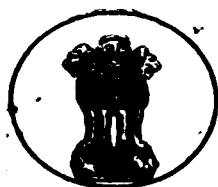


**REPORT ON CROP
SURVEY IN BIHAR
1944. to 1948**



**SUPERINTENDENT, GOVERNMENT PRINTING
BIHAR, PATNA, 1950.**

GOVERNMENT OF BIHAR.

REVENUE DEPARTMENT.

(Agricultural Statistics Section).

REPORT
ON
CROPSURVEY IN BIHAR.

(1944 to 1948).

BY

The Superintendent of Agricultural Statistics, Bihar



[SUPERINTENDENT, GOVERNMENT PRINTING, BIHAR,
PATNA, 1960.

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CHAPTER I.

INTRODUCTION.

The importance of Agricultural.—The importance of agriculture can scarcely be minimised. The significance of it in relationship to mankind is apparent from many aspects. The outstanding feature is evidently the absolute dependence of man upon agriculture for his sustenance. Agriculture provides man subsistence, the material which performs the function of life growth.

It has continuously influenced the activities of mankind through these ages and has given birth to civilization. The course of early civilization has been determined by the conditions of limited production and the interacting circumstances of the continuous growth of the population of mankind. In fact the agricultural economy of a community is the basic foundation of its culture and the development of agriculture has been concurrent with the development of mankind. Ours is an agricultural country par excellence. Agriculture forms the backbone of our national economy. This is evident from the fact that the largest amount of our capital is invested in agriculture, that the majority of our gainfully occupied population is supported directly or indirectly by agriculture, that our produce, that most of our important industries depend entirely upon agricultural products and finally that, but this is not the end of the sequence, agricultural occupation alone contributes to the major portion of our national income.

Yet in spite of the extended influence of agriculture in our national economy little has been done to improve the agricultural condition of the country. The entire agricultural economy has been allowed to stagnate. The soil has reached its maximum point of impoverishment as a result of continued cultivation for hundreds of years accompanied by inadequate means of recuperating the soil productivity. Our agriculture is mostly run on subsistence basis. Our methods of cultivation are the ones which man found out particularly working with nature. These methods have developed silently out of the reach of modern science into a technique which we appropriately name as primitive.

During the last 15 years many of the European countries have encouraged their agricultural production to render themselves independent, without getting foreign imports of food. They have been forced to adopt such a policy, owing to economic

and commercial isolation due to customs and trade restrictions. Where cultivable land was limited, large tracts of marshy lands have been reclaimed and made fit for cultivation. Somewhere systematic measures for the dressing of saline lands have been adopted, as also other methods, to meet the growing need for food. The fertility of the soil has been progressively increased by adding lime and slag.

The achievement of modern science of agriculture has been marvellous. But our own agriculturists have not utilised the technique of modern science as have done the agriculturists of the advanced countries of the west. Agriculture hitherto was not regarded here a vital industry. It only supplied some revenue to the Government and some raw materials for the use of industries. No one thought whether it supplied adequate food for the rural population and helped the people to live above subsistence level. But now conditions must change. A national policy should be followed for adequate food supply for which a corporate action needs be performed. Steps should be taken to meet the nutritional needs of the lower sections of the community, in particular as regards ensuring adequate food. Food-supplies, especially pure milk for the expectant and nursing mothers, infants, children and adolescents and the needs of the unemployed and other distressed adults, i.e., everything should be done to make good supplies available at prices within the reach of all classes of the community.

Our cultivators suffer from many handicaps, such as excessive small size of the average holding and its scattered character, fixed cash settlement of revenue, rent charges, absentee landlordism, heavy burden of unproductive debt, absence of organised subsidiary industry, uneconomic method of cultivation, defective physical and chemical properties of the soil, insufficiency irregularity and unequal distribution of rainfall and frequent periodical shortage of food and fodder-supply. The inefficiency of the cultivators, the lack of organisation of holdings into a fair or business unit and the absence of any definite plan in the agricultural organisation of the country are important factors responsible for the deficiency of our agriculture. Moreover, the retarded growth of industrialism which has great influence upon the modernization of agriculture, the unrestricted growth of population and the consequent pressure upon the land and the absence of any policy for the improvement of rural life which forms the background of all agricultural activities are also among the important causes of agricultural backwardness.

It is high time now that means be devised to ameliorate the conditions of the peasantry. This can be achieved only through a thorough reorganization of agriculture on modern, scientific and business principles. There are many aspects of reorganization, the most important of which is the question of increased production. In spite of the vast amount of territory devoted to agriculture and the immense number of cultivators engaged in it, the total production is very low and scarcely sufficient for the national requirements. There are several methods of increasing agricultural productivity such as (1) better irrigation and manures and implements, (2) the extension of agriculture to current fallows and cultivable wastes, (3) intensification of cultivation by growing more than one crop from the same field, (4) diversification of cultivation by producing different crops from the same field through rotation, (5) introduction of improved varieties of crops and livestock and (6) control of pests and diseases to which most of the crops and livestock are subjected. These and other methods have to be co-ordinated into a scientific plan for increasing the volume of output. The plan must be based on sound statistical facts which should show the extent of our requirements and should indicate in which direction should the efforts be concentrated in order to derive the most from least efforts. Agricultural statistics is prerequisite of any plan for agricultural improvement and rural uplift. Without basic statistical facts no right plan can be appropriately framed.

Maintenance of Statistical Accounts.—In its old sense, statistics is an ancient subject. The practice of counting the people and the collection of information regarding the resources of the country had been in existence from the earliest time. The ancient Egyptians, the Babylonians and the Romans prepared and preserved records of the resources of the state.

In India, we have a clear evidence that administrative statistics had reached a high stage of organization before 300 B.C. In the *Arthshastra* of Kautilya, it is enjoined that the villages should be brought under one or other of the following heads:—

Villages which are exempted from taxation; those that supply soldiers; those that pay their taxes in the form of grain, cattle, gold or raw materials; and those that supply free labour in lieu of taxes.

“ Among the duties of the Gopa, the village accountant, it is distinctly mentioned that by setting up boundaries, by numbering

plots of ground as cultivated, uncultivated plains, wet lands, gardens, vegetable gardens, fences forests, altars, temples of gods, irrigation works, cremation grounds, feeding houses, places where ration is freely supplied to travellers, places of pilgrimage, pasture grounds and roads, and thereby fixing the boundaries of various villages, of fields, of forests and of roads, he shall register gifts, *s tas*, charities and remission of taxes regarding fields."

In the classic period of Sanskrit culture, there are numerous references to detailed statistics of various kinds in inscriptions as well as in technical treatise.

In the more recent times under the Muhammadan Rulers of India, we find descriptive statistics occupying very important place. The first-known compilation of this period is the *Ain-e-Akbari*, the great administrative and statistical survey of India under the Emperor Akbar which was completed by Abul Fazl in 1595—97 A. D. It contains a wealth of information regarding the Moghal Emperor faithfully and minutely recorded in their smallest detail with such an array of facts, illustrative of its extent, resources, conditions, population, industry and wealth as the abundant material from official sources could furnish.

The growth of Kingship and the size of state, the development of organized priesthood, the emergence of class distinctions among pastoral peoples, the rise of slavery and serfdom and of property, the development of money economy and of commerce necessitated the use of certain kinds, of statistics.

The use of Agricultural Statistics became apparent from early times. The system of land revenue introduced in the country by the Hindu as well as the Muslim rulers aimed at taking a share of the produce of the land from the cultivators. The provision in the system for the collection of fluctuating fraction of the standard assessment determined for each revenue unit or economic region according to the productive capacity of the soil had necessitated the establishment of an elaborate and efficient organisation capable of conducting a fixed survey of the expected outturn of each holding from year to year in terms of an estimate of the harvest prospects.

When the East India Company took the charge of revenue collection, it built up a remarkably efficient revenue machinery in the temporarily settled areas for the collection of agricultural statistics. But no such organization was set up in the permanently settled areas. Here the Zamindars had contracted to pay a fixed sum as revenue.

The East India Company had, in the interests of British manufacturers, traders and investors, instituted several special surveys of the prevailing economic conditions of the country. The Crown which subsequently took over the rein of administration from the hands of the Company, also encouraged, in the same interests, the collection and preservation of statistical knowledge. Hunter's, Statistical Accounts and Watt's Dictionary of the Economic Products of India are some of the most valuable sources of our knowledge of past agricultural economic conditions of the country.

The introduction of railways also gave much impetus to the practice of collection of statistical facts about agricultural production.

The most important cause of stimulating efforts for collecting statistical information, especially regarding agriculture, lay in the frequent famines which visited different parts of India. Through a memorandum, the Government of India standardised the measures to be adopted for famine relief simultaneously placing upon the District Magistrates the responsibility for every avoidable death from starvation. Thus the development of famine conditions introduced an urgent need for keeping accounts of crop production.

From 1868, the census of population was introduced.

The last two world wars gave tremendous impetus to the realisation of the need for possessing statistical knowledge. These have been really wars of economic resources and have been won ultimately by mobilising and utilising them. They necessitated the collection of, and use of, statistical details.

CHAPTER II.

AGRICULTURAL STATISTICS OF THE PROVINCE.

Bihar being a part of the permanently settled area has suffered most so far as collection of agricultural statistics is concerned. In the raiyatwari provinces like United Provinces, Madras, etc., there are village agencies which, along with revenue collection work, also collect statistical data. Till lately in Bihar, the usual agency for the collection of statistical information has been that of the village chaukidars.

The chaukidars give a rough idea of acreage and production to the thanadar. The thanadar on receiving such statements from the village chaukidars in his thana takes some sort of an average of them not necessarily the arithmetic mean, using his own knowledge about the conditions of the standing crops which average was submitted to the District Officers through the Sub-divisional Officers. The District Officers similarly averaged the statements made by the thanadars. The average thus arrived at, which could be modified at the discretion of the District Officers was being passed on to the Director of Agriculture. Compilation of the results and publication of the same were being done by the Director of Agriculture. Estimation of average yield was done through the anna-condition report.

“ It is clear that the anna-condition report is purely a guess work and the value for each district estimated by the Agriculture Department is an average of guesses. There is also a certain degree of uncertainty associated with the number of annas which should be considered to represent the normal crop. It is doubtful if 12 to 14 annas, which are at present taken to represent the normal crop for various districts of the province carry the same meaning to those concerned. The product of the normal yield and the anna-condition of a season divided by 16 gives the value of the average yield for the season. The estimated average yield is multiplied by the reported acreage under the crop to obtain the value of the outturn. ”

Thus the Department of Agriculture was issuing annually a Season and Crop Report and a report on Agricultural Statistics in Bihar based on forecasts collected from time to time. Prior to 1943 these periodical forecasts of agricultural crops compiled on the basis of information supplied by the village chaukidars and issued by the Director of Agriculture was the only official document available furnishing statistics of agricultural crops.

The department of crop survey.—The proposal for a drastic reform of the then existing machinery for the collection of crop statistics came originally from the Commerce Department (Price Control). The unreliable character of the Published data regarding crop statistics had become fairly widely known. The Price Control Department maintained that the major errors in the published figures arose from the failure to adopt frequent verifications of the actual acreage under each crop. The errors of estimation of the yield per acre were considered relatively unimportant compared to the errors of measurement of area. Conclusively the department emphasised that any reform should be directed primarily to check the figures for the area and that the verification of the standard for the average yield was a matter of secondary importance. In 1942-43, the department asked the Government to consider successively two proposals for the establishment of district staff to mitigate the neglect of past years. The proposals were put forward at a time of national crisis, regarded as such from many aspects. The food situation confronting the country was unprecedented in respect of its cause and character. The virtual cessation of rice imports from Burma had created an appreciable gap in the total supply of rice for home consumption. All round scarcity of food was apprehended in the near future which, as we saw subsequently, took a heavy toll of lives from the neighbouring province of Bengal. The formulation of a practicable programme of action to meet the threatened shortage necessitated a comprehensive survey of the position of all foodgrains. Prompt action was necessary which could on no account be delayed.

The May 1942 proposals of Commerce Department.—These were that the Government should immediately take a five year programme to check—

- (a) the 'Normal' area under each major crop in each thana,
- (b) the actual area found under each crop in the area of the check.

After discussion with the Director of Agriculture it was proposed that four amins or patwaris should be appointed in each subdivision (except the very small ones) and that these would work under the immediate control of the overseers of the Department of Agriculture and under the general control of the Subdivisional Officers. It was suggested that with the assistance of the existing village settlement maps they ought to be able to finish three or four thanas a year in each subdivision. The cost was estimated at Rs. 80,000 a year.

The 1943 proposals of Commerce Department.—By the beginning of 1943, the Government of India in the Department of Food had become aware of the unsatisfactory method followed in the permanently-settled areas for the collection of crop statistics and they asked for immediate reforms and hinted that they might give financial assistance. In February 1943, the Advisers in charge of Revenue and Price Control agree to the following tentative proposals :—

- (1) A 'Crop Reporter' should be appointed in each village on a remuneration of Rs. 5 a year to report the acreage in his village or in a group of villages under each crop and his estimate of the outturn per acre.
- (2) Two statistical inspectors should be appointed for each subdivision to receive these reports, to make sample checks in particular villages, to prepare the estimates of the outturn for the whole of the subdivision.

The details of these proposals were worked out by the Secretary to the Board of Revenue and it was estimated that this scheme would cost Government about Rs. 4½ lakhs or Rs. 5 lakhs a year.

Obviously, the success of such a scheme would depend on the ability of the District and Subdivisional Officers to choose the right type of persons in a village for the post of reporter and also on the willingness of the person selected to send these reports for an annual remuneration of Rs. 5 or Rs. 6. It was decided that the scheme should be circulated to the District Officers and their opinion obtained on these particular points.

Subsequently, the scheme was shelved and Government decided, after consulting Mr. Cliff of the Department of Agriculture, to ascertain whether the sample survey experiments in the jute-growing area of Bengal, which had been conducted by Professor Mahalanobis of the Calcutta University, could not be used to solve the problem in Bihar. Some papers explaining Professor Mahalanobis' methods were obtained and finally he came to Patna for consultation with the Commerce Department on the 16th November 1943. He had lengthy discussions with His Excellency the Governor, and with Officers of Commerce Department, with Member of the Board of Revenue, and with Rai Bahadur Ray Hardutta Prasad, Secretary, Board of Revenue who had considerable experience of survey and settlement work in the province. It was provisionally decided that with certain

important modification the method adopted by Professor Mahalanobis in Bengal should be used in Bihar. These methods have been briefly described later on.

In the meantime, Commerce Department in their circular letter no. 1148-P.C., dated the 30th August 1943, asked District Officers to take whatever measures were practicable to improve the quality of their returns of agricultural statistics. It was pointed out that the District Officers could not be expected to make a complete verification, but it should be possible for the Subdivisional Officers, who had a good knowledge of their subdivisions, to correct obvious errors in the figures of acreage. In order to impress upon all the officers concerned that the statistical returns should not be signed blindly, Provincial Government directed that at the bottom of the return the following certificate should be given by the reporting officers :—

Certified that the statement made above is correct to the best of my information and knowledge.

At the same time the Director of Agriculture, in his circular no. 10309-12 of the 1st September 1943 directed that the District and Subdivisional Overseers should help the District and Subdivisional Officers in the preparation of the district crop estimates. Professor Mahalanobis was finally asked by the Governor of Bihar to draw up a design for the sample survey of the important foodgrain crops in the province within a short time, which he prepared and submitted accordingly. It was five year scheme for the improvement of crop statistics in the province. At first, the work was to be organized with the active help and co-operation of the Indian Statistical Institute under Professor's own guidance and supervision. The field branch was to be organized under the control of the Department of Board of Revenue in the beginning but was later on transferred under the direct control of the Revenue Department to facilitate the work. The Statistical work was to remain for the first three years in charge of Professor Mahalanobis but was to be gradually transferred to Government of Bihar which was to take over the entire work at the end of five years. The scheme was supposed to be extremely tentative and illustrative. The detailed plan was to be worked out by actual trial in the field and in the light of experience gained in course of work. The scheme was prepared on the model of similar work which was being conducted in Bengal. The objects of the proposed scheme were supposed to be twofold :—

- (a) to develop an efficient sampling technique to determine the total outturn of important crops, such as

paddy, wheat, barley, maize, sugarcane, etc., and the total cropped area in each season in Bihar, and secondly,

- (b) to build up the necessary humane organization on both the statistical and field side of the work for carrying out the sample survey on routine lines at the end of five years' scheme.

CHAPTER III.

MAHALANOBIS' METHOD OF RANDOM SAMPLE SURVEY.

The fundamental principles underlying the technique of his method are as follows :—

His methods are based on the statistical theory of probability, and they frankly recognise that all such statistical or probablistic statements must be necessarily uncertain. Every prediction has to be made in the terms of assigned odds or at some given level of significance. Some margin must be left for the failure of the production, and the object of the sample survey is to reduce this margin to as small a limit as possible.

The sample survey method of obtaining correct figures of acreage under a particular crop must proceed from the particular to the general and it must, therefore, secure a random sample without any bias in order to guarantee the validity of the estimate of possible error. It is claimed that this statistical method of taking random samples is the only logical foundation for scientific inference.

The statistical method in the field of agricultural estimates is claimed to be indispensable because of the impossibility of isolating individual factors affecting the final results.

The advantage of a hundred per cent verification or inspection of the area or material which is the subject of a sample survey is not questioned, but it is claimed that a hundred per cent inspection is prohibitive partly on the ground of cost and the length of time that such an inspection will take and partly because in present conditions such a hundred per cent inspection is bound to contain a large percentage of error, in fact, a larger percentage of error would be shown by the sample survey method.

The larger the scale of work to be undertaken the greater the advantage of the sampling method and the greater its accuracy is likely to be.

Administrative and technical organization.—The first stage is to divide the province into a suitable number of zones. This is done only after important exploratory work is done and a design has been prepared for the whole area.

Within each zone a suitable number of points are selected strictly at random to begin with on thana maps and then on village maps and at each of these points a sample unit of suitable size is surveyed in detail. Here again the size of the sample unit is determined as the result of exploratory work.

Each unit has a corresponding unit in the same selected area and these two units are surveyed by independent parties of investigators at different times so that two independent results may be obtained from the same area and used for cross-checking.

In this way it is possible to determine the proportion of the area under jute or any other crop in each sample unit and to work out the average proportion of the area of the entire zone which is under the selected crop.

The results obtained from all these zones are then tabulated and the total area under the selected crop for each district and for the whole province is calculated.

The organisers of the sample survey have to decide three questions :—

- (a) What should be the size of each sample cut ?
- (b) How many of such units should be used in a particular selected area ?
- (c) What is the best way of distributing these sample units among different zones ?

The answers to these questions depend on the degree of precision required in the final estimate and the amount of time and money placed at the disposal of the survey.

If the size of each individual sample unit is increased, it will be possible to decrease the margin of error or the variance of individual units, but this will increase the cost on the other hand; if the total expenditure is kept at the same level, any increase in the size of the individual sample unit will decrease the total number of units which the survey will be able to afford.

If a large number of sample units are fixed, the distance between the neighbouring units should be small. On the other hand, if there is comparatively small number of sample units, these will be more scattered and more time will be required for journey from one unit to the other.

The field work was arranged in the form of two independent but interpenetrating half samples. Linked pairs (A) and (B) of sample units were located. The information for all sample units belonging to half sample (A) was collected by one set of investigators while the information for the sample unit belonging to the half sample (B) was collected by an entirely different set of investigators. In this way the survey furnished independent records for each of a pair of adjoining sample units, and two independent estimates of the same area.

To implement the recommendations of Prof. Mahalanobis, the Government sanctioned the formation of a new organisation for statistical surveys with Mr. S. P. Sinha, Deputy Collector, at its head as Superintendent.

To start with, the survey of principal Rabi crops was undertaken in the districts of Shahabad and Monghyr during the cold weather of 1943-44. Each district was divided in three blocks and each block into two sub-blocks. Each block was placed under the charge of a Chief Inspector. Under him there were two Inspectors in each sub-block. Each Inspector had four investigators under him. The whole field organisation was placed under the Superintendent. Professor P. C. Mahalanobis was responsible for the preparation of the design, for the operations of statistical analysis and tabulating final statistics.

The size of each sample unit was 4 acres. The location of the sample units at random points was fixed in the Statistical Institute at Giridih. In the district of Shahabad, 4,839 units were taken ; in the district of Monghyr, 4,360 units were taken.

Later on, the same method was applied for the survey of the early Makai crop in portions of North Monghyr, North Bhagalpur and Purnea. From the beginning of July, 1944, Random Sample Survey Scheme was extended to the whole province. The staff required for the organisation consisted of 16 Chief Inspectors, 74 Inspectors and 368 investigators.

The Provincial Government, however, thought later that it would be much more advantageous to prepare a cultivation account for every cultivated plot in the province, more or less on the lines followed in Madras and the United Provinces. Though

the cost would be higher, Government thought that it would be worthwhile spending that amount for establishing in the villages throughout the province an organization for preparing crop and other statistics such as cattle statistics, etc.

As the recruitment and organization of the large staff required for a complete census of crops in the province was expected to take not less than nine months or a year, and as it was essential that Government should have, as soon as possible, some figures of the area under cultivation for different crops and their probable outturns which would bear some relation to reality, both for dealing with Government of India's food policy and for formulating their own planning and ascertaining whether the province was really self-supporting or not, it was decided to proceed with the existing method of random sampling for the survey of Bhadai and Aghani crops of 1944 and Rabi crops of 1944-45.

The reports submitted by Professor Mahalanobis on the random sample surveys conducted on Bhadai, Aghani and Rabi crops of the year 1944-45 have been given in Appendix III.

In this connection, Mr. S. P. Sinha, Superintendent of Agricultural Statistics, was deputed to Madras and United Provinces to see how the work of preparing crop statistics was being done there. An extract from the report which he submitted to Government on his return is shown in Appendix (IV).

Considering what he saw in the United Provinces and Madras, he recommended the following methods for estimation of acreage and yield statistics in Bihar which was approved by Government :—

- (a) Acreage should be estimated through Sarkari amins (now Karamcharis) by complete enumeration surveys with as many checks as possible.
- (b) Average yield should be estimated by direct eye-estimation in 5 per cent of villages selected at random for the purpose.
- (c) Crop-cutting experiments should be conducted on main crops as was organized in the United Provinces and the Punjab under the technical direction of the Statistical Adviser, Imperial, now Indian Council of Agricultural Research.

Mahalanobis's plain of sample survey was designed to furnish estimates of the yield and area of principal crops. Under

the proposed scheme the area was to be estimated by the method of complete enumeration and the yield to be determined through the random sample survey of crop-cutting experiments and through eye-estimation survey. Since then crop-cutting survey is conducted on five staple crops of the province under the technical direction of the Indian Council of Agricultural Research.

For the eye estimation survey, those villages are only selected which have their revenue thana numbers as multiples of a given random number. For each selected village the area and out turn of crops in individual plots are estimated through the eye. These are added for each crop and for the whole village. The aggregates of the outturn for the selected villages are again totalled and then divided by corresponding total of the aggregates for the area to get the average yield. Thus is obtained the average yield per acre of individual crops for each district.

The area of each Halka under each Karamchari has been lessened by increasing the number of Amins (Karamcharis). Formerly there were 2,816 Amins. But as this work is to be amalgamated with Zamindari abolition and post-abolition work, number of Karamcharis has been increased to 5,490. These Karamcharis are also doing some more miscellaneous work in addition to crop-survey.

As regards supervision, their work is supervised by the Superintendent himself, four Assistant Superintendents, 16-District Supervisors and 200 Circle Inspectors, the Statistician and the assistant Statistician.

CHAPTER IV.

CROP-CUTTING EXPERIMENTS.

The only scientific method known till now, of determining the yield of any crop to the highest degree of accuracy is that of random sample survey of crop-cutting experiments. The method of crop-cutting experiment involves the ordinary procedure of randomly selecting a field growing the crop, locating a measured cut inside it, harvesting the portion of the crop included within the cut and measuring the weight of the produce. The soundness of the principle of crop-cutting experiments has been recognized from very early times. What had not, however, been until lately realised was that the sample should be of random character. If this condition is not satisfied and the choice in the selection of the field and in the location of the

cut inside it is left to the experimenting officer, the result of the experiment is vitiated to the element of personal factor in himself. The method of random sampling removes this personal bias and also provides a means to judge the precision of any sample estimate.

The possibility of applying the random sampling method for estimating the yield was first demonstrated in Bihar by Sir John Hubback. Sir John Hubback used the method of random sampling for estimating the yield of paddy in an extensive series of experiments carried out in the greater part of the Province of Bihar and Orissa in 1923, 1924 and 1925. In his paper on 'Sampling for rice yield in Bihar and Orissa, Pusa Agricultural Research Institute, Bulletin no. 166 published by Government of India, 1927) he had enunciated the fundamental principles in clear terms. The only way in which a satisfactory estimate can be formed is by as close an approximation to random sampling as the circumstances permit, since that not only gets rid of the personal element of the experimenter but also makes it possible to say what is the probability that the result of a given number of samples will be within a given range from the true mean. To put this in definite language, it should be possible to find out how many samples will be required to secure that the odds are at least 20 to 1 on the mean of the samples being within one maund of the true mean.

There was no strict randomization in the modern sense of the word in the choice of the fields of the plots in which Hubback carried out his experiments, e. g., sampling at any given centre was confined to only such fields as were mature on the day of visit of the sampler. The sample plot was also invariably located at a fixed distance from the edge of the crop. Nevertheless as an example of a sample survey carried out on statistical basis in the days when modern statistical methods were just beginning to be known it was an enterprising piece of work.

The next yield survey by the method of random sampling was made by Mahalanobis during 1943-44. The methods used by Mahalanobis were analogous to those of Hubback. In particular, the sampling apparatus used by him was a modified form of Hubback's apparatus consisting of three iron rods which formed a right angled isosceles triangles. The longer piece was placed on the ground with one end lying over the point located at random. The two shorter sides were pushed through the grooves fitted at the two ends of the longer piece at an angle of 45 degrees until they met at right angles. The area comprised was 12.5 square feet.

It has been stated earlier that with the termination of Mahalanobis's scheme of random survey and the introduction of the method of complete enumeration of areas the crop-cutting survey was reorganised under the direction of the Indian Council of Agricultural Research. The chief difference between the method adopted by the Council and the one adopted by Hubback and Mahalanobis lay in the choice of the size of sample plot. Whereas in the Council's surveys the plot is usually 1/80th of an acre, the plot size used by Hubback and Mahalanobis was of the order of 1/3200th of an acre.

The first sample survey of crop-cutting experiments on the lines recommended by the Indian Council of Agricultural Research was carried out in the province during the autumn season of 1945. Under the present scheme, four independent surveys are carried out annually to estimate the yields of five staple crops of the province. The object is primarily to determine the outturn of these crops for the districts and the whole province and, secondarily, to investigate the sampling error in estimation of average yield. The Circle Inspectors of the Department of Agricultural Statistics perform the crop-cutting experiments with the help of the subordinate members of the field, i.e., the Sarkari amins (now Karamcharis) in course of their normal duty. The District Supervisors, the Assistant Superintendents, Statistician and the Assistant Statistician are responsible for checking and supervising the survey work. A statistical staff is also maintained at the headquarters for the computation and analysis of the experimental results. A statistician, who is a Gazetted Officer, is placed at the head of this staff.

As the entire success of the survey depends upon the accuracy of the field work, particular attention has been paid to matters of efficiency of the field staff in the technique of experimentation and of their honesty. On three occasions prior to starting the survey, the entire staff responsible for the crop-cutting experiments, including the inspecting officers and the supervising staff, have been collected at the district headquarters where they have been explained by the Statistician, attached to the Department and officers deputed by the Statistical Section of the Indian Council of Agricultural Research, the plan of work, the duties and responsibilities of each member of the field staff, the meaning and implication of the instructions drawn for the actual conduct of the work and the manner in which the returns are to be filled. The lessons on the occasions were always

accompanied by a practical demonstration of the field work. The staff is by now efficiently trained and it is not necessary to impart fresh training except to a few raw hands.

The important results derived from these surveys have been shown in the tables (Appendix I).

Although the crop-cutting experiment based on the random sampling method is the only scientific method of determining the average yield of agricultural crops, the method of eye-estimation also merits special consideration on account of its simplicity. One advantage of this method over that of the crop-cutting experiments is that it can provide preliminary estimates of the yields while the latter can furnish the same only after the harvesting season is over. Another advantage of the method of eye-estimation survey is that it can be extended to include the crops growing in a certain tract with only a small number of staff. With the limited staff, which is available in the condition obtaining, the crop-cutting survey has to be confined to the few principal crops in order to obtain estimates with any moderate precision.

Eye-estimation of the average yield can be given either directly or in terms of a fraction of the normal yield. The first procedure which is called the direct method is an improvement upon the second which is also called the annwari system on account of the fact that the concept of a normal yield is generally obscure and is not clearly understood. We had adopted in our province the direct method of estimation of yield, even before the Indian Council of Agricultural Research recommended the same.

CHAPTER V.

THE DEPARTMENT OF AGRICULTURAL STATISTICS.

The new scheme of plot-to-plot survey was conducted initially during the Rabi season of 1944-45 in the district of Patna with the help of 11 Circle Officers (Circle Inspectors) and 125 Saikari amins (Karamcharis). The survey was extended to the whole province from July 1945. From January to July 1945 steps were taken to organise and train the large staff that was required under the new scheme. During this period a large number of hands were also employed to copy out from the settlement records the area and the number of individual plots included in the survey villages of the province.

To facilitate the work of crop statistics, it was felt necessary that the staff engaged on the crop survey should have statutory power to enter upon the land to be surveyed and to do any other act which should be necessary for ascertainment of the area, the nature and extent of crops standing thereon or of the yield of crops therefrom. To achieve this purpose, the Governor of Bihar was pleased to enact the Bihar Agricultural Statistics Act of 1945. But no occasion arose for taking recourse to the Act; and it was allowed to lapse.

Under the existing scheme of collecting Agricultural statistics acreage and average yields are estimated for all major and minor crops of the province. Since 1st September 1948, this Department has become a part of the Land Reforms Section of the Revenue Department. The result of surveys conducted by this Department in the years 1945-46, 1946-47 and 1947-48 is explained in the following pages.

Facts and figures.

Statistical tables provide us with the means by which statistical theory can be applied to the analysis and interpretation of data in concrete arithmetical terms. In the following pages the various pictures mainly concerning acreage, mean yield and production of agricultural crops in the province have been shown through such statistical tables. Every endeavour has been made to remove technical terms and simplify it in such a manner that any one having little knowledge of statistical theory may easily understand the result and utility of statistical surveys.

The whole year has been divided into four crop seasons, namely, Bhadai, Aghani, Rabi and Garma (Zaid). The survey of crops during each crop season has to be completed during the period noted below against each :—

- (1) Bhadai crops ... From 1st July to 15th September.
- (2) Aghani crops ... From 16th September to 30th November.
- (3) Rabi crops ... From 1st December to 31st March.
- (4) Garma crops ... From 1st April to 31st May.

The division of crops under each of the four crop seasons is as follows :—

- I. Bhadai crops comprised of the following crops :—
 - (1) Paddy (including Saro and Sathi paddy).
 - (2) Maize.

- (3) Sugarcane.
- (4) Pulses—Bodi, Ghaghra, Urid, Mung, Barai.
- (5) Danadar—Kodo, Marua, Kauni, Tangooni, Sama, Gondali, China, Chotki Jinora (Masuria).
- (6) Reshedar—Jute, Sanai, Kudrum and Keora.
- (7) Telhan—Til.
- (8) Vegetables—Nanua, Ramtorai, Louka, Kohra and others.
- (9) Other crops—Sakarkand and Gajra [now area and average yield for sweet potato (Sakarkand) is recorded separately].

II. Aghani crops comprise of the following crops :—

- (1) Aghani and Katika Paddy.
- (2) Dalhan—Mung, Rahar, Kurthi, Barai, Urid and Methi
- (3) Sugarcane.
- (4) Danadar—Kodo, Jinora and Chotki Jinora.
- (5) Reshedar—Nil.
- (6) Telhan—Surguja, Til and Chinabadam.
- (7) Vegetables—Potato, Nanua, Louka, Kohra, etc.
- (8) Other crops—Suthni, Sakarkand, Gajra and Kapas.

III. Rabi crops comprise of the following :—

- (1) Wheat.
- (2) Gram.
- (3) Barley.
- (4) Dalhan—Masoor, Peas, Khesari, Arhar (Maghua and Chaituwa) and Mung.
- (5) Telhan—Tisi, Til, Sarso, Barai and Caster.
- (6) Spices—Chillies, Rai, Lahsun, Dhania, etc.
- (7) Vegetables—Potato, Onion, Nanua, Kohra, Louka, Kobi, Karaila and others.
- (8) Other crops—Jai, Ganja, Betel-leaf, Sakarkand, Gajra, Tea and Coffee.

IV. Garma crops comprise of the following :—

- (1) Dalua Dhan.
- (2) Maize.
- (3) Mung.
- (4) Fruits—Kharbuja, Kakri, Tarbooja, etc.
- (5) Other crops—China, Bausi, Onion, etc.

Areas under specific Bhadai, Aghani and Rabi crops are shown respectively in tables 1, 2 and 3, Appendix (I). Consolidated area under Garma crops is shown together with the yearly classification in table 4 of the same appendix.

These statements will show area figures under different crops since the year 1945-46. Prior to this, during 1944-45 the random sample survey was tried in the whole province. The final reports submitted by Prof. Mahalanobis as the result of the sample surveys have been dealt with in Appendix (III).

Complete enumeration survey has given satisfactory results for the last 3 years. From experience, it has been gathered that it would have given far better results if all the villages had been surveyed.

In every season a part of the total number of villages is left unsurveyed due to (a) lack of village maps, (b) presence of topographically surveyed areas, (c) lack of time, (d) epidemics, flood, etc. Correction is made for the area left unsurveyed by multiplying the areas obtained with the corresponding correction factors.

From the area statements it will be seen that area under Bhadai crops has increased from year to year. In the year 1945-46, 4.54 million acres of land was sown with Bhadai crops. In the year 1946-47 it increased to 4.73 million acres, i.e., by 0.19 million acres in the succeeding year (1947-48), it further increased to 5.05 million acres. So within 3 years there has been an increase of 0.51 million acres in acreage under Bhadai crops of the province, i.e., 0.51 million acres more land has been sown with Bhadai crops.

Reviewing the provincial acreage figures for these 3 years under Aghani crops it will be seen that in the year 1945-46, 12.39 million acres of land was sown with Aghani crops. In the year 1946-47 it is increased to 13.65 million acres and in the year 1947-48 it showed a further increase having 14.33 million

acres sown with Aghani crops. Thus during these 3 years there has been increase of 1.94 million acres of land under Aghani crops.

But the provincial acreage—estimate of Rabi crops during these years tells a different tale. Instead of increase, there has been continuous fall in acreage under Rabi crops. In 1945-46, 10.67 million acres of land was sown with Rabi, but it decreased to 10.34 million acres in the year 1946-47 and further decreased to 9.63 million acres in the year 1947-48. During the duration of these 3 years, there has been fall in acreage under Rabi crops by 1.04 million acres. This fall in acreage has been mainly due to draught and abnormal weather.

The following table will be helpful in studying the comparative estimates of acreage under main crops of the province during the years 1945-46, 1946-47 and 1947-48.

