Pea.

1. BASAL CONDITIONS :

(i) (a) Nil (b) Jowar (fodder) (c) Nil (ii) Sandy loam (iii) 28 10.60 (iv) (a) 3 ploughings and harrowings (b) Behind the plough (c) 80.7Kg/ha (d) Rows 46cm apart (e) — (v) 44.8Kg/ha of P_2O_5 through super (vi) As per treatments (vii) Nil (viii) Hand weeding (ix) 7.7cm (x) 1.3.61.

2. TREATMENTS :

All combinations of (1) and (2)

(1) 2 varieties : V_1=N.P. 29 and V_2=Type 163.

(2) All combinations of (3) and (4) + 2 extra treatments

(3) 3 concentrations of M C.P.B. : C_1=0.84, C_2=1.18 and C_3=3.36Kg/ha.

(4) 2 stage of spaying : S_1=Pre-emergence application on 30.10.60 and S_2=Post emergence on 30.12.60.

2 extra treatments :

E_0=Control and E_1=H and weeding.

3. DESIGN :

(i) Fact. in R.B.D. (ii) (a) 16 (b) — (iii) 3 (iv) (a) 10.06m × 6.71m (b) 8.23m × 4.88m (v) 91cm at each end (vi) Yes.

4. GENERAL :

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

5. RESULTS :

(i) 1639Kg/ha (ii) 240.7Kg/ha (iii) Mean effect of V alone is highly significant. The significance of weeding *Vs.* others is N.A. (iv) Av. yield of grain in Kg/ha.

Treatment :	V_1	V_2	C_1	C_2	C_3
Av. yield :	1439	1825	1660	1660	1576

Treatment :	S_1	S_2	E_0	E_1
Av. yield :	1614	1651	1402	1955

C.D. for V marginal means=163.8Kg/ha.

Crop:-Pea (*Rabi*). **Ref.:-U.P. 64 (333), 65 (136).**

Site:-R.B.S. College, Bichpuri, Agra. **Type:- D'**

Object:—To study the effect of Pre and post—emergence applications of 2, 4—DB and MCPB in their different concentrations on weed growth in association with Pea (Pisum satinum).

1 BASAL CONDITIONS:

(i) (a) N.A. (b) Jowar (fodder); Fallow (c) N.A. (ii) Sandy loam (iii) 22.10.64; 27.10.65 (iv) (a) One tractor ploughing followed by two discings; 2 rainy season ploughings by tractor with 2 harrowings (b) Behind the plough (c) 87Kg/ha (d) Rows 30.5cm apart (e) Nil (v) 44.8Kg/ha of P_2O_5 through super phosphate; 23Kg/ha of N as A/S+45Kg/ha of P_2O_5 as single Supper at sowing (vi) T—163 (vii) Nil (viii) As per treatments (ix) 1.2cm, 2.3cm (x) 3.3.65; 13.3.66.

2. TREATMENTS:

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

(1) 4 chemicals : C_1=560gm/ha of M.C.P.B., C_2=1120gm/ha of M.C.P.B, C_3=420gm/ha of 2, 4—DB and C_4=840gm/ha of 2, 4—DB.

(2) 3 stages : S_1=Pre—emergence, S_2=Post—emergence at 4 weeks stage and S_3=Post emergence at 6 weeks stage.

3 Extra treatments : E_0=Control (unweeded), E_1=Hand weeding at 4 weeks old crop and E_2=Hand weeding at 6 weeks old crop.

3. DESIGN:

(i) Fact. in R.B.D. (ii) (a) 15 (b) 43.89m×37.49m; 34.00m×4.50m (iii) 4 (iv) (a) 11.89m×8.53m; 11.00m×8.00m. (b) 10.07m×6.71m; 9.00m×6.00m (v) 91cm×91cm; 100cm×100cm (vi) Yes.

4. GENERAL:

(i) Good (ii) Nil (iii) Yield of grain (iv) (a) 1963—55 (Expt. failed in 1963) (b) and (c) Nil. (v) to (vii) Nil

5. RESULTS :

64 (333);

(i) 994.7Kg/ha (ii) 347.0Kg/ha (iii) None of the effects is significant. (iv) Av. yield of grain in Kg/ha.

Treatment :	C_1	C_2	C_3	C_4	S_1	S_2	S_3
Av. yield :	970	1010	1010	950	1025	920	1010

Treatment :	E_0	E_1	E_2
Av. yield :	940	1060	1100

65 (136):

(i) 929.7Kg/ha (ii) 453.7Kg/ha (iii) Interaction C×S is significant. (iv) Av. yield of grain in Kg/ha.

Treamnt	C_1	C_2	C_3	C_4	S_1	S_2	S_3	E_0	E_1	E_2
Av. yield :	875	1159	848	775	878	841	1025	790	953	1231

C.D. for body of C×S table=647.8Kg/ha.

Crop :- Pea (*Rabi*) **Ref. :- U.P. 64 (337), 65 (146).**

Site :- R.B.S. College, Bichpuri. **Type :- 'D'**

Object :—To study the control of perennial weed cynodon dactydon through mechanical and chemical (Dowpon and T C.A.) methods in fallow fields and their after effects on the yield of Pea crop.

1. BASAL CONDITIONS :

(i) (a) Fallow—pea; Nil (b) Fallow (c) Nil (ii) Sandy loam (iii) 20/21.10.64; 20/21.10.65 (iv) (a) 2 tractor ploughings, disc harrowing (b) Behind the *Deshi* plough (c) 75Kg/ha (d) Rows 30.5 cm apart (e) Nil (v) Nil (vi) NP—29 (vii) and (viii) Nil (ix) 1.2cm; 2.3cm (x) 8.3.65; 8,11.3.66.

2. TREATMENTS :

13 weedicidal treatments :

T_1=one, T_2=two and T_3=three applications of Dowpon at 5.6Kg/ha; T_4=one, T_5=two and T_6=three applications of Dowpon at 11.2Kg/ha, T_7=uncultivated control, T_8=three hot weather cultivations, T_9=T_8+3 rainy season cultivations, T_{10}=T_8 followed by T.C.A. at 11.2Kg/ha, T_{11}=T_9 followed by T.C.A. at 11.2Kg/ha. T_{12}=T_9+T.C.A. at 22.4Kg/ha and T_{13}=T_9 followed by T.C.A. at 22.4Kg/ha.

3. DESIGN :

(i) R.B.D. (ii) (a) 13 (b) 131.98m×20.12m (iii) 4 (iv) (a) 20.12m×10.06m (b) 17.68m×7.62m (v) 1.22 meter at each end (vi) Yes.

4. GENERAL:

(i) Good (ii) Nil (iii) Yield of grain (iv) (a) 1963—65 (Experiment for '63' is not available (b) N.A.) (c) The results of the combined anlysis have been presented under 5. Results. (v) and (vi) Nil (vii) Error variances are homogeneous and Treatments×years interaction is absent.

5. RESULTS

Pooled results:

(i) 246.9Kg/ha (ii) 196.5Kg/ha (based on 84 d.f. made up of pooled error and Treatment×years interaction) (iii) Treatment differences are highly significant (iv) Av. yield of grain in Kg/ha.

Treatments :	T_1	T_2	T_3	T_4	T_5	T_6
Av. yield :	59.0	84.5	148.5	58.0	118.5	553.5

Treatment :	T_7	T_8	T_9	T_{10}	T_{11}	T_{12}	T_{13}
Av. yield :	77.0	160.5	645.0	248.5	393.0	205.0	458.5