Statement showing the area under the major agricultural crops during the years 1945-46, 1946-47 and 1947-48 obtained through complete enumeration surveys in Bihar.

| Serial no. | Name of crop. | Estimate of area in 1,000 acres. | | |
|------------|-------------------------------|----------------------------------|---------|---------|
| | | 1945-46 | 1946-47 | 1947-48 |
| 1 | Paddy (Autumn and Winter) ... | 11,828 | 13,154 | 13,668 |
| 2 | Wheat | 2,236 | 2,017 | 1,697 |
| 3 | Gram | 2,046 | 1,762 | 1,561 |
| 4 | Barley | 1,425 | 1,189 | 1,029 |
| 5 | Maize | 2,000 | 1,832 | 1,990 |
| 6 | Maseor | 489 | 529 | 591 |
| 7 | Arhar | 825 | 677 | 747 |
| 8 | Khesari | 1,935 | 2,408 | 2,343 |
| 9 | Peas | 219 | 303 | 340 |
| 10 | Sugarcane | 297 | 363 | 326 |
| 11 | Potato | 107 | 95 | 95 |
| 12 | Tobacco | 68 | 54 | 53 |
| 13 | Chillies | 95 | 122 | 111 |
| 14 | Jute | N. A. | 178 | 207 |

Coming to table 4 it will be seen that area sown with different crops was 27.66 million acres in 1945-46 which increased to 28.99 million acres in the year 1946-47 and to 29.27 million acres in 1947-48; so it is quite apparent that every year more and more land has been brought under the plough. In this table other information such as total area under current fallow, culturable waste Gairmajurwa land, unculturable waste and such others has also been supplied.

Tables 5 to 7 refer to the statement showing the average yields (in maunds) per acre of Bhadai, Aghani and Rabi crops estimated during the surveys of 1945-46, 1946-47 and 1947-48. It has already been described that average yields of various crops are estimated by two methods (a) direct eye-estimate, (b) by crop cutting experiments. These tables will give vivid idea of the fluctuation of average yield of main crops in Bihar for the last 3 years as obtained through these methods. A comparative statement of yield estimates obtained in Bihar through different sources during the years 1945-46 to 1947-48 is given below :—

Comparative statement showing the average yield obtained from different sources from 1945-46 to 1947-48 in Bihar.

| Crop. | Average yield obtained. | | |
|----------------------|-------------------------|----------|-----------------------|
| | By C. C. Exp. | By E. E. | By official forecast. |
| Autumn paddy. | | | |
| 1945-46 | 7.34 | 8.04 | 8.04 |
| 1946-47 | 8.20 | 7.93 | 9.99 |
| 1947-48 | 8.17 | 8.59 | 9.77 |
| Winter paddy. | | | |
| 1945-46 | 12.98 | 11.72 | 11.03 |
| 1946-47 | 13.23 | 11.57 | 11.91 |
| 1947-48 | 12.40 | 10.54 | 11.48 |
| Wheat. | | | |
| 1945-46 | 5.30 | 4.96 | 8.63 |
| 1946-47 | 5.81 | 4.89 | 8.71 |
| 1947-48 | 7.02 | 5.70 | 8.49 |
| Gram. | | | |
| 1945-46 | 4.41 | 4.25 | 7.37 |
| 1946-47 | 4.32 | 4.21 | 8.07 |
| 1947-48 | 5.44 | 5.34 | 8.01 |
| Masoor. | | | |
| 1945-46 | 3.79 | 4.41 | ... |
| 1946-47 | 5.44 | 4.61 | N. A. |
| 1947-48 | 4.61 | 4.80 | ... |

For estimates of production of agricultural crops of Bihar table 8 may be referred to. The classification given below will be helpful in studying the comparative estimates of total output for the years 1945-46, 1946-47 and 1947-48. It will be seen that production has increased in all cases except wheat, gram, barley, maize, potato and tobacco where slight fall has been estimated.

Statement showing the production of the major agricultural crops in Bihar during the years 1945-46 to 1947-48.

| Crop. | Production in 1,000 tons. | | |
|----------------------------|---------------------------|---------|----------|
| | 1945-46. | 1946-47 | 1947-48. |
| Paddy (Autumn and Winter). | 5,402 | 6,156 | 6,146 |
| Wheat | 444 | 430 | 443 |
| Gram | 331 | 279 | 317 |
| Barley | 257 | 244 | 234 |
| Maize | 500 | 441 | 519 |
| Masoor | 68 | 87 | 100 |
| Arhar | 170 | 147 | 181 |
| Khesari | 283 | 330 | 438 |
| Peas | 39 | 58 | 71 |
| Sugarcane... .. | 2,112 | 2,423 | 2,379 |
| Potato | 183 | 150 | 165 |
| Tobacco | 27 | 22 | 22 |
| Chillies | 24 | 51 | 57 |
| Jute (in bales) | N. A. | 327 | 427 |

NOTE.—Production figures have been estimated by weighing acreages obtained through complete enumeration survey with average yields obtained through C. C. exps. in case of paddy, wheat, gram, and masoor and through direct estimate in case of other crops.

Production maps of 5 staple crops, i. e., paddy, wheat, gram, barley and maize have been prepared showing the districtwise production estimates under different classifications. These production figures have been estimated by taking the mean of the production estimates for the years 1945-46, 1946-47, and 1947-48 in 1,000 tons. The districtwise classifications based on production estimates are defined below as referred in the maps.

Production map for paddy is based on the following classifications :—

| Classification. | Districts included in the classification |
|----------------------------------|---|
| Bet. 100,000—200,000 tons | Saran, Palamau and Monghyr. |
| .. 200,000—300,000 | Patna, Muzaffarpur and Bhagalpur. |
| .. 300,000—400,000 | Gaya, Champaran, Darbhanga, Hazaribagh and Singhbhum. |
| .. 400,000—500,000 | Shahabad and Ranchi. |
| Above 500,000 | Purnea, S. Parganas and Manbhum. |

Production maps for wheat, gram, barley and maize are based on the following classification:—

| Classification. | Crop. | Districts included in the classification. |
|---------------------------------|--------|--|
| Less than 1,000 ... | Wheat | Ranchi, Manbhum and Singhbhum. |
| " " ... | Gram | Nil. |
| " " ... | Barley | Ranchi, Manbhum and Singhbhum. |
| " " ... | Maize | Nil. |
| Bet. 1,000—5,000 tons ... | Wheat | Palamau, Hazaribagh, and S. P. |
| " " ... | Gram | Hazaribagh, Ranchi, Manbhum and Singhbhum. |
| " " ... | Barley | Patna, Hazaribagh and S. P. |
| " " ... | Maize | Ranchi and Singhbhum. |
| Bet. 5,000 to 30,000 tons ... | Wheat | Patna, Champaran, Purnea and Bhagalpur. |
| " " ... | Gram | Palamau, Saran, Champaran, Muzaffarpur, Darbhanga, Bhagalpur, Purnea and S. P. |
| " " ... | Barley | Shahabad, Gaya, Palamau, Darbhanga, Monghyr, Bhagalpur and Purnea. |
| " " ... | Maize | Patna, Gaya, Shahabad, Palamau and Manbhum. |
| Bet. 30,000 to 50,000 tons ... | Wheat | Gaya, Darbhanga and Muzaffarpur. |
| " " ... | Gram | Patna, Gaya, Shahabad and Monghyr. |
| " " ... | Barley | Champaran and Muzaffarpur. |
| " " ... | Maize | Champaran, Darbhanga, Monghyr, Purnea, S. P. and Hazaribagh. |
| Bet. 50,000 to 100,000 tons ... | Wheat | Saran, Shahabad and Monghyr. |
| " " ... | Gram | Nil |
| " " ... | Barley | Saran. |
| " " ... | Maize | Saran, Muzaffarpur and Bhagalpur. |

APPENDIX I.

Table 1.— Statement showing the area under Bhadai crops as ascertained from plot to plot survey of crops during the years of 1945-46, 1946-47 and 1947-48(Area in acres).

| Serial no. | Name of district. | Total area of district.* | Paddy. | | | Maize. | | |
|------------|-------------------|--------------------------|-----------|-----------|-----------|-----------|-----------|-----------|
| | | | 1945-46. | 1946-47. | 1947-48. | 1945-46. | 1946-47. | 1947-48. |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| 1 | Patna | 18,57,468 | 999 | 509 | 501 | 49,665 | 50,411 | 62,302 |
| 2 | Gaya | 30,87,230 | 8,947 | 7,618 | 5,145 | 51,831 | 84,003 | 87,777 |
| 3 | Shahabad | 27,41,831 | 30,226 | 22,728 | 18,021 | 22,065 | 21,234 | 26,875 |
| 4 | Saran | 17,15,637 | 48,653 | 43,801 | 59,788 | 2,95,825 | 2,84,426 | 3,34,542 |
| 5 | Champanan | 20,77,787 | 1,96,841 | 1,76,552 | 1,89,415 | 1,33,323 | 1,40,061 | 1,42,876 |
| 6 | Muzaffarpur | 19,12,892 | 82,156 | 87,155 | 86,641 | 2,61,998 | 2,05,737 | 2,14,240 |
| 7 | Darbhanga | 21,75,569 | 39,630 | 43,268 | 38,054 | 1,59,845 | 1,79,638 | 1,69,744 |
| 8 | Bhagalpur | 26,72,732 | 58,854 | 42,475 | 55,098 | 2,72,275 | 2,18,076 | 2,55,552 |
| 9 | Monghyr | 25,11,027 | 15,535 | 78,191 | 11,803 | 1,67,675 | 1,55,926 | 1,91,058 |
| 10 | Purnea | 80,07,105 | 2,05,223 | 2,07,898 | 2,22,107 | 1,88,553 | 1,30,935 | 1,24,286 |
| 11 | Santal Parganas | 22,33,608 | 46,800 | 27,374 | 22,764 | 1,48,161 | 1,59,411 | 1,64,785 |
| 12 | Ranchi | 44,55,413 | 2,71,279 | 2,58,057 | 2,55,850 | 14,974 | 19,368 | 17,710 |
| 13 | Palamau | 29,70,824 | 39,524 | 41,785 | 38,971 | 63,537 | 63,529 | 69,622 |
| 14 | Hazaribagh | 45,56,550 | 15,290 | 16,492 | 17,097 | 96,344 | 98,145 | 1,06,252 |
| 15 | Manbhum | 26,29,897 | 3,774 | 4,090 | 2,642 | 50,738 | 50,465 | 40,357 |
| 16 | Singhbhum | 20,24,154 | 74,104 | 1,24,735 | 1,17,020 | 23,997 | 21,227 | 22,924 |
| | Province | 4,31,73,119 | 10,81,880 | 10,68,222 | 10,91,737 | 19,99,806 | 18,31,592 | 19,90,442 |

*These figures relate to cadastrally surveyed areas.

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TABLE 1—contd.

| Serial no. | Name of district. | Total area of district. | Pulses. | | | Danadar. | | |
|------------|---------------------|-------------------------|----------|----------|----------|-----------|-----------|-----------|
| | | | 1945-46. | 1946-47. | 1947-48. | 1945-46. | 1946-47. | 1947-48. |
| 1 | 2 | 3 | 10 | 11 | 12 | 13 | 14 | 15 |
| 1 | Patna ... | 13,67,463 | 1,169 | 1,878 | 1,792 | 24,006 | 20,544 | 25,256 |
| 2 | Gaya ... | 3,03,730 | 13,357 | 7,905 | 10,746 | 54,392 | 36,616 | 41,951 |
| 3 | Shahabad ... | 27,41,331 | 4,575 | 4,669 | 6,147 | 12,097 | 9,887 | 15,739 |
| 4 | Saran ... | 17,15,537 | 1,779 | 1,127 | 1,445 | 3,715 | 1,13,560 | 1,32,713 |
| 5 | Champanan ... | 20,77,787 | 4,305 | 3,734 | 4,065 | 71,714 | 71,854 | 64,913 |
| 6 | Muzaffarpur ... | 19,12,892 | 2,850 | 2,851 | 4,046 | 76,878 | 66,549 | 78,345 |
| 7 | Darbhanga ... | 21,75,569 | 1,336 | 1,291 | 711 | 1,00,790 | 1,05,549 | 1,03,080 |
| 8 | Bhagalpur ... | 26,72,732 | 2,398 | 3,407 | 3,414 | 1,35,869 | 91,869 | 1,15,526 |
| 9 | Monghyr ... | 25,11,027 | 7,890 | 5,259 | 7,359 | 34,798 | 27,220 | 54,903 |
| 10 | Purnea ... | 30,07,105 | 286 | 1,676 | 311 | 24,746 | 21,103 | 20,534 |
| 11 | Santal Parganas ... | 33,33,608 | 11,740 | 8,860 | 11,594 | 42,404 | 30,853 | 28,709 |
| 12 | Ranchi ... | 44,58,413 | 1,13,496 | 1,04,796 | 1,22,970 | 2,22,646 | 2,01,612 | 2,14,546 |
| 13 | Palamau ... | 29,70,824 | 28,120 | 19,555 | 27,390 | 61,064 | 58,880 | 61,393 |
| 14 | Hazaribagh ... | 45,56,550 | 27,233 | 29,122 | 34,255 | 1,00,556 | 1,08,696 | 1,20,314 |
| 15 | Manbhum ... | 26,20,897 | 26,613 | 23,751 | 23,956 | 32,316 | 36,076 | 26,187 |
| 16 | Singhbhum ... | 20,24,154 | 17,881 | 18,740 | 18,271 | 21,053 | 29,544 | 17,500 |
| | Province ... | 4,31,73,119 | 2,65,018 | 2,39,071 | 2,83,482 | 10,19,649 | 10,30,416 | 11,11,616 |

TABLE 1—contd.

| Serial no. | Name of district. | Total area of district. | Jute. | | | Other fibres. | | |
|------------|---------------------|-------------------------|----------|----------|----------|---------------|----------|----------|
| | | | 1945-46. | 1946-47 | 1947-48. | 1946-46 * | 1946-47. | 1947-48. |
| 1 | 2 | 3 | 16 | 17 | 18 | 19 | 20 | 21 |
| 1 | Patna ... | 13,57,468 | ... | 2 | 578 | 4,240 | 4,638 | 3,766 |
| 2 | Gaya ... | 30,87,280 | ... | 427 | 815 | 6,580 | 2,224 | 2,194 |
| 3 | Shahabad ... | 27,41,831 | ... | 776 | 495 | 4,075 | 529 | 384 |
| 4 | Saran ... | 17,16,537 | ... | 755 | 734 | 3,980 | 1,551 | 1,885 |
| 5 | Champaran ... | 20,77,787 | ... | 1,056 | 1,938 | 3,138 | 1,793 | 1,102 |
| 6 | Muzaffarpur ... | 19,12,892 | ... | 2,481 | 2,585 | 4,296 | 537 | 479 |
| 7 | Darbhanga ... | 21,75,869 | ... | 1,649 | 1,664 | 2,250 | 1,005 | 671 |
| 8 | Bhagalpur ... | 26,72,782 | ... | 8,082 | 14,835 | 11,379 | 3,801 | 2,585 |
| 9 | Monghyr ... | 25,71,027 | ... | 984 | 503 | 5,069 | 1,951 | 2,406 |
| 10 | Purnea ... | 30,07,105 | ... | 1,50,948 | 1,78,699 | 1,54,153 | 1,220 | 112 |
| 11 | Santal Parganas ... | 33,33,608 | ... | 2,059 | 1,551 | 9,204 | 7,129 | 6,997 |
| 12 | Ranchi ... | 44,58,413 | ... | 447 | 264 | 2,436 | 1,620 | 991 |
| 13 | Palamau ... | 29,70,824 | ... | 850 | 115 | 1,410 | 1,806 | 459 |
| 14 | Hazaribagh ... | 45,56,550 | ... | 30 | 25 | 1,179 | 918 | 779 |
| 15 | Manbhum ... | 26,20,897 | ... | 2,600 | 1,439 | 5,682 | 2,212 | 1,873 |
| 16 | Singbhum ... | 20,24,154 | — | 1,398 | 981 | 3,176 | 1,172 | 1,435 |
| | Province ... | 4,31,73,119 | ... | 1,78,444 | 2,09,721 | 2,22,144 | 33,906 | 24,137 |

* Includes area under jute also.

TABLE 1—contd.

| Serial no. | Name of village. | Total area of district. | Sugarcane. | | | Oilseeds. | | |
|------------|---------------------|-------------------------|------------|----------|----------|-----------|----------|----------|
| | | | 1945-46. | 1946-47. | 1947-48. | 1945-46. | 1946-47. | 1947-48. |
| 1 | 2 | 3 | 22 | 23 | 24 | 25 | 26 | 27 |
| 1 | Patna ... | 13,57,473 | ... | 17,242 | 20,104 | 439 | 538 | 495 |
| 2 | Gaya ... | 30,37,230 | ... | 27,460 | 26,302 | 2,630 | 1,738 | 2,241 |
| 3 | Shahabad ... | 27,41,331 | ... | 29,040 | 26,963 | 3,286 | 2,093 | 3,290 |
| 4 | Saran ... | 17,15,537 | ... | 62,916 | 64,477 | 315 | 167 | 112 |
| 5 | Champan ... | 20,77,787 | ... | 72,558 | 53,040 | 256 | 170 | 56 |
| 6 | Muzaffarpur ... | 19,12,892 | ... | 23,258 | 15,156 | 133 | 104 | 131 |
| 7 | Darbhanga ... | 21,75,569 | ... | 34,675 | 24,533 | 36 | 32 | 23 |
| 8 | Bhagalpur ... | 26,72,732 | ... | 12,753 | 12,016 | 221 | 7 | 16 |
| 9 | Monghyr ... | 25,11,027 | ... | 8,117 | 8,755 | 640 | 75 | 129 |
| 10 | Purnea ... | 30,07,105 | ... | 2,630 | 2,050 | 15 | 10 | ... |
| 11 | Santal Parganas ... | 33,33,608 | ... | 2,931 | 3,860 | 20 | 38 | 13 |
| 12 | Ranchi ... | 44,58,413 | ... | 73 | ... | 897 | 1,018 | 785 |
| 13 | Palamau ... | 29,70,824 | ... | 2,272 | 2,315 | 7,459 | 6,673 | 7,755 |
| 14 | Hazaribagh ... | 45,56,550 | ... | 6,193 | 6,431 | 291 | 149 | 131 |
| 15 | Manbhum ... | 26,20,897 | ... | 1,897 | 1,849 | 1,824 | 2,251 | 3,042 |
| 16 | Singhbhum ... | 20,24,154 | ... | 155 | 230 | ... | 989 | 1,272 |
| | Province ... | 4,31,73,119 | ... | 3,03,950 | 2,68,136 | 9,279 | 16,651 | 19,491 |

TABLE 1—contd.

| Serial no. | Name of district. | Total area of district. | Vegetables. | | | Other crops. | | |
|------------|------------------------|-------------------------|-------------|----------|----------|--------------|----------|----------|
| | | | 1945-46. | 1946-47. | 1947-48. | 1945-46. | 1946-47. | 1947-48. |
| 1 | 2 | 3 | 28 | 29 | 30 | 31 | 32 | 33 |
| 1 | Patna | 12,57,463 | 1,183 | 995 | 1,104 | 744 | 875 | 1,661 |
| 2 | Gaya | 30,37,230 | 2,167 | 1,168 | 1,148 | 592 | 398 | 394 |
| 3 | Bahabad | 27,41,331 | 1,635 | 1,348 | 1,472 | 3,595 | 2,069 | 2,664 |
| 4 | Saran | 17,15,537 | 1,844 | 1,783 | 1,937 | 1,220 | 581 | 1,339 |
| 5 | Champan | 20,77,787 | 1,774 | 1,927 | 1,686 | 1,041 | 1,088 | 961 |
| 6 | Muzaffarpur | 19,12,892 | 2,427 | 2,366 | 1,981 | 1,466 | 2,171 | 2,906 |
| 7 | Darbhanga | 21,75,569 | 730 | 1,074 | 824 | 224 | 525 | 485 |
| 8 | Bahgalpur | 26,72,732 | 1,035 | 1,142 | 1,200 | 886 | 1,424 | 3,051 |
| 9 | Monghyr | 25,11,027 | 961 | 416 | 562 | 1,176 | 1,155 | 2,867 |
| 10 | Purnea | 30,07,105 | 1,147 | 1,198 | 1,294 | 187 | 816 | 695 |
| 11 | Santal Parganas | 33,33,608 | 544 | 597 | 604 | 63 | 396 | 184 |
| 12 | Rauchi | 44,58,413 | | | | | | |
| 13 | Palamanu | 29,70,824 | 3,800 | 2,951 | 3,865 | 2,955 | 4,874 | 5,435 |
| 14 | Hazaribagh | 45,56,550 | | | | | | |
| 15 | Manbhum | 26,20,897 | 192 | 121 | 170 | 137 | 3,802 | 269 |
| 16 | Singbhum | 2,02,154 | 764 | 1,004 | 981 | 614 | 1,375 | 2,000 |
| | | | 974 | 764 | 726 | 110 | 294 | 228 |
| | | | 1,762 | 742 | 1,107 | 83 | 162 | 162 |
| | Province | 4,31,73,119 | 22,939 | 19,456 | 20,671 | 15,093 | 21,504 | 26,212 |

TABLE 1—concl'd.

| Serial no. | Name of district. | Total area of district. | Total cropped area. | | | Remarks. |
|------------|------------------------|-------------------------|---------------------|-----------|-----------|----------|
| | | | 1945-46. | 1946-47. | 1947-48. | |
| 1 | 2 | 3 | 34 | 35 | 36 | 37 |
| 1 | Patna | 13,57,463 | 82,441 | 97,630 | 1,17,639 | |
| 5 | Gaya | 80,37,230 | 1,39,996 | 1,19,551 | 1,28,213 | |
| 3 | Shahabad | 27,41,831 | 81,554 | 95,373 | 1,02,046 | |
| 4 | Saran | 17,15,531 | 3,56,731 | 5,10,717 | 5,88,972 | |
| 5 | Champan | 20,77,787 | 4,11,932 | 4,70,843 | 4,59,552 | |
| 6 | Muzaffarpur | 19,12,892 | 3,82,204 | 3,43,219 | 3,56,511 | |
| 7 | Darbhanga | 21,75,569 | 3,04,831 | 3,68,706 | 3,39,799 | |
| 8 | Bhagalpur | 26,72,782 | 4,77,417 | 3,82,537 | 4,63,293 | |
| 9 | Monghyr | 25,11,027 | 2,33,744 | 2,08,994 | 2,80,145 | |
| 10 | Purnea | 30,07,105 | 5,74,315 | 5,17,939 | 5,49,848 | |
| 11 | Santal Parganas | 33,33,808 | 2,58,936 | 2,39,537 | 2,41,181 | |
| 12 | Ranchi | 44,58,413 | 6,32,483 | 5,93,816 | 6,22,471 | |
| 13 | Palamau | 29,70,824 | 2,01,443 | 1,99,173 | 2,08,489 | |
| 14 | Hazaribagh | 45,56,550 | 2,42,862 | 2,62,124 | 2,88,285 | |
| 15 | Manbhum | 26,20,897 | 1,22,031 | 1,23,599 | 1,18,298 | |
| 16 | Singhbhum | 22,04,154 | 1,42,883 | 1,98,864 | 1,80,907 | |
| | Province | 4,31,73,119 | 46,45,208 | 47,32,622 | 50,45,644 | |

Table 2. Statement showing the area under 'Aghani' cross ascertained from plot to plot survey of crops for the years 1945-46, 1946-47 and 1947-48.

| Serial no. | Name of district | Total area of district. | Paddy. | | | Pulses. | | | |
|------------|------------------|-------------------------|-------------|------------|------------|------------|----------|----------|----------|
| | | | 1945-46. | 1946-47. | 1947-48. | 1945-46. | 1946-47. | 1947-48. | |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | |
| 1 | Patna | 13,57,463 | 5,48,225 | 5,86,616 | 5,52,470 | 3,862 | 2,453 | 4,666 | |
| 2 | Gaya | 30,37,230 | 10,60,881 | 9,80,293 | 10,66,661 | 24,231 | 17,401 | 20,124 | |
| 3 | Shahabad | 27,41,331 | 10,21,696 | 10,69,907 | 11,75,725 | 6,773 | 4,604 | 6,231 | |
| 4 | Saran | 17,15,537 | 2,71,515 | 3,46,668 | 3,93,736 | 6,348 | 7,023 | 6,753 | |
| 5 | Champanan | 30,77,787 | 6,84,249 | 7,08,079 | 7,79,003 | 3,274 | 4,668 | 7,967 | |
| 6 | Muzaffarpur | 19,12,892 | 6,91,134 | 7,88,340 | 8,28,065 | 2,379 | 1,324 | 1,752 | |
| 7 | Darbhanga | 21,75,569 | 7,29,839 | 9,72,939 | 10,59,679 | 7,351 | 11,277 | 15,363 | |
| 8 | Bhagalpur | 26,72,732 | 5,58,254 | 7,99,994 | 7,78,779 | 1,12,685 | 1,38,608 | 1,25,232 | |
| 9 | Monghyr | 25,11,027 | 4,76,382 | 5,14,473 | 5,36,163 | 66,171 | 68,615 | 82,027 | |
| 10 | Purnea | ... | 9,23,574 | 10,44,156 | 11,24,224 | 73,490 | 69,142 | 75,937 | |
| 11 | Santal Parganas | ... | 33,33,608 | 10,51,080 | 11,79,487 | 12,12,831 | 2,03,641 | 2,16,160 | 2,11,784 |
| 12 | Ranchi | ... | 44,58,413 | 7,12,593 | 8,40,287 | 9,11,945 | 64,377 | 1,00,988 | 85,663 |
| 13 | Palamau | ... | 29,70,824 | 1,84,718 | 2,12,629 | 2,14,623 | 36,015 | 39,254 | 42,542 |
| 14 | Hazaribagh | ... | 45,56,550 | 5,52,134 | 6,57,036 | 6,57,858 | 80,255 | 86,944 | 81,825 |
| 15 | Manbhum | ... | 26,29,897 | 7,92,407 | 9,25,597 | 9,28,886 | 44,368 | 50,779 | 48,247 |
| 16 | Singhbhum | ... | 20,24,154 | 4,74,596 | 4,63,820 | 5,55,420 | 36,149 | 28,060 | 29,474 |
| | Province | ... | 4,21,73,119 | 10,744,377 | 12,090,531 | 12,776,067 | 7,71,319 | 8,47,460 | 8,43,577 |

TABLE 2—contd.

| Serial no. | Name of district. | Total arer of district. | Oil seeds. | | | Danadar. | | |
|------------|------------------------|-------------------------|------------|----------|----------|----------|----------|----------|
| | | | 1945-46. | 1946-47. | 1947-48. | 1945 46. | 1946-47. | 1947-48. |
| 1 | 2 | 3 | 10 | 11 | 12 | 13 | 14 | 15 |
| 1 | Patna | 13,57,463 | 1,382 | 1,245 | 1,442 | 6,097 | 6,687 | 6,658 |
| 2 | Gaya | 30,87,230 | 660 | 448 | 891 | 7,070 | 3,044 | 6,012 |
| 3 | Shahabad | 27,41,331 | 588 | 309 | 355 | 29,716 | 19,201 | 32,381 |
| 4 | Saran | 17,15,537 | 269 | 216 | 298 | 5,572 | 2,042 | 3,451 |
| 5 | Champaran | 20,77,787 | 4,486 | 3,890 | 3,001 | 1,239 | 1,006 | 1,275 |
| 6 | Muzaffarpur | 19,12,892 | 122 | 92 | 74 | 2,388 | 538 | 1,289 |
| 7 | Darbhanga | 21,75,569 | 106 | 273 | 144 | 3,255 | 702 | 2,966 |
| 8 | Bhagalpur | 26,72,732 | 296 | 1,508 | 1,298 | 29,635 | 26,813 | 20,383 |
| 9 | Monghyr | 25,11,027 | 865 | 1,275 | 707 | 14,819 | 11,571 | 16,996 |
| 10 | Purnea | 30,07,105 | 212 | 602 | 537 | 2,316 | 1,037 | 1,004 |
| 11 | Santal Parganas | 33,33,608 | 8,084 | 10,531 | 8,053 | 87,271 | 67,822 | 67,799 |
| 12 | Ranchi | 44,58,413 | 1,06,836 | 1,55,497 | 1,43,029 | 22,294 | 26,732 | 24,436 |
| 13 | Palamau | 29,70,824 | 22,271 | 25,940 | 24,268 | 22,840 | 23,263 | 26,739 |
| 14 | Hazaribagh | 45,56,550 | 47,691 | 59,738 | 52,469 | 41,604 | 36,365 | 35,017 |
| 15 | Manbhum | 26,20,897 | 27,456 | 29,710 | 12,894 | 13,230 | 17,413 | 12,327 |
| 16 | Singbhum | 20,24,154 | 11,393 | 11,772 | 24,192 | 40,752 | 33,842 | 39,478 |
| | Province | 4,31,73,119 | 2,32,667 | 3,03,055 | 2,73,652 | 3,33,098 | 2,78,078 | 2,89,206 |

TABLE 2—contd.

| Serial no. | Name of district. | Total area of district. | Fibres. | | | Sugarcane. | | |
|------------|------------------------|-------------------------|----------|----------|----------|------------|----------|----------|
| | | | 1945-46. | 1946-47. | 1947-48. | 1945-46. | 1946-47. | 1947-48. |
| 1 | 2 | 3 | 16 | 17 | 18 | 19 | 20 | 21 |
| 1 | Patna | 13,57,468 | 4 | 1 | 2 | 17,135 | 4,336 | 3,008 |
| 2 | Gaya | 30,37,230 | 746 | 12 | 35 | 22,228 | 1,384 | 1,400 |
| 3 | Shahabad | 27,41,831 | 208 | 145 | 82 | 27,476 | 1,522 | 1,290 |
| 4 | Saran | 17,15,537 | 36 | 79 | 47 | 40,056 | 12,779 | 6,744 |
| 5 | Champaran | 20,77,787 | ... | 10 | 69 | 49,274 | 9,408 | 13,795 |
| 6 | Muzaffarpur | 19,12,892 | 94 | 10 | 39 | 15,082 | 3,624 | 6,441 |
| 7 | Darbhanga | 21,75,569 | 26 | 40 | 68 | 19,665 | 4,656 | 6,395 |
| 8 | Bhagalpur | 26,72,732 | 21 | 18 | 74 | 9,149 | 428 | 2,575 |
| 9 | Monghyr | 26,11,027 | 651 | 73 | 139 | 8,650 | 1,570 | 2,539 |
| 10 | Purnea | 30,07,105 | 44 | 273 | 245 | 2,001 | 171 | 1,043 |
| 11 | Santal Parganas | 33,33,608 | 348 | 390 | 307 | 3,104 | 704 | 556 |
| 12 | Ranchi | 44,58,418 | 2,186 | 7,553 | 9,654 | 270 | 126 | 154 |
| 13 | Palamau | 29,70,824 | 566 | 951 | 464 | 1,649 | 397 | 405 |
| 14 | Hazaribagh | 45,56,550 | 165 | 54 | 109 | 8,269 | 3,710 | 2,503 |
| 15 | Manbhum | 26,20,897 | 172 | 208 | 107 | 1,509 | 287 | 446 |
| 16 | Singhbhum | 20,24,154 | 290 | 144 | 91 | 195 | 28 | 17 |
| | Province | 4,31,73,119 | 5,556 | 9,961 | 11,532 | 2,25,712 | 45,130 | 49,309 |

TABLE 2—contd.

| Serial no. | Name of district. | Total area of district. | Potato. | | | Other vegetables. | | |
|------------|------------------------|-------------------------|----------|----------|----------|-------------------|----------|----------|
| | | | 1945-46. | 1946-47. | 1947-48. | 1945-46. | 1946-47. | 1947-48. |
| 1 | 2 | 3 | 22 | 23 | 24 | 25 | 26 | 27 |
| 1 | Patna | 13,57,463 | 4,255 | 6,652 | 5,852 | 381 | 303 | 338 |
| 2 | Gaya | 30,37,230 | 5,040 | 2,604 | 2,616 | 520 | 244 | 260 |
| 3 | Shahabad | 27,41,331 | 900 | 484 | 501 | 870 | 531 | 657 |
| 4 | Saran | 17,15,537 | 2,190 | 2,212 | 1,670 | 294 | 191 | 185 |
| 5 | Champan | 20,77,737 | 103 | 19 | 58 | 760 | 570 | 655 |
| 6 | Muzaffarpur | 19,12,892 | 351 | 301 | 313 | 864 | 626 | 386 |
| 7 | Darbhanga | 21,75,569 | 211 | 208 | 98 | 466 | 531 | 482 |
| 8 | Bhagalpur | 26,72,732 | 683 | 581 | 435 | 410 | 481 | 503 |
| 9 | Monghyr | 25,11,027 | 664 | 267 | 120 | 454 | 156 | 135 |
| 10 | Purnea | 30,07,105 | 1,225 | 831 | 432 | 505 | 544 | 379 |
| 11 | Santal Parganas | 33,33,668 | 115 | 238 | 162 | 642 | 487 | 564 |
| 12 | Ranchi | 44,58,413 | 854 | 1052 | 434 | 2,724 | 3,257 | 2,737 |
| 13 | Palamau | 29,70,824 | 114 | 122 | 112 | 147 | 135 | 128 |
| 14 | Hazaribagh | 45,56,550 | 1,148 | 1,111 | 1,083 | 836 | 726 | 645 |
| 15 | Manbhum | 26,20,897 | 98 | 62 | 25 | 3,759 | 675 | 2,662 |
| 16 | Singhbhum | 20,24,154 | 4 | 11 | 14 | 1,565 | 2,902 | 1,032 |
| | Province | 4,31,73,119 | 18,255 | 15,750 | 13,925 | 15,197 | 12,359 | 11,748 |

TABLE 2—concl'd.

| Serial no. | Name of district. | Total area of district. | Other crops. | | | Total cropped area (Total area under crops.) | | |
|------------|---------------------|-------------------------|--------------|----------|----------|---|-------------|-------------|
| | | | 1945-46. | 1946-47. | 1947-48. | 1945-46. | 1946-47. | 1947-48. |
| 1 | 2 | 3 | 28 | 29 | 30 | 31 | 32 | 33 |
| 1 | Patna ... | 13,57,463 | 218 | 148 | 377 | 5,81,559 | 6,07,441 | 5,74,811 |
| 2 | Gaya ... | 30,37,230 | 763 | 858 | 449 | 11,21,639 | 10,05,788 | 10,98,448 |
| 3 | Shahabad ... | 27,41,331 | 584 | 365 | 574 | 10,88,761 | 10,96,968 | 12,17,796 |
| 4 | Saran ... | 17,15,537 | 4,388 | 3,663 | 3,044 | 3,30,668 | 3,74,873 | 4,15,928 |
| 5 | Champaran ... | 20,77,787 | 3,490 | 3,140 | 4,660 | 7,46,875 | 7,30,990 | 8,10,433 |
| 6 | Muzaffarpur ... | 19,12,892 | 7,019 | 5,927 | 4,468 | 7,19,433 | 8,00,782 | 8,42,827 |
| 7 | Darbhanga ... | 21,75,569 | 5,564 | 4,337 | 4,308 | 7,76,483 | 9,95,963 | 10,89,503 |
| 8 | Bhagalpur ... | 26,72,732 | 1,351 | 5,246 | 5,369 | 7,12,434 | 9,73,587 | 9,84,638 |
| 9 | Monghyr ... | 25,11,027 | 7,980 | 4,550 | 8,417 | 5,76,636 | 6,02,550 | 6,47,243 |
| 10 | Purnea ... | 30,07,105 | 2,159 | 2,869 | 4,498 | 10,05,526 | 11,19,805 | 12,11,299 |
| 11 | Santal Parganas ... | 33,33,608 | 1,344 | 1,177 | 1,631 | 13,56,229 | 14,76,991 | 15,03,687 |
| 12 | Ranchi ... | 44,58,413 | 6,988 | 12,983 | 11,192 | 91,91,212 | 11,48,475 | 11,89,244 |
| 13 | Palamsu ... | 29,70,824 | 958 | 1,113 | 1,356 | 2,69,277 | 3,03,213 | 3,10,636 |
| 14 | Hazaribagh ... | 45,56,550 | 1,582 | 2,292 | 1,945 | 7,36,984 | 8,47,976 | 8,33,454 |
| 15 | Manbhum ... | 26,20,897 | 1,492 | 2,182 | 550 | 8,85,491 | 10,27,552 | 10,17,442 |
| 16 | Singbhum ... | 20,24,154 | 1,384 | 594 | 1,704 | 5,66,328 | 5,40,534 | 6,31,119 |
| | Province ... | 4,31,73,119 | 47,264 | 50,944 | 54,543 | 1,23,93,445 | 1,36,53,288 | 1,43,28,558 |