C.D.=195.8Kg/ha

Individual results

Treatment	T_1	T_2	T_3	T_4	T_5	T_6	T_7	T_8	T_9	T_{10}	T_{11}	T_{12}	T_{13}	Sig.
Year 1964	46.0	72.0	137.0	64.0	105.0	552.0	96.0	199.0	703.0	200.0	400.0	296.0	479.0	*
1965	72.0	97.0	160.0	52.0	132.0	555.0	58.0	122.0	587.0	297.0	386.0	114.0	438.0	*
Pooled	59.0	84.5	148.5	58.0	118.5	553 5	77.0	160.5	645.0	248 5	393.0	205.0	458.5	*

G.M.	S.E./plot
257.6	229.0
236.2	185.2
246.9	196.5

Crop :- Pea (*Rabi*). **Ref :- U.P. 64 (1)**

Site :- Govt. Hill Print Res. Stn., Chauhatta. **Type :- 'D'**

Object :—To study the effect of insecticides in controlling Kurmula attack in Pea.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Sandy loam to loamy sand (iii) N.A. (iv) (a) to (d) N.A. (e) Nil (v) and (vi) Nil (vii) Irrigated (viii) to (x) N.A.

2. TREATMENTS:

11 chemical treatments

T_0=Control, T_1=3% Haptachlore dust @ 37Kg/ha., T_2=3% Heptachlore dust @ 49Kg/ha., T_3=0.3% Heptachlore emulsion @ 2247 litres/ha., T_4=0.03% Endrex emulsion @1123 litres/ha, T_5=0.03% B.H.C. emulsion @ 2247 liter/ha, T_6=10% B.H.C. dust @ 37Kg/ha, T_7=10% B.H.C. dust @ 49Kg/ha, T_8=10% B.H.C. dust @ 74Kg/ha, T_9=10% Aldrin dust @ 37Kg/ha and T_{10}=10% Aldrin dust @ 49Kg/ha.

Emulsions applied with irrigation on 27.3.65.

3. DESIGN :

(i)R.B.D. (ii) (a) 11 (b) N.A. (iii) 2 (iv) (a) and (b) Plots were of different sizes (v) Nil (vii) Yes.

4. GENERAL:

(i) N.A. (ii) Incidence of Kurmula; control measures as per treatments(iii) Counts of grubs were taken at two places (iv) 1964– only (b) and (c) Nil (v) to (vii) N.A.

5. RESULTS:

(i) 1.26 $\sqrt{x+0.5}$/plot (ii) 0.34 $\sqrt{x+0.5}$/plot (iii) Treatment differences are significant. (iv) Mean value of $\sqrt{x+0.5}$/plot, were x=No. of grubs.

Treatments :	T_0	T_1	T_2	T_3	T_4	T_5	T_6	T_7	T_8	T_9	T_{10}
Mean value of $\sqrt{x+0.5}$/plot	2.54	1.40	1.22	0.96	1.22	0.96	1.54	0.96	0.96	1.14	0.96
No. of grubs Transformed	5.65	1.46	0.99	0.42	0.99	0.42	1.87	0.42	0.42	0.80	0.42

C.D.=0.82 $\sqrt{x+0.5}$/plot

— — —

Crop :- Pea (*Rabi*). **Ref :-U.P. 61 (303).**

Site :- Govt. Agri. Flood Res. Stn., Gograghat. **Type :-'D'.**

Object :—To study the control of Pea pod borer with modern insecticides and to compare their economics.

1. BASAL CONDITIONS:

(i) to (c) N.A. (ii) Sandy to sandy loam (iii) 17.11.61 (iv) (a) One ploughing each by S.T.P. and *Deshi* plough followed by planking with Singh and *Deshi pata* (b) Behind the plough (c) 99Kg/ha (d) Rows 46cm apart (e) Nil (v) 22.4Kg/ha of N as A/S (vi) T–163 (vii) Unirrigated (viii) Weeding by *Khurpi* (ix) 7.7cm (x) 30.3.62.

2. TREATMENTS:

5 insecticidal treatments : T_0=Control, T_1=Dipterex S.P. 80—2.5gm/litre, T_2=Endrin 20% e.c. 1.6gm/litre, T_3=Basudin—1.6gm/litre + D.D.T. (0.5%), T_4=Folidol 24.5c.c. or 1.6gm/litre. spraying done on 6.3.62 and 16.3.62.