CC 3

Table 3—Statement showing area under Rabi crops as ascertained from plot to plot survey of crops during the years of 1945-46, 1946-47 and 1947-48.

| Serial no. | Name of district. | Total area of district. | Barley. | | | Barley and Gram. | | |
|------------|-------------------------|-------------------------|----------|----------|----------|------------------|----------|----------|
| | | | 1945-46. | 1946-47. | 1947-48. | 1945-46. | 1946-47. | 1947-48. |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| 1 | Patna | 1,357,403 | 6,345 | 6,952 | 5,300 | 43,620 | 37,533 | 28,527 |
| 2 | Gaya | 3,037,230 | 49,270 | 23,641 | 18,534 | 80,868 | 70,304 | 57,864 |
| 3 | Shahabad | 2,741,331 | 20,904 | 15,579 | 12,327 | 104,406 | 84,947 | 77,762 |
| 4 | Saran | 1,715,537 | 150,358 | 131,762 | 118,146 | 25,087 | 17,336 | 22,007 |
| 5 | Champan | 2,077,787 | 149,202 | 150,324 | 128,730 | 38,221 | 25,665 | 26,142 |
| 6 | Muzaffarpur | 1,912,892 | 190,950 | 145,711 | 123,924 | 38,414 | 30,884 | 30,811 |
| 7 | Darbhanga | 2,175,509 | 84,578 | 82,770 | 64,731 | 23,103 | 22,201 | 17,115 |
| 8 | Bhagalpur | 2,672,732 | 87,565 | 69,672 | 48,984 | 53,040 | 48,941 | 37,037 |
| 9 | Monghyr | 2,511,027 | 50,688 | 41,208 | 44,713 | 31,226 | 28,416 | 26,632 |
| 10 | Purnea | 3,007,105 | 67,689 | 35,190 | 27,709 | 24,456 | 15,588 | 18,340 |
| 11 | Santal Parganas | 3,333,608 | 13,552 | 12,562 | 5,369 | 13,393 | 11,109 | 8,851 |
| 12 | Ranchi | 4,458,413 | 4,577 | 3,805 | 2,911 | 5,433 | 2,839 | 1,598 |
| 13 | Palamau | 2,970,824 | 39,446 | 33,995 | 23,786 | 65,318 | 58,634 | 37,035 |
| 14 | Hazaribagh | 4,556,550 | 8,691 | 3,350 | 6,787 | 8,588 | 5,974 | 4,645 |
| 15 | Manbhum | 2,620,897 | 666 | 258 | 192 | 3,724 | 346 | 443 |
| 16 | Singbhum | 2,024,154 | 181 | 72 | 6 | 176 | 64 | 18 |
| | Provincial total | 43,173,119 | 930,661 | 761,411 | 632,105 | 566,663 | 460,901 | 394,917 |

Table 3—contd.

| Serial no. | Name of district. | Total area of district. | Wheat. | | | Gram. | | |
|------------|-------------------------|-------------------------|-----------|-----------|----------|-----------|----------|----------|
| | | | 1946-46. | 1946-47. | 1947-48. | 1946-46. | 1946-47. | 1947-48. |
| 1 | 2 | 3 | 10 | 11 | 12 | 13 | 14 | 15 |
| 1 | Patna | 1,857,463 | 27,098 | 26,264 | 24,086 | 76,675 | 68,668 | 61,466 |
| 2 | Gaya | 2,087,230 | 148,441 | 161,282 | 120,487 | 143,380 | 123,821 | 109,064 |
| 3 | Shahabad | 2,741,331 | 163,269 | 150,517 | 113,544 | 147,103 | 125,435 | 130,364 |
| 4 | Saran | 1,715,537 | 123,548 | 129,833 | 112,436 | 53,768 | 87,448 | 42,612 |
| 5 | Champanan | 2,077,787 | 116,494 | 99,807 | 76,632 | 15,318 | 6,629 | 7,315 |
| 6 | Muzaffarpur | 1,912,892 | 164,209 | 140,279 | 118,273 | 32,423 | 26,846 | 26,505 |
| 7 | Darbhanga | 2,175,569 | 137,451 | 140,741 | 103,845 | 45,800 | 48,137 | 39,805 |
| 8 | Bhagalpur | 2,672,732 | 91,382 | 82,459 | 48,751 | 133,385 | 119,720 | 69,446 |
| 9 | Monghyr | 2,511,027 | 87,935 | 63,146 | 68,371 | 88,133 | 68,305 | 67,648 |
| 10 | Purnea | 2,007,105 | 148,898 | 63,964 | 41,615 | 32,947 | 16,115 | 14,900 |
| 11 | Santal Parganas | 3,333,608 | 4,975 | 3,803 | 2,901 | 43,070 | 39,851 | 27,636 |
| 12 | Ranchi | 4,458,413 | 4,193 | 4,580 | 2,953 | 33,989 | 22,230 | 13,279 |
| 13 | Palamau | 2,970,824 | 21,549 | 25,576 | 13,509 | 112,617 | 15,844 | 81,077 |
| 14 | Hazaribagh | 4,556,550 | 16,046 | 16,135 | 13,377 | 16,398 | 12,969 | 10,742 |
| 15 | Manbhum | 2,620,897 | 81 | 1,639 | 1,233 | 8,932 | 5,415 | 3,738 |
| 16 | Singbhum | 2,924,154 | 4,920 | 3,312 | 2,145 | 17,962 | 16,868 | 8,831 |
| | Provincial total | 43,173,119 | 1,262,176 | 1,112,837 | 869,208 | 1,001,000 | 823,801 | 765,508 |

Table 3—contd.

| Serial no. | Name of district. | Total area of district. | Wheat and Gram. | | | Wheat and Barley. | | |
|------------|-------------------------|-------------------------|-----------------|-----------|-----------|-------------------|----------|----------|
| | | | 1945-46. | 1946-47. | 1947-48. | 1945-46. | 1946-47. | 1947-48. |
| 1 | 2 | 3 | 16 | 17 | 18 | 19 | 20 | 21 |
| 1 | Patna | 1,857,468 | 275,885 | 227,801 | 153,832 | 11,203 | 4,800 | 5,698 |
| 2 | Gaya | 3,037,230 | 208,454 | 196,873 | 180,592 | 24,957 | 20,126 | 17,520 |
| 3 | Shahabad | 2,741,331 | 429,748 | 378,330 | 347,450 | 12,886 | 11,930 | 9,053 |
| 4 | Saran | 1,715,537 | 43,537 | 49,649 | 51,422 | 228,701 | 225,681 | 217,022 |
| 5 | Champan | 2,077,787 | 22,743 | 18,945 | 16,793 | 52,050 | 47,074 | 51,148 |
| 6 | Muzaffarpur | 1,912,892 | 43,025 | 46,843 | 37,676 | 45,422 | 48,946 | 40,581 |
| 7 | Darbhanga | 2,175,569 | 35,176 | 42,933 | 36,154 | 25,509 | 17,795 | 19,470 |
| 8 | Bhagalpur | 2,872,732 | 80,225 | 75,167 | 59,345 | 5,770 | 2,889 | 1,731 |
| 9 | Monghyr | 2,511,027 | 337,942 | 339,114 | 382,553 | 7,054 | 7,794 | 7,714 |
| 10 | Purnea | 3,007,105 | 21,124 | 12,326 | 11,216 | 4,164 | 1,798 | 900 |
| 11 | Santal Parganas | 3,333,608 | 2,202 | 2,119 | 1,939 | 209 | 61 | 219 |
| 12 | Ranchi | 4,458,413 | 1,722 | 814 | 539 | 872 | 153 | 60 |
| 13 | Palamau | 2,970,824 | 14,942 | 19,896 | 13,304 | 3,380 | 3,853 | 2,125 |
| 14 | Hazaribagh | 4,556,550 | 1,891 | 2,202 | 1,556 | 1,217 | 1,151 | 1,351 |
| 15 | Manbhum | 2,620,897 | 222 | 72 | 85 | 37 | 42 | 5 |
| 16 | Singbhum | 2,024,154 | 1,355 | 1,470 | 1,138 | ... | 38 | ... |
| | Provincial Total | 43,173,119 | 1,524,693 | 1,414,560 | 1,295,594 | 422,991 | 394,731 | 386,519 |

TABLE 3—contd.

| Serial no. | Name of district. | Total area of district. | Wheat (Net). | | | Gram (Net). | | |
|------------|------------------------|-------------------------|--------------|----------|-----------|-------------|-----------|-----------|
| | | | 1945-46. | 1946-47. | 1947-48. | 1945-46 | 1946-47. | 1947-48. |
| 1 | 2 | 3 | 22 | 23 | 24 | 25 | 26 | 27 |
| 1 | Patna | 18,57,463 | 1,70,387 | 1,42,564 | 1,03,806 | 2,36,178 | 2,01,335 | 1,52,646 |
| 2 | Gaya | 80,37,230 | 2,65,146 | 2,69,732 | 2,19,546 | 2,91,041 | 2,56,940 | 2,29,192 |
| 3 | Shahabad | 27,41,231 | 3,54,577 | 3,45,650 | 2,91,796 | 4,14,180 | 3,57,976 | 3,42,970 |
| 4 | Saran | 17,15,537 | 2,59,667 | 2,67,478 | 2,46,658 | 88,530 | 70,940 | 70,372 |
| 5 | Champanan | 20,77,787 | 1,53,890 | 1,32,817 | 1,10,322 | 45,800 | 28,935 | 24,783 |
| 6 | Muzaffarpur | 19,12,892 | 2,10,933 | 1,88,173 | 1,60,422 | 75,642 | 65,709 | 60,749 |
| 7 | Warbhanga | 21,75,569 | 1,67,794 | 1,71,105 | 1,31,657 | 74,984 | 80,704 | 66,630 |
| 8 | Bhagalpur | 26,72,732 | 1,34,379 | 1,21,487 | 79,289 | 2,00,018 | 1,81,774 | 1,17,036 |
| 9 | Monghyr | 20,11,027 | 2,60,433 | 2,36,900 | 2,58,504 | 2,72,717 | 2,52,070 | 2,72,211 |
| 10 | Purnea | 30,07,105 | 1,61,042 | 71,026 | 47,076 | 55,737 | 30,072 | 29,768 |
| 11 | Santal Parganas | 33,33,608 | 6,210 | 4,093 | 4,004 | 50,868 | 40,495 | 33,058 |
| 12 | Ranchi | 44,58,413 | 5,240 | 5,064 | 3,262 | 36,666 | 24,006 | 14,343 |
| 13 | Palamau | 29,70,824 | 80,710 | 37,450 | 21,223 | 1,52,747 | 1,25,109 | 1,06,247 |
| 14 | Jazairah | 45,56,550 | 17,500 | 17,812 | 14,841 | 21,638 | 17,057 | 13,812 |
| 15 | Manbhum | 26,00,197 | 2,411 | 0,986 | 1,323 | 10,505 | 5,624 | 3,977 |
| 16 | Singbhum | 2,24,151 | 5,597 | 4,066 | 2,714 | 13,728 | 17,033 | 9,409 |
| | Provincial Total | 4,31,73,119 | 2,36,016 | 2,17,433 | 16,97,263 | 2,46,379 | 17,61,651 | 15,60,776 |

TABLE 3—contd.

| Serial no. | Name of district. | Total area of district. | Barley (Net). | | | Peas. | | |
|------------|-------------------------|-------------------------|---------------|-----------|-----------|----------|----------|----------|
| | | | 1945-46. | 1946-47. | 1947-48. | 1945-46. | 1946-47. | 1947-48. |
| 1 | 2 | 3 | 28 | 29 | 30 | 31 | 32 | 33 |
| 1 | Patna | 18,57,463 | 33,756 | 28,119 | 22,367 | 11,310 | 18,790 | 23,445 |
| 2 | Gaya | 30,37,230 | 1,05,183 | 68,886 | 56,229 | 25,261 | 33,502 | 37,384 |
| 3 | Shahabad | 27,41,331 | 79,559 | 64,017 | 55,734 | 19,727 | 21,863 | 26,642 |
| 4 | Saran | 17,15,537 | 2,77,702 | 2,53,271 | 2,37,705 | 45,451 | 48,903 | 46,594 |
| 5 | Champanan | 20,77,787 | 1,94,338 | 1,86,994 | 1,67,881 | 23,493 | 24,236 | 25,423 |
| 6 | Muzaffarpur | 19,12,892 | 2,58,868 | 1,85,626 | 1,62,619 | 10,073 | 13,050 | 14,561 |
| 7 | Darbhanga | 21,75,569 | 1,08,929 | 1,02,767 | 83,023 | 8,478 | 12,069 | 13,835 |
| 8 | Bhagalpur | 26,72,732 | 1,16,970 | 95,588 | 68,317 | 20,415 | 48,347 | 47,992 |
| 9 | Monghyr | 25,11,027 | 69,828 | 59,313 | 61,886 | 31,409 | 49,390 | 66,906 |
| 10 | Purnea | 30,07,105 | 81,999 | 43,883 | 37,332 | 9,757 | 14,666 | 16,025 |
| 11 | Santal Parganas | 33,33,608 | 20,383 | 18,177 | 9,903 | 3,023 | 5,690 | 8,407 |
| 12 | Ranchi | 44,58,413 | 7,480 | 4,861 | 3,735 | 1,077 | 934 | 1,118 |
| 13 | Palamau | 29,70,824 | 73,795 | 65,238 | 43,366 | 5,712 | 6,351 | 5,524 |
| 14 | Hazaribagh | 45,56,550 | 13,593 | 11,913 | 9,785 | 2,706 | 3,828 | 4,609 |
| 15 | Manbhum | 26,20,897 | 2,546 | 452 | 418 | 157 | 162 | 140 |
| 16 | Singhbhum | 20,24,154 | 269 | 123 | 15 | 974 | 1,097 | 191 |
| | Provincial Total | 4,31,73,119 | 14,25,189 | 11,89,228 | 10,19,813 | 2,19,023 | 3,02,867 | 3,39,596 |

TABLE 3—contd.

| Serial no. | Name of district. | Total area of district. | Arhar. | | | Masoor. | | |
|------------|-------------------------|-------------------------|----------|----------|----------|----------|----------|----------|
| | | | 1945-46. | 1946-47. | 1947-48. | 1945-46. | 1946-47. | 1947-48. |
| 1 | 2 | 3 | 34 | 35 | 36 | 37 | 38 | 39 |
| 1 | Patna | 13,57,463 | 30,532 | 14,665 | 22,877 | 1,07,615 | 1,11,246 | 1,13,237 |
| 2 | Gaya | 30,37,230 | 42,540 | 28,980 | 37,004 | 71,791 | 71,907 | 84,051 |
| 3 | Shahabad | 27,41,331 | 62,881 | 27,168 | 52,968 | 62,916 | 64,429 | 65,257 |
| 4 | Saran | 17,15,637 | 1,64,273 | 1,50,048 | 1,55,709 | 16,835 | 16,548 | 17,513 |
| 5 | Champaran | 20,77,787 | 73,707 | 58,409 | 54,771 | 85,127 | 98,946 | 1,15,609 |
| 6 | Muzaffarpur | 19,12,892 | 77,853 | 58,794 | 63,566 | 49,152 | 51,661 | 55,476 |
| 7 | Darbhanga | 21,75,569 | 66,432 | 48,217 | 51,911 | 23,840 | 33,822 | 39,632 |
| 8 | Bhagalpur | 26,72,732 | 44,140 | 37,266 | 32,198 | 8,389 | 10,876 | 11,558 |
| 9 | Monghyr | 25,11,027 | 71,046 | 50,165 | 66,028 | 28,263 | 35,011 | 52,497 |
| 10 | Purnea | 30,07,105 | 40,956 | 18,518 | 14,977 | 17,788 | 14,158 | 19,523 |
| 11 | Santal Parganas | 33,33,608 | 40,917 | 44,932 | 43,261 | 2,621 | 4,303 | 3,917 |
| 12 | Ranchi | 44,58,413 | 32,234 | 53,806 | 53,985 | 3,200 | 2,202 | 1,877 |
| 13 | Palamos | 29,70,824 | 59,937 | 51,604 | 60,703 | 7,505 | 10,016 | 6,905 |
| 14 | Hazaribagh | 45,56,550 | 17,868 | 16,839 | 20,994 | 1,557 | 1,474 | 1,800 |
| 15 | Manbhum | 26,20,897 | 6,573 | 10,597 | 9,897 | 61 | 22 | 23 |
| 16 | Singbhum | 20,24,154 | 3,516 | 7,173 | 6,160 | 2,321 | 2,812 | 1,728 |
| | Provincial Total | 4,3173,119 | 8,24,405 | 6,77,271 | 7,46,994 | 4,88,561 | 5,29,433 | 5,90,653 |

TABLE 3—contd.

| Serial no. | Name of district. | Total area of district. | Khesari. | | | Other pulses. | | |
|------------|----------------------|-------------------------|-----------|-----------|-----------|---------------|----------|----------|
| | | | 1945-46. | 1946-47. | 1947-48. | 1945-46. | 1946-47. | 1947-48. |
| 1 | 2 | 3 | 40 | 41 | 42 | 43 | 44 | 45 |
| 1 | Patna ... | 13,57,463 | 3,43,995 | 4,00,202 | 3,12,432 | 393 | 737 | 8 |
| 2 | Gaya ... | 30,37,230 | 3,35,032 | 4,07,177 | 3,23,380 | 1,624 | 1,084 | 761 |
| 3 | Shahabad ... | 27,41,331 | 4,01,857 | 4,69,905 | 4,83,350 | 5 | 260 | 109 |
| 4 | Saran ... | 17,15,537 | 24,577 | 19,962 | 22,855 | 917 | 648 | 476 |
| 5 | Champan ... | 20,77,787 | 53,384 | 64,879 | 89,075 | 6,342 | 5,032 | 5,776 |
| 6 | Muzaffarpur ... | 19,12,892 | 1,93,296 | 2,35,838 | 2,88,300 | 11,652 | 16,234 | 17,964 |
| 7 | Darbhanga ... | 21,75,569 | 1,06,932 | 1,64,141 | 1,80,405 | 5,740 | 3,853 | 4,021 |
| 8 | Bhagalpur ... | 26,72,732 | 1,12,373 | 1,98,293 | 2,18,925 | 13,776 | 105 | 123 |
| 9 | Monghyr ... | 25,11,027 | 1,32,843 | 1,85,892 | 1,81,826 | 487 | 553 | 370 |
| 10 | Purnea ... | 30,07,105 | 72,805 | 92,830 | 1,10,079 | 547 | 283 | 475 |
| 11 | Santal Parganas ... | 33,33,608 | 82,139 | 1,16,091 | 84,619 | 256 | 19 | 34 |
| 12 | Ranchi ... | 44,58,413 | 5,576 | 5,248 | 4,535 | 353 | 567 | 670 |
| 13 | Palamau ... | 29,70,824 | 22,598 | 29,034 | 22,777 | 147 | 226 | 199 |
| 14 | Hazaribagh ... | 45,56,550 | 5,088 | 5,411 | 5,615 | 289 | 84 | 212 |
| 15 | Manbhuan ... | 26,20,897 | 4,306 | 2,972 | 2,602 | 22 | 269 | 263 |
| 16 | Singhbhum ... | 20,24,154 | 8,189 | 10,807 | 12,138 | 2,635 | 10,587 | 10,985 |
| | Provincial Total ... | 4,31,73,119 | 19,04,970 | 24,08,432 | 23,42,913 | 45,186 | 40,541 | 42,450 |

TABLE 3—contd.

| Serial no. | Name of district. | Total area of district. | Sugarcane. | | | Potato. | | |
|------------|----------------------|-------------------------|------------|----------|----------|----------|----------|----------|
| | | | 1945-46. | 1946-47. | 1947-48. | 1945-46. | 1946-47. | 1947-48. |
| 1 | 2 | 3 | 46 | 47 | 48 | 49 | 50 | 51 |
| 1 | Patna ... | 13,57,463 | 3,202 | 126 | 95 | 14,909 | 11,452 | 11,934 |
| 2 | Gaya ... | 30,37,230 | 2,684 | 438 | 210 | 6,359 | 6,363 | 6,765 |
| 3 | Shahabad ... | 27,41,331 | 2,157 | 170 | 42 | 7,451 | 5,827 | 7,288 |
| 4 | Saran ... | 17,15,587 | 17,569 | 4,210 | 1,830 | 12,901 | 13,823 | 15,467 |
| 5 | Champan ... | 20,77,787 | 21,051 | 3,665 | 3,354 | 3,572 | 2,347 | 2,332 |
| 6 | Muzaffarpur ... | 19,12,892 | 7,538 | 1,887 | 1,232 | 8,218 | 6,464 | 6,755 |
| 7 | Darbhanga ... | 21,75,569 | 7,860 | 1,584 | 601 | 5,496 | 5,239 | 4,581 |
| 8 | Bhagalpur ... | 26,72,732 | 1,390 | 141 | 100 | 5,668 | 4,794 | 3,235 |
| 9 | Monghar ... | 25,11,027 | 3,188 | 503 | 465 | 4,670 | 3,899 | 4,114 |
| 10 | Purnea ... | 30,07,105 | 1,288 | 959 | 586 | 9,253 | 7,282 | 6,401 |
| 11 | Santal Parganas ... | 33,33,608 | 707 | 135 | 76 | 1,182 | 1,563 | 1,294 |
| 12 | Ranchi ... | 41,58,413 | 123 | 66 | 25 | 2,554 | 2,882 | 3,151 |
| 13 | Palamu ... | 29,70,824 | 853 | 75 | 78 | 926 | 662 | 951 |
| 14 | Hazaribagh ... | 45,56,550 | 666 | 178 | 58 | 5,268 | 5,913 | 6,256 |
| 15 | Manbhum ... | 26,20,897 | 374 | 118 | 81 | 353 | 344 | 373 |
| 16 | Singbhum ... | 20,24,154 | 33 | 13 | 3 | 25 | 49 | 35 |
| | Provincial Total ... | 4,31,73,119 | 71,083 | 14,088 | 8,856 | 88,795 | 79,283 | 81,049 |

TABLE 3—contd.

| Serial no. | Name of district. | Total area of district. | Other vegetables. | | | Oilseeds. | | |
|------------|----------------------|-------------------------|-------------------|----------|----------|-----------|----------|----------|
| | | | 1945-46. | 1946-47. | 1947-48. | 1945-46. | 1946-47 | 1947-48. |
| 1 | 2 | 3 | 52 | 53 | 54 | 55 | 56 | 57 |
| 1 | Patna ... | 13,57,463 | 1,010 | 396 | 358 | 13,979 | 16,040 | 15,386 |
| 2 | Gaya ... | 30,37,230 | 2,641 | 571 | 632 | 54,781 | 71,796 | 62,023 |
| 3 | Shahabad ... | 27,41,331 | 969 | 635 | 815 | 58,358 | 86,195 | 70,058 |
| 4 | Saran ... | 17,15,537 | 1,587 | 1,251 | 1,152 | 34,741 | 25,113 | 27,211 |
| 5 | Champan ... | 20,77,787 | 1,096 | 1,131 | 1,075 | 68,020 | 67,721 | 83,244 |
| 6 | Muzaffarpur ... | 19,12,892 | 2,355 | 1,816 | 1,619 | 61,675 | 62,187 | 78,993 |
| 7 | Darbhanga ... | 21,75,589 | 820 | 654 | 834 | 40,186 | 46,641 | 57,870 |
| 8 | Bhagalpur ... | 26,72,732 | 1,842 | 720 | 647 | 1,12,109 | 1,32,180 | 92,278 |
| 9 | Monghyr ... | 25,11,027 | 758 | 328 | 397 | 29,936 | 32,321 | 29,135 |
| 10 | Purnea ... | 30,07,105 | 3,675 | 1,426 | 1,373 | 2,07,134 | 1,70,331 | 1,42,265 |
| 11 | Santal Parganas ... | 33,33,608 | 1,021 | 1,244 | 1,251 | 57,584 | 61,178 | 43,985 |
| 12 | Ranchi ... | 44,58,413 | 1,671 | 2,800 | 2,951 | 16,871 | 18,995 | 17,115 |
| 13 | Palamau ... | 29,70,324 | 284 | 255 | 247 | 38,326 | 62,029 | 33,358 |
| 14 | Hazaribagh ... | 45,56,550 | 1,125 | 1,474 | 1,333 | 42,273 | 51,886 | 48,573 |
| 15 | Manbhum ... | 26,20,897 | 2,550 | 3,346 | 3,482 | 9,871 | 12,424 | 10,667 |
| 16 | Singhbhum ... | 20,24,154 | 1,210 | 1,379 | 1,411 | 15,207 | 17,737 | 15,606 |
| | Provincial Total ... | 4,31,73,119 | 24,614 | 19,426 | 20,077 | 8,61,051 | 9,34,774 | 8,27,767 |

TABLE 3—contd.

| Serial no. | Name of district. | Total area of district. | Tobacco. | | | Chillies. | | |
|------------|----------------------|-------------------------|----------|----------|----------|-----------|----------|----------|
| | | | 1945-46. | 1946-47. | 1947-48. | 1945-46. | 1946-47. | 1947-48. |
| 1 | 2 | 3 | 58 | 59 | 60 | 61 | 62 | 63 |
| 1 | Patna ... | 18,57,463 | 1,127 | 971 | 716 | 4,482 | 5,452 | 5,367 |
| 2 | Gaya ... | 30,37,330 | 444 | 49 | 20 | 2,817 | 2,127 | 2,200 |
| 3 | Shahabad ... | 27,41,331 | 114 | 74 | 67 | 1,136 | 1,072 | 1,288 |
| 4 | Saran ... | 17,15,537 | 1,851 | 619 | 924 | 888 | 628 | 644 |
| 5 | Champanan ... | 20,77,787 | 728 | 639 | 733 | 850 | 481 | 721 |
| 6 | Muzaffarpur ... | 19,12,892 | 17,867 | 16,542 | 16,413 | 9,190 | 11,283 | 11,867 |
| 7 | Darbhanga ... | 21,75,569 | 11,054 | 11,651 | 9,898 | 43,602 | 50,304 | 50,822 |
| 8 | Bhagalpur ... | 26,72,732 | 2,589 | 2,228 | 1,947 | 1,630 | 2,148 | 1,510 |
| 9 | Monghyr ... | 25,11,027 | 2,532 | 885 | 1,141 | 22,815 | 31,298 | 29,304 |
| 10 | Purnea ... | 30,07,105 | 26,955 | 17,716 | 18,732 | 5,449 | 5,700 | 4,255 |
| 11 | Santal Parganas ... | 33,33,608 | 1,005 | 894 | 861 | 332 | 407 | 449 |
| 12 | Ranchi ... | 44,58,418 | 603 | 533 | 618 | 172 | 205 | 221 |
| 13 | Palamau ... | 29,70,824 | 51 | 11 | 8 | 901 | 880 | 982 |
| 14 | Hazaribagh ... | 45,56,550 | 746 | 280 | 401 | 692 | 860 | 985 |
| 15 | Manbhum ... | 26,20,897 | 580 | 604 | 504 | 144 | 161 | 182 |
| 16 | Singhbhum ... | 20,24,154 | 211 | 202 | 164 | 59 | 108 | 116 |
| | Provincial Total ... | 4,31,73,119 | 67,957 | 53,898 | 53,147 | 94,096 | 1,22,262 | 1,10,673 |

TABLE 3—contd.

| Serial no. | Name of district. | Total area of district. | Other spices. | | | Other crops. | | |
|------------|------------------------|-------------------------|---------------|----------|----------|--------------|----------|----------|
| | | | 1945-46. | 1946-47. | 1947-48. | 1945-46. | 1946-47. | 1947-48. |
| 1 | 2 | 3 | 64 | 65 | 66 | 67 | 68 | 69 |
| 1 | Patna | 13,57,463 | 1,298 | 1,361 | 573 | 3,185 | 2,221 | 2,037 |
| 2 | Gaya | 30,37,230 | 2,085 | 1,479 | 1,148 | 17,268 | 827 | 501 |
| 3 | Shahabad | 27,41,381 | 26,678 | 18,540 | 9,649 | 3,865 | 1,780 | 2,372 |
| 4 | Saran | 17,15,537 | 2,435 | 1,997 | 1,462 | 9,777 | 14,820 | 14,994 |
| 5 | Champan | 20,77,787 | 11,398 | 10,350 | 8,583 | 14,068 | 14,040 | 17,562 |
| 6 | Muzaffarpur | 19,12,892 | 6,559 | 8,129 | 4,351 | 99,575 | 54,619 | 55,304 |
| 7 | Darbhanga | 21,75,569 | 2,690 | 3,397 | 2,501 | 30,532 | 23,444 | 27,680 |
| 8 | Bhagalpur | 26,72,732 | 430 | 1,144 | 558 | 8,428 | 7,019 | 8,343 |
| 9 | Monghyr | 25,11,027 | 1,717 | 958 | 903 | 9,265 | 10,303 | 15,065 |
| 10 | Purnea | 30,07,105 | 2,422 | 2,606 | 2,483 | 11,002 | 7,338 | 11,248 |
| 11 | Santal Parganas | 33,33,608 | 286 | 327 | 319 | 3,095 | 978 | 643 |
| 12 | Ranchi | 44,58,413 | 811 | 660 | 446 | 3,279 | 777 | 989 |
| 13 | Palamu | 29,70,824 | 1,137 | 1,314 | 725 | 234 | 273 | 185 |
| 14 | Hazaribagh | 45,66,560 | 636 | 726 | 611 | 117 | 316 | 336 |
| 15 | Manbhum | 26,20,897 | 607 | 290 | 438 | 85 | 44 | 37 |
| 16 | Singbhum | 20,24,154 | 50 | 115 | 85 | 351 | 303 | 225 |
| | Provincial Total ... | 4,31,73,119 | 61,234 | 53,483 | 34,833 | 2,14,076 | 1,39,607 | 1,57,520 |

TABLE 3—concl'd.

| Serial no. | Name of district. | Total area of district. | Total cropped area. | | | Remarks. |
|------------|------------------------|-------------------------|---------------------|-------------|-----------|----------|
| | | | 1945-46. | 1946-47. | 1947-48. | |
| 1 | 2 | 3 | 70 | 71 | 72 | 73 |
| 1 | Patna | 18,57,463 | 9,77,853 | 9,55,677 | 7,87,284 | |
| 2 | Gaya | 20,87,330 | 12,26,697 | 12,21,927 | 10,81,108 | |
| 3 | Shahabad | 27,41,831 | 15,16,416 | 14,64,652 | 14,10,405 | |
| 4 | Saran | 17,15,531 | 9,59,201 | 8,90,279 | 8,70,565 | |
| 5 | Champan | 20,77,787 | 7,56,370 | 7,00,220 | 7,15,024 | |
| 6 | Muzaffarpur | 19,12,892 | 10,79,946 | 9,77,813 | 9,99,881 | |
| 7 | Darbhanga | 21,75,569 | 7,05,869 | 7,68,793 | 7,25,851 | |
| 8 | Bhagalpur | 26,72,732 | 7,84,546 | 8,44,109 | 6,84,656 | |
| 9 | Monghyr | 25,11,027 | 9,41,907 | 9,49,994 | 1,040,797 | |
| 10 | Purnea | 30,07,105 | 7,07,909 | 4,98,883 | 4,63,198 | |
| 11 | Santel Parganas | 33,33,608 | 2,71,629 | 3,07,325 | 2,36,081 | |
| 12 | Ranchi | 44,58,413 | 1,18,000 | 1,23,746 | 1,09,198 | |
| 13 | Palaman | 29,70,824 | 3,95,863 | 3,90,778 | 3,03,478 | |
| 14 | Hazaribagh | 45,58,550 | 1,32,133 | 1,36,130 | 1,30,740 | |
| 15 | Manbhum | 26,20,897 | 41,485 | 49,125 | 84,300 | |
| 16 | Singhbhum | 20,24,154 | 59,405 | 74,204 | 61,775 | |
| | Provincial Total ... | 4,31,73,119 | 1,06,74,334 | 1,03,43,655 | 96,34,379 | |

TAB

Statement showing the area under Garma crop and yearly classification of complete enumeration

| Serial no. | District and division. | Total no. of villages in district and division. | Total areas of the district and division. | Area under Bhadaï crops. | | |
|------------|---------------------------|---|---|--------------------------|-----------|-----------|
| | | | | 1945-46. | 1946-47. | 1947-48. |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 1 | Patna ... | 2,606 | 13,57,463 | 82,441 | 97,630 | 1,17,639 |
| 2 | Gaya ... | 6,855 | 30,37,230 | 1,39,996 | 1,19,551 | 1,23,213 |
| 3 | Shahabad ... | 6,079 | 27,41,331 | 81,554 | 95,373 | 1,02,046 |
| | 1. Patna Division | 15,540 | 71,35,024 | 3,03,991 | 3,12,554 | 3,47,898 |
| 4 | Saran ... | 4,895 | 17,15,537 | 3,56,731 | 5,10,717 | 5,88,972 |
| 5 | Champanan ... | 2,851 | 20,77,787 | 4,11,932 | 4,70,848 | 4,59,552 |
| 6 | Muzaffarpur ... | 4,519 | 19,12,892 | 3,82,204 | 3,48,219 | 3,56,511 |
| 7 | Darbhanga ... | 3,704 | 21,75,569 | 3,04,831 | 3,68,706 | 3,39,799 |
| | 2. Tirhut Division | 15,969 | 78,81,785 | 14,55,698 | 16,93,485 | 17,44,834 |
| 8 | Bhagalpur ... | 4,116 | 26,72,782 | 4,77,417 | 3,82,537 | 4,63,293 |
| 9 | Monghyr ... | 3,820 | 25,11,027 | 2,33,744 | 2,08,994 | 2,80,145 |
| 10 | Purnea ... | 5,287 | 30,07,105 | 5,74,315 | 5,17,939 | 5,49,848 |
| 11 | Santal Parganas. | 11,522 | 33,33,608 | 1,52,495 | 2,39,537 | 2,41,181 |
| | 3. Bhagalpur Division | 25,045 | 1,15,24,472 | 14,37,971 | 13,49,007 | 15,84,467 |
| 12 | Ranchi ... | 3,954 | 44,58,413 | 6,32,483 | 5,93,816 | 6,22,471 |
| 13 | Palamau ... | 3,602 | 29,70,824 | 2,01,443 | 1,99,173 | 2,08,489 |
| 14 | Hazaribagh ... | 7,110 | 45,56,550 | 2,42,262 | 2,62,124 | 2,88,285 |
| 15 | Manbhum ... | 4,843 | 26,20,897 | 1,22,031 | 1,23,599 | 1,18,398 |
| 16 | Singhbhum ... | 3,234 | 20,24,154 | 1,42,883 | 1,98,864 | 1,80,902 |
| | 4. Chota Nagpur Division. | 22,743 | 1,66,30,838 | 13,41,102 | 13,77,576 | 14,18,445 |
| | Province ... | 79,297 | 4,31,73,119 | 45,33,762 | 47,32,622 | 50,45,644 |

LE 4.

arears for the years 1945-46, 1946-47 and 1947-48 (in acres) as obtained by survey.

| Area under Aghani crops. | | | Area under Rabi crops. | | |
|--------------------------|-------------|-------------|------------------------|-------------|-----------|
| 1945-46. | 1946-47. | 1947-48. | 1945-46. | 1946-47. | 1947-48. |
| 8 | 9 | 10 | 11 | 12 | 13 |
| 6,81,659 | 6,07,441 | 6,74,811 | 9,77,358 | 9,55,677 | 7,87,284 |
| 11,21,639 | 10,05,788 | 10,98,448 | 12,26,697 | 12,21,927 | 10,61,106 |
| 10,88,761 | 10,98,988 | 12,17,796 | 15,18,416 | 14,64,652 | 14,10,405 |
| 27,91,959 | 27,10,197 | 28,91,055 | 37,20,471 | 36,42,256 | 32,58,795 |
| 3,30,668 | 3,74,873 | 4,15,928 | 9,59,201 | 8,90,279 | 8,70,555 |
| 7,46,875 | 7,30,990 | 8,10,483 | 7,56,370 | 7,00,220 | 7,15,024 |
| 7,19,433 | 8,00,782 | 8,42,827 | 10,79,946 | 9,77,813 | 9,99,881 |
| 7,76,483 | 9,95,963 | 10,89,503 | 7,05,869 | 7,68,793 | 7,25,851 |
| 25,73,459 | 29,02,608 | 31,58,741 | 35,00,886 | 33,37,105 | 33,11,321 |
| 7,12,434 | 9,73,587 | 9,34,638 | 7,84,546 | 8,44,109 | 6,84,658 |
| 6,76,836 | 6,02,550 | 6,47,248 | 9,41,907 | 9,49,994 | 10,40,797 |
| 10,05,526 | 11,19,605 | 12,11,299 | 7,07,999 | 4,98,883 | 4,63,198 |
| 13,56,229 | 14,76,991 | 15,03,687 | 2,71,629 | 3,07,325 | 2,36,081 |
| 36,50,825 | 41,72,733 | 42,96,867 | 27,05,991 | 26,00,311 | 24,24,732 |
| 9,19,122 | 11,48,475 | 11,89,244 | 1,18,000 | 1,23,746 | 1,09,128 |
| 2,69,277 | 3,03,213 | 3,10,636 | 3,65,863 | 3,90,778 | 3,03,478 |
| 7,36,984 | 8,47,976 | 8,33,454 | 1,32,133 | 1,36,130 | 1,30,740 |
| 8,85,491 | 10,27,552 | 10,17,442 | 41,485 | 39,125 | 34,390 |
| 6,66,328 | 5,40,534 | 6,31,119 | 59,405 | 74,204 | 61,775 |
| 33,77,202 | 38,67,750 | 39,81,895 | 7,46,886 | 7,63,983 | 6,39,511 |
| 1,23,93,445 | 1,36,53,268 | 1,43,28,558 | 1,06,74,234 | 1,03,43,655 | 96,34,369 |

TABLE

| Serial no. | District, and division. | Total no. of villages of district and division. | Total area in the district and division. | Area under Garma (Zaid) crops. | | |
|------------|---------------------------|---|--|--------------------------------|----------|----------|
| | | | | 1945-46. | 1946-47. | 1947-48. |
| 1 | 2 | 3 | 4 | 14 | 15 | 16 |
| 1 | Patna ... | 2,606 | 13,57,463 | 7,629 | 5,939 | 5,512 |
| 2 | Gaya ... | 6,855 | 30,27,230 | 3,666 | 5,702 | 5,122 |
| 3 | Shahabad ... | 6,079 | 27,41,331 | 3,955 | 3,421 | 5,359 |
| | 1. Patna Division | 15,540 | 71,36,024 | 15,190 | 15,062 | 15,993 |
| 4 | Saran ... | 4,895 | 17,15,537 | 3,741 | 19,143 | 20,330 |
| 5 | Champan ... | 2,851 | 20,77,787 | 1,419 | 8,917 | 12,275 |
| 6 | Muzaffarpur ... | 4,519 | 19,12,892 | 9,289 | 75,244 | 80,972 |
| 7 | Darbhanga ... | 3,764 | 21,75,569 | 4,737 | 25,501 | 32,948 |
| | 2. Tirhut Division | 15,969 | 78,81,785 | 19,186 | 1,28,805 | 1,46,525 |
| 8 | Bhagalpur ... | 4,116 | 26,72,732 | 1,516 | 40,958 | 33,258 |
| 9 | Monghyr ... | 3,820 | 25,11,027 | 3,438 | 51,039 | 46,228 |
| 10 | Purnea ... | 5,287 | 30,07,105 | 6,573 | 16,726 | 6,873 |
| 11 | Santal Parganas. | 11,822 | 33,33,608 | 354 | 1,802 | 1,775 |
| | 3. Bhagalpur Division. | 25,045 | 1,15,24,472 | 11,881 | 1,10,525 | 88,134 |
| 12 | Ranchi ... | 3,954 | 44,58,413 | 1,979 | 2,967 | 2,968 |
| 13 | Palamau ... | 3,602 | 29,70,824 | 282 | 908 | 823 |
| 14 | Hazaribagh ... | 7,110 | 45,56,550 | 1,220 | 1,670 | 1,412 |
| 15 | Manbhum ... | 4,843 | 26,20,897 | 764 | 1,207 | 894 |
| 16 | Singbhum ... | 3,234 | 20,24,154 | 120 | 648 | 514 |
| | 4. Chota Nagpur Division. | 22,743 | 1,66,30,838 | 4,365 | 7,400 | 6,611 |
| | Province ... | 79,297 | 4,31,73,119 | 50,622 | 2,61,792 | 2,57,263 |

4—contd.

| Total areas sown. | | | Area sown more than once. | | |
|-------------------|-------------|-------------|---------------------------|-----------|-----------|
| 1946-46. | 1946-47. | 1947-48. | 1946-46. | 1946-47. | 1947-48. |
| 17 | 18 | 19 | 20 | 21 | 22 |
| 16,48,987 | 16,86,887 | 14,85,246 | 9,17,677 | 5,79,847 | 4,25,617 |
| 24,91,938 | 23,52,968 | 22,92,889 | 4,35,024 | 4,26,122 | 4,79,150 |
| 26,90,686 | 26,60,414 | 27,35,606 | 9,54,267 | 9,07,749 | 10,45,551 |
| 68,31,611 | 66,80,069 | 65,13,741 | 23,06,968 | 19,13,718 | 19,50,318 |
| 16,50,341 | 17,95,012 | 18,95,795 | 4,07,305 | 5,58,511 | 6,64,249 |
| 19,16,596 | 19,10,970 | 19,97,334 | 3,63,775 | 5,86,495 | 5,96,816 |
| 21,90,872 | 21,97,058 | 22,80,191 | 6,13,512 | 6,96,736 | 8,24,089 |
| 17,91,420 | 21,58,963 | 21,88,101 | 1,57,040 | 6,62,945 | 6,18,227 |
| 75,49,229 | 80,62,003 | 83,61,421 | 15,41,632 | 25,04,687 | 27,03,381 |
| 19,75,913 | 22,41,191 | 21,15,845 | 3,07,883 | 8,46,783 | 5,62,592 |
| 17,55,725 | 18,12,577 | 20,14,418 | 1,97,441 | 30,045 | 5,00,197 |
| 22,94,323 | 21,53,153 | 22,31,218 | 8,79,413 | 6,47,773 | 6,54,486 |
| 17,80,707 | 20,25,655 | 19,82,724 | 2,11,777 | 2,92,953 | 3,36,139 |
| 78,08,668 | 82,32,576 | 83,44,209 | 15,96,514 | 18,17,554 | 20,53,414 |
| 16,71,684 | 18,69,004 | 19,23,811 | 97,907 | 3,749 | 19,455 |
| 8,66,865 | 8,94,072 | 8,23,426 | 2,69,276 | 2,80,774 | 1,58,127 |
| 11,12,599 | 12,47,900 | 12,53,891 | 1,00,180 | 65,479 | 1,42,737 |
| 10,49,771 | 11,91,483 | 11,71,024 | 48,412 | 66,767 | 1,19,501 |
| 7,83,736 | 8,14,250 | 8,74,310 | 2,68,966 | 45,620 | 1,68,938 |
| 54,69,555 | 60,16,709 | 60,46,462 | 7,84,761 | 4,62,369 | 6,08,758 |
| 2,76,57,063 | 2,89,91,357 | 2,92,65,824 | 62,29,875 | 66,98,348 | 73,15,871 |

TABLE

| Serial no. | District and division. | Total no. of villages in district and division. | Total area of the district and division. | Total net area sown. | | |
|------------|---------------------------|---|--|----------------------|-------------|-------------|
| | | | | 1945-46. | 1946-47. | 1947-48. |
| 1 | 2 | 3 | 4 | 23 | 24 | 25 |
| 1 | Patna ... | 2,606 | 13,57,463 | 7,31,310 | 10,86,840 | 10,59,629 |
| 2 | Gaya ... | 6,855 | 30,37,230 | 20,56,914 | 19,26,846 | 18,93,739 |
| 3 | Shahabad ... | 6,079 | 27,41,331 | 17,36,419 | 17,52,665 | 16,90,055 |
| | 1. Patna division | 15,540 | 71,36,024 | 45,24,643 | 47,66,351 | 45,63,423 |
| 4 | Saran ... | 4,895 | 17,15,537 | 12,43,036 | 12,36,501 | 12,31,516 |
| 5 | Champan ... | 2,851 | 20,77,787 | 15,52,821 | 13,24,475 | 14,00,518 |
| 6 | Muzaffarpur... | 4,519 | 19,12,892 | 15,77,360 | 15,00,322 | 14,56,102 |
| 7 | Darbhanga ... | 3,704 | 21,75,569 | 16,34,380 | 14,96,018 | 15,69,874 |
| | 1. Tirhut division | 15,969 | 78,81,785 | 60,07,597 | 55,57,316 | 56,58,040 |
| 8 | Bhagalpur ... | 4,116 | 26,72,732 | 16,68,030 | 13,94,408 | 15,53,253 |
| 9 | Monghyr ... | 3,820 | 25,11,027 | 15,58,234 | 17,82,532 | 15,14,216 |
| 10 | Purnea ... | 5,287 | 30,07,105 | 14,14,910 | 15,05,380 | 15,76,732 |
| 11 | Santal parganas | 11,822 | 38,33,608 | 15,68,930 | 17,32,702 | 16,46,585 |
| | 3. Bhagalpur Division. | 25,045 | 1,15,24,472 | 62,10,154 | 64,15,022 | 62,90,786 |
| 12 | Ranchi ... | 3,954 | 44,58,413 | 15,73,677 | 18,65,255 | 19,04,356 |
| 13 | Palamu ... | 3,602 | 29,70,824 | 5,97,589 | 6,13,298 | 6,65,299 |
| 14 | Hazaribagh ... | 7,110 | 45,56,550 | 10,12,419 | 11,82,421 | 11,11,154 |
| 15 | Manbhum ... | 4,843 | 26,20,897 | 10,01,359 | 11,24,718 | 10,51,523 |
| 16 | Singhbhum ... | 3,234 | 20,24,154 | 4,99,750 | 7,68,630 | 7,05,873 |
| | 4. Chota Nagpur Division, | 22,743 | 1,66,30,838 | 46,84,794 | 55,54,320 | 54,37,704 |
| | Province ... | 79,297 | 4,31,73,119 | 2,14,27,188 | 2,22,93,009 | 2,19,49,953 |

4—contd.

| Area under Orchard. | | | Current Fallow. | | |
|---------------------|----------|----------|-----------------|-----------|-----------|
| 1945-46. | 1946-47. | 1947-48. | 1945-46. | 1946-47. | 1947-48. |
| 26 | 27 | 28 | 29 | 30 | 31 |
| 22,474 | 23,994 | 20,480 | 4,07,555 | 49,065 | 85,301 |
| 18,452 | 12,152 | 11,860 | 1,45,755 | 2,14,892 | 3,08,404 |
| 43,324 | 39,822 | 42,847 | 89,697 | 62,306 | 93,757 |
| 79,250 | 75,969 | 76,167 | 6,48,007 | 3,27,863 | 4,87,462 |
| 69,434 | 73,448 | 71,469 | 1,30,805 | 1,42,635 | 1,42,881 |
| 42,742 | 43,261 | 42,434 | 1,39,532 | 2,34,324 | 1,70,799 |
| 58,901 | 66,744 | 68,464 | 72,875 | 89,522 | 1,00,475 |
| 67,170 | 83,232 | 79,921 | 1,08,163 | 1,80,370 | 1,53,381 |
| 3,38,248 | 2,65,685 | 2,62,238 | 4,51,378 | 6,46,851 | 6,67,536 |
| 24,160 | 31,831 | 28,948 | 2,29,843 | 2,35,617 | 2,03,357 |
| 22,540 | 26,278 | 22,145 | 1,89,538 | 85,662 | 1,41,998 |
| 45,365 | 31,540 | 31,246 | 6,78,795 | 6,18,815 | 5,58,190 |
| 5,152 | 4,755 | 4,628 | 2,88,649 | 4,14,626 | 4,26,706 |
| 97,217 | 94,454 | 96,967 | 13,87,125 | 13,54,721 | 13,93,261 |
| 23,120 | 22,653 | 22,446 | 6,29,537 | 8,36,019 | 7,71,556 |
| 1,068 | 994 | 1,066 | 3,06,538 | 3,23,993 | 3,52,665 |
| 8,218 | 2,941 | 2,859 | 3,96,267 | 4,17,864 | 4,75,484 |
| 1,774 | 1,512 | 1,777 | 4,20,962 | 3,28,846 | 4,00,500 |
| 287 | 508 | 579 | 4,79,485 | 2,82,050 | 3,06,812 |
| 34,407 | 33,008 | 32,727 | 22,32,700 | 21,88,762 | 23,07,018 |
| 4,42,182 | 4,65,116 | 4,64,169 | 47,14,300 | 45,18,197 | 47,55,267 |

TABLE

| Serial no. | District and division. | Total no. of villages in district and division. | Total area of the district and division. | Culturable waste (other than current fallow). | | |
|------------|---------------------------|---|--|---|-----------|-----------|
| | | | | 1945-46. | 1946-47. | 1947-48. |
| 1 | 2 | 3 | 4 | 32 | 33 | 34 |
| 1 | Patna ... | 2,608 | 13,57,463 | 12,718 | 17,587 | 21,005 |
| 2 | Gaya ... | 6,855 | 30,37,280 | 1,11,990 | 2,18,723 | 1,54,850 |
| 3 | Shahabad ... | 6,079 | 27,41,331 | 67,295 | 71,268 | 79,214 |
| | 1. Patna Division | 15,540 | 71,36,024 | 1,92,003 | 3,07,578 | 2,55,039 |
| 4 | Saran ... | 4,895 | 17,15,537 | 53,526 | 76,015 | 84,751 |
| 5 | Champaran ... | 2,851 | 20,77,787 | 68,972 | 1,42,458 | 1,16,524 |
| 6 | Muzaffarpur ... | 4,519 | 19,12,892 | 35,220 | 70,265 | 74,174 |
| 7 | Darbhanga ... | 3,704 | 21,75,569 | 23,813 | 1,07,727 | 89,619 |
| | 2. Tirhut Division | 15,989 | 78,81,785 | 1,81,531 | 3,96,465 | 3,65,068 |
| 8 | Bhagalpur ... | 4,116 | 26,72,732 | 1,66,985 | 4,18,381 | 3,88,051 |
| 9 | Monghyr ... | 3,820 | 25,11,027 | 79,785 | 1,10,471 | 1,63,656 |
| 10 | Purnea ... | 5,237 | 30,07,105 | 2,70,878 | 3,98,024 | 4,17,939 |
| 11 | Santal Parganas | 11,822 | 33,33,608 | 3,07,463 | 4,17,949 | 4,33,477 |
| | 3. Bhagalpur Division. | 25,045 | 1,15,24,472 | 3,25,111 | 13,44,825 | 13,98,123 |
| 12 | Ranchi ... | 3,954 | 44,58,413 | 3,37,741 | 3,14,134 | 2,76,798 |
| 13 | Palamau ... | 3,602 | 29,70,824 | 2,12,522 | 3,05,071 | 2,30,084 |
| 14 | Hazaribagh ... | 7,110 | 45,56,550 | 3,73,846 | 4,51,700 | 4,98,998 |
| 15 | Manbhum ... | 4,843 | 26,20,897 | 3,03,834 | 3,21,367 | 3,06,348 |
| 16 | Singhbhum ... | 3,234 | 20,24,154 | 3,84,559 | 1,61,834 | 1,33,339 |
| | 4. Chota Nagpur Division. | 22,743 | 1,66,30,838 | 16,12,502 | 15,54,106 | 14,95,567 |
| | Province ... | 79,397 | 4,31,73,119 | 28,11,147 | 36,02,974 | 35,08,827 |

4—contd.

| Other gairmajrua lands (tanks, houses, etc.) | | | Unculturable waste (including forests). | | |
|--|-----------|-----------|---|-----------|-----------|
| 1945-46. | 1946-47. | 1947-48. | 1945-46. | 1946-47. | 1947-48. |
| 35 | 36 | 37 | 38 | 39 | 40 |
| 1,39,939 | 1,62, | 1,27,611 | 43,467 | 16,711 | 43,437 |
| 2,66,377 | 3,26,9 | 3,18,136 | 4,42,742 | 3,37,635 | 4,30,241 |
| 4,18,721 | 4,15,507 | 4,40,180 | 2,85,875 | 3,98,762 | 3,94,278 |
| 8,25,037 | 9,05,155 | 8,85,927 | 8,72,084 | 7,53,108 | 8,67,956 |
| 1,64,714 | 1,46,962 | 1,43,798 | 54,022 | 39,976 | 41,092 |
| 1,52,068 | 1,91,003 | 1,64,062 | 1,21,651 | 1,42,266 | 1,83,450 |
| 1,14,469 | 1,33,947 | 1,42,924 | 54,064 | 52,092 | 70,753 |
| 2,10,902 | 2,57,958 | 2,44,371 | 31,141 | 50,354 | 38,402 |
| 7,42,153 | 7,29,870 | 6,95,155 | 2,60,875 | 2,24,598 | 2,33,697 |
| 2,85,951 | 3,30,690 | 2,00,095 | 2,97,763 | 2,61,755 | 1,96,028 |
| 4,29,258 | 3,00,867 | 4,17,223 | 2,31,322 | 2,05,226 | 2,51,779 |
| 3,78,162 | 2,97,114 | ,95,207 | 2,18,995 | 1,56,232 | 1,27,791 |
| 5,64,939 | 6,05,626 | 5,95,006 | 2,20,999 | 1,57,870 | 1,67,206 |
| 16,58,360 | 15,34,357 | 16,07,541 | 9,69,079 | 7,81,093 | 7,42,604 |
| 6,02,394 | 6,76,531 | 7,05,189 | 7,60,640 | 7,44,421 | 7,76,068 |
| 4,84,634 | 4,04,413 | 3,01,733 | 13,68,473 | 13,23,055 | 14,19,977 |
| 7,99,502 | 6,24,778 | 6,21,458 | 16,49,904 | 18,76,856 | 18,46,597 |
| 4,92,896 | 6,36,496 | 6,28,101 | 2,71,032 | 2,07,969 | 2,32,648 |
| 6,21,336 | 7,37,048 | 7,26,222 | 38,737 | 74,084 | 1,01,859 |
| 30,00,762 | 30,79,266 | 29,82,703 | 40,88,786 | 42,26,376 | 43,79,119 |
| 62,26,312 | 62,48,648 | 61,71,326 | 61,90,827 | 60,45,175 | 62,23,576 |

TABLE 4—concl'd.

| Serial no. | District and division. | Total no. of villages in district and division. | Total area of the district and division. | Total waste land. | | |
|------------|---------------------------|---|--|-------------------|-------------|-------------|
| | | | | 1945-46. | 1946-47. | 1947-48. |
| 1 | 2 | 3 | 4 | 41 | 42 | 43 |
| 1 | Patna ... | 2,606 | 13,57,463 | 6,03,679 | 2,46,629 | 2,77,354 |
| 2 | Gaya ... | 6,855 | 30,37,230 | 9,66,864 | 10,98,232 | 12,11,631 |
| 3 | Shahabad ... | 6,079 | 27,41,331 | 9,61,588 | 9,48,843 | 10,07,429 |
| | 1. Patna Division | 15,540 | 71,36,024 | 25,32,131 | 22,93,704 | 24,96,414 |
| 4 | Saran ... | 4,895 | 17,15,537 | 4,03,067 | 4,05,588 | 4,12,522 |
| 5 | Champanan ... | 2,851 | 20,77,787 | 4,82,223 | 7,10,051 | 6,34,835 |
| 6 | Muzaffarpur ... | 4,519 | 19,12,892 | 2,76,631 | 3,45,826 | 3,88,326 |
| 7 | Darbhanga ... | 3,704 | 21,75,569 | 4,74,019 | 5,96,319 | 5,25,773 |
| | 2. Tirhut Division | 15,969 | 78,51,785 | 16,35,940 | 20,57,784 | 19,61,456 |
| 8 | Bhagalpur ... | 4,116 | 26,72,732 | 9,80,542 | 12,46,443 | 10,90,531 |
| 9 | Monghyr ... | 8,820 | 25,11,027 | 9,30,207 | 7,02,217 | 9,64,666 |
| 10 | Purnea ... | 5,287 | 30,07,105 | 15,46,830 | 14,70,185 | 13,99,127 |
| 11 | Santal Parganas. | 11,822 | 23,33,808 | 13,82,100 | 15,96,151 | 16,82,395 |
| | 3. Bhagalpur Division. | 25,045 | 1,15,24,472 | 49,39,675 | 50,14,996 | 51,36,719 |
| 12 | Ranchi ... | 3,954 | 44,58,413 | 23,30,212 | 25,71,105 | 25,31,611 |
| 13 | Palamau ... | 3,602 | 29,70,824 | 23,72,167 | 23,56,532 | 23,04,459 |
| 14 | Hazaribagh ... | 7,110 | 45,56,550 | 32,19,519 | 33,71,188 | 34,42,537 |
| 15 | Manbhum ... | 4,843 | 26,20,897 | 14,88,725 | 14,94,669 | 15,67,597 |
| 16 | Singhbhum ... | 3,234 | 20,24,154 | 15,24,117 | 12,55,016 | 13,18,203 |
| | 4. Chota Nagpur Division. | 22,743 | 1,66,30,838 | 1,09,34,840 | 1,10,48,510 | 1,11,64,407 |
| | Province ... | 79,297 | 4,31,73,119 | 1,99,42,586 | 2,04,14,994 | 2,07,58,996 |

TABLE 5.

Statement showing the average yield (in maunds per acre) of Bhadai crops.
Estimated during the survey of 1945-46, 1946-47 and 1947-48.

| Serial no. | Name of district. | By crop-cutting experiment. | | | By eye-estimation. | | | | | |
|------------|-------------------|-----------------------------|----------|----------|--------------------|----------|----------|----------|----------|----------|
| | | Paddy. | | | Paddy. | | | Maize. | | |
| | | 1945-46. | 1946-47. | 1947-48. | 1945-46. | 1946-47. | 1947-48. | 1945-46. | 1946-47. | 1947-48. |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
| 1 | Patna ... | ... | ... | ... | 8.12 | 9.84 | 8.12 | 7.00 | 6.78 | 6.20 |
| 2 | Gaya ... | ... | ... | ... | 6.75 | 4.82 | 7.50 | 7.87 | 8.60 | 6.96 |
| 3 | Shahabad ... | ... | 5.80 | 5.67 | ... | 6.24 | 7.14 | ... | 9.61 | 4.92 |
| 4 | Saran ... | ... | 5.99 | 11.00 | 8.66 | 5.87 | 8.67 | 9.72 | 5.94 | 6.11 |
| 5 | Champaran ... | 9.68 | 8.84 | 9.25 | ... | 9.24 | 10.80 | ... | 7.14 | 6.60 |
| 6 | Muzaffarpur ... | ... | 8.56 | 10.93 | 10.79 | 9.12 | 8.04 | 8.44 | 6.63 | 6.59 |
| 7 | Darbhanga ... | ... | 11.19 | 7.91 | 9.52 | 8.10 | 7.60 | 6.86 | 8.08 | 8.24 |
| 8 | Bhagalpur ... | ... | 6.28 | 7.02 | ... | 7.22 | 7.55 | ... | 7.12 | 6.44 |
| 9 | Monghyr ... | ... | ... | ... | 7.26 | 4.68 | 6.18 | 6.68 | 5.92 | 7.16 |
| 10 | Purnea ... | 7.33 | 10.55 | 9.08 | 7.96 | 8.80 | 7.38 | 7.87 | 6.93 | 7.45 |
| 11 | S. Parganas ... | 8.88 | 6.45 | 7.93 | 10.26 | 8.89 | 7.25 | 7.74 | 8.98 | 5.80 |
| 12 | Ranchi ... | 5.62 | 6.32 | 6.81 | 7.71 | 7.52 | 8.31 | 6.48 | 5.60 | 8.10 |
| 13 | Palamau ... | 8.13 | 7.96 | 4.87 | 9.82 | 6.70 | 8.27 | 10.96 | 5.81 | 12.07 |
| 14 | Hazaribagh ... | ... | ... | ... | 7.46 | 9.24 | 11.74 | 7.77 | 6.41 | 10.15 |
| 15 | Manbhum ... | ... | ... | ... | 10.51 | 10.68 | 11.80 | 7.01 | 6.50 | 9.05 |
| 16 | Singbhum ... | 6.07 | 8.52 | 7.55 | 5.18 | 7.62 | 7.58 | 5.00 | 3.50 | 6.52 |
| | Province ... | 7.34 | 8.20 | 8.17 | 8.04 | 7.93 | 8.59 | 8.02 | 6.55 | 7.10 |

TABLE 5—contd.

| Serial no. | Name of district. | By eye-estimation. | | | | | | | | |
|------------|-------------------|--------------------|----------|----------|----------|----------|----------|----------|----------|----------|
| | | Urid. | | | Kodo. | | | Marua. | | |
| | | 1945-46. | 1946-47. | 1947-48. | 1945-46. | 1946-47. | 1947-48. | 1945-46. | 1946-47. | 1947-48. |
| 1 | 2 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 |
| 1 | Patna ... | 4.57 | 2.87 | 4.75 | ... | 5.00 | ... | 6.00 | 4.67 | 5.15 |
| 2 | Gaya ... | 2.20 | 1.98 | 5.97 | 3.47 | ... | 5.13 | 5.95 | 3.76 | 7.54 |
| 3 | Shahabad ... | ... | 1.98 | 2.56 | ... | ... | 3.76 | ... | 4.59 | ... |
| 4 | Saran ... | 3.90 | 1.27 | 3.15 | 3.45 | 5.61 | 3.66 | 5.90 | 5.68 | 5.47 |
| 5 | Champan ... | ... | 3.92 | 4.28 | ... | 7.15 | 5.89 | ... | 4.70 | 6.79 |
| 6 | Muzaffarpur ... | 4.35 | 3.83 | 4.38 | 9.76 | 7.05 | 5.32 | 7.17 | 6.19 | 7.45 |
| 7 | Darbhanga ... | 4.32 | 2.92 | 2.47 | 2.40 | 5.00 | 4.98 | 3.47 | 12.17 | 6.74 |
| 8 | Bhagalpur ... | ... | 6.30 | 2.23 | ... | ... | 4.44 | ... | 5.23 | 6.88 |
| 9 | Monghyr ... | ... | 2.46 | 3.70 | 5.77 | ... | 6.06 | 6.30 | 5.71 | 5.44 |
| 10 | Purnea ... | ... | ... | 2.70 | 3.55 | ... | ... | 5.77 | 6.14 | 4.98 |
| 11 | S. Parganas ... | 5.85 | 2.42 | 3.52 | 5.09 | 3.86 | 4.20 | 5.04 | 3.38 | 4.30 |
| 12 | Ranchi ... | 5.47 | 4.61 | 5.23 | ... | ... | 4.73 | 5.07 | 4.35 | 5.38 |
| 13 | Palamau ... | 3.69 | 3.42 | 4.02 | 3.54 | 5.39 | 3.82 | 5.39 | 4.11 | 6.64 |
| 14 | Hazaribagh ... | 4.05 | 4.15 | 5.08 | ... | ... | 5.00 | 6.82 | 7.56 | 3.30 |
| 15 | Munbhum ... | ... | 4.96 | 7.14 | 6.38 | 7.44 | 3.00 | 6.01 | 6.04 | 7.80 |
| 16 | Singbhum ... | 2.87 | 2.65 | 3.69 | 3.97 | 4.49 | 3.98 | 3.52 | 3.96 | 3.24 |
| | Province ... | 4.13 | 3.30 | 4.37 | 5.46 | 5.66 | 5.23 | 5.95 | 5.51 | 6.46 |

TABLE 5—*contd.*

| Serial no. | Name of district. | By eye-estimation. | | | | | | | | | |
|------------|-------------------|--------------------|----------|----------|----------|----------|----------|----------|----------|----------|-------|
| | | Sama. | | | Jinora. | | | Jute. | | | |
| | | 1945-46. | 1946-47. | 1947-48. | 1945-46. | 1946-47. | 1947-48. | 1945-46. | 1946-47. | 1947-48. | |
| 1 | 2 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | |
| 1 | Patna ... | ... | 0.82 | ... | 5.90 | ... | ... | ... | 8.05 | ... | 3.08 |
| 2 | Gaya ... | 7.45 | ... | ... | 5.42 | ... | ... | ... | ... | ... | 9.69 |
| 3 | Shahabad ... | ... | ... | ... | ... | ... | ... | ... | ... | 5.32 | 1.15 |
| 4 | Saran ... | 6.62 | 3.68 | 4.24 | ... | ... | 4.86 | 6.90 | 6.54 | ... | 11.81 |
| 5 | Champeran ... | ... | 4.36 | 5.46 | ... | ... | 6.12 | ... | 12.08 | ... | 3.04 |
| 6 | Muzaffarpur ... | 9.42 | 4.40 | 5.25 | 5.06 | ... | 3.99 | 4.48 | 2.91 | ... | 4.20 |
| 7 | Darbhanga ... | 8.44 | 4.60 | 4.58 | ... | ... | 4.85 | ... | 9.58 | ... | 5.23 |
| 8 | Bhagalpur ... | ... | 4.28 | 6.78 | ... | ... | 3.57 | ... | 6.91 | ... | 6.42 |
| 9 | Monghyr ... | 5.39 | 3.88 | 5.42 | 5.28 | ... | ... | 3.83 | 2.84 | ... | 4.09 |
| 10 | Purnea ... | 4.20 | 4.28 | ... | ... | ... | ... | 8.07 | 9.62 | ... | 10.73 |
| 11 | S. Parganas ... | ... | 3.89 | 4.49 | ... | ... | 6.63 | ... | ... | ... | ... |
| 12 | Ranchi ... | 2.00 | ... | 4.54 | ... | ... | ... | ... | 2.01 | ... | ... |
| 13 | Palamau ... | 5.26 | 2.41 | 5.11 | 4.32 | ... | ... | ... | 4.34 | ... | ... |
| 14 | Hazaribagh ... | 5.35 | 4.80 | 6.18 | ... | ... | ... | ... | 1.11 | ... | 3.08 |
| 15 | Manbhum ... | ... | 6.26 | ... | ... | ... | ... | 5.77 | 2.62 | ... | 2.92 |
| 16 | Singbbum ... | 3.25 | 4.00 | 4.54 | ... | ... | ... | ... | 4.00 | ... | 2.47 |
| | Province ... | 5.74 | 3.93 | 5.14 | 5.19 | ... | 5.00 | 6.10 | 9.17 | ... | 10.05 |

TABLE 5—contd.

| Serial no. | Name of district. | By eye-estimation | | | | | | | | | Remarks. |
|------------|-------------------|-------------------|----------|----------|------------|----------|----------|----------|----------|----------|----------|
| | | Sanaï. | | | Sugarcane. | | | Sesamum. | | | |
| | | 1945-46. | 1946-47. | 1947-48. | 1945-46. | 1946-47. | 1947-48. | 1945-46. | 1946-47. | 1947-48. | |
| 1 | 2 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 |
| 1 | Patna ... | 3.87 | 3.22 | 3.51 | ... | 293.63 | 236.55 | 2.67 | 3.12 | 2.11 | |
| 2 | Gaya ... | 2.97 | ... | 4.07 | ... | ... | 184.06 | 5.62 | 2.33 | 2.80 | |
| 3 | Shahabad .. | ... | 2.41 | 3.12 | ... | 230.44 | 187.18 | ... | 2.47 | 1.88 | |
| 4 | Saran ... | 5.02 | ... | 4.86 | ... | 200.65 | 203.30 | 2.05 | 5.14 | 2.12 | |
| 5 | Champanan ... | ... | 18.69 | 4.41 | ... | 132.09 | 323.34 | ... | 3.86 | 13.00 | |
| 6 | Muzaffarpur ... | 4.73 | 2.88 | 4.69 | ... | 209.40 | 275.55 | 2.60 | 2.46 | 3.85 | |
| 7 | Darbhanga ... | 3.45 | 3.51 | 3.74 | ... | 265.59 | 234.02 | 3.12 | 3.00 | 3.00 | |
| 8 | Bhagalpur ... | ... | 59.70 | 5.06 | ... | 56.40 | 31.66 | ... | ... | ... | |
| 9 | Monghyr ... | 5.42 | 2.14 | 2.48 | ... | 183.16 | 202.87 | ... | 2.20 | 2.83 | |
| 10 | Purnea ... | ... | ... | 6.00 | ... | 16.96 | 16.47 | ... | ... | ... | |
| 11 | S. Parganas ... | 3.20 | ... | ... | ... | 21.82 | 29.04 | ... | 3.50 | ... | |
| 12 | Ranchi ... | 2.62 | ... | 3.44 | ... | ... | 19.85 | 2.58 | 3.85 | 3.49 | |
| 13 | Palamau ... | 2.99 | 2.80 | ... | ... | 118.40 | 98.04 | 2.89 | 2.21 | 2.22 | |
| 14 | Hazaribagh ... | 3.67 | 3.80 | 2.80 | ... | 18.50 | 14.00 | 3.15 | 7.63 | 5.80 | |
| 15 | Maubhum ... | ... | ... | ... | ... | 144.60 | 227.05 | 4.21 | 3.47 | 4.53 | |
| 16 | Singhbhum ... | 3.02 | 3.05 | 4.89 | ... | 45.65 | 22.43 | 2.72 | 2.47 | 3.25 | |
| | Province ... | 3.73 | 10.22 | 4.47 | ... | 184.43 | 215.80 | ... | 3.41 | 3.91 | |

TABLE 6.
Statement showing the average yield (in maunds) per acre of Aghani crops estimated during the survey

| Serial no. | Name of district. | By crop-cutting experiment. | | | By eye-estimation. | | | | | |
|------------|---------------------|-----------------------------|---------|----------|--------------------|----------|----------|----------|----------|----------|
| | | Paddy. | | | Paddy. | | | Pluses. | | |
| | | | | | | | | Kurthi | | |
| | | 1945-46. | 1946-47 | 1947-48. | 1945-46. | 1946-47. | 1947-48. | 1945-46. | 1946-47. | 1947-48. |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
| 1 | Patna ... | 10.28 | ... | 8.98 | 10.08 | 70.7 | 8.47 | 8.67 | 8.61 | ... |
| 2 | Gaya ... | 10.46 | 13.36 | 7.82 | 10.09 | 11.28 | 6.65 | 2.88 | 3.73 | ... |
| 3 | Shahabad ... | 12.15 | 11.89 | 9.82 | 10.79 | 11.24 | 10.03 | 5.20 | 6.00 | ... |
| 4 | Saran ... | 7.17 | ... | 9.83 | 6.93 | 7.53 | 6.27 | ... | ... | ... |
| 5 | Champaran ... | 11.16 | 11.48 | 12.69 | 11.63 | 12.21 | 13.27 | ... | ... | ... |
| 6 | Muzaffarpur ... | 9.87 | 9.26 | 11.19 | 10.44 | 10.98 | 10.43 | 9.85 | 4.19 | ... |
| 7 | Darbhanga ... | 10.20 | 10.04 | 10.19 | 7.90 | 9.32 | 9.29 | 10.92 | 5.41 | ... |
| 8 | Bhagalpur ... | 10.84 | 10.02 | 11.28 | 10.06 | 9.29 | 10.01 | 3.11 | 3.67 | 4.86 |
| 9 | Monghyr ... | 8.67 | 9.41 | 7.41 | 10.11 | 7.14 | 7.15 | 2.54 | 4.52 | ... |
| 10 | Purnea ... | 15.86 | 12.97 | 14.64 | 12.88 | 8.82 | 10.67 | 4.70 | 6.89 | ... |
| 11 | S. Parganas ... | 16.31 | 14.51 | 15.69 | 12.92 | 13.53 | 8.40 | 4.85 | 3.96 | 4.45 |
| 12 | Ranchi ... | 13.62 | 15.01 | 14.81 | 13.26 | 15.12 | 12.05 | 3.55 | ... | 3.80 |
| 13 | Palamau ... | 14.95 | ... | 9.48 | 11.77 | 13.44 | 9.21 | 4.60 | 4.65 | 3.77 |
| 14 | Hazaribagh ... | 13.98 | 14.81 | 16.25 | 10.27 | 12.12 | 11.81 | 4.58 | 4.71 | 6.74 |
| 15 | Manbhum ... | 20.84 | 21.70 | 18.39 | 25.17 | 19.11 | 18.02 | 5.46 | 6.62 | 6.43 |
| 16 | Singbhum ... | 16.45 | 17.66 | 15.85 | 10.22 | 14.92 | 13.98 | 4.46 | 5.05 | 4.92 |
| | Provincial average. | 12.98 | 13.23 | 12.40 | 11.99 | 11.77 | 10.54 | 5.07 | 4.24 | 4.71 |

of 1945-46, 1946-47 and 1947-48.