3. DESIGN :

(i) R.B.D. (ii) (a) 5 (b) 7.62m×25.30m (iii) 4 (iv) (a) and (b) 7.62m×4.57m (v) Nil (vi) Yes.

4. GENERAL :

(i) Good (ii) Pea pod borer (iii) % damaged pods one 18.3.62 and yield of grain (iv) (a) 1961—only (b) and (c) Nil (v) No (vi) and (vii) Nil.

5. RESULTS :

(i) 979 Kg/ha. (ii) 195.7 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
Mean yield :	801	970	1018	1178	928

Crop :- Pea (*Rabi*). **Ref :- U.P. 63 (132),**

Site :- Govt. Reg. Agri. Res. Stn., Hardoi. **Type :- 'D'**

Object :—To study the dose and time of application of Tropotox used as herbicide for the control of weeds.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Sandy loam (iii) N.A. (iv) (a) N.A. (b) Behind the plough in lines (c) 74Kg/ha (d) Rows 23cm apart (e) Nil (v) 44.8Kg/ha of P_2O_5 as Super (vi) T—163 (vii) N.A. (viii) As per treatments (ix) 0.5cm (x) N A.

2. TREATMENTS :

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

(1) 3 doses of Tropotox : D_1=227, D_2=340 and D_3=454gm. acid equivalent/ha.

(2) 2 time of spraying: S_1=2 and S_2=4 weeks after sowing.

2 extra treatments : E_0=control and E_1=Hand weeding.

Date of I spraying N.A. Date of II spraying 12.12.63

3. DESIGN :

(i) R B.D. (ii) (a) 8 (b) N.A. (iii) 4 (iv) (a) N.A. (b) 9.75m×2.74m (v) N.A. (vi) Yes.

4. GENERAL:

(i) and (ii) N.A. (iii) Population of different kinds of weeds and yield of grain (iv) 1963—only (b) and (c) Nil (v) Kanpur (vi) and (vii) Nil.

5. RESULTS :

(i) 981Kg/ha (ii) 346.1Kg/ha. (iii) None of the effects is significant. (iv) Av. yield of grain in Kg/ha.

E_0=720 and E_1=1247Kg/ha.

	S_1	S_2	mean
D_1	888	1004	946
D_2	892	1004	948
D_3	1196	897	1046
mean	992	968	980

Crop :- Pea (*Rabi*). **Ref:-U.P. 64 (52), 65 (395).**

Site :- Govt. Res. Farm, Kanpur. **Type :- 'D'.**

Object :—To find out a suitable control measure for centrolling weeds in Pea.

1. BASAL CONDITIONS :

(i) (a) N A , Nil (b) *Sanai*; G.M. (c) Nil (ii) Sandy loam (iii) 11.11.64; 6.11.65 (iv) (a) N.A.; One ploughing with victory plough+3 ploughings with *Deshi* plough (b) Behind the plough (c) 74Kg/ha (d) Rows 23cm; 20cm apart (e) — (v) *Sanai* (G.M)+22.4Kg/ha of P_2O_5 as Super+22.4Kg/ha of K_2O as Pot. Sul.; 30Kg/ha of P_2O_5 as Super + G.M. (vi) T—163 (vii) Irrigated (viii) As per treatments (ix) 2.7cm; 0.2cm (x) 24.3.65; 24.3.66.

2. TREATMENTS:

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

(1) 5 weedicides : W_1=0.56, W_2=0.84 and W_3=1.12Kg a.e./ha of MCPB as Tropotox; W_4=0.42 and W_5=0.84Kg a.e./ha of 2,4—DB as Embutox.

(2) 2 times of sprayings : S_1=4 and S_2=6 weeks after sowing.
3 selective treatments: T_0=control (untreated). T_1=Hand weeding 4 weeks after sowing and T_2=Hand weeding 6 weeks after sowing.