TABLE 6—contd

| Serial no. | Name of district. | By eyeestimation. | | | | | | | | |
|------------|---------------------|-------------------|----------|----------|----------|----------|----------|----------|----------|----------|
| | | Urid. | | | Meth. | | | Mung. | | |
| | | 1945-46. | 1946-47. | 1947-48. | 1945-46. | 1946-47. | 1947-48. | 1945-46. | 1946-47. | 1947-48. |
| 1 | 2 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 |
| 1 | Patna ... | ... | ... | ... | ... | ... | ... | 1.22 | ... | ... |
| 2 | Gaya ... | ... | ... | 3.25 | 2.82 | ... | ... | 1.64 | ... | ... |
| 3 | Shahabad ... | ... | ... | 4.92 | ... | ... | ... | ... | ... | ... |
| 4 | Saran ... | 4.16 | 4.56 | 4.37 | 4.57 | 3.00 | 3.89 | ... | ... | ... |
| 5 | Champanan ... | 3.43 | 4.43 | 4.15 | 6.87 | 6.91 | 2.50 | 2.00 | ... | ... |
| 6 | Muzaffarpur ... | 4.45 | 4.62 | 4.28 | 2.12 | ... | ... | ... | ... | ... |
| 7 | Darbhanga .. | 2.47 | 2.66 | 3.72 | ... | 2.50 | ... | ... | ... | ... |
| 8 | Bhagalpur ... | 4.00 | 5.78 | 3.95 | 2.98 | 4.30 | 4.38 | ... | ... | ... |
| 9 | Monghyr ... | 7.20 | 3.89 | 3.50 | 5.34 | 4.52 | ... | ... | ... | ... |
| 10 | Purnea ... | 4.94 | 5.51 | 5.72 | 5.76 | 8.03 | ... | 1.00 | 1.85 | ... |
| 11 | S. Parganas ... | 8.15 | 5.23 | 5.81 | 2.34 | 4.14 | 10.00 | ... | 9.03 | ... |
| 12 | Ranchi ... | 2.34 | 4.51 | 7.24 | ... | ... | ... | 1.70 | ... | ... |
| 13 | Palamau ... | 3.45 | 6.17 | 4.20 | ... | ... | ... | 2.45 | 5.00 | ... |
| 14 | Hazaribagh ... | 5.13 | 5.61 | 5.07 | ... | ... | ... | ... | ... | ... |
| 15 | Manbhum ... | ... | 4.86 | 5.13 | ... | ... | ... | ... | ... | ... |
| 16 | Singhbhum ... | ... | 2.50 | 4.28 | ... | ... | ... | ... | 3.71 | ... |
| | Provincial average. | 4.52 | 4.60 | 4.64 | 4.16 | 4.77 | 5.19 | 1.83 | 4.90 | ... |

TABLE 6—contd.

| Serial no. | Name of district. | By eye estimation. | | | | | | | | | |
|------------|---------------------|--------------------|----------|----------|----------|----------|----------|----------|----------|----------|-----|
| | | Sesamum. | | | Surguja. | | | Jhenora. | | | |
| | | 1945-46. | 1946-47. | 1947-48. | 1945-46. | 1946-47. | 1947-48. | 1945-46. | 1946-47. | 1947-48. | |
| 1 | 2 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | |
| 1 | Patna ... | 0-60 | ... | 8-00 | ... | ... | ... | ... | 3-90 | ... | ... |
| 2 | Gaya ... | 2-90 | 1-68 | 7-20 | ... | ... | ... | ... | 4-23 | ... | ... |
| 3 | Shahabad ... | ... | 2-81 | ... | ... | ... | ... | ... | 4-89 | ... | ... |
| 4 | Saran ... | 5-00 | 2-65 | 3-14 | ... | ... | ... | ... | ... | ... | ... |
| 5 | Champan ... | 4-98 | 4-21 | 5-47 | ... | ... | ... | ... | 5-27 | ... | ... |
| 6 | Muzaffarpur ... | 6-08 | 2-92 | 3-34 | ... | ... | ... | ... | 3-40 | ... | ... |
| 7 | Darbhanga ... | 1-27 | 2-36 | 1-52 | ... | ... | ... | ... | 4-61 | ... | ... |
| 8 | Bhagalpur ... | 3-00 | 2-60 | 2-14 | 0-37 | ... | ... | ... | 5-32 | ... | ... |
| 9 | Monghyr ... | ... | 5-18 | 3-20 | ... | ... | ... | ... | 3-32 | ... | ... |
| 10 | Purnea ... | 1-65 | 0-87 | 5-61 | ... | ... | ... | ... | ... | ... | ... |
| 11 | S. Parganas ... | 2-75 | 2-36 | 2-61 | 4-34 | 3-01 | ... | ... | ... | ... | ... |
| 12 | Ranchi ... | ... | ... | ... | ... | 4-04 | 3-63 | ... | 4-03 | ... | ... |
| 13 | Palamau ... | 3-03 | 2-66 | 2-80 | 1-37 | 3-07 | 4-39 | ... | 6-12 | ... | ... |
| 14 | Hazaribagh ... | 3-55 | 4-84 | 3-69 | 3-54 | 4-47 | 4-28 | ... | ... | ... | ... |
| 15 | Manbhum ... | 4-55 | 4-92 | 5-60 | 5-68 | 5-70 | 6-96 | ... | ... | ... | ... |
| 16 | Singbhum ... | 9-18 | 4-05 | 3-69 | 4-08 | 4-14 | 5-75 | ... | 3-27 | ... | ... |
| | Provincial average. | 3-73 | 3-17 | 3-79 | 3-23 | 4-11 | 5-00 | ... | 5-13 | ... | ... |

TABLE 6—conctd.

| By eye-estimation. | | | | | | | | | | |
|--------------------|---------------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| Serial no. | Name of district. | Damadar | | | Fibres. | | | Spices. | | |
| | | Kodo. | | | Sanal. | | | Chilli. | | |
| | | 1945-46. | 1946-47. | 1947-48. | 1945-46. | 1946-47. | 1947-48. | 1945-46. | 1946-47. | 1947-48. |
| 1 | 2 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 |
| 1 | Patna ... | 4.57 | .. | 4.00 | ... | ... | ... | 7.50 | 9.93 | ... |
| 2 | Gaya ... | 3.24 | ... | 2.94 | 2.50 | ... | ... | ... | 40.00 | ... |
| 3 | Shahabad ... | ... | ... | 4.63 | ... | ... | ... | ... | ... | ... |
| 4 | Saran ... | 8.24 | ... | 5.75 | 3.02 | ... | ... | ... | ... | ... |
| 5 | Champan ... | 15.00 | ... | 10.41 | ... | ... | ... | ... | 0.94 | 7.06 |
| 6 | Muzaffarpur ... | 5.59 | .. | 5.19 | ... | ... | ... | ... | ... | ... |
| 7 | Darbhanga ... | 2.50 | ... | ... | ... | ... | ... | 29.75 | 17.06 | ... |
| 8 | Bhagalpur ... | 3.02 | ... | 2.45 | 3.00 | ... | ... | ... | 5.00 | 3.13 |
| 9 | Monghyr ... | 1.75 | ... | 5.84 | ... | ... | ... | ... | ... | ... |
| 10 | Purnea ... | ... | ... | ... | ... | ... | ... | 2.18 | 3.93 | ... |
| 11 | S. Parganas ... | 5.81 | ... | 4.13 | ... | ... | ... | ... | ... | ... |
| 12 | Ranchi ... | 4.82 | ... | 5.21 | ... | ... | ... | ... | ... | 6.58 |
| 13 | Palamau ... | 4.08 | ... | 4.02 | 2.07 | ... | ... | 2.40 | 5.11 | ... |
| 14 | Hazaribagh ... | 4.50 | ... | 4.83 | 10.00 | ... | ... | ... | ... | 8.79 |
| 15 | Manbhum ... | 7.77 | ... | 8.94 | 2.06 | ... | ... | ... | ... | ... |
| 16 | Singbhum ... | 5.87 | ... | 5.50 | ... | ... | ... | 3.17 | 4.81 | ... |
| | Provincial average. | 5.48 | ... | 4.53 | 3.77 | ... | ... | 9.00 | 10.85 | 6.39 |

TABLE 6—contd.

| Serial. no. | Name of district. | By eye-estimation. | | | | | | | | |
|-------------|---------------------|--------------------|----------|----------|------------|----------|----------|----------|----------|----------|
| | | Haldi. | | | Sugarcane. | | | Potato | | |
| | | 1945-46. | 1946-47. | 1947-48. | 1945-46. | 1946-47. | 1947-48. | 1945-46. | 1946-47. | 1947-48. |
| 1 | 2 | 39 | 40 | 41 | 42 | 43 | 44 | 45 | 46 | 47 |
| 1 | Patna ... | 50 00 | ... | ... | 243.12 | 202.58 | 180.22 | 81.00 | 54.47 | 97.00 |
| 2 | Gaya ... | ... | ... | ... | 63.78 | ... | 14.78 | 60.37 | 41.48 | 36.02 |
| 3 | Shahabad ... | ... | ... | ... | 217.89 | 218.07 | 105.25 | 70.95 | 25.00 | 54.37 |
| 4 | Saran ... | ... | 152.40 | ... | 249.12 | 216.94 | 175.79 | 52.57 | 89.16 | 64.22 |
| 5 | Champanan ... | ... | ... | ... | ... | 125.19 | 92.13 | 36.43 | ... | 31.22 |
| 6 | Muzaffarpur ... | ... | ... | ... | 259.95 | 187.12 | 101.37 | 37.55 | 100.00 | 27.21 |
| 7 | Darbhanga ... | 347.46 | 50.00 | ... | 447.49 | 332.21 | 248.50 | 67.21 | ... | 100.00 |
| 8 | Bhagalpur ... | ... | 20.00 | ... | 30.01 | 14.06 | 39.19 | 38.40 | 53.24 | 25.19 |
| 9 | Monghyr ... | ... | 50.18 | ... | 69.40 | 72.46 | 53.90 | 26.06 | 70.83 | 42.89 |
| 10 | Purnea ... | 7.14 | 5.06 | ... | 93.28 | ... | 62.62 | 12.87 | 25.81 | ... |
| 11 | S. Parganas ... | ... | ... | ... | 22.00 | 27.58 | 36.46 | 22.81 | 41.75 | ... |
| 12 | Ranchi ... | ... | ... | ... | ... | ... | 28.71 | 19.68 | 5.55 | 19.00 |
| 13 | Palamau ... | ... | ... | ... | 155.19 | 49.09 | 30.61 | 56.88 | 50.88 | 17.77 |
| 14 | Hazaribagh ... | ... | ... | ... | 20.25 | 22.71 | 19.00 | 26.80 | 16.54 | 29.00 |
| 15 | Manbhum ... | ... | ... | ... | 76.57 | 65.95 | 190.00 | 93.00 | 8.06 | ... |
| 16 | Singhbhum ... | 6.92 | ... | ... | 37.00 | ... | ... | 24.65 | ... | ... |
| | Provincial average. | 102.88 | 55.52 | ... | 204.04 | 176.11 | 119.07 | 58.67 | 49.43 | 65.89 |

TABLE—6 *concl'd*

| Serial no. | Name of district. | By eye-estimation. | | | | | | Remarks. |
|------------|------------------------|--------------------|----------|----------|----------|----------|----------|----------|
| | | Sweet Potato. | | | Cotton. | | | |
| | | 1945-46. | 1946-47. | 1947-48. | 1945-46. | 1946-47. | 1947-48. | |
| 1 | 2 | 48 | 49 | 60 | 51 | 52 | 53 | 54 |
| 1 | Patna ... | 58.95 | 80.00 | 79.87 | ... | ... | ... | |
| 2 | Gaya ... | 43.66 | ... | ... | ... | ... | ... | |
| 3 | Shahabad ... | ... | ... | ... | ... | ... | ... | |
| 4 | Saran ... | 87.25 | 108.10 | 61.82 | ... | ... | ... | |
| 5 | Champanan ... | 138.53 | 107.41 | 25.99 | ... | ... | ... | |
| 6 | Muzaffarpur ... | 53.66 | 144.68 | ... | ... | ... | ... | |
| 7 | Darbhanga ... | 67.17 | 28.46 | 68.51 | ... | ... | ... | |
| 8 | Bhagalpur ... | 23.00 | 68.15 | 96.51 | ... | ... | ... | |
| 9 | Monghyr ... | 19.09 | 57.71 | ... | ... | ... | ... | |
| 10 | Purnea ... | 33.87 | 23.28 | 27.27 | ... | ... | ... | |
| 11 | S. Parganas ... | 14.59 | 38.54 | 18.34 | 1.07 | 4.06 | 1.12 | |
| 12 | Ranchi ... | 21.65 | 18.54 | 24.71 | 2.01 | 1.26 | 2.27 | |
| 13 | Palamau ... | 94.00 | 21.27 | 20.00 | 1.25 | 1.25 | 3.05 | |
| 14 | Hazaribagh ... | ... | ... | ... | ... | ... | 2.90 | |
| 15 | Manbhum ... | 29.66 | ... | ... | 0.67 | ... | ... | |
| 16 | Singbhum ... | 8.69 | 18.36 | 24.39 | 1.98 | 0.50 | 3.50 | |
| | Provincial average ... | 49.41 | 59.54 | 44.74 | 1.39 | 1.77 | 2.37 | |

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TABLE 7.
Statement showing the average yield in maunds/acre of Rabi crops estimated during the survey of
1945-46, 1946-47 and 1947-48.

| Serial no. | Name of district. | Wheat. | | | | | | Gram. | | |
|------------|---------------------|-----------------------------|----------|----------|-------------------|----------|----------|-----------------------------|----------|----------|
| | | By crop-cutting experiment. | | | By eye-estimation | | | By crop-cutting experiment. | | |
| | | 1945-46. | 1946-47. | 1947-48. | 1945-46. | 1946-47. | 1947-48. | 1945-46. | 1946-47. | 1947-48. |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
| 1 | Patna ... | 5.16 | 5.81 | 6.98 | 5.73 | 5.27 | 5.36 | 5.21 | 7.18 | 5.76 |
| 2 | Gaya .. | 4.17 | 5.46 | 6.11 | 4.82 | 4.19 | 5.09 | 4.09 | 4.62 | 5.04 |
| 3 | Shahabad ... | 4.01 | 4.32 | 4.88 | 2.99 | 2.95 | 4.25 | 3.38 | 2.37 | 5.28 |
| 4 | Saran ... | 7.70 | 7.88 | 13.58 | 8.01 | 6.47 | 6.79 | 6.13 | 4.61 | 11.43 |
| 5 | Champaran ... | 5.58 | 4.80 | 5.16 | 6.13 | 5.55 | 3.40 | 4.86 | 2.02 | 5.21 |
| 6 | Muzaffarpur ... | 6.12 | 5.70 | 5.09 | 5.89 | 5.53 | 7.42 | 4.83 | 4.79 | 3.81 |
| 7 | Darbhanga ... | 6.01 | 5.91 | 6.11 | 5.17 | 6.18 | 5.31 | 4.60 | 3.35 | 3.12 |
| 8 | Bhagalpur ... | 6.90 | 7.08 | 6.57 | 5.38 | 4.55 | 6.77 | 3.27 | 4.39 | 3.28 |
| 9 | Monghyr ... | 6.31 | 6.60 | 7.94 | 4.26 | 4.49 | 6.78 | 4.71 | 4.02 | 6.49 |
| 10 | Purnea ... | 6.12 | 4.56 | 6.71 | 3.37 | 5.77 | 5.09 | 9.38 | 10.10 | 9.95 |
| 11 | S. Parganas ... | ... | ... | ... | 4.72 | 3.97 | 6.00 | ... | ... | ... |
| 12 | Ranchi ... | ... | ... | ... | 4.08 | 4.21 | 6.03 | ... | ... | ... |
| 13 | Palaman ... | 3.85 | 4.24 | 4.74 | 4.15 | 5.10 | 5.63 | 4.22 | 4.49 | 4.05 |
| 14 | Hazaribagh ... | ... | ... | ... | 5.71 | 6.51 | 6.00 | ... | ... | ... |
| 15 | Manbhum ... | ... | ... | ... | 5.88 | 9.42 | 8.76 | ... | ... | ... |
| 16 | Singhbhum ... | ... | ... | ... | 3.34 | 4.06 | 8.87 | ... | ... | ... |
| | Provincial average. | 5.30 | 5.81 | 7.02 | 4.96 | 4.89 | 5.70 | 4.41 | 4.32 | 5.44 |

TABLE 7--contd.

| Serial no. | Name of district. | Gram. | | | Masoor. | | | | | | Barley. | | |
|------------|---------------------|--------------------|----------|----------|-----------------------------|----------|----------|--------------------|----------|----------|--------------------|----------|----------|
| | | By-eye-estimation. | | | By crop-cutting experiment. | | | By eye-estimation. | | | By eye-estimation. | | |
| | | 1945-46. | 1946-47. | 1947-48. | 1945-46 | 1946-47. | 1947-48. | 1945-46. | 1946-47. | 1947-48. | 1945-46. | 1946-47. | 1947-48. |
| 1 | 2 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 |
| 1 | Pataa ... | 5.55 | 3.23 | 7.00 | 5.11 | 6.03 | 6.03 | 6.45 | 6.61 | 6.78 | 3.54 | 5.00 | 4.18 |
| 2 | Gaya ... | 4.14 | 4.87 | 5.27 | 3.51 | 4.35 | 3.81 | 3.49 | 4.36 | 4.60 | 3.91 | 4.82 | 4.22 |
| 3 | Shahabad ... | 3.22 | 4.30 | 5.59 | 3.20 | 4.45 | 4.28 | 3.09 | 3.16 | 4.32 | 3.25 | 3.79 | 4.65 |
| 4 | Saran ... | 5.66 | 6.42 | 5.43 | 2.14 | 3.10 | 3.03 | 4.10 | 3.75 | 3.91 | 5.74 | 5.96 | 3.94 |
| 5 | Champanan ... | 7.57 | 4.60 | 5.08 | 2.85 | 3.50 | 5.04 | 4.05 | 3.77 | 3.89 | 5.31 | 5.86 | 5.78 |
| 6 | Muzaffarpur ... | 6.04 | 5.89 | 6.03 | 3.94 | 3.77 | 2.88 | 4.37 | 3.28 | 3.70 | 5.79 | 6.21 | 6.17 |
| 7 | Darbhanga ... | 4.69 | 4.67 | 4.47 | 2.98 | 3.54 | 2.92 | 3.63 | 4.66 | 3.58 | 4.01 | 7.78 | 4.65 |
| 8 | Bhagalpur ... | 3.14 | 3.31 | 3.77 | 5.44 | 4.06 | 2.74 | 1.74 | 5.07 | 4.15 | 3.66 | 4.03 | 5.25 |
| 9 | Monghyr ... | 3.63 | 3.05 | 4.59 | 4.72 | 5.46 | 6.59 | 6.57 | 5.30 | 6.19 | 5.17 | 5.04 | 6.36 |
| 10 | Purnea ... | 5.49 | 4.45 | 7.21 | 4.05 | 3.62 | 4.05 | 2.15 | 2.66 | 4.31 | 6.00 | 3.76 | 4.84 |
| 11 | S. Parganas ... | 4.11 | 4.12 | 5.35 | ... | ... | ... | 5.33 | 4.98 | 3.34 | 4.71 | 4.80 | 4.37 |
| 12 | Ranchi ... | 4.01 | 4.00 | 5.63 | ... | ... | ... | 3.24 | 3.48 | 3.80 | 2.53 | 3.55 | 4.28 |
| 13 | Palamau ... | 4.21 | 4.49 | 5.09 | 3.05 | 3.29 | 3.82 | 4.02 | 5.21 | 6.00 | 4.01 | 5.24 | 5.82 |
| 14 | Hazaribagh ... | 5.15 | 7.62 | 7.34 | ... | ... | ... | 2.57 | 4.55 | 3.92 | 4.79 | 5.76 | 5.97 |
| 15 | Manbhum ... | 5.28 | 6.95 | 7.07 | ... | ... | ... | 5.00 | 5.09 | 14.58 | 4.82 | 5.46 | 6.24 |
| 16 | Singbhum ... | 4.76 | 5.46 | 6.52 | ... | ... | ... | 3.06 | 3.24 | 4.59 | 5.46 | 10.07 | ... |
| | Provincial average. | 4.25 | 4.21 | 5.34 | 3.79 | 5.44 | 4.61 | 4.41 | 4.61 | 4.80 | 4.91 | 5.58 | 6.25 |

TABLE 7—contd.

| Serial no. | Name of district. | Pulses. | | | | | | | | |
|------------|---------------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| | | Peas. | | | Arhar. | | | Khesari. | | |
| | | 1945-46. | 1946-47. | 1947-48. | 1945-46. | 1946-47. | 1947-48. | 1945-46. | 1946-47. | 1947-48. |
| 1 | 2 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 |
| 1 | Patna ... | 4.66 | 4.00 | 4.75 | 5.86 | 5.98 | 7.58 | 4.04 | 4.76 | 4.95 |
| 2 | Gaya ... | 5.58 | 5.64 | 4.76 | ... | 7.18 | 6.02 | 8.26 | 8.99 | 4.66 |
| 3 | Shahabad ... | 2.79 | 3.79 | 5.20 | 5.75 | 6.65 | 7.01 | 3.67 | 3.48 | 4.35 |
| 4 | Saran ... | 4.78 | 5.12 | 6.17 | 5.90 | 6.75 | 7.07 | 4.80 | 4.70 | 4.55 |
| 5 | Champanan ... | 5.20 | 5.12 | 5.52 | 6.82 | 6.84 | 7.05 | 4.97 | 5.25 | 5.19 |
| 6 | Muzaffarpur ... | 5.60 | 5.76 | 6.58 | 6.80 | 6.02 | 6.72 | 6.08 | 5.04 | 5.50 |
| 7 | Darbhanga ... | 6.88 | 5.64 | 4.08 | 6.31 | 6.33 | 7.08 | 4.02 | 4.77 | 4.70 |
| 8 | Bhagalpur ... | 3.86 | 5.21 | 5.17 | 3.15 | 4.63 | 5.12 | 3.40 | 4.09 | 7.00 |
| 9 | Monghyr ... | 4.94 | 5.90 | 6.71 | 4.88 | 7.26 | 3.60 | 4.61 | 4.96 | 4.90 |
| 10 | Purnea ... | 5.16 | 4.82 | 7.43 | 4.52 | 4.84 | 6.32 | 3.09 | 3.15 | 7.10 |
| 11 | S. Parganas ... | 7.95 | 7.40 | 5.34 | ... | 3.61 | 4.39 | ... | 4.45 | 3.70 |
| 12 | Ranchi ... | 4.96 | 4.50 | 7.14 | 4.73 | 4.09 | 5.54 | 4.09 | 4.15 | 6.80 |
| 13 | Palamau ... | 4.77 | 4.48 | 4.17 | 4.97 | 4.22 | 5.19 | 5.16 | 3.58 | 4.68 |
| 14 | Hazaribagh ... | 7.05 | 7.33 | 6.19 | 5.78 | 8.44 | 7.08 | 6.73 | 6.33 | 8.70 |
| 15 | Manbhum ... | 5.42 | 4.52 | 7.69 | 6.48 | 7.41 | 6.52 | 5.26 | 4.40 | 6.63 |
| 16 | Singbhum ... | 4.13 | 2.89 | 4.40 | 4.87 | 4.46 | 5.07 | 2.57 | 5.53 | 5.98 |
| | Provincial average. | 4.86 | 5.23 | 5.69 | 5.62 | 5.90 | 6.59 | 4.05 | 4.29 | 5.09 |

TABLE 7—contd.

| Serial no. | Name of district. | Oil seeds. | | | | | | | | | | | |
|------------|---------------------|------------|----------|----------|----------|----------|----------|------------|----------|----------|----------|----------|----------|
| | | Mustard. | | | Linseed. | | | Sugarcane. | | | Potato. | | |
| | | 1945-46. | 1946-47. | 1947-48. | 1945-46. | 1946-47. | 1947-48. | 1945-46. | 1946-47. | 1947-48. | 1945-46. | 1946-47. | 1947-48. |
| 1 | 2 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 | 41 | 42 | 43 | 44 |
| 1 | Patna ... | 3.46 | 4.85 | 3.90 | 2.57 | 2.66 | ... | 157.00 | ... | ... | 71.20 | 59.86 | 37.92 |
| | Gaya ... | 4.37 | 2.86 | 2.98 | 3.56 | ... | ... | 161.10 | ... | ... | 51.94 | 42.31 | 44.06 |
| 3 | Shahabad ... | 1.56 | 1.36 | 1.89 | ... | ... | ... | ... | 146.36 | ... | 27.96 | 38.98 | 70.06 |
| 4 | Saran ... | 5.13 | 3.46 | 3.32 | ... | 1.69 | 2.98 | 228.35 | 128.24 | ... | 52.38 | 56.20 | 60.87 |
| 5 | Champaran ... | 4.14 | 3.73 | 5.71 | 2.20 | 2.49 | 2.54 | 206.00 | 170.00 | ... | 30.21 | 34.75 | 22.93 |
| 6 | Muzaffarpur ... | 3.90 | 3.71 | 2.52 | ... | 2.35 | ... | 121.74 | 152.07 | ... | 43.04 | 39.95 | 29.63 |
| 7 | Darbhanga ... | 2.91 | 4.00 | 3.23 | ... | 3.19 | 2.12 | 66.70 | 200.00 | ... | 42.69 | 39.31 | 43.55 |
| 8 | Bhagalpur ... | 3.33 | 2.38 | 2.04 | 0.83 | 0.64 | 3.08 | 76.38 | ... | ... | 31.97 | 23.95 | 68.86 |
| 9 | Monghyr ... | 3.56 | 3.05 | 6.27 | 7.05 | 4.00 | 2.59 | 17.40 | 49.26 | ... | 49.85 | 42.67 | 38.51 |
| 10 | Purnea ... | 3.14 | 3.19 | 4.60 | 3.51 | 2.57 | ... | 20.00 | 34.44 | ... | 18.20 | 24.56 | 31.77 |
| 11 | S. Parganae ... | ... | 3.64 | 3.81 | 6.33 | 1.98 | ... | 29.62 | 16.00 | ... | 5.59 | 30.30 | 16.37 |
| 12 | Ranchi ... | 2.94 | 3.48 | 3.22 | ... | ... | ... | 20.83 | ... | ... | 36.27 | 27.04 | 35.69 |
| 13 | Palamau ... | 3.19 | 3.24 | 4.17 | 4.02 | 2.68 | ... | 140.90 | 112.52 | ... | 102.57 | 25.96 | 22.93 |
| 14 | Hazaribagh ... | 5.13 | 4.92 | 3.48 | 2.18 | 3.30 | 2.15 | 32.60 | 17.50 | ... | 25.26 | 28.20 | 22.83 |
| 15 | Manbhum ... | 7.31 | 4.66 | 5.44 | 6.52 | ... | ... | 38.48 | 166.66 | ... | 37.67 | 29.02 | 63.74 |
| 16 | Singbhum ... | 4.37 | 4.17 | 2.10 | 1.63 | 3.09 | ... | 7.84 | 10.00 | ... | ... | 51.44 | 60.78 |
| | Provincial average. | 3.88 | 3.56 | 3.67 | 3.82 | 2.55 | 2.58 | 161.11 | 139.32 | ... | 43.88 | 51.33 | 55.27 |

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TABLE 7—concl'd

| Serial no. | Name of district. | Sweet potatoes. | | | Chillies. | | | Onion. | | | Tobacco. | | | Remarks. |
|------------|---------------------|-----------------|----------|----------|-----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| | | 1945-46. | 1946-47. | 1947-48. | 1945-46. | 1946-47. | 1947-48. | 1945-46. | 1946-47. | 1947-48. | 1945-46. | 1946-47. | 1947-48. | |
| 1 | 2 | 45 | 46 | 47 | 48 | 49 | 50 | 51 | 52 | 53 | 54 | 55 | 56 | 57 |
| 1 | Patna ... | ... | ... | ... | 14.70 | 9.04 | 7.95 | ... | ... | ... | 8.86 | ... | 5.64 | |
| 2 | Gaya ... | 51.59 | ... | ... | 5.65 | 6.22 | 7.00 | 11.93 | ... | ... | 22.83 | 5.00 | 29.92 | |
| 3 | Shahabad ... | ... | ... | 100.00 | ... | 10.10 | 16.60 | ... | ... | ... | ... | 4.63 | 10.66 | |
| 4 | Saran ... | ... | 36.42 | 45.87 | 9.15 | 7.94 | 6.39 | 60.25 | ... | 50.23 | 19.38 | 17.20 | 10.71 | |
| 5 | Champan | 27.37 | 62.51 | 56.11 | 22.84 | 27.73 | 9.98 | ... | ... | 36.61 | 8.37 | 35.30 | 16.55 | |
| 6 | Muzaffarpur* | ... | 75.15 | 42.26 | 4.96 | 7.66 | 12.54 | ... | ... | ... | 17.56 | 13.24 | 11.44 | |
| 7 | Darbhanga... | 47.86 | 54.53 | 58.65 | 8.53 | 8.35 | 7.20 | ... | ... | ... | 9.89 | 10.74 | 8.15 | |
| 8 | Bhagalpur ... | ... | ... | 90.81 | 4.08 | 3.73 | 6.30 | 16.06 | ... | 10.00 | 23.22 | 9.25 | 14.60 | |
| 9 | Monghyr ... | 11.23 | 52.03 | 52.41 | 8.47 | 21.08 | 29.85 | ... | ... | ... | 2.42 | 7.24 | 24.28 | |
| 10 | Purnea ... | ... | 41.93 | ... | 4.14 | 5.74 | 10.18 | ... | ... | ... | 6.49 | 10.16 | 12.06 | |
| 11 | S. Parganas | ... | ... | ... | ... | ... | ... | ... | ... | ... | 4.08 | 59.03 | 4.26 | |
| 12 | Ranchi ... | ... | ... | ... | 7.17 | ... | 6.71 | ... | ... | ... | 7.95 | 3.47 | 6.75 | |
| 13 | Palamau .. | ... | 36.79 | ... | 8.41 | 6.77 | 6.00 | 92.05 | ... | ... | 10.23 | ... | ... | |
| 14 | Hazaribagh | ... | ... | ... | 4.47 | 6.04 | 3.40 | ... | ... | ... | 4.93 | 4.16 | 3.28 | |
| 15 | Manbhum ... | ... | ... | ... | 2.46 | 6.34 | 5.93 | 47.56 | ... | 80.16 | 6.52 | 6.70 | 6.74 | |
| 16 | Singhbhum... | ... | 3.55 | 19.72 | 3.93 | 4.70 | 7.64 | ... | ... | ... | 4.20 | 7.50 | 10.04 | |
| | Provincial average. | 30.29 | 47.87 | 58.23 | 8.07 | 11.45 | 13.99 | 45.87 | ... | 44.27 | 10.84 | 11.30 | 11.14 | |

TABLE
Statement showing the outturn of principal crops
(In Mau)

| Serial no. | Name of district and division. | By crop-cutting Experiments. | | |
|------------|--------------------------------|------------------------------|-----------|-----------|
| | | Autumn paddy. | | |
| | | 1945-46. | 1946-47. | 1947-48 |
| 1 | 2 | 3 | 4 | 5 |
| 1 | Patna | 7,333 | 4,174 | 4,088 |
| 2 | Gaya | 65,671 | 62,427 | 42,034 |
| 3 | Shahabad | 2,21,859 | 1,37,622 | 1,02,179 |
| | Patna Division | 2,94,863 | 2,04,223 | 1,48,301 |
| | " in tons | 10,832 | 7,502 | 5,448 |
| 4 | Saran | 3,57,113 | 2,61,170 | 6,57,668 |
| 5 | Champaran | 19,00,968 | 15,60,720 | 17,52,089 |
| 6 | Muzaffarpur | 2,36,025 | 3,18,132 | 4,00,486 |
| 7 | Darbhanga | 2,90,884 | 4,84,169 | 3,01,007 |
| | Tirhut Division | 27,84,990 | 26,24,191 | 31,11,250 |
| | " in tons | 1,02,306 | 98,399 | 1,14,291 |
| 8 | Bhagalpur | 3,91,618 | 2,64,619 | 3,86,788 |
| 9 | Monghyr | 1,14,027 | 64,706 | 94,797 |
| 10 | Furnea | 15,04,321 | 21,93,324 | 20,16,752 |
| 11 | Santal Parganas | 4,15,584 | 1,76,562 | 1,60,677 |
| | Bhagalpur Division | 24,25,550 | 26,99,211 | 26,78,994 |
| | " in tons | 89,102 | 99,155 | 98,412 |
| 12 | Ranchi | 15,24,588 | 16,30,920 | 17,42,338 |
| 13 | Palamau | 3,21,330 | 3,32,609 | 1,89,789 |
| 14 | Hazaribagh | 1,12,229 | 1,35,334 | 1,39,682 |
| 15 | Manbhum | 27,701 | 33,538 | 29,755 |
| 16 | Singhbhum | 4,49,811 | 10,62,742 | 8,88,501 |
| | Chota Nagpur Division .. | 24,35,659 | 31,95,043 | 29,85,085 |
| | " in tons | 89,473 | 1,17,369 | 1,09,556 |
| | Provincial Total | 79,41,062 | 87,22,668 | 89,23,610 |
| | " in tons | 2,91,713 | 3,20,425 | 3,27,807 |