Note : Weedicides mixed with water and sprayed @ 337 liter.

DESIGN :

(i) R.B.D. (ii) (a) 13 (b) N.A ; 68.60m×10.00m (iii) 4 (iv) (a) 9.60m×5.20m; 10.00m×5 00m (b) 8.60m×4.20m; 9.50m×4.50m (v) 50cm×50cm; 25cm×25cm. (vi) Yes.

GENERAL

(i)Good (ii) Nil (iii) Papulation of different weeds and yield of grain (iv) (a) 1964—65 (b) No (c) The results of the combined analysis have been presented under 5 Results. (v) and (vi) Nil (vii) Error variances are homogenous and Treatments×years interaction is present.

RESULTS:

Pooled results :

(i) 2487Kg/ha (ii)280.8 Kg/ha (iii) None of the effectsis significant. (iv) Av. yield ofgrain in Kg/ha.

T_0=2387, T_1=2469 and T_2=2407Kg/ha.

	S_1	S_2	mean
W_1	2427	2565	2496
W_2	2690	2449	2569
W_3	2594	2602	2598
W_4	2490	2448	2469
W_5	2529	2281	2405
mean	2546	2469	2507

Individual results :

Treatment	W_1	W_2	W_3	W_4	W_5	Sig.	S_1	S_2	Sig.	T_0	T_1	T_2	Sig.
years													
1964	3020	3068	3030	2831	2766	N.S.	3063	2823	**	2715	2886	2898	N.S.
1965	1971	2070	2165	2107	2044	N.S.	2029	2114	N.S.	2059	2053	1915	N.S.
Pooled	2496	2569	2598	2469	2405	N.S.	2546	2469	N.S.	2387	2469	2407	N.S.

G.M.	S.E./plot
2918	247.3
2057	310 8
2487	280.8

Crop :-Pea (*Rabi*). **U.P. 63 (36).**

Site :- Govt. Res. Farm, Kanpur. **Type :- 'D'**

Object :—To st udy the effect of herbicide for the control of weeds in Pea crop.

1. BASAL CONDITIONS:

(i) (a) N.A. (b) Moong (c) N.A. (ii) Loam (iii) 28.11 63 (iv) (a) to (e) N.A. (v) 22.4Kg/ha of P_2O_5 at the time of sowing (vi) T-163 (vii) Irrigated (viii) Weeding (ix) 1.3cm (x) 6/7. 4.64.

2. TREATMENTS :

All combinations of (1) and (2) + 2 selective treatments :

(1) 3 doses of Tropotox : D_1=0.23, D_2=0.34 and D_3=0.45 Kg of acid equivalent.

(2) 2 times of spraying : W_1=2 weeks after sowing and W_2=4 weeks after sowing.
Selective treatments are : S_0=Control and S_1=Hand weeding.
The wedicide will be mixed in sufficient quantity of water (562 litres/ha) to cover the crop. Irrigation given after the treatments W_1=21 12 63 (3rd week) and W_2=19.1.64 (4th week after sowing) 1st spraying wasdeleyed because in the 2nd week very few weed germinated.

3. DESIGN:

(i) R.B.D. (ii) (a) 8 (b) N.A. (iii) 4 (iv) (a) and (b) 8.00m×5.50m (v) Nil (vii) Yes.

4. GENERAL :

(i) and (ii) N.A. (iii) Germination counts, population of different Kinds of weeds 5 times, No. of branching No. of pods and yield of straw and pea (iv) (a) 1963—only (treatments modified) (b) No (c) Nil (v) Hardoi (vi) and (vii) Nil.

5. RESULTS :

(i) 1739Kg/ha (ii) 220.3Kg/ha (iii) Selective treatments *Vs.* others in significant. (iv) Av. yield of grain in Kg/ha.

S_1=1449 and S_2=1716Kg/ha

	D_1	D_2	D_3	mean
W_1	1705	1710	1767	1727
W_2	1977	1892	1699	1856
mean	1841	1801	1733	1792

C.D. for selective treatments *Vs.* others=187.1Kg/ha.