8.
in Bihar for the years 1945-46, 1946-47 and 1947-48.
(in thousands of bales)

| By Crop-cutting Experiments] | | | | | |
|------------------------------|--------------|--------------|--------------|--------------|--------------|
| Winter paddy. | | | Total paddy. | | |
| 1945-46. | 1946-47. | 1947-48. | 1945-46. | 1946-47. | 1947-48. |
| 6 | 7 | 8 | 9 | 10 | 11 |
| 68,79,611 | 77,60,930 | 49,33,557 | 66,66,944 | 77,65,104 | 49,37,645 |
| 1,10,91,585 | 1,21,16,421 | 83,41,289 | 1,11,67,256 | 1,21,78,848 | 83,88,828 |
| 1,24,18,606 | 1,21,85,102 | 1,15,45,619 | 1,26,35,465 | 1,23,22,724 | 1,16,47,798 |
| 2,91,84,802 | 3,20,62,453 | 2,48,20,466 | 2,94,79,665 | 3,23,66,676 | 2,49,68,766 |
| 10,72,096 | 11,77,805 | 9,11,773 | 10,82,927 | 11,86,307 | 9,17,321 |
| 19,46,763 | 45,86,418 | 38,66,488 | 23,03,876 | 48,47,588 | 45,24,166 |
| 76,36,218 | 81,28,747 | 98,85,548 | 95,37,186 | 96,69,467 | 1,16,87,637 |
| 68,21,493 | 73,00,028 | 92,66,047 | 70,57,518 | 76,18,160 | 96,66,583 |
| 75,90,748 | 97,78,348 | 1,07,98,129 | 78,81,632 | 1,02,62,517 | 1,10,99,136 |
| 2,39,95,222 | 2,97,93,541 | 3,38,16,212 | 2,67,60,213 | 3,24,17,782 | 3,69,37,462 |
| 6,81,458 | 10,94,458 | 12,42,229 | 9,83,764 | 11,90,856 | 13,66,520 |
| 69,39,823 | 60,15,038 | 87,45,688 | 63,51,441 | 82,79,657 | 91,32,476 |
| 41,30,232 | 48,41,191 | 39,72,968 | 42,44,259 | 49,05,897 | 40,67,755 |
| 1,41,86,097 | 1,35,42,703 | 1,64,58,639 | 1,56,90,418 | 1,57,36,027 | 1,84,75,871 |
| 1,71,62,901 | 1,71,14,356 | 1,86,08,035 | 1,75,68,485 | 1,72,90,918 | 1,90,88,712 |
| 4,14,09,058 | 4,35,13,288 | 48,085,330 | 4,38,34,603 | 4,62,12,499 | 5,07,64,324 |
| 15,21,150 | 15,98,449 | 17,66,401 | 16,10,252 | 16,97,608 | 18,64,813 |
| 97,05,517 | 1,26,12,708 | 1,30,49,933 | 1,12,30,105 | 1,42,43,628 | 1,47,92,271 |
| 27,61,584 | 28,06,144 | 20,34,617 | 30,82,864 | 31,37,753 | 22,34,406 |
| 77,18,833 | 97,30,703 | 1,08,90,192 | 78,31,062 | 98,66,937 | 1,08,29,874 |
| 1,65,18,784 | 2,01,40,991 | 1,70,82,214 | 1,65,46,435 | 2,01,74,629 | 1,71,11,969 |
| 78,07,104 | 81,86,423 | 88,03,407 | 82,66,916 | 92,49,165 | 96,66,508 |
| 4,45,11,722 | 5,34,75,969 | 5,16,60,363 | 4,69,47,381 | 5,66,71,012 | 5,46,45,428 |
| 16,35,126 | 19,64,425 | 19,97,729 | 17,24,599 | 20,81,794 | 20,07,386 |
| 18,91,00,799 | 15,88,45,251 | 15,83,82,370 | 14,70,41,861 | 15,75,67,919 | 16,73,06,980 |
| 51,09,830 | 58,35,137 | 58,18,132 | 54,01,542 | 61,55,560 | 61,45,689 |

TABLE 8—contd

(In Maunds.)

| Serial no | Name of district and division. | By Crop-cutting Experiments. | | |
|--------------|-----------------------------------|------------------------------|-------------|-------------|
| | | Wheat. | | |
| | | 1945-46. | 1946-47. | 1947-48. |
| 1 | 2 | 12 | 13 | 14 |
| 1 | Patna | 8,79,197 | 7,99,784 | 7,24,566 |
| 2 | Gaya | 11,05,659 | 14,73,010 | 18,41,426 |
| 8 | Shahabad | 15,42,154 | 14,93,208 | 12,73,066 |
| | Patna Division ... | 35,27,010 | 37,66,002 | 33,44,058 |
| | " in tons ... | 1,29,564 | 1,38,343 | 1,22,848 |
| 4 | Saran | 19,99,436 | 21,07,884 | 33,49,616 |
| 5 | Champanan | 8,51,012 | 6,36,562 | 5,70,706 |
| 6 | Muzaffarpur | 12,90,910 | 10,72,586 | 8,16,446 |
| 7 | Darbhanga | 8,40,648 | 10,11,231 | 8,04,424 |
| | Tirhut Division ... | 49,82,006 | 48,23,263 | 55,41,192 |
| | " in tons ... | 1,84,013 | 1,77,365 | 2,03,554 |
| 8 | Bhagalpur | 7,92,836 | 8,60,128 | 5,20,929 |
| 9 | Monghyr | 16,43,332 | 15,61,560 | 20,52,522 |
| 10 | Purnea | 8,24,535 | 8,45,186 | 3,19,906 |
| 11 | Santal Parganas ... | 22,913 | 28,428 | 28,108 |
| | Bhagalpur Division ... | 32,98,616 | 21,95,302 | 29,21,465 |
| | " in tons ... | 1,20,990 | 1,02,685 | 1,07,319 |
| 12 | Ranchi | 27,712 | 29,422 | 22,829 |
| 13 | Palamanu | 1,18,234 | 1,58,788 | 1,00,597 |
| 14 | Hazaribagh | 93,280 | 1,03,488 | 1,04,114 |
| 15 | Manbhum | 12,778 | 9,854 | 29,147 |
| 16 | Singhbhum | 29,664 | 23,623 | 19,052 |
| | Chota Nagpur Division ... | 2,81,729 | 3,25,175 | 2,55,739 |
| | " in Tons ... | 10,349 | 11,945 | 9,395 |
| | Provincial Total ... | 1,20,84,360 | 1,17,14,742 | 1,20,62,454 |
| | " in tons ... | 4,43,916 | 4,30,338 | 4,43,111 |

TABLE 8—*contd.*
(In Maunds.)

| By Crop-cutting Experiments | | | | | |
|-----------------------------|-----------|-----------|-----------|-----------|-----------|
| Gram | | | Masoor | | |
| 1945-46 | 1946-47 | 1947-48 | 1945-46 | 1946-47 | 1947-48 |
| 15 | 16 | 17 | 18 | 19 | 20 |
| 12,30,487 | 14,45,585 | 8,79,241 | 5,49,913 | 6,70,813 | 6,82,819 |
| 11,90,858 | 11,87,063 | 11,55,128 | 2,51,988 | 3,12,795 | 3,20,234 |
| 13,99,928 | 8,46,270 | 18,10,862 | 2,01,331 | 2,86,709 | 2,79,800 |
| 38,20,773 | 34,78,918 | 38,45,251 | 10,03,230 | 12,70,817 | 12,82,353 |
| 1,40,355 | 1,27,797 | 1,41,254 | 36,853 | 46,665 | 47,107 |
| 5,42,689 | 3,27,033 | 9,07,222 | 34,957 | 51,299 | 53,064 |
| 2,22,588 | 58,449 | 1,49,959 | 2,42,612 | 3,46,311 | 5,82,669 |
| 3,65,351 | 3,11,746 | 2,31,454 | 1,93,659 | 1,94,762 | 1,59,771 |
| 3,44,926 | 2,70,358 | 2,07,574 | 71,083 | 1,19,730 | 1,15,871 |
| 14,75,554 | 9,70,586 | 14,66,209 | 5,42,271 | 7,12,102 | 9,11,375 |
| 54,204 | 35,654 | 54,663 | 19,920 | 26,159 | 38,479 |
| 6,54,059 | 7,97,988 | 3,85,853 | 45,636 | 44,157 | 31,669 |
| 12,84,497 | 10,13,321 | 17,66,844 | 1,33,401 | 1,91,160 | 3,45,955 |
| 5,22,813 | 3,03,727 | 2,96,192 | 72,041 | 51,252 | 79,068 |
| 2,24,328 | 2,00,858 | 1,79,836 | 9,934 | 23,408 | 19,977 |
| 26,85,697 | 23,15,594 | 26,28,725 | 2,61,012 | 3,09,977 | 4,76,669 |
| 98,658 | 85,074 | 96,565 | 9,588 | 11,887 | 17,510 |
| 1,61,697 | 1,03,922 | 78,026 | 12,469 | 11,979 | 9,573 |
| 6,44,592 | 5,61,739 | 4,30,300 | 22,890 | 32,953 | 26,377 |
| 95,424 | 73,686 | 75,300 | 5,901 | 8,019 | 9,160 |
| 48,091 | 24,296 | 21,635 | 193 | 120 | 117 |
| 82,590 | 76,188 | 51,185 | 8,797 | 15,297 | 8,813 |
| 10,32,394 | 8,39,826 | 6,58,446 | 50,250 | 68,368 | 54,060 |
| 87,925 | 30,851 | 24,114 | 1,846 | 2,511 | 1,936 |
| 90,14,418 | 76,05,224 | 66,26,631 | 18,56,763 | 23,60,764 | 27,24,457 |
| 8,31,142 | 2,79,376 | 3,16,896 | 68,207 | 66,722 | 10,00,082 |

TABLE 8—contd.
(In Maunds.)

| Serial no. | Name of district and division. | By Eye | | |
|------------|--------------------------------|---------------|-----------|-----------|
| | | Autumn paddy. | | |
| | | 1945-46. | 1946-47. | 1947-48. |
| 1 | 2 | 21 | 22 | 23 |
| 1 | Patna | 8,112 | 5,009 | 4,068 |
| 2 | Gaya | 60,392 | 36,695 | 38,687 |
| 3 | Shahabad | 2,43,017 | 1,48,063 | 1,28,669 |
| | Patna Division | 3,11,521 | 1,89,767 | 1,71,324 |
| | .. in tons | 11,444 | 6,971 | 6,294 |
| 4 | Saran | 4,21,335 | 2,55,938 | 5,18,361 |
| 5 | Champanan | 15,78,903 | 16,31,340 | 20,45,682 |
| 6 | Muzaffarpur | 3,46,963 | 3,38,945 | 2,94,593 |
| 7 | Darbhanga | 3,81,241 | 3,50,471 | 2,89,210 |
| | Tirhut Division | 27,28,442 | 25,76,694 | 31,47,846 |
| | .. in tons | 1,00,229 | 94,654 | 1,15,635 |
| 8 | Bhagalpur | 4,28,966 | 3,06,670 | 3,97,808 |
| 9 | Monghyr | 1,12,784 | 36,930 | 71,707 |
| 10 | Purnea | 16,33,615 | 17,25,553 | 18,43,488 |
| 11 | Santal Parganas | 4,84,848 | 2,29,668 | 1,65,124 |
| | Bhagalpur Division | 26,60,213 | 22,98,821 | 24,78,187 |
| | .. in tons | 97,722 | 84,447 | 91,036 |
| 12 | Ranchi | 20,91,561 | 19,40,589 | 21,26,113 |
| 13 | Palamau | 3,68,364 | 2,79,960 | 3,22,280 |
| 14 | Hazaribagh | 1,14,063 | 1,52,386 | 2,00,719 |
| 15 | Manbhum | 39,665 | 43,477 | 42,976 |
| 16 | Singhbhum | 3,83,859 | 9,50,481 | 8,87,012 |
| | Chota Nagpur Division | 29,97,512 | 33,66,893 | 35,79,110 |
| | .. in tons | 1,101,13 | 1,23,682 | 1,31,478 |
| | Provincial Total | 86,97,688 | 84,32,175 | 93,76,467 |
| | .. in tons | 3,19,508 | 3,09,754 | 3,44,443 |

TABLE 8—*contd.*
(In Maunds).

| Estimation. | | | — | | |
|---------------|-------------|-------------|--------------|-------------|-------------|
| Winter paddy] | | | Total paddy. | | |
| 1945-46 | 1946-47. | 1947-48. | 1945-46. | 1946-47. | 1947-48. |
| 24 | 25 | 26 | 27 | 28 | 29 |
| 58,55,043 | 41,47,875 | 46,79,420 | 58,63,155 | 41,52,384 | 46,83,488 |
| 10,699,244 | 11,057,705 | 70,98,296 | 10,759,636 | 11,094,403 | 71,31,883 |
| 11,024,100 | 12,024,631 | 12,497,957 | 11,267,117 | 12,172,694 | 12,626,626 |
| 27,578,387 | 27,229,711 | 24,270,673 | 27,889,908 | 27,419,478 | 24,441,997, |
| 10,13,034 | 10,00,276 | 8,91,576 | 10,24,628 | 10,07,247 | 8,97,870 |
| 18,81,599 | 26,10,410 | 24,68,725 | 23,02,934 | 28,66,348 | 29,87,086 |
| 79,57,816 | 86,45,645 | 10,337,370 | 95,36,719 | 10,276,985 | 12,383,052 |
| 72,15,439 | 86,16,556 | 86,86,718 | 75,62,402 | 89,55,501 | 89,31,311 |
| 58,44,728 | 90,77,111 | 98,76,203 | 62,25,969 | 94,27,582 | 10,165,418 |
| 22,899,582 | 28,949,722 | 31,319,021 | 25,628,024 | 31,526,416 | 34,46,867 |
| 8,41,209, | 10,63,460 | 11,50,495 | 9,41,438 | 11,58,114 | 12,66,131 |
| 56,16,035 | 74,39,108 | 77,95,578 | 60,45,001 | 77,37,778 | 81,93,386 |
| 48,16,222 | 56,78,337 | 38,33,565 | 49,29,006 | 37,10,267 | 39,05,272 |
| 11,895,633 | 92,09,456 | 11,882,048 | 13,529,248 | 10,935,009 | 13,726,536 |
| 13,587,706 | 15,958,459 | 10,260,550 | 14,072,554 | 16,188,127, | 10,425,734 |
| 35,915,596 | 36,272,360 | 33,772,741 | 38,575,809 | 38,571,181 | 36,250,928 |
| 13,19,350 | 13,32,455 | 12,40,632 | 14,17,072 | 14,16,902 | 13,31,668 |
| 94,48,983 | 12,705,139 | 70,988,937 | 11,540,544 | 14,645,728 | 13,15,050 |
| 21,74,181 | 27,64,858 | 19,76,669 | 25,42,495 | 30,44,818 | 22,97,969 |
| 56,70,416 | 90,80,238 | 77,69,303 | 57,84,479 | 92,32,624 | 79,70,022 |
| 20,287,417, | 18,428,638 | 16,738,526 | 20,327,082 | 18,472,113 | 16,781,602 |
| 48,50,871 | 69,20,194 | 77,64,772 | 62,34,230 | 78,70,675 | 66,51,784 |
| 42,431,318 | 40,899,065 | 45,238,207 | 45,428,830 | 53,265,958 | 48,817,317 |
| 15,58,702 | 18,33,028 | 16,61,813 | 16,68,816 | 19,56,710 | 17,93,291 |
| 128,624,883 | 142,350,858 | 134,600,643 | 137,522,571 | 150,783,033 | 143,977,109 |
| 47,32,345 | 52,29,219 | 49,44,516 | 50,51,854 | 55,38,973 | 52,88,960 |

TABLE 8—*contd.*
(In Maunds.)

| Serial no. | Name of district and division. | By Eye. | | |
|------------|---|-------------|-------------|-------------|
| | | Maize. | | |
| | | 1945-46. | 1946-47. | 1947-48. |
| 1 | 2 | 30 | 31 | 32 |
| 1 | Patna | 3,47,655 | 3,39,286 | 3,86,830 |
| 2 | Gaya | 4,03,975 | 1,22,411 | 2,62,923 |
| 3 | Shahabad | 1,76,961 | 2,04,059 | 1,32,225 |
| | Patna Division | 9,28,591 | 6,65,736 | 7,81,983 |
| | Patna Division (in tons) | 34,112 | 24,456 | 28,726 |
| 4 | Saran | 28,70,559 | 16,89,490 | 20,44,052 |
| 5 | Champanan | 10,69,250 | 10,00,036 | 9,39,682 |
| 6 | Muzaffarpur | 22,11,263 | 13,64,036 | 14,11,842 |
| 7 | Darbhanga | 10,96,537 | 14,42,493 | 13,98,691 |
| | Tirhut Division | 72,47,609 | 54,96,055 | 57,94,267 |
| | Tirhut Division in tons | 2,66,239 | 2,01,896 | 2,12,851 |
| 8 | Bhagalpur | 21,83,646 | 15,62,694 | 16,45,755 |
| 9 | Monghyr | 11,20,069 | 9,23,082 | 13,67,975 |
| 10 | Purnea | 18,89,636 | 9,07,380 | 9,25,558 |
| 11 | Santal Parganas | 11,46,766 | 9,53,278 | 9,55,753 |
| | Bhagalpur Division | 58,40,117 | 43,36,434 | 48,95,041 |
| | Bhagalpur Division in tons | 2,14,535 | 1,59,298 | 1,79,818 |
| 12 | Ranchi | 97,032 | 1,02,861 | 1,48,451 |
| 13 | Palaman | 6,96,366 | 3,69,103 | 8,40,338 |
| 14 | Hazaribagh | 7,48,593 | 6,29,709 | 10,78,458 |
| 15 | Manbhum | 8,55,673 | 3,28,023 | 4,55,781 |
| 16 | Singbhum | 1,18,985 | 74,295 | 1,49,464 |
| | Chota Nagpur Division | 20,17,649 | 15,03,391 | 26,67,442 |
| | Chota Nagpur Division (in tons.) | 74,118 | 55,227 | 97,988 |
| | Provincial Total | 1,60,33,966 | 1,20,01,616 | 1,41,38,733 |
| | Provincial Total (in tons)... | 5,89,004 | 4,40,877 | 5,19,353 |

TABLE 8—*contd.*
(In Maunda)

| Estimation. | | | | | |
|-------------|-----------|-----------|-----------|-----------|-----------|
| Wheat. | | | Gram. | | |
| 1945-46. | 1946-47. | 1947-48. | 1945-46. | 1946-47. | 1947-48. |
| 33 | 34 | 35 | 36 | 37 | 38 |
| 9,76,318 | 7,51,312 | 5,56,400 | 13,10,788 | 6,50,312 | 10,68,522 |
| 11,45,431 | 11,30,387 | 11,17,489 | 12,04,910 | 12,51,298 | 12,07,842 |
| 11,49,865 | 10,19,668 | 12,40,133 | 13,33,660 | 15,35,427 | 19,17,202 |
| 82,71,634 | 29,01,367 | 29,14,022 | 38,49,358 | 34,37,037 | 41,93,566 |
| 1,20,183 | 1,06,581 | 1,07,046 | 1,41,405 | 1,26,269 | 1,54,049 |
| 20,79,933 | 17,30,712 | 16,74,808 | 5,01,080 | 4,55,435 | 4,30,960 |
| 9,43,846 | 7,36,024 | 3,76,047 | 3,46,706 | 1,33,101 | 1,44,778 |
| 12,42,395 | 10,40,597 | 11,90,188 | 4,56,878 | 3,87,028 | 3,66,316 |
| 8,67,495 | 10,57,429 | 6,99,099 | 3,51,675 | 3,76,888 | 2,97,389 |
| 51,33,169 | 45,64,762 | 39,40,137 | 16,56,339 | 13,52,450 | 12,39,473 |
| 1,88,566 | 1,67,685 | 1,44,740 | 60,845 | 49,682 | 45,532 |
| 7,22,959 | 5,52,766 | 5,36,787 | 6,28,057 | 6,01,672 | 4,43,495 |
| 11,09,445 | 10,62,834 | 17,52,657 | 9,89,563 | 7,68,814 | 12,49,586 |
| 5,42,712 | 4,09,820 | 2,42,671 | 3,05,996 | 1,33,820 | 2,14,627 |
| 29,311 | 19,425 | 24,024 | 2,09,047 | 1,91,559 | 1,76,860 |
| 24,04,427 | 20,44,345 | 25,56,139 | 21,33,083 | 16,95,865 | 20,84,568 |
| 88,326 | 75,088 | 93,899 | 78,358 | 62,297 | 76,576 |
| 21,379 | 21,319 | 19,610 | 1,47,031 | 96,224 | 80,751 |
| 1,27,447 | 1,90,995 | 1,19,485 | 6,43,065 | 5,61,739 | 5,40,779 |
| 1,00,496 | 1,15,956 | 88,986 | 1,11,436 | 1,29,974 | 1,01,600 |
| 13,694 | 15,976 | 11,414 | 57,578 | 39,087 | 28,117 |
| 18,694 | 16,508 | 24,073 | 89,145 | 96,287 | 61,347 |
| 2,81,710 | 3,60,754 | 2,63,568 | 10,48,255 | 9,23,311 | 8,12,612 |
| 10,349 | 13,252 | 9,682 | 33,607 | 33,918 | 29,851 |
| 1,10,90,940 | 98,71,228 | 96,73,866 | 83,87,035 | 74,08,663 | 83,30,219 |
| 4,07,424 | 3,62,616 | 3,55,367 | 3,19,115 | 2,72,156 | 3,06,008 |

TABLE 8—contd.

(In Maunds.)

| Serial no. | Name of district and pvision. | By Eye Estimation. | | |
|------------|---------------------------------|--------------------|-----------|-----------|
| | | Barley. | | |
| | | 1945-46. | 1946-47 | 1947-48. |
| 1 | 2 | 39 | 40 | 41 |
| 1 | Patna | 1,19,496 | 1,40,595 | 93,494 |
| 2 | Gaya | 4,11,266 | 3,32,031 | 2,37,286 |
| 3 | Shahabad | 2,58,533 | 2,42,624 | 2,59,163 |
| | Patna Division | 7,89,300 | 7,15,250 | 5,89,943 |
| | Patna Division (in tons) ... | 28,995 | 26,275 | 21,671 |
| 4 | Saran | 15,94,009 | 15,09,495 | 21,25,083 |
| 5 | Champanan | 10,31,935 | 10,95,785 | 9,67,462 |
| 6 | Muzaffarpur | 13,83,046 | 11,52,737 | 10,03,359 |
| 7 | Darbhanga | 4,36,805 | 7,99,527 | 8,86,057 |
| | Tirhut Division | 44,45,795 | 45,57,544 | 44,81,961 |
| | Tirhut Division (in tons) ... | 1,63,315 | 1,67,420 | 1,64,644 |
| 8 | Bhagalpur | 4,26,941 | 3,85,220 | 3,58,664 |
| 9 | Monghyr | 3,61,011 | 2,98,938 | 3,93,595 |
| 10 | Purnea | 4,91,994 | 1,65,000 | 1,80,687 |
| 11 | Santal Parganas | 96,004 | 78,161 | 43,276 |
| | Bhagalpur Division | 13,75,950 | 9,27,319 | 9,76,223 |
| | Bhagalpur Division (in tons) | 50,545 | 34,065 | 35,861 |
| 12 | Ranchi | 18,924 | 17,257 | 15,986 |
| 13 | Palamau | 2,95,918 | 3,41,847 | 2,52,390 |
| 14 | Hazaribagh | 65,110 | 68,619 | 58,416 |
| 15 | Manbhum | 12,272 | 2,468 | 2,596 |
| 16 | Singhbhum | 1,469 | 1,239 | 94 |
| | Chota Nagpur Division | 3,93,693 | 4,31,430 | 3,29,482 |
| | Chota Nagpur Division (in tons) | 14,462 | 15,848 | 12,103 |
| | Provincial Total | 70,04,738 | 66,31,543 | 63,77,608 |
| | Provincial Total (in tons) | 2,57,317 | 2,43,608 | 2,34,279 |

TABLE 8—*contd.*
(In Maunds.)

| By Eye Estimation. | | | | | |
|--------------------|-----------|-----------|-----------|-----------|-----------|
| Mascor. | | | Arhar. | | |
| 1945-46. | 1946-47. | 1947-48. | 1945-46. | 1946-47. | 1947-48. |
| 42 | 43 | 44 | 45 | 46 | 47 |
| 6,94,117 | 7,35,336 | 7,67,747 | 1,63,652 | 87,697 | 1,73,408 |
| 2,50,551 | 3,13,515 | 3,86,635 | 2,39,075 | 2,06,627 | 2,22,764 |
| 1,94,410 | 2,03,596 | 2,81,910 | 3,04,066 | 1,53,499 | 3,71,306 |
| 11,39,078 | 12,52,447 | 14,36,292 | 7,06,793 | 4,47,823 | 7,67,478 |
| 41,844 | 46,008 | 52,762 | 25,964 | 16,451 | 28,193 |
| 66,974 | 62,055 | 68,476 | 9,69,211 | 10,12,824 | 11,00,863 |
| 3,44,764 | 3,73,026 | 4,49,719 | 5,02,682 | 3,99,518 | 3,86,136 |
| 2,14,794 | 2,21,109 | 2,05,261 | 5,29,400 | 3,53,940 | 4,27,164 |
| 86,539 | 1,57,611 | 1,42,062 | 4,19,186 | 3,05,214 | 3,67,530 |
| 7,13,071 | 6,13,801 | 8,65,518 | 24,20,479 | 20,71,496 | 22,81,693 |
| 26,194 | 29,895 | 31,795 | 88,916 | 76,096 | 83,817 |
| 14,597 | 55,141 | 47,966 | 1,39,041 | 1,72,542 | 1,64,854 |
| 1,85,683 | 1,85,558 | 3,24,756 | 3,46,704 | 3,64,198 | 5,67,799 |
| 38,244 | 37,660 | 84,144 | 1,85,121 | 89,627 | 94,655 |
| 13,970 | 21,429 | 13,083 | 2,29,954 | 1,63,205 | 1,89,916 |
| 2,52,499 | 2,99,788 | 4,70,149 | 9,00,820 | 7,88,573 | 10,17,233 |
| 9,275 | 11,013 | 17,271 | 33,091 | 28,968 | 37,367 |
| 7,370 | 7,663 | 7,133 | 1,52,467 | 2,20,435 | 2,99,077 |
| 30,170 | 52,183 | 41,430 | 2,97,887 | 2,17,769 | 3,15,049 |
| 4,601 | 6,707 | 7,056 | 1,03,277 | 1,42,121 | 1,47,558 |
| 255 | 112 | 335 | 42,593 | 78,524 | 64,628 |
| 7,102 | 9,111 | 7,932 | 17,123 | 31,992 | 31,181 |
| 48,898 | 7,776 | 63,886 | 6,13,347 | 6,90,841 | 8,57,423 |
| 1,796 | 2,784 | 2,847 | 22,531 | 25,378 | 31,497 |
| 21,53,546 | 24,41,812 | 28,35,845 | 46,41,439 | 39,98,732 | 49,23,817 |
| 79,109 | 89,700 | 1,04,175 | 1,70,502 | 1,46,893 | 1,60,874 |

TABLE 8—*contd.*

(In Maunds).

| Serial no. | Name of district and division. | By Eye. | | |
|---------------|-------------------------------------|-----------|-------------|-------------|
| | | Khesari. | | |
| | | 1945-46. | 1946-47. | 1947-48. |
| 1 | 2 | 48 | 49 | 50 |
| 1 | Patna | 13,89,740 | 19,04,962 | 15,46,538 |
| 2 | Gaya | 10,92,204 | 16,24,686 | 15,06,951 |
| 3 | Shahabsd | 14,74,815 | 16,85,269 | 21,02,573 |
| | Patna Division | 39,56,759 | 51,64,867 | 51,56,082 |
| | Patna Division (in tons) ... | 1,45,350 | 1,89,730 | 1,89,407 |
| 4 | Saran | 1,19,444 | 95,019 | 1,03,990 |
| 5 | Champaran | 2,65,318 | 3,39,565 | 4,62,299 |
| 6 | Muzaffarpur | 11,75,240 | 11,88,624 | 15,85,650 |
| 7 | Darbhanga | 4,29,867 | 7,82,953 | 8,47,904 |
| | Tirhut Division | 19,89,869 | 24,06,161 | 29,99,843 |
| | Tirhut Division (in tons) ... | 73,097 | 88,390 | 1,10,108 |
| 8 | Bhagalpur | 3,82,068 | 8,11,018 | 15,32,475 |
| 9 | Monghyr | 6,12,406 | 9,22,024 | 8,90,947 |
| 10 | Purnea | 2,24,987 | 2,92,415 | 7,81,561 |
| 11 | Santal Parganas | 3,32,663 | 5,16,605 | 3,13,090 |
| | Bhagalpur Division | 15,52,104 | 25,42,062 | 35,18,073 |
| | Bhagalpur Division (in tons) | 57,016 | 93,382 | 1,29,235 |
| 12 | Ranchi | 22,806 | 21,779 | 30,838 |
| 13 | Palamau | 1,16,606 | 1,03,942 | 1,05,458 |
| 14 | Hazaribagh | 34,108 | 34,252 | 20,776 |
| 15 | Manbhum | 22,650 | 13,077 | 17,251 |
| 16 | Singhbhum | 21,046 | 59,763 | 72,585 |
| | Chota Nagpur Division | 2,17,216 | 2,32,813 | 2,46,908 |
| | Chota Nagpur Division—(in tons.) | 7,979 | 8,552 | 9,070 |
| | Provincial Total | 77,15,948 | 1,03,45,903 | 1,19,20,888 |
| | Provincial—(In tons) | 2,83,442 | 3,80,054 | 4,37,910 |

TABLE 8—*contd.*

(In Maunds.)

| Estimation. | | | | | |
|-------------|-----------|-----------|-------------|-------------|-------------|
| Peas. | | | Sugarcane. | | |
| 1945-46. | 1946-47. | 1947-48. | 1945-46. | 1946-47. | 1947-48. |
| 51 | 52 | 53 | 54 | 55 | 56 |
| 52,705 | 75,160 | 1,11,364 | 46,68,575 | 59,58,709 | 53,14,463 |
| 1,40,956 | 1,88,951 | 1,77,948 | 18,50,094 | 53,71,993 | 48,64,942 |
| 55,038 | 82,823 | 1,38,538 | 63,34,260 | 70,48,762 | 51,87,128 |
| 2,48,699 | 2,46,934 | 4,27,850 | 1,28,52,929 | 1,83,79,464 | 1,53,66,533 |
| 9,186 | 12,745 | 15,717 | 4,72,149 | 6,75,165 | 5,64,485 |
| 2,14,983 | 2,50,383 | 2,87,485 | 1,39,90,632 | 1,59,36,261 | 1,46,15,398 |
| 1,22,184 | 1,24,088 | 1,40,335 | 14,890,373 | 1,13,85,024 | 1,87,29,890 |
| 56,409 | 75,168 | 95,811 | 48,38,242 | 58,04,850 | 49,54,047 |
| 58,329 | 68,069 | 56,447 | 93,24,153 | 1,10,72,803 | 74,79,719 |
| 4,51,885 | 5,17,708 | 5,80,078 | 4,25,43,400 | 4,41,99,078 | 4,57,79,054 |
| 16,600 | 19,018 | 21,309 | 15,62,820 | 15,623,641 | 16,81,681 |
| 78,802 | 2,51,888 | 2,48,119 | 3,80,729 | 7,32,178 | 4,85,259 |
| 1,55,160 | 2,91,401 | 4,48,939 | 6,55,781 | 16,25,250 | 19,39,120 |
| 50,346 | 70,685 | 1,19,066 | 2,14,413 | 1,07,748 | 1,35,771 |
| 24,033 | 42,106 | 44,893 | 89,229 | 85,277 | 1,35,127 |
| 3,08,341 | 6,56,080 | 8,61,017 | 13,40,152 | 25,50,453 | 26,95,287 |
| 11,327 | 24,101 | 31,629 | 49,230 | 93,690 | 99,011 |
| 5,342 | 4,203 | 7,983 | 57,653 | 44,448 | 6,230 |
| 27,246 | 28,452 | 23,035 | 3,76,096 | 2,93,933 | 2,41,747 |
| 19,077 | 28,059 | 28,530 | 1,98,939 | 2,01,940 | 1,38,693 |
| 851 | 732 | 1,077 | 1,29,936 | 2,83,950 | 5,19,945 |
| 4,023 | 2,951 | 4,360 | 7,474 | 12,137 | 7,527 |
| 56,539 | 64,397 | 64,985 | 7,70,098 | 8,39,838 | 9,14,142 |
| 2,077 | 2,366 | 2,387 | 28,289 | 30,651 | 33,581 |
| 10,65,464 | 15,85,119 | 19,33,930 | 5,75,06,579 | 6,59,68,833 | 6,47,55,016 |
| 99,140 | 58,230 | 71,042 | 21,12,468 | 24,23,347 | 23,78,758 |

TABLE 8—*contd.*

(In Maunds.)

| Serial no. | Name of district and Division. | By eye estimation. | | |
|------------|--------------------------------|--------------------|-----------|-----------|
| | | Potato. | | |
| | | 1945-46. | 1946-47. | 1947-48. |
| 1 | 2 | 57 | 58 | 59 |
| 1 | Patna | 14,06,176 | 9,93,381 | 10,20,181 |
| 2 | Gaya | 6,34,551 | 3,77,233 | 3,93,863 |
| 3 | Shahabad | 2,72,185 | 2,39,236 | 5,37,836 |
| | Patna Division | 23,12,912 | 16,09,850 | 19,51,880 |
| | „ in Tons | 84,964 | 59,137 | 71,702 |
| 4 | Saran | 8,78,482 | 9,74,075 | 10,48,723 |
| 5 | Champan | 1,11,662 | 82,497 | 55,283 |
| 6 | Muzaffarpur | 3,66,883 | 2,88,337 | 2,08,963 |
| 7 | Darbhanga | 2,48,805 | 2,16,226 | 2,09,303 |
| | Tirhut Division | 16,05,832 | 15,61,135 | 15,22,272 |
| | „ in Tons | 58,990 | 57,348 | 55,920 |
| 8 | Bhagalpur | 2,07,433 | 1,45,748 | 2,27,249 |
| 9 | Monghyr | 2,50,104 | 1,85,148 | 1,63,576 |
| 10 | Purnea | 1,84,171 | 1,99,879 | 2,31,824 |
| 11 | Santal Parganas | 9,230 | 57,087 | 44,797 |
| | Bhagalpur Division | 6,50,938 | 5,87,862 | 6,67,446 |
| | „ in Tons | 23,912 | 21,595 | 24,518 |
| 12 | Ranchi | 1,09,441 | 83,768 | 1,24,524 |
| 13 | Palaman | 1,01,407 | 31,175 | 23,796 |
| 14 | Hazaribagh | 1,70,899 | 1,87,379 | 1,74,231 |
| 15 | Manbhum | 22,413 | 10,483 | 25,422 |
| 16 | Singhbhum | 1,196 | 3,065 | 3,049 |
| | Chota Nagpur Division | 4,05,365 | 3,15,870 | 3,51,022 |
| | „ in Tons | 14,891 | 11,603 | 12,895 |
| | Provincial Total | 49,75,037 | 40,74,717 | 44,92,620 |
| | „ in Tons | 1,82,757 | 1,49,683 | 1,65,035 |

TABLE 8—*contd.*
(In Maunds.)

| Jute. | | | Tobacco. | | |
|----------|-----------|-----------|----------|----------|----------|
| 1945-46. | 1946-47. | 1947-48. | 1945-46. | 1946-47. | 1947-48. |
| 60 | 61 | 62 | 63 | 64 | 65 |
| ... | 18 | 1,202 | 9,985 | 10,972 | 4,038 |
| ... | 3,916 | 3,052 | 10,137 | 245 | 598 |
| ... | 4,128 | 569 | 1,236 | 343 | 714 |
| ... | 8,062 | 4,823 | 21,358 | 11,560 | 5,350 |
| ... | 1,656* | 992* | 785 | 425 | 197 |
| ... | 4,938 | 8,669 | 35,872 | 10,647 | 9,896 |
| ... | 12,756 | 3,954 | 6,098 | 22,557 | 12,131 |
| ... | 7,320 | 10,857 | 3,04,965 | 2,19,016 | 1,87,765 |
| ... | 14,066 | 8,703 | 1,09,324 | 1,25,132 | 80,669 |
| ... | 28,980 | 22,183 | 4,56,254 | 2,77,352 | 2,90,461 |
| ... | 8,019* | 6,621* | 16,760 | 13,862 | 10,670 |
| ... | 55,847 | 95,241 | 60,117 | 20,809 | 28,426 |
| ... | 2,795 | 2,057 | 6,127 | 6,407 | 27,703 |
| ... | 14,52,120 | 19,16,367 | 1,74,938 | 1,79,995 | 2,25,908 |
| ... | 18,881 | 16,593 | 4,100 | 4,497 | 5,668 |
| ... | 15,29,643 | 20,30,358 | 2,45,282 | 2,11,608 | 2,85,755 |
| ... | 9,14,669* | 4,17,653* | 9,010 | 7,770 | 10,495 |
| ... | 898 | 2,553 | 4,794 | 1,850 | 4,172 |
| ... | 1,519 | 1,156 | 522 | 124 | 19 |
| ... | 33 | 78 | 3,878 | 1,165 | 1,316 |
| ... | 5,340 | 4,202 | 2,782 | 4,047 | 3,397 |
| ... | 5,592 | 2,423 | 866 | 1,527 | 1,647 |
| ... | 13,282 | 10,510 | 13,662 | 8,713 | 10,620 |
| ... | 2,732* | 2,162* | 502 | 320 | 390 |
| ... | 15,89,967 | 20,77,774 | 7,38,556 | 6,09,133 | 5,92,136 |
| ... | 3,27,078* | 4,27,428* | 27,057 | 22,377 | 21,752 |

*Gives the outturn of jute in bales of 400 lbs. each.

TABLE 8—concl'd
(In Maunds.)

| Serial no. | Name of district and Division. | By eye estimation. | | | Remarks. |
|------------|--------------------------------|--------------------|-----------|-----------|----------|
| | | Chillies (Mircha). | | | |
| | | 1945-46. | 1946-47. | 1947-48. | |
| 1 | 2 | 66 | 67 | 68 | 69 |
| 1 | Patna | 65,885 | 54,193 | 42,668 | |
| 2 | Gaya | 15,916 | 13,230 | 15,820 | |
| 3 | Shahabad | 9,168 | 10,827 | 21,381 | |
| | Patna Division | 90,969 | 78,250 | 79,869 | |
| | " in Tons | 3,342 | 2,874 | 2,934 | |
| 4 | Saran | 8,125 | 4,986 | 4,115 | |
| 5 | Champanan | 8,131 | 13,338 | 7,196 | |
| 6 | Muzaffarpur | 45,582 | 86,428 | 1,45,050 | |
| 7 | Darbhangha | 3,71,925 | 4,96,858 | 3,65,918 | |
| | Tirhut Division | 4,33,763 | 6,01,610 | 5,22,279 | |
| | " in Tons | 15,934 | 22,100 | 19,186 | |
| 8 | Bhagalpur | 8,117 | 8,012 | 9,513 | |
| 9 | Monghyr | 1,93,243 | 6,59,762 | 8,74,724 | |
| 10 | Purnea | 22,559 | 32,718 | 43,316 | |
| 11 | Santal Parganas | 2,679 | 4,660 | 6,282 | |
| | Bhagalpur Division | 2,26,598 | 7,05,122 | 9,33,835 | |
| | " in Tons | 8,324 | 25,902 | 34,304 | |
| 12 | Ranchi | 1,233 | 2,347 | 1,483 | |
| 13 | Palamau | 7,577 | 5,619 | 5,892 | |
| 14 | Hazaribagh | 3,098 | 5,194 | 2,994 | |
| 15 | Manbhum | 354 | 1,005 | 1,079 | |
| 16 | Singbhum | 350 | 498 | 888 | |
| | Chota Nagpur Division | 12,612 | 14,663 | 12,334 | |
| | " in Tons | 463 | 539 | 453 | |
| | Provincial Total | 7,63,942 | 13,99,645 | 15,48,317 | |
| | " in Tons | 28,063 | 51,415 | 56,877 | |

APPENDIX II.

Production—Maps are appended at the end.

APPENDIX III.

Reports on crop surveys conducted by Prof. Mahalanobis.

BIHAR CROP SURVEY, 1944-45.

First Report on bhadai Crops.

1. *Introduction.*—The present report gives the provisional results based on the field records collected in the sample survey of *bhadai* crops in Bihar during the period 3rd July to 6th October 1944. The last batch of material was received in the Statistical Laboratory at Giridih on the 14th October. The original plan was to have completed the tabulation within ten days, but this was not possible owing to heavy work in connection with preparatory arrangements for the *aghani* survey. The scrutiny and detailed analysis of the material have not yet been completed; and a fuller report will be submitted in due course.

PLAN OF SURVEY.

2. *Cells and grids.*—This is the first time that an attempt was made to carry out a sample survey of crops on a full provincial scale. Excluding certain hilly and forest tracts the total area covered was 432·32 lakhs of acre of about 67,552 square miles. In the light of experience gained during the pilot survey in the *rabi* season the whole area was divided into 1,333 cells roughly of a square shape and about 50 square miles each in extent. The grids used (or samples-units) were of square shape and of size 4 acre, each. The allotment and distribution of cells and grids is shown in appended Table I in which col. (1) gives the name of the district and col. (2) the actual period of field survey. The total work was arranged in the form of two samples called (A) and (B); the work in each sample was done independently by a different party of field workers. Each sample thus furnished an independent estimate of crop acreage and rates of yield per acre of paddy.

3. The total number of cells allotted to each sample is shown in col. (3), and the programme was that work would be done by each party in each cell.

In actual practice this could not be fully carried out. The total number of cells in which work was actually done in both samples (A) and (B) is shown in col. (4); and the number of cells in which work was done in only one sample either (A) or (B) is given in col. (5). Owing to unforeseen difficulties certain cells were not surveyed by either of the parties; the number of such abandoned cells which were not surveyed at all

is shown in col. (6). Finally the proportion (expressed as a percentage of the total number 1,343 counted twice) of cells surveyed is given in col. (7).

4. In the same way, the total number of grids or sample-units allotted in the original programme is given in col. (8) the number actually surveyed in sample (A) in col. (9) and that in sample (B) in col. (10); the total number surveyed being the sum of the figures in cols. (9) and (10) is shown in col. (11). A large number of grids were however omitted mostly in cells which were abandoned, and also sometimes within cells in which work was done. The proportion (expressed as a percentage of the total number of 65,212) of grids actually surveyed is shown in col. (2).

5. *Gaps in the material.*—It is clear from Table 1 that there were large gaps in the original sampling programme. From col. (7) we notice that the proportion of cells surveyed in Tribut Division was 95 per cent which was quite satisfactory. Patna with 90 per cent and Bhagalpur with 89 per cent were also fairly good. In Chota Nagpur Division, on the other hand, only 65 per cent of the cells were actually surveyed so that more than one-third of the area was not covered at all. This of course is a serious defect in the primary material. From col. (12) we also notice that the percentage of grids surveyed fell appreciably below target. Tribut Division again comes out best with a proportion of 84 per cent and Bhagalpur Division with 72 per cent. Chota Nagpur Division occupies bottom place with only 53 per cent of grids actually surveyed.

6. It must be remembered that this is the first time that a sample survey was attempted on a full provincial scale in the province. Difficulties of organization were great while time was extremely short. The surprising thing is not that there were appreciable gaps in the programme, actually surveyed. In interpreting the results the gaps in the sampling programme have, however, naturally to be kept in mind.

ESTIMATES OF CROP ACREAGE.

7. It must be emphasized at the outset that the object of the survey is definitely to estimate the crop acreage for the province as a whole; and that with the scale of sampling used it is not possible to obtain reliable figures for individual districts. I am, however, giving district figures in appended table (2) to show the evidence on which the provincial estimates are based. In this table the serial number of the district is given in col. (1) and the name of the district in col. (2). The total area in thousand acres included in the survey is given in col. (3)

it will be noticed that this is 432.23 lakhs of acres. The total number of grids surveyed in sample (A) is shown in col. 4 and that in sample (B) in col. (5); the combined figure is given in col. (6).

8. The estimated area under *bhadai* paddy on sample (A) is given in col. (7) and the corresponding estimate based on sample (B) in col. (8); the combined estimate is given in col. (9). In the same way, the sample estimates of the area under *makai* (maize) based on samples (A) and (B) are given in cols. (10) and (11) respectively with a pooled value in col. (12). The estimates of area in the *china* group (inclusive of *china*, *marua*, *kodo*, *kauni*, *gandli* and *shama*) based on samples (A) and (B) are shown in cols. (13) and (14) respectively with the combined value in col. (15).

9. *Comparison of the two samples.*—It will be noticed from cols. (7) and (8) of the Table 2 that the estimated area under *bhadai* paddy in Patna Division based on the two samples are (in thousand acres) 101.3 and 113.66 with a pooled value of 107.49.

Considering that these are estimates for a single division the agreement between the two samples is quite satisfactory. The agreement between samples (A) and (B) is in fact, generally satisfactory in Tirhut and Patna Divisions. The differences between the two estimates (A) and (B) for *bhadai* paddy and *makai* and also to some extent for *china* in Monghyr district are, however, suspiciously large. The proportion of cells surveyed, however, was so high as 94 per cent, and the proportion of grids surveyed was also quite high and 78 per cent in this district. The discrepancy between the two samples cannot, therefore, be reasonably ascribed to gaps in the sample. The figures are being scrutinized again, but on the present evidence the field work in Monghyr appears to have been unsatisfactory. The discrepancy for *bhadai* paddy in Hazaribagh district is also large; but the figures for *makai* and *china* are on the whole satisfactory. The proportion of cells surveyed was comparatively small, only 68 per cent, and the proportion of grids surveyed still smaller, namely, 55 per cent in this district. It is possible, therefore, that the observed discrepancy for *bhadai* paddy in Hazaribagh district was due to the material not being complete. In Singhbhum district the discrepancy for *bhadai* paddy and for *china* are rather large, but *makai* figures are fairly reasonable. In this district also the proportion of cells surveyed was small, only 59 per cent, and the proportion of grids surveyed only 56 per cent; and the observed discrepancy may have arisen from gaps in the material.

10. The above discussion shows that the primary material from Monghyr district was unreliable and that there were serious gaps in the material from Chota Nagpur Division. If we omit the figures for Monghyr district and Chota Nagpur Division we find that for the remaining part of the province the estimated area in thousand acres for *bhadai* paddy was 1729 according to sample (A) and 1,732 according to sample (B); the agreement is extremely close. For *makai* the sample estimates based on samples (A) and (B) are 1,700 and 1,812 again showing quite satisfactory agreement. For *china* the two sample estimates are 914 and 850 which also is not unsatisfactory. The difference between the two sample estimates (A) and (B) naturally becomes larger if data for Monghyr district and Chota Nagpur Division are included in the tabulation. The actual position is shown below in Table 3 in which the name of the crop is given in col. (1) and the estimated acreage (in thousand acres) based on samples (A) and (B) in cols (2) and (3) respectively; and the combined estimate in col. (4).

TABLE 3.

Area (in thousand acres) under principal *bhadai* crops of Bihar, 1914.

| Name of crop | Area in thousand acres. | | | | |
|-----------------------|-------------------------|-------------|-----------|---------------------------------|---------------------------------|
| | Sample (A). | Sample (B). | Combined. | Season and Crop Report, 1941-42 | Settlement reports (1902-1935). |
| 1 | 2 | 3 | 4 | 5 | 6 |
| Bhadai ... Paddy. | 3,221 | 2,929 | 3,073 | 2,232 | 3,190 |
| Makai ... (Maize). | 2,705 | 2,454 | 2,577 | 1,461 | 1,546 |
| China ... Group. | 1,675 | (a)1,713 | (a)1,695 | ... | (b) 1,139 |

(a) Includes *china*, *marua*, *kodo*, *kauni*, *gandli* and *shama*.

(b) Includes *china*, *marua* and *kodo* only.

11. *Provincial estimates.*—It will be noticed that for the province as a whole the estimated area under paddy (in thousand acres) based on the two samples are 3,112 and 2,929 respectively with a combined value of 3,073. The two sample estimates for the area under *makai* are 2,705 and 2,454 with a pooled value of 2,577. For the *china* group the figures are 1,675 with a pooled value of 1,695.

12. *Official figures.*—For convenience of comparison official acreage estimates as given in the Season and Crop Report of 1941-42 are shown in col. (5), and the acreages given in the Settlement Reports (of various dates between 1902 and 1935) in col. (3). The settlement figure (in thousand acres) for the total area under paddy is 3,190 against a sample estimate of 3,073. It appears, therefore, that the total area under *bhadai* paddy in the current season is something of the same order as that recorded during settlement operations. The official figure of 2,232 for 1941-42 was much lower.

13. For the area under *makai* we have (in thousand acres) a sample estimate of 2,577 against a settlement figure of 1,546 and an official figure for 1941-42 of 1,461. The cultivation of *makai* thus appears to have increased very appreciably in recent years. For the *china, marua, kodo, kauni, gandli* and *shama* against a settlement figure of 1,139 inclusive only of *china, marua* and *kodo*, exact comparison is not, therefore, possible as the settlement figure excludes *gandli* and *shama*; it, however, looks likely that the cultivation of this group of crops has remained steady or has increased to some extent.

YIELD PER ACRE OF *bhadai* RICE.

14. *Crop-cutting work.*—Owing to unforeseen difficulties the total volume of crop-cutting work was much smaller than contemplated in the original programme. Plots were selected at random beforehand, and sample cuts (of which there was more than one in each plot) were also located at random within plot weighted average results based on experiments done on 332 plot in sample (A) and on 377 plots in sample (B) are given below in Table 4.—The estimated yield of rice (not in husk).

TABLE 4.

Estimated outturn in thousand maunds of rice (not in husk), Bihar, 1944.

| Estimate. | Area under paddy in thousand acres. | Yield of rice (not in husk). | | Total outturn in thousand maunds of rice (not in husk). |
|---------------------|-------------------------------------|------------------------------|----------------------|---|
| | | Number of plots. | Maunds per acre (a). | |
| Sample (A) ... | 3,220.9 | 382 | 5.11 | 16,459 |
| Sample (B) ... | 2,929.1 | 377 | 5.74 | 16,813 |
| Combined ... | 3,072.8 | 759 | 5.39 | 16,562 |
| Official (1941-42). | 3,189.8 | ... | (b)4.93 | 15,723 |

(a) weight of rice (not in husk) taken as two-thirds of dry weight of paddy.

(b) Calculated from official figures of acreage and outturn in maunds per acre was 5.11 based on sample (A) and 5.74 based on sample (B) with a pooled value of 5.39 maunds per acre. It may be mentioned here that the actual weight of dry paddy was recorded in every case during the field survey, and has been converted into that of rice (not in husk) by multiplying by the usually accepted conversion factor of two-third.

OUTTURN OF *bhadai* RICE.

15. Multiplying the acreage figures in col. (2) of Table 2 by the corresponding rates of yield of rice per acre in col. (4) we get the estimated outturn in thousand maunds of rice (not in husk) in col. (5). According to sample (A) the outturn of rice is 164.59 lakhs of maunds, and according to sample (B) 168.13 lakhs of maund with a pooled value of 165.62 lakhs of maunds. Keeping in mind the uncertainty introduced by the gaps in the material in the area survey in Chota Nagpur Division and defective work in Monghyr district, the agreement between the two sample estimates is not unsatisfactory. The margin of error has not yet been calculated. But from the two sample estimates it would appear that the estimated outturn of 165.6 lakhs of maunds of rice may be within 3 or 4 per cent of the true value.

No. C-2941/14.

Statistical Laboratory,
Presidency College, Calcutta,
17th January, 1945.

My dear Rai Bahadur,

I am sending you a part of the final tables relating to *bhadai* survey giving acreage figures for sugarcane. This may be appended to the First Report on *bhadai* Crops sent to you on 4th November 1944.

2. The arrangement of the table is similar to Table 2 of the above Report. The estimated area under *bhadai* sugarcane based on sample (A) is given in col. (7), the corresponding estimate based on sample (B) in col. (8) and the combined estimate in col. (9). Apart from a rather high difference between the two estimates for Patna Division, the figures for the other three divisions are satisfactory. As nearly as 80 per cent of the grids were surveyed in Patna Division, the observed difference may not be entirely due to gaps in the sample, but has to be ascribed either to sampling fluctuations or unreliability of the primary material.

3. For the province as a whole the two sample estimates are 468,000 and 438,000 acres in round figures with a pooled value of 453,000 which may be accepted as a fairly reliable estimate.

YOUR SINCERELY,
Sd. P. C. MAHALANOBIS.

Rai Bahadur S. P. Sinha,
Superintendent of Agricultural Statistics, Bihar,
Bihar Secretariat, Patna.

BIHAR CROP SURVEY—BHADAI, 1944.

Sample estimates of crop acreage based on complete field material.

| Serial no. | Name of district. | Geographical area (in thousand acres). | Number of grids. | | | Area under sugarcane in thousand acres. | | |
|------------|------------------------|--|------------------|-----------|-----------|---|-----------|-----------|
| | | | Sample A. | Sample B. | Combined. | Sample A. | Sample B. | Combined. |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| 1 | Patna ... | 1,862.6 | 602 | 917 | 16.19 | 84.19 | 28.20 | 31.20 |
| 2 | Gaya ... | 3,036.8 | 1,235 | 1,223 | 24.68 | 62.08 | 49.51 | 56.23 |
| 3 | Shahabad ... | 2,810.9 | 1,140 | 1,127 | 22.67 | 62.49 | 35.98 | 49.40 |
| | Patna Division ... | 7,210.3 | 3,277 | 3,267 | 65.44 | 158.76 | 113.69 | 136.83 |
| 4 | Saran ... | 1,715.8 | 1,463 | 1,469 | 29.32 | 69.91 | 66.70 | 68.27 |
| 5 | Chan paran ... | 2,103.7 | 2,002 | 1,939 | 39.41 | 86.00 | 93.57 | 69.23 |
| 6 | Darbhanga ... | 2,149.8 | 1,206 | 1,071 | 23.07 | 31.92 | 27.36 | 29.66 |
| 7 | Muzalarpur ... | 1,932.8 | 1,657 | 1,615 | 33.52 | 24.77 | 34.49 | 29.69 |
| | Tirhut Division ... | 7,902.1 | 6,358 | 6,174 | 12.632 | 212.60 | 222.12 | 217.25 |
| 8 | Monghyr ... | 2,384.6 | 1,100 | 1,325 | 24.25 | 24.55 | 26.89 | 25.76 |
| 9 | Bhagalpur ... | 2,707.8 | 1,315 | 1,122 | 24.87 | 22.78 | 18.74 | 20.84 |
| 10 | Purnea ... | 3,120.1 | 1,521 | 1,526 | 30.47 | 9.76 | 6.79 | 8.20 |
| 11 | Santal Parganas ... | 3,512.3 | 1,863 | 1,554 | 37.17 | 5.49 | 9.83 | 7.63 |
| | Bhagalpur Division ... | 11,723.4 | 5,799 | 5,827 | 11.626 | 62.56 | 62.25 | 62.43 |
| 12 | Hazaribagh ... | 4,471.0 | 2,185 | 2,488 | 46.73 | 15.26 | 15.88 | 15.58 |
| 13 | Ranchi ... | 4,557.4 | 2,140 | 1,780 | 39.20 | 1.61 | 5.04 | 3.26 |
| 14 | Palamau ... | 2,922.9 | 781 | 648 | 14.29 | 11.33 | 12.31 | 11.78 |
| 15 | Manbhum ... | 2,628.5 | 1,231 | 1,267 | 24.98 | 4.87 | 4.29 | 4.69 |
| 16 | Singhbhum ... | 1,006.0 | 497 | 477 | 9.74 | 1.45 | 2.26 | 1.85 |
| | Chota Nagpur Div. | 16,866.8 | 6,834 | 6,660 | 13.404 | 34.52 | 39.78 | 37.06 |
| | Bihar Province ... | 43,223.0 | 22,268 | 21,928 | 441.96 | 468.44 | 437.64 | 453.57 |

Settlement figure (1902—1935).

TABLE
Bihar Crop Survey,
Number of cells and grids

| Name of district and Division. | Period of survey. | Number of cells. | | |
|-----------------------------------|-----------------------------|--------------------------------|------------------|----------------|
| | | Allotted to each sample. | Surveyed in— | |
| | | | Both samples. | One sample. |
| 1 | 2 | 3 | 4 | 5 |
| 1. Patna ... | 3rd July—28th September ... | 43 | 39 | 4 |
| 2. Gaya ... | 3rd July—28th September ... | 94 | 67 | 25 |
| 3. Shahabad ... | 3rd July—6th October ... | 87 | 75 | 12 |
| Patna Division ... | 3rd July—6th October ... | 224 | 181 | 41 |
| 4. Saran ... | 3rd July—6th October ... | 54 | 50 | 4 |
| 5. Champaran ... | 3rd July—28th September ... | 67 | 65 | 2 |
| 6. Darbhanga ... | 3rd July—12th September ... | 68 | 55 | 13 |
| 7. Muzaffarpur ... | 3rd July—6th October ... | 61 | 56 | 5 |
| Tirhut Division ... | 3rd July—6th October ... | 250 | 226 | 24 |
| 8. Monghyr ... | 3rd July—6th October ... | 74 | 66 | 9 |
| 9. Bhagalpur ... | 3rd July—28th September ... | 85 | 70 | 13 |
| 10. Purnea ... | 3rd July—28th September ... | 97 | 65 | 28 |
| 11. S. Parganas ... | 11th July—6th October ... | 110 | 89 | 21 |
| Bhagalpur Division | 3rd July—6th October ... | 366 | 289 | 71 |
| 12. Hazaribagh ... | 3rd July—6th October ... | 137 | 60 | 65 |
| 13. Ranchi ... | 3rd July—28th September ... | 141 | 66 | 59 |
| 14. Palamau ... | 3rd July—28th September ... | 87 | 30 | 42 |
| 15. Manbhum ... | 3rd July—6th October ... | 84 | 32 | 35 |
| 16. Singhbhum ... | 3rd July—4th September ... | 54 | 25 | 25 |
| Chota Nagpur Division. | 3rd July—6th October ... | 503 | 213 | 226 |
| Total Bihar ... | 3rd July—6th October ... | 1,343 | 909 | 362 |

1.
Bhadai, 1944.
surveyed in the main area survey.

| Not surveyed. | Percentage of cells surveyed. | Total allotted. | Number of grids. | | | Percentage of grids surveyed. |
|---------------|-------------------------------|-----------------|------------------|-----------|-----------|-------------------------------|
| | | | Surveyed in— | | | |
| | | | Sample A. | Sample B. | Combined. | |
| 6 | 7 | 8 | 9 | 10 | 11 | 12 |
| 4 | 95 | 2,064 | 902 | 917 | 1,819 | 88 |
| 29 | 85 | 3,344 | 1,235 | 1,223 | 2,458 | 74 |
| 12 | 93 | 2,784 | 1,140 | 1,127 | 2,267 | 81 |
| 45 | 90 | 8,192 | 3,277 | 3,267 | 6,594 | 80 |
| 4 | 98 | 3,456 | 1,463 | 1,469 | 2,932 | 85 |
| 2 | 99 | 4,288 | 2,002 | 1,939 | 3,941 | 92 |
| 13 | 90 | 3,264 | 1,236 | 1,071 | 2,307 | 71 |
| 5 | 96 | 3,904 | 1,657 | 1,695 | 3,352 | 86 |
| 24 | 95 | 14,912 | 6,358 | 6,174 | 12,532 | 84 |
| 9 | 94 | 3,120 | 1,100 | 1,325 | 2,425 | 78 |
| 17 | 90 | 3,648 | 1,315 | 1,122 | 2,437 | 67 |
| 36 | 81 | 4,656 | 1,521 | 1,526 | 3,047 | 65 |
| 21 | 91 | 4,688 | 1,863 | 1,854 | 3,717 | 79 |
| 83 | 89 | 16,112 | 5,799 | 5,827 | 11,626 | 72 |
| 59 | 68 | 8,448 | 2,185 | 2,488 | 4,673 | 55 |
| 91 | 68 | 7,648 | 2,140 | 1,780 | 3,920 | 51 |
| 72 | 59 | 2,816 | 781 | 648 | 1,429 | 51 |
| 69 | 59 | 5,376 | 1,231 | 1,267 | 2,498 | 46 |
| 33 | 69 | 1,728 | 497 | 477 | 974 | 56 |
| 354 | 65 | 26,016 | 6,834 | 6,660 | 13,494 | 52 |
| 506 | 81 | 65,232 | 22,268 | 21,928 | 44,196 | 68 |

TABLE
Bihar Crop Survey,
Sample Estimates of crop acreage based

| Serial no. | Name of district. | Area in thousand acres included in the survey. | Number of grid. | | | Estimated |
|------------|----------------------------------|--|-----------------|-----------|-----------|-----------|
| | | | Sample A. | Sample B. | Combined. | Bhadai |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 1 | Patna | 1362.6 | 902 | 917 | 1,819 | 3.68 |
| 2 | Gaya | 3036.8 | 1,235 | 1,223 | 2,458 | 28.24 |
| 3 | Shahabad | 2810.9 | 1,140 | 1,127 | 2,267 | 69.43 |
| | Patna Division ... | 7210.3 | 3,277 | 3,267 | 6,544 | 101.35 |
| 4 | Saran | 1715.8 | 1,463 | 1,469 | 2,932 | 127.66 |
| 5 | Champanan | 2103.7 | 2,002 | 1,939 | 3,941 | 257.28 |
| 6 | Dharbhanga | 2149.8 | 1,236 | 1,071 | 2,307 | 95.88 |
| 7 | Muzaffarpur | 1932.8 | 1,657 | 1,695 | 3,352 | 77.12 |
| | Tirhut Division ... | 7902.1 | 6,358 | 6,174 | 12,532 | 557.94 |
| 8 | Monghyr | 2384.6 | 1,100 | 1,325 | 2,425 | 105.40 |
| 9 | Bhagalpur | 2707.8 | 1,315 | 1,122 | 2,437 | 124.02 |
| 10 | Purnea | 3120.1 | 1,521 | 1,526 | 3,047 | 860.21 |
| 11 | Santal Parganas ... | 3512.3 | 1,863 | 1,854 | 3,717 | 85.70 |
| | Bhagalpur Division ... | 11724.8 | 6,799 | 5,827 | 11,626 | 1175.33 |
| 12 | Hazaribagh | 4471.0 | 2,185 | 2,488 | 4,673 | 139.50 |
| 13 | Ranchi | 4575.4 | 2,140 | 1,780 | 3,920 | 611.15 |
| 14 | Palamanu | 2922.9 | 781 | 648 | 1,429 | 93.82 |
| 15 | Manbhum | 2628.5 | 1,231 | 1,267 | 2,498 | 34.70 |
| 16 | Singhbhum | 1806.0 | 497 | 477 | 974 | 507.12 |
| | Chota Nagpur Division | 16385.8 | 6,834 | 6,660 | 13,494 | 138.69 |
| | Bihar total | 43238.0 | 22,268 | 21,928 | 44,196 | 32.0 91 |
| | Settlement Estimate (1902-1935). | ... | ... | .. | ... | ... |

N. B.—All figures are based on tabulation up to 3rd 194

2

Bhadai, 1944.

on complete field material.

area in thousand acres.

| paddy. | | Maize. | | | China. | | |
|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Sample B. | Combined. | Sample A. | Sample B. | Combined. | Sample A. | Sample B. | Combined. |
| 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 |
| 6 95 | 5-31 | 74-94 | 50-96 | 62-96 | 31-88 | 20-98 | 26-43 |
| 36-44 | 32-19 | 47-98 | 43-73 | 45-6 | 70-15 | 76-83 | 73-19 |
| 70-27 | 69-99 | 58-19 | 52-84 | 55-66 | 25-66 | 15-74 | 20-80 |
| 113-63 | 107-49 | 181-11 | 147-53 | 164-47 | 12-789 | 113-55 | 120-42 |
| 113-76 | 120-62 | 300-61 | 238-53 | 320-00 | 143-61 | 130-66 | 136-75 |
| 282-11 | 269-46 | 213-32 | 169-98 | 192-67 | 83-52 | 54-28 | 69-00 |
| 132-43 | 113-94 | 185-81 | 190-04 | 187-68 | 176-50 | 181-44 | 178-66 |
| 86-20 | 81-76 | 247-59 | 253-00 | 250-20 | 48-32 | 95-48 | 72-09 |
| 614-50 | 585-80 | 946-83 | 951-55 | 950-05 | 451-95 | 461-26 | 456-70 |
| 57-95 | 80-36 | 440-91 | 221-63 | 326-21 | 86-56 | 118-28 | 103-25 |
| 99-92 | 112-92 | 259-41 | 272-13 | 265-36 | 187-11 | 146-76 | 168-43 |
| 787-83 | 822-46 | 113-88 | 174-10 | 145-40 | 29-33 | 31-20 | 30-56 |
| 116-26 | 101-51 | 278-88 | 266-93 | 272-91 | 118-01 | 97-29 | 107-83 |
| 1061-96 | 1117-25 | 10930-08 | 934-69 | 1009-88 | 421-01 | 393-53 | 410-03 |
| 39-34 | 83-08 | 162-30 | 148-44 | 155-59 | 269-60 | 272-23 | 270-94 |
| 560-56 | 586-54 | 35-09 | 30-08 | 32-36 | 226-50 | 255-67 | 240-63 |
| 124-81 | 108-44 | 145-27 | 111-95 | 129-48 | 129-28 | 112-82 | 121-88 |
| 14-46 | 25-76 | 100-93 | 75-70 | 87-79 | 14-19 | 89-37 | 50-47 |
| 399-85 | 453-49 | 40-7 | 54-18 | 47-32 | 34-49 | 14-09 | 24-20 |
| 1139-02 | 1262-31 | 483-86 | 420-35 | 452-54 | 674-06 | 744-23 | 708-12 |
| 2929-14 | 3072-85 | 2704-88 | 2454-12 | 2576-94 | 1674-91 | 1712-57 | 1695-33 |
| ... | 3189-8 | ... | ... | 1546-5 | ... | ... | 1139-4 |

and are subject to modification on scrutiny.

BIHAR CROP SURVEY : AGAHANI (WINTER) 1944.

The present note gives the provisional results based on the field records collected in the sample survey of *Aghani* crops in Bihar during the period 7th October 1944 to 12th January 1945: The last batch of crop records was received in the Statistical Laboratory, Giridih, on the 19th January, 1945. Preparation of this report was delayed on account of heavy pressure of work in connection with the survey of *Rabi* crops (preparatory work for which had to be completed in December 1944 and January, 1945 and tabulation work on which has already started) as it was not possible to increase the staff to the requisite number owing to lack of accommodation.

2. *Provincial acreage.*—The estimated area (in lakhs of acre) for the whole Province is 136.50 for *Aghani* paddy, 29.03 for *Moong* and other pulses, 3.97 for Sugar-cane and 1.12 for Potato. The progressive estimates submitted from time to time are being quoted below from which it will be seen that the sample survey could supply at an early date the right order of results.

TABLE 1.

Estimates of crop acreage for Bihar : Aghani (winter) season, 1944-45.

| Serial no. of estimates. | Field work up to— | Materials Tabulated. | | Estimated area in lakhs of acre under— | | | |
|--------------------------|-------------------|----------------------|-------------|--|--------------------------------|-------------|--------|
| | | Up to— | Percentage. | Aghani paddy. | <i>Moong</i> and other pulses. | Sugar-cane. | Potato |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| 1 | 17th October ... | 9th November ... | 3.35 | 133.35 | 29.55 | 3.72 | |
| 2 | 2nd November... | 28th November ... | 18.59 | 135.37 | 30.65 | 3.72 | |
| 3 | 11th November | 6th December ... | 25.65 | 140.70 | 31.28 | 3.75 | |
| 4 | 18th November ... | 22nd December... | 33.57 | 141.71 | 30.31 | 3.94 | |
| 5 | 26th November... | 1st January ... | 41.83 | 140.89 | 29.77 | 3.87 | |
| 6 | 4th December... | 18th January ... | 50.25 | 139.46 | 29.78 | 4.01 | |
| 7 | 12th December... | 31st January ... | 58.26 | 138.72 | 30.40 | 4.03 | |
| 8 | 21st December ... | 7th February ... | 66.67 | 140.05 | 29.63 | 4.06 | |
| 9 | 12th January ... | 15th March ... | 100.00 | 136.50 | 29.03 | 3.97 | 1.12 |

3. It will be remembered that the whole survey was arranged in the form of two inter-penetrating net-works (A) and (B). Information was collected for these two net-works (A) and (B) by two different sets of investigators. We thus have two independent estimates of both acreage and rate of yield per acre. These two sets of estimates are shown separately for the four territorial divisions and the province as a whole in Table (2) Col. (1) gives the serial number and Col. (2) the name of the division, while results for the whole province are given at the bottom. The area under paddy according to Sample (A) is shown in lakhs of acre in Col. (3) and the corresponding acreage according to sample (B) in Col. (4); the combined estimate based on both samples shown in Col. (5). It will be noticed that the two estimates are 137.1 and 136.0 lakhs of acre which are in very close agreement, the difference being appreciably less than one per cent.

TABLE 2.

Estimated outturn in lakhs of maunds of Aghani Rice (not in husk) : Bihar 1944.

| Serial no. | Division. | Area under paddy in lakhs of acres. | | | Number of Sample-cuts. | | | Yield of rice (not in husk) maunds per acre. | | | Total outturn in lakhs of maunds of rice (not in husk). | | |
|------------|------------------|-------------------------------------|------------|-------------|------------------------|------------|-------------|--|------------|-------------|---|------------|-------------|
| | | Sample (A) | Sample (B) | Com. bined. | Sample (A) | Sample (B) | Com. bined. | Sample (A) | Sample (B) | Com. bined. | Sample (A) | Sample (B) | Com. bined. |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 |
| 1 | Patna .. | 29.5 | 27.8 | 28.6 | 273 | 262 | 534 | 9.0 | 8.8 | 8.9 | 265.7 | 245.9 | 254.6 |
| 2 | Tirhut ... | 23.7 | 28.5 | 28.6 | 396 | 313 | 709 | 8.7 | 8.5 | 8.6 | 250.0 | 241.4 | 245.8 |
| 3 | Bhagalpur .. | 38.0 | 37.2 | 37.6 | 391 | 490 | 881 | 11.1 | 9.6 | 10.3 | 424.1 | 357.0 | 396.9 |
| 4 | Chota N.-g. par. | 40.9 | 41.5 | 41.7 | 471 | 535 | 996 | 10.1 | 10.8 | 10.5 | 416.5 | 459.4 | 437.2 |
| | Total Bihar | 137.1 | 136.0 | 136.5 | 1,530 | 1,590 | 3,120 | 9.0 | 9.6 | 9.7 | 1354.3 | 1300.7 | 1324.5 |

4. *Outturn.*—Crop cutting work was done only on Aghani paddy so that the estimated outturn can be given only of this crop. This part of the work was also arranged in the form of two inter-penetrating networks. The number of sample-cuts in sample (A) is shown in column (6) of table (2) and the corresponding number of cuts in sample (B) in column (7) with the total number of cuts in column (8). The rate of yield of rice not in husk (converted from estimated weight of

green paddy at the conventional rate) based on sample (A) is shown in column (9) and the corresponding rate based on sample (B) in column (10) with the combined value in the column (11).