Crop :- Pea (*Rabi*). **Ref :- U.P. 62 (206).**

Site :- Govt. Reg. Agri. Res. Stn.; Nawabganj. **Type :- 'D'.**

Object: To study the Control of powdary Mildew of Pea.

1. BASAL CONDITIONS

(i) (a) Nil (b) and (c) N.A. (ii) Clay loam (iii) 12.11.62 (iv) (a) N.A. (b) line sowing behind *Deshi* plough (c) 74Kg/ha (d) Rows 45cm apart (e) Nil (v) — (vi) T—163 (vii) N.A. (viii) Nil (ix) 3.1cm (x) 27.3.63.

2. TREATMENTS:

5 fungicidal treatments: T_0=Control (2 plots), T_1=Dusting of sulphur at an interval of 10 days @ 16.8Kg/ha., T_2=Dusting of sulphur at an interval of 15 days @ 16.8Kha, T_3=Spraying of Thiorit at an intervel of 16 days @ 1.12Kg/ha., T_4=Sprayring of Thiorit at an interval of 15 days.

3. DESIGN :

(i) R.B.D. (ii) (a) 6 (b) Nil (iii) 4 (iv) (a) 7.62m×6.10m (b) 6.40m×5.49m (v) 61cm×30cm (vi) Yes

4. GENERAL :

(i) Good (ii) Nil (iii) Yield of grain (iv) (a) No (b) and (c) Nil (v) to (vii) Nil.

5. RESULTS :

(i) 678.7Kg/ha. (ii) 368.8Kg/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:	516.1	761.7	889.9	605.1	783.1

Crop :- Pea (*Rabi*). **Ref :- U.P. 64(474)**

Site :- G.B. Pant University of Agri. & Technology, Pantnagar.

Type - 'D'

Object :—To study the response of peas to weeding by harbicides and cultural methods.

1. BASAL CONDITIONS :

(I) (a) to (c) N.A. (ii) Sandy loam (iii) 1st. week of Nov.; 64 (iv) (a) One ploughing, harrowing and harrowing in Oct. (b) Line sowing (c) 60Kg/ha (d) Rows 25cm apart. (e) Nil (v) 24Kg/ha of N+30Kg/ha of P_2O_5 as Phosphoric acid + 30Kg/ha of K_2O as Mur. Pot. applied before sowing (vi) Local (vii) Unirrigated (viii) Thinning and As per treatments (ix) 8.2cm (x) Last week of March, 65.

2. TREATMENTS:

16 weedicidal treatments :

W_1=Unweeded control, W_2=Hand weeded, W_3=Hoed, W_4=Hand weeded and Hoed, W_5=Pre planting E.P.T.C. @ 3.36Kg/ha—15 days before sowing, W_6=Pre planting E.P.T.C. @ 5.04Kg/ha—15 days before sowing, W_7=Pre planting E.P.T.C. @ 6.72Kg/ha—15 days before sowing, W_8=Pre planting E.P.T.C. @ 3.36Kg/ha— 1 day before sowing, W_9=Pre planting E.P.T.C. @ 5.04Kg/ha—15 day before sowing, W_{10}=Pre planting E.P.T.C. @ 6.72Kg/ha— 1 day before sowing, W_{11}=Post emergence chloroxuron @ 2.24Kg/ha —15 days after sowing, W_{12}=Post emergence chloroxuron @ 3.36Kg/ha —15 days after sowing, W_{13}=Post emergence chloroxuron @ 4.48KKg/ha— 15 days after sowing, W_{14}=Post emergence M.C.P.B @ 0.56Kg/ha — 40 days after planting peas W_{15}=Post emergence M.C.P.B. @ 0.84Kg/ha 40 days after sowing and W_{16}=Post emergence M.C.P.B. @ 1.12Kg/ha 40 days after sowing.

3. DESIGN :

(i) R.B.D. (ii) (a) 16 (b) N.A. (iii) 4 (iv) (a) and (b) 10.00m×4.00m (v) Nil (vi) Yes.

4. GENERAL;

(i) Good (ii) Nil (iii) Weeds counting, wt. of weeds, yield of grain and straw germanation %, (iv) (a) 1964 only (b) and (c) Nil (v) to (vii) Nil.

5. RESULTS:

(i) 2020Kg/ha (ii) 448Kg/ha (iii) Treatment differences are highly significant. (iv) Av. yield of grain in Kg/ha.

Treatment:	W_1	W_2	W_3	W_4	W_5	W_6	W_7	W_8
Av. yield:	1740	2406	1885	2492	1819	1404	1787	1510

Treatment	W_9	W_{10}	W_{11}	W_{12}	W_{13}	W_{14}	W_{15}	W_{16}
Av. yield :	1885	1885	1820	2063	2452	2373	2340	2453

C.D.=638.5Kg/ha.

Crop :-Pea (*Rabi*). **Ref :- U.P. 65 (281)**

Site :- G.B. Pant University of Agri. & Technology, Pantnagar.

Type :- 'D'.

Object :—To study the response of Peas to weeding by herbicides and cultural methods.

1. BASAL CONDITIONS :

(i) (a) to (c) N.A. (ii) Sandy loam (iii) Ist week of Nov.; 65 (iv) (a) One ploughing, one harrowing and planking (b) Line sowing (c) 60Kg/ha (d) Rows 25cm apart (e) Nil (v) 24Kg/ha of N as A/S+30Kg/ha of P_2O_5 as Phosphoric acid+30Kg/ha of K_2O as Mur. Pot. applied before sowing (vi) Local (vii) Unirrigated (viii) As per treatments (ix) 3 0cm (x) Last week of March, 66.

2. TREATMENTS :

13 weedicidal treatments :

W_1=On weeded control, W_2=Hand weeded, W_3=Hoed, W_4=Hand weeded and hoed, W_5=Post emergence of amiben @ 1.12Kg/ha—15 days after planting, W_6=Post emergence of amiben @ 2.24Kg/ha—15 days after planting. W_7=Post emergence of amiben @ 3.36Kg/ha—15 days after planting, W_8=Post emergence of diquat @ 0.42Kg/ha Kg/ha—15 days after planting, W_9=Post emergence of diquat @ 0.84Kg/ha—15 days after planting, W_{10}=Post emergence of diquat @ 1.26Kg/ha—15 days after planting, W_{11}=Post emergence of M.C P.B. @ 0.56Kg/ha —40 days after planting, W_{12}=Post emergence of M.C.P.B. @ 1.12Kg/ha – 40e days after planting and W_{13}=Post emergence of M C P B. @ 1 68Kg/ha—40 days after planting.

3 DESIGN :

(i) R B.D. (ii) (a) 13 (b) N.A. (iii) 4 (iv) (a) and (b) 10.00m×4.00m (v) Nil (vi) Yes.

4. GENERAL

(i) N.A. (ii) Nil (iii) Weed counting, weight of weeds, yield of grain and straw and germination %, (iv) (a) 1965—only (b) and (c) Nil (v) to (vii) Nil.

5. RESULTS :

(i) 837Kg/ha (ii) 283.0Kg/ha (iii) Treatment differences are highly significant. (iv) Av. yield of grain in Kg/ha.

Treatment :	W_1	W_2	W_3	W_4	W_5	W_6	W_7
Av. yield :	397	1007	545	1107	450	687	736
Treatment	W_8	W_9	W_{10}	W_{11}	W_{12}	W_{13}	
Mean value :	592	722	748	1147	1267	1477	

C.D.=410.0Kg/ha

Crop :- Pea (*Rabi*). **Ref :- U.P. 63(406)**

Site :- Govt. Reg. Agri. Res. Stn., Rudrapur. **Type :- 'D'**

Object :—To find out the best suitable measure for controlling the disease—Powdery Mildew.

1. BASAL CONDITIONS:

(i) (a) to (c) N.A. (ii) Clay to clay loam (iii) 28.10.63 (iv) (a) One ploughing by victory plough and 2—3 ploughings by Julandhar plough (b) Behind the plough (c) 5.8Kg/ha (d) N.A. (e) — (v) Nil (vi) T—163 (vii) Unirrigated (viii) and (ix) Nil (x) 31.3.64.

2. TREATMENTS:

5 fungicidal treatments :

T_0=Control (2 plots), T_1=Dusting of sulphur @ 16.8Kg/ha at an interval of 10 days. T_2=Dusting of sulphur @ 16.8Kg/ha at an interval of 15 days, T_3=Dusting of Thiovit (1: 100) at an interval of 10 days, T_4=Dusting of Thiovit (1 : 100) at an interval of 15 days.

3. DESIGN :

(i) R.B.D. (ii) (a) 6 (b) N.A. (iii) 4 (iv) (a) 7.50m×6.00 (b) 7.00m×5.50m (v) 25cm×25cm (vi) Yes.

4. GENERAL :

(i) Poor (ii) Under study (iii) Yield of grain and straw (iv) (a) 1963—only (b) and (c) Nil. (v) to (vii) Nil.

5. RESULTS :

(i) 457.8Kg/ha. (ii) 99.46Kg/ha (iii) Treatment differances are not significant. (iv) Av. yield of grain in Kg/ha.

Treatment :	T_0	T_1	T_2	T_3	T_4
Av. yield :	435.1	487.0	487.0	500.0	402.6

Crop:- Pea (*Rabi*). **Ref :- U.P. 65 (274)**

Site :- Govt. Reg. Agri. Res. Stn., Rudrapur. **Type :-'D'.**

Object:—To find out an effective and economic method of control against pea pod berer.

1. BASAL CONDITIONS:

(i) (a) Maize—Pea (b) Maize (c) 67.3Kg/ha of N as A/S+22.4Kg/ha of P_2O_5 as Super (ii) Sandy loam (iii) 27.11.65 (iv) (a) 2 ploughings by Julandhar plough, (b) Behind the plough (c) 86.5Kg/ha (d) Rows 50cm apart (e) Nil (v) Nil (vi) T—163 (vii) Unirrigated (viii) Weeding and hoeing (ix) Nil (x) 16.4.66.

2. TREATMENTS:

6 insecticides :

T_0=Control (2 plot), T_1=Spraying with 0.60Kg of actual Endrin mixed with water @ 570 litre/ha, T_2=Spraying with 0.65% Parathion and 1% ovicide @ 570 liters/ha, T_3=Spraying with 0.65% Diazinon and 0.5% D.D W.P. @ 570 liters/ha, T_4=Spraying with 0.25% Lindanemulsion @ 570 litres/ha, T_5=Spraying with 10% B.H.C. dust @ 34Kg/ha.

3. DESIGN:

(i) R.B.D. (ii) (a) 7 (b) 78.00m×11.25m (iii) 4 (iv) (a) 10.00m×10.00m (b) 9.00m×9.00m (v) 50cm×50cm (vi) Yes.

4 GENERAL :

(i) N.A. (ii) Under study (iii) Yield of grain and straw (iv) (a) 1965—only (b) and (c) — (v) to (vii) Nil.

5. RESULTS :

(i) 403.9Kg/ha (ii) 163.9Kg/ha (iii) Treatmente 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 :	455.2	317.9	339.5	395.1	376.6	487.7

Infestation data

(i) 21.9 degrees (ii) 5 05 degrees (iii) Treatment differences are highly significant. (iv) Mean *imfestatio* in degrees.

Treatment :	T_0	T_1	T_2	T_3	T_4	T_5
Mean angle :	28.4	14.7	17.2	21.4	21.8	21.4

C.D.=7.42 degrees

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