5. Multiplying the acreage figures for sample (A) given in column (3) by the corresponding yield rates given in column (9) we get the total outturn (in lakhs of maunds of rice not in husk) according to sample (A) in column (12); in the same way the estimated outturn according to sample (B) is shown in column (13) with the combined estimate in column (14). It will be noticed that the total outturn is 1354.3 lakhs of maunds according to sample (A), and 1300.7 lakhs of maunds according to sample (B) with combined value of about 1,324 lakhs of maunds of rice not in husk. The difference between the two estimates is 53.6 lakhs of maunds for the province as a whole which is about 4 per cent of the combined estimate.

6. *District figures.*—The object of the present survey is to estimate with as high precision as possible the crop acreage for the province as a whole; and district figures are naturally not as reliable as provincial estimates. District acreages are, however, being given in Table (3) to show how the provincial figures has been built up. In this table the serial number of the district is given in column (1) and the name of the district in column (2). The total area in thousand acres included in the survey is given in column (3). The total number of grids surveyed is shown in column (4) and the crop acreage in columns (5), (6), (7) and (8) for *aghani* paddy, *Moong* and other pulses, sugarcane and potato respectively.

TABLE (3).

Sample estimates of crop acreages based on complete field material.

| Serial no. | Name of districts and division. | Area in thousand acres included in the survey. | Number of grids surveyed. | Estimated area in thousand acres under— | | | |
|------------|---------------------------------|--|---------------------------|---|-------------------------|-----------------|-----------------|
| | | | | Aghani paddy. | Moong and other pulses. | Sugar-cane. | Potato. |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| 1 | Patna | Acres. 1362.6 | 1,996 | Acres. 555.63 | Acres. 234.91 | Acres. 24.57 | Acres. 13.63 |
| 2 | Gaya | 3036.8 | 4,042 | 1324.60 | 185.91 | 51.50 | 8.50 |
| 3 | Shahabad... .. | 2810.9 | 3,218 | 970.79 | 214.23 | 42.72 | 6.18 |
| | Patna Division ... | 7210.3 | 9,256 | 2861.02 | 635.05 | 118.79 | 28.31 |

| Serial no. | Name of districts and division. | Area in thousand acres included in the survey. | Number of grids surveyed. | Estimated area in thousand acres under— | | | |
|------------|---------------------------------|--|---------------------------|---|-------------------------|-------------|----------|
| | | | | Aghani paddy. | Moong and other pulses. | Sugar-tane. | Pot-ato. |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| | | Acres. | | Acres. | Acres. | Acres. | Acres. |
| 4 | Saran | 1715.8 | 3,310 | 358.31 | 197.45 | 68.33 | 12.70 |
| 5 | Champan | 2103.7 | 3,944 | 785.10 | 110.76 | 82.46 | 2.95 |
| 6 | Darbhanga | 2149.8 | 3,228 | 960.21 | 177.25 | 24.83 | 3.87 |
| 7 | Muzaffarpur | 1932.8 | 3,806 | 757.56 | 129.21 | 22.23 | 6.57 |
| | Tirhut Division | 7902.1 | 14,288 | 2861.18 | 614.67 | 197.85 | 26.09 |
| 8 | Monghyr | 2384.6 | 3,332 | 707.51 | 264.45 | 23.01 | 9.78 |
| 9 | Bhagalpur | 2707.8 | 3,382 | 717.16 | 307.58 | 19.09 | 14.62 |
| 10 | Purnea | 3120.1 | 4,060 | 1053.78 | 198.52 | 8.58 | 8.05 |
| 11 | Santal Parganas | 3512.3 | 4,678 | 1281.50 | 270.93 | 7.20 | 2.25 |
| | Bhagalpur Division | 11724.8 | 15,452 | 3759.95 | 1041.53 | 52.88 | 34.70 |
| 12 | Hazaribagh | 4471.0 | 7,786 | 935.27 | 158.74 | 14.32 | 12.52 |
| 13 | Ranchi | 4557.4 | 6,160 | 1040.09 | 163.21 | 0.69 | 5.92 |
| 14 | Palamau | 2932.9 | 3,952 | 427.04 | 152.76 | 8.33 | 3.01 |
| 15 | Manbhum | 2628.5 | 4,568 | 1062.18 | 75.14 | 2.50 | 0.79 |
| 16 | Singbhum | 1806.0 | 2,798 | 703.49 | 62.22 | 1.71 | 0.49 |
| | Chota Nagpur Division | 16385.8 | 25,264 | 4168.07 | 612.07 | 27.55 | 22.73 |
| | Bihar Total | 43223.0 | 64,260 | 13650.22 | 2903.32 | 397.07 | 111.83 |
| | Settlement figures (1902-35). | ... | ... | 8702.11 | ... | 235.67 | 51.50 |

CALCUTTA :

P. C. MAHALANOBIS,

The 21st March, 1915. } Statistical Laboratory, Presidency College.

BIHAR CROP SURVEY : RABI (SPRING) 1944-45.

The present note gives the results based on the sample survey of *Rabi* crops in Bihar during 1944-45. Excluding certain hilly tracts and forests, the net area surveyed comprised nearly 67,500 square miles.

2. *Area survey*.—For purposes of statistical design of the survey the whole area was divided into 1,146 cells of approximately square shape and each of about 50 square miles in size. The field staff in the pre-harvest area survey was organized in three parties A, B and C. Two parties A and B worked in a system of inter-penetrating but independent networks of grids. A small proportion of A and B grids were common so that these were surveyed in duplicate. In addition a third party C surveyed some of A and B grids giving results in triplicate. Thus 251 cells were surveyed only once, 489 duplicated and 403 triplicated by different parties.

3. Field work started on 12th January and was completed in 11 haltages on 16th April 1945. Columns (3) to (5) of Table (A-1) in Appendix show the actual period of work and number of cells and grids surveyed by districts.

4. *Crop-cutting work*.—Crop-cutting work was started on 3rd March and was continued till the middle of April. Number of cells and plots in which crop-cutting work was done is shown by districts and crops in columns (7) to (12) of Table (A-1) in the Appendix.

5. *Receipt of field records*.—Field records began to be received from 22nd January 1945, and 7 progressive estimates were submitted to Government on various dates based on such portions of the data as had been received and tabulated at the time of preparing the reports. The present report is based on the whole of the material collected during the survey and represents about 86 per cent of the total number of grids originally included in the programme.

6. *Provincial acreage under rabi crops*.—The estimated (net) crop-area in lakhs of acres for the whole province is 20·64 under wheat, 13·27 under barley, 18·57 under gram and 5·60 under *masur*. These figures are quite close to the forecasts given in the progressive estimates submitted from time to time. It is clear, therefore, that the sample survey can supply at an early date reasonable estimates of crop acreage. As regards precision it may be stated that the A and B estimates for acreage under wheat were 2019·4 and 2067·6 thousand acres respectively showing a mean difference of about 2·3 per cent which is not unsatisfactory.

TABLE (1).

Progressive estimates of acreage under crops in the whole province.

| Serial no. of report. | Field work up to— | Grids. | | Progressive estimates of crop-area in lakhs of acres under— | | | |
|-----------------------|--------------------------------------|-------------------|--------------------------------|---|---------|-------|--------|
| | | Number tabulated. | Per centage to total surveyed. | Wheat. | Barley. | Gram. | Masur. |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| | Settlement report figures (1902-35). | ... | ... | 11'28 | 13'59 | 16'12 | ... |
| 1 | 18th January ... | 6,284 | 9'81 | 19'77 | ... | 21'76 | 5'61 |
| 2 | 28th January ... | 15,290 | 19'59 | 19'42 | ... | 21'76 | 6'15 |
| 3 | 4th February ... | 20,298 | 30'08 | 16'93 | 13'69 | 20'53 | 6'42 |
| 4 | 12th February ... | 27,473 | 42'71 | 23'46 | 13'71 | 20'03 | 6'81 |
| 5 | 20th February ... | 34,820 | 51'60 | 20'62 | 13'86 | 19'69 | 6'23 |
| 6 | 2nd March ... | 41,690 | 61'78 | 20'68 | 13'95 | 20'15 | 6'33 |
| 7 | 10th March ... | 47,880 | 70'95 | 20'1 | 13'90 | 20'20 | 6'28 |
| 8 | 16th April ... | 67,490 | 100'00 | 20'64 | 13'37 | 18'57 | 5'60 |

7. It may be noted here that an estimate recorded in the field books did not refer to the cadastral survey plot as a whole but to such portions of the plot which were under actual cultivation. This procedure was adopted with a view to obtain the net crop acreage for each crop under mixed cultivation. (Incidentally it may be mentioned that the present procedure required roughly three times more work in the stage of tabulation as it necessitated all operations being carried on separately for each portion of a plot). Figures given in Table (1) thus represent net area for each crop under mixed cultivation.

8. *District figures.*—Acreage estimates for the four major crops by individual districts with divisional totals are given in Table (A-2) in the Appendix, in which columns (3) and (4) show the area and number of grids surveyed; columns (5)—(8) give the estimated area in thousand acres for wheat, barley, gram and masur respectively. Corresponding settlement figures together with official forecasts are shown at the bottom of the table (no official figures being available for the masur crop). The observed increase has been 84 per cent in wheat, and 11 per cent in gram since last settlement operations, while acreage under barley appears to have remained more or less stationary.

It should be remembered, however, that the sample survey was designed with a view to securing (with maximum precision at the given cost) estimates of crop acreage for the province as a whole so that the district or divisional figures necessarily have a much larger margin of error than the provincial estimates. Figures given in Table (A-2) in Appendix should therefore be used with caution.

9. *Yield rate in maunds of grain per acre of crop-area.*—Crop-cutting work was done only on the three crops, wheat, gram and *masur*. Provincial average yield-rates of dry grain were found to be 9.34 maunds of wheat, 7.10 maunds of gram and 4.45 maunds of *masur* per acre. These figures refer to the gross area covered by the crop as the observed yield for each sample-cut naturally had to be recorded in terms of the gross area harvested. In converting the above yield figures to the basis of net area some complication is introduced by the fact that the yield does not increase proportionately to the increase in the intensity of cultivation so that direct inflation by the inverse of the intensity would lead to over-estimation. (This point was discussed in detail in the Report on Rabi crops in 1943-44). However, taking into consideration the actual increase in the rate of yield with increase in intensity of cultivation of the crop under mixed cultivation the converted yield rates of dry grain are estimated at 11.53 maunds of wheat, 10.08 maunds of gram, and 6.83 maunds of *masur* per acre of net crop-area.

10. *Provincial outturn.*—The total provincial outturn can be now directly obtained by multiplying the estimated net area under each crop by the respective rate of yield per acre corrected to the basis of net area. The estimated outturn for the province as a whole comes out in thousand tons of grain as 874 for wheat, 688 for gram and 141 for *masur* in round figures.

Statistical Laboratory,
Calcutta, the 13th July 1945.

} P. C. MAHALANOBIS.

APPENDIX

APPEN
Table (A-1) Distribution of

| Serial no. | Districts. | Area Survey. | | |
|---------------|------------------------------|--------------------------------|--------|--------|
| | | Period. | No. of | |
| | | | Cells. | Grids. |
| 1 | 2 | 3 | 4 | 5 |
| 1 | Patna | 13th January to 16th April ... | 112 | 2,754 |
| 2 | Gaya | 12th January to 9th April ... | 256 | 6,454 |
| 3 | Shahabad | 12th January to 9th April ... | 221 | 5,166 |
| | Patna Division | 12th January to 16th April ... | 589 | 14,374 |
| 4 | Saran | 14th January to 11th April ... | 143 | 4,234 |
| 5 | Champanan | 12th January to 9th April ... | 182 | 5,454 |
| 6 | Darbhanga | 13th January to 6th April ... | 127 | 3,754 |
| 7 | Muzaffarpur | 12th January to 9th April ... | 148 | 4,504 |
| | Tirhut Division | 12th January to 11th April ... | 600 | 17,946 |
| 8 | Monghyr | 13th January to 8th April ... | 140 | 3,498 |
| 9 | Bhagalpur | 13th January to 9th April ... | 145 | 3,482 |
| 10 | Purnea | 13th January to 11th April ... | 173 | 4,982 |
| 11 | Santal Parganas | 12th January to 9th April ... | 200 | 5,320 |
| | Bhagalpur Division | 12th January to 11th April ... | 658 | 17,282 |
| 12 | Hazaribagh | 13th January to 10th April ... | 151 | 4,642 |
| 13 | Ranchi | 12th January to 10th April ... | 140 | 4,384 |
| 14 | Palamau | 13th January to 9th April ... | 156 | 4,414 |
| 15 | Singhbhum | 12th January to 2nd April ... | 64 | 1,998 |
| 16 | Manbhum | 13th January to 9th April ... | 80 | 2,440 |
| | Chota Nagpur Division | 12th January to 10th April ... | 591 | 17,878 |
| | Total Bihar | 12th January to 16th April ... | 2,438 | 67,480 |

DIX.

Field Work by Districts.

Crop cutting work.

| Period. | No. of cells. | | | No. of plots. | | |
|--------------------------|---------------|-------|--------|---------------|-------|--------|
| | Wheat. | Gram. | Masur. | Wheat. | Gram. | Masur. |
| 6 | 7 | 8 | 9 | 10 | 11 | 12 |
| 11th March to 9th April | 28 | 22 | ... | 134 | 101 | ... |
| 4th March to 9th April | 54 | 45 | 9 | 172 | 130 | 16 |
| 4th March to 8th April | 48 | 39 | 14 | 181 | 136 | 32 |
| 4th March to 9th April | 130 | 106 | 23 | 487 | 367 | 48 |
| 10th March to 1st April | 21 | 7 | 7 | 171 | 14 | 8 |
| 11th March to 9th April | 43 | 9 | 35 | 333 | 34 | 153 |
| 12th March to 2nd April | 13 | 8 | 5 | 69 | 34 | 19 |
| 10th March to 9th April | 39 | 19 | 11 | 183 | 81 | 25 |
| 10th March to 9th April | 116 | 43 | 58 | 756 | 163 | 205 |
| 11th March to 8th April | 16 | 13 | ... | 45 | 31 | ... |
| 20th March to 8th April | 13 | 7 | ... | 34 | 27 | ... |
| 19th March to 11th April | 46 | 27 | 7 | 151 | 68 | 7 |
| 3rd March to 26th March | 3 | 6 | ... | 5 | 14 | ... |
| 3rd March to 11th April | 78 | 53 | 7 | 235 | 140 | 7 |
| 14th March to 2nd April | 14 | 9 | ... | 29 | 19 | .. |
| 11th March to 7th April | 6 | 20 | 2 | 6 | 44 | 2 |
| 3rd March to 5th April | 23 | 28 | 5 | 40 | 78 | 15 |
| 12th March to 16th March | ... | 2 | ... | ... | 7 | ... |
| 5th March to 5th March | 2 | ... | ... | 2 | ... | ... |
| 3rd March to 7th April | 45 | 59 | 7 | 77 | 148 | 7 |
| 3rd March to 11th April | 369 | 261 | 95 | 1,555 | 818 | 277 |

Table (A-2) Estimates of crop acreage by Districts.

| Serial no. | Name of districts. | Area in thousand acres included in the survey. | No. of grids surveyed. | Estimated area in thousand acres under— | | | |
|------------|---------------------------|--|------------------------|---|---------|--------|--------|
| | | | | Wheat. | Barley. | Gram. | Masur. |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| 1 | Patna | 1,362 | 2,754 | 112·01 | 32·29 | 187·90 | 95·65 |
| 2 | Gaya | 3,037 | 6,454 | 209·67 | 88·07 | 278·75 | 63·77 |
| 3 | Shahabad | 2,811 | 5,166 | 318·76 | 65·21 | 375·82 | 61·00 |
| | Patna Division | 7,210 | 14,374 | 700·44 | 185·57 | 842·50 | 220·42 |
| 4 | Saran | 1,716 | 4,234 | 192·51 | 205·38 | 69·49 | 20·25 |
| 5 | Champanan | 2,103 | 5,454 | 168·72 | 206·13 | 62·48 | 87·93 |
| 6 | Muzaffarpur | 1,933 | 4,504 | 174·53 | 146·54 | 66·30 | 57·79 |
| 7 | Darbhanga | 2,150 | 3,754 | 144·90 | 126·84 | 96·96 | 59·76 |
| | Tirhut Division | 7,902 | 17,946 | 680·66 | 684·89 | 295·23 | 225·73 |
| 8 | Monghyr | 2,385 | 3,498 | 258·25 | 82·98 | 224·87 | 39·58 |
| 9 | Bhagalpur | 2,708 | 3,482 | 164·09 | 129·97 | 130·52 | 19·50 |
| 10 | Purnea | 3,120 | 4,982 | 144·46 | 61·78 | 54·91 | 18·41 |
| 11 | Santhal Parganas | 3,512 | 5,320 | 11·24 | 14·75 | 24·69 | 2·11 |
| | Bhagalpur Division | 11,725 | 17,282 | 578·04 | 289·43 | 434·89 | 79·60 |

| Serial no. | Name of district. | Area in thousand acres included in the survey. | No. of grids surveyed. | Estimated area in thousand acres under— | | | |
|------------|---|--|------------------------|---|----------|----------|--------|
| | | | | Wheat. | Barley. | Gram. | Masur. |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| 12 | Hazaribagh | 4,471 | 4,642 | 26.83 | 34.43 | 35.77 | 1.79 |
| 13 | Ranchi... .. | 4,557 | 4,384 | 8.66 | 11.85 | 41.02 | 4.10 |
| 14 | Palamau | 2,923 | 4,414 | 56.79 | 116.04 | 183.39 | 23.38 |
| 15 | Manbhum | 2,629 | 2,440 | 7.10 | 2.63 | 7.89 | 9.79 |
| 16 | Singhbhum | 1,806 | 1,998 | 5.60 | 2.35 | 16.25 | 4.33 |
| | Chota Nagpur Division | 16,386 | 17,878 | 104.89 | 167.30 | 284.32 | 34.39 |
| | Bihar total | 43,223 | 67,480 | 2064.03 | 1327.24 | 1856.94 | 560.14 |
| | Settlement report figure (1902-1935) | ... | ... | 1125.61 | 1380.25 | 1611.89 | ... |
| | Official forecast figure (1944-45) | ... | ... | (+)1232.10 | 1205.60* | 1469.80* | ... |

N. E.—(i) (+) First forecast on 19th January (*) Forecast on 28th April from Season and Crop Report 1944-45.

(ii) Certain uncultivated areas in districts—Champan, Monghyr, Palamau and Singhbhum have been excluded from the survey.

APPENDIX IV.

Extract from the Report of the Superintendent of Agricultural Statistics, Bihar, on the preparation of crop statistics in Madras and U. P.

In Madras most of the villages are Government villages. There are a number of proprietary villages also. A large number of the proprietary villages are unsurveyed. In the proprietary villages also, there are some Government lands.

2. Though the village revenue staff are in all the villages—Government and proprietary—it is the work in the Government villages which is supervised with greater diligence. Care is taken to see that Government lands even in the proprietary villages are properly protected.

3. In all Government villages, besides the village map, a Field Measurement Book (F. M. Book) is maintained. One leaf of this book is allotted to each plot. It contains the diagram of the plot. The diagram does not only show the size and the shape of the plot, but it also gives the measurement of the sides and the distances from corner to corner. Subdivisions of plot, found at the time of revision survey, are shown by white lines like the rest of the diagram. The number of plot once given is never changed.

4. On the spot the bends of each group of two or three plots are marked by stones embedded in the ground.

5. Besides the Field Measurement Book and the village plan, they have another book known as 'D'—Sketch book. In this each leaf contains rough and enlarged diagram of number of plots.

6. The *Karnam* (post hereditary, pay Rs. 14) goes over the fields every month between the 15th and the 25th of the month with his book of Statement no. 2 (*adangal*) which is an annual statement of occupation and cultivation field by field. From the entries which he makes in the *adangal*, he compiles the information in Statement no. 1 and enclosure 'A' to Statement no. 1 and submits the latter two to the Revenue Inspector (Pay 30—30—3/2—55 belonging to the clerical staff of the district) by the 25th of the month.

7. The Revenue Inspector consolidates the information for each village and submits the same for his *firka* (portion of a taluk in the jurisdiction of each Revenue Inspector) to the

Tashildar (Revenue Officer incharge of the taluk) by the 28th of the month. The Tashildar submits the same information for the different *firkas* of his *taluk* to the Collector who submits the same for each *taluk* in his district to the Board of Revenue. The Board compiles the statement for each district and submits the same to Government every month.

8. The outturn in annas and month of harvest (columns. 10 and 11 of statement no. 2) are always noted by the *Karnam* after the crop has been harvested. The different qualities of crops are, according to rule, shown in terms of annas as follows :—

| | | | | | |
|--------|----|----|----|----|-------------|
| Bumper | .. | .. | .. | .. | 13—16 annas |
| Normal | .. | .. | .. | .. | 12 " |
| Fair | .. | .. | .. | .. | 8—11 " |
| Poor | .. | .. | .. | .. | 4—7 " |
| Bad | .. | .. | .. | .. | 0—3 " |

9. The 'Normal' is defined, as in the United Provinces also, as "that crop which past experience has shown to be the most generally recurring crop in a series of years. The typical crop of the local area, the crop which the cultivator has a right (as it were) to expect, and with which he is (or should be content)". For 'bad' crop, i. e., that shown between 0—3 annas, if it is in a large area, the tenants get remission of rent.

10. The general tendency seems to be to record 5 annas, taking almost all crops doing well, to be fair. Even if the crop is really a bumper crop, the usual statement of outturn is rather pessimistic and a record of 12 annas is generally made instead of between 13 and 16 annas. So far as the Government revenue and the assessment on tenants are concerned, it is immaterial whether the outturn is recorded at any figure between 4 annas and 6 annas. It is true that from the fields every month, he can form a fairly accurate guess of the estimated outturn of the crop on a particular field; but the guess would have been more reliable if the practice had been to record the anna proportion just before the harvesting of the crop. The practice, however, invariably is to record the anna proportion after the harvesting of the crop. Generally some time must elapse between the date of harvesting and the date on which the *Karnam* goes to the field and records the anna proportion of the crop and the month of harvest. So naturally his impression of the quality of the crop on a particular field cannot remain quite accurate. But he considers it enough if he records in a general manner his impression of the outturn. Where the outturn is so low as to

entitle the tenant to a remission, it is in the tenant's interest to draw the pointed attention of the *karnam* to the condition of crops, whenever the *karnam* visits the village; and in most of such cases there is no chance of a mistake.

11. The entry of the outturn becomes all the more difficult in the case of some of the crops grown on dry lands which are up-rooted and not cut, because after up-rooting there is no trace of the crop left on the ground. In these cases the *Karnam* has to depend on his own memory and his enquiry from the tenants. But so far as the revenue is concerned, the record of the outturn of the crops on dry lands is not important, because there is no remission at all so far as the dry lands are concerned, except in very exceptional cases of a widespread famine.

12. Even a subsequent check by the Revenue Inspector or any other Revenue Authority cannot find out whether the record of anna proportion made by the *karnam* was correct or not.

13. The fact that the mofassil estimates of outturn are usually pessimistic is recognised by the Board of Revenue and Government as will appear from the following extract from a note prepared by the Statistical Officer, Madras, which gives the method of estimating the yield of crops :—

“The yield of a crop for any district is the product of three factors, namely (i) the acreage estimated to have been sown with the crop in the district, (ii) the normal yield per acre and (iii) the seasonal factor, i. e., the percentage figure which expresses the relation of the crop in the field to the crop in the normal year.”

As regards the first factor, the reports of acreage under each crop received from Tahsildar at the time of the forecast are scrutinised in the Board's office in the first instance and consolidated for each district after making due allowance for under-reporting and non-reporting.

The second factor, i. e., the normal yield per acre has been fixed by the Director of Agriculture for each crop for each district on a consideration of (i) the crop cutting experiments conducted on the crops over a series of years, (ii) the results on the Government farms, (iii) the local knowledge of the Agricultural Officers and (iv) in the results of a comparison of the figures of yield with the figures of net export and the estimate of consumption.

The third factor, i. e., the seasonal factor is arrived at in the following manner. An average anna figure for each district is

in the first instance worked out in the Board's office by taking a weighted average of the anna estimates reported for the several *taluks*. This average anna estimate is later converted into a percentage on the assumption that a normal yield for which the seasonal factor is taken as 100 is represented by 12 annas.

The condition factor so arrived at is then modified by the application of Stuart's correcting authorities. The principle underlying this correcting factor is briefly as follows:—

The so called normal yield per acre should over a long series of years approximate to the average of the actual yield in these years. But the anna estimates furnished by the reporting authorities rarely average 12 annas representing the normal crop and therefore to correct under-reporting, the uncorrected seasonal factor is revised by assuming the average of the uncorrected seasonal factors over a series of years to be 100. Thus, if the average of the uncorrected seasonal factors over a series of years is equal to 78 and the uncorrected seasonal factor for the current year is 80 the corrected seasonal factor is $80 \times 100/78$ or 107. The corrected seasonal factor is then examined in the light of (i) the reports of the District Agricultural Officers which deal with the condition of the crop and indicate the extent to which it is likely to exceed or fall short of the normal and (ii) the statistics of actual revised where necessary so as to accord with the state of the season in the district concerned."

14. The existing figures of "normal" yield per acre for the different crops were fixed as early as in 1919. In Government order no. 2467-Revenue, dated the 21st October 1935, Government have ordered the revision of these normal yields on the basis of crop-cutting experiments and a beginning was made with paddy, cholam, cumbu; regi and sugarcane. The experiments are being conducted under the supervision of the officers of Agriculture and Revenue Departments on the random sampling methods at the rate of 250 experiments for each district for each crop. The revised figures of normal yield per acre for sugarcane arrived at on the results of the crop-cutting experiments conducted in 1935-36, 1937-38 and 1938-39 are being adopted in framing the estimate of production for cane. In the case of food crops the results of the experiments on these crops were particularly bad years. So further experiments have been ordered for three more years—commencing from 1942-43.

15. In Chingleput district there were hardly any mixtures. But in other parts some mixtures are found. In the Deccan the

usual mixtures are cotton-cholam. There the mixed crops are shown in district rows, for example, cotton—korra occur in rows of 1 : 2, the area under each is taken according to this proportion

16. In rare cases, seeds are mixed, such as in the case of gingely (sesamum=Til) and groundnut. They grow on the ground in an interspersed haphazard condition. The area occupied by each is estimated by the *karnam* with reference to the proportion in which the seed is used. Suppose there is mixture of ground and gingely the normal quantity of groundnut if shown alone for one acre is say 12 measures and the normal quantity of gingely if shown for one acre is say one measure. Then if the cultivator mixes 1/14th of a measure of a measure of gingely seeds with 9 measures of groundnut seeds, the area under gingely will be taken to be 25 cents and the same under groundnut will be 75 cents. The normal requirements of seeds for various crops differ.

17. Where two more crops occur on different portions of the same field, the extent under each crop has to be estimated either with the help of paces or with the help of 10-link pole. An ordinary pace of a man of average height is taken to be equal to 4 links. But in course of my inspection of a field, I found two instances of the *karnam* having recorded the extent by pure eye estimation. In one case, I verified by calculating the area with the help of the diagram of the plot in the Field Measurement Book and I found that what the *karnam* had recorded as 0.45 acre was really 0.42 acre. In some cases I found that the *karnam* had entered the measurements of the sides. It is in those cases only that he had measured.

18. So far as Bihar is concerned I do not think the monthly return, as in Madras, will be suitable. In Madras the area under the jurisdiction of a *karnam* is so small that he is expected to go over every field in about a week every month ; so the monthly return represents a total area cultivated and harvested during and up to the month concerned. Here we shall have to adopt more or less the method followed in the United Provinces.

19. The Khasra form may be of the sample, which is on the line of form 63 at page 384 of the Bihar and Orissa Survey and Settlement Manual, as modified by His Excellency is more or less on the same lines.

20. The *jinswar* (crop statement) will be different for different seasons just as in the United Provinces. Each will contain columns for the principal crops of the season, more or less as we are having for the sample survey. For usually occurring mixtures, we shall have separate columns

as in the United Provinces. For other mixtures we shall estimate the area under each of the mixed crops on the line of the practice prevalent in Madras.

21. Where different crops will be found on different portion of the same field, they will be measured with the help of 10 linked pole. The measurement will have to be given by the Amins in the remarks column, so that the Amins may be effectively prevented from noting the area by pure guess.

22. In the United Provinces the Patwari hands over the Jinswar to the Supervisor-Kanungo not later than the 31st October for the *kharif* the 15th March for *rabi* the 30th April for the *zaid* statement [Rule 104, page 48 of the United Provinces Land Records Manual]. For Bihar, to start with, we may prescribe as follows :—

- (1) the *sarkari amin* will fill up the columns of *jinswar* for each village as soon as it is completed,
- (2) the Circle Officer will check the totalling as soon as he visits the Amin after the completion of a village or more and note down the entries in his office copy of the *Jinswar* then and there. He will send to the Head Office, on the 1st of every month, a fair copy of the *jinswar* (crop statement) for all the villages in his circle, completed during the previous month. The Head Office will submit to Government on the 10th of the month.

23. The problem of estimating yield is rather difficult. I would not consider the Madras method suitable, for our province. We have not got any reliable figure of previous years, as they have got in Madras, nor will our men have the same experience of the crops as the hereditary *karnams* have. The noting of outturn, plot to plot, is done more or less mechanically even in Madras; but there they have got effective check, which we have not got here. Considering what I have seen in the United Provinces and Madras, I would submit that we may adopt the following methods :—

- (1) The *sarkari amin* will note the estimated yield in maund per acre for each crop on each plot in every village bearing no. 20, 40, 60, etc., that is to say multiplies of 20. This will give the estimated yield for each plot in 5 per cent of the total number

of villages, taken at random. The *sarkari amin* will estimate on the strength of his observation, supplemented by entries from the villagers. It will be compulsory for the Circle Officers to check on the spot 50 per cent of these entries and for the Superintendent for his Assistants 10 per cent of the same.

- (2) At the instance of His Excellency the Viceroy, the Government of India have started a scheme with the object of testing the possibilities of Random Sampling method for estimating yields and evolving a large scale sampling technique for crop-cutting, which would be relied upon to furnish an accurate estimate of yield. During 1943-44, it was organised in the United Provinces and the Punjab for wheat under the technical direction of Statistician, Imperial Council of Agricultural Research.

24. We are beginning plot to plot crop survey in Patna Division with effect from the ensuing Rabi crops. During this season the Random Sample under the guidance of Prof. Mahalanobis will also go on throughout the province. If Government approve, I shall like to get in personal touch with the Statistician of the Imperial Council of Agricultural Research, and after explaining the whole position with regard to our Province, to request him to have his experiments on the principal crops, throughout the province, during the ensuing Rabi season. At end of the ensuing Rabi season, we shall judge the results of (1) plot to plot estimate by the field staff in the 5 per cent of the villages in Patna Division (Random Survey under the method of Professor Mahalanobis and Random Survey under the Statistician, Imperial Council of Agricultural Research). We can also get the estimates of outturn from the local officers of the Agricultural Department for the principal Rabi crops of the respective areas. At the end of Rabi season, we shall be in a better position to think out the best method of estimating the yield.

S. P. SINHA,

Superintendent Agricultural Statistics, Bihar.

| Serial no. | Vernacular or English names of crops. | Botanical names of crops. |
|------------|---------------------------------------|-------------------------------|
| 1. | Dhan (Chawal) Paddy Cleaned rice | <i>Oryza Sativa.</i> |
| 2. | Makai—Maize | <i>Zeamays.</i> |
| 3. | Gehum—Wheat | <i>Triticum Sativum.</i> |
| 4. | Bunt—Gram | <i>Cicer arietinum.</i> |
| 5. | Jaw—Barley | <i>Hordeum Vulgari.</i> |
| 6. | Danadar—Cereals | ... |
| | (a) Kodo | <i>Paspalum Serobiculatum</i> |
| | (b) Marua | <i>Eleusine Coracana.</i> |
| | (c) Kauni | <i>Panicum Italicum.</i> |
| | (d) Tangooni | ... |
| | (e) Sama | <i>Panicum frumentacum.</i> |
| | (f) Gondli | <i>Panicum miliare.</i> |
| | (g) China | <i>Panicum miliaceum.</i> |
| | (h) Jowar or Cholum | <i>Sorghum Vulgare.</i> |
| | (i) Bajra or Cumbu | <i>Pennisetum typhoideum.</i> |
| 7. | Dalhan—Pulses | ... |
| | (a) Bodi | <i>Vigna catiang.</i> |
| | (b) Ghaghra | ... |
| | (c) Urid | <i>Phaseolus radiatus.</i> |
| | (d) Mung | <i>Phaseolus muungo.</i> |
| | (e) Barai | ... |
| | (f) Rahai | <i>Cajanus indicus.</i> |
| | (g) Kurthi | <i>Dolichos biflorus.</i> |
| | (h) Methi | ... |
| | (i) Masoor | <i>Ervum lens.</i> |
| | (j) Khesari | <i>Lathyrus sativus.</i> |
| | (k) Matar—Peas | <i>Pisum sativum.</i> |
| 8. | Telhan—Oil seeds | ... |
| | (a) Til—Sesamum | <i>Sesamum indicum.</i> |
| | (b) Sarguja | ... |
| | (c) Chinabadam—Groundnut | <i>Arachis hypogoea.</i> |
| | (d) Tisi—Linseed | <i>Linum usetatisimum.</i> |
| | (e) Sarso—Rape and mustard | <i>Brassica sp.</i> |
| | (f) Andi—Castor | <i>Ricinus communis.</i> |
| 9. | Digar Fasal—Other crops | ... |
| | (a) Sakarkand—Sweet potato | <i>Dioscorea prupurea.</i> |
| | (b) Gajra—Carrot | <i>Dausus carota.</i> |
| | (c) Suthani | <i>Dioscorea fasciculata.</i> |
| | (d) Kapas—Cotton | <i>Gossypium sp.</i> |
| | (e) Jai—Oat | <i>Avena sativa.</i> |
| | (f) Ganja | ... |
| | (g) Pan—Betel leaf | <i>Piper betle.</i> |
| | (h) Chay—Tea | <i>Cameuia (Thea).</i> |
| | (i) Kaffee—Coffee | <i>Coffea arabica.</i> |
| 10. | Tarkariyan—Vegetables | ... |
| | (a) Aloo—Potato | <i>Solanum taber osum.</i> |
| | (b) Pyaj—Onion | <i>Allium ascalonicum</i> |

| Serial no. | Vernacular or English Names of crops. | Botanical Names of crops. |
|------------|---------------------------------------|-----------------------------------|
| | (c) Govi—Cauliflower | Brassica obovata. |
| | (d) Lauka—Pumpkin | Lagenaria vulgaris. |
| | (e) Kohra—Sweet Pumpkin | Cucurbita maxima and pepo. |
| | (f) Karaila—Bitter Gourd | Momordica mauricata. |
| | (g) Nanua—Sponge gourd | Luffa acgyptiaca. |
| | (h) Ramtoroi—Ladies finger | Hibiscus esculentus. |
| 11. | Unkh—Sugarcane | Saccharum officinarum. |
| 12. | Beshedar—Fibres | ... |
| | (a) Patua—Jute | Corchorus sp. |
| | (b) Sanai—Sunhemp | Crotolariam juncea. |
| | (c) Kudrum—Roselle | Hibiscus sabdariffa. |
| | (d) Keora | ... |
| 13. | Masala—Spices | ... |
| | (a) Mircha—Chillies | Capsicum fritiscens. |
| | (b) Lahsun—Garlic | Allium sativum. |
| | (c) Dhania | ... |
| | (d) Haldi—Turmeric | Curcuma langa. |
| | (e) Golmircha—Round pepper | Piper nigrum. |
| | (f) Adi—Ginger | Zingiber officinate. |
| 14. | Phal—Fruits | ... |
| | (a) Bagh—Orchard | ... |
| | (b) Tarbuja—Water melon | Citrus vulgaris. |
| | (c) Kakri | Cucumis utilissimus. |
| | (d) Kharbooja—Melon | Cucumis momordica. |
| 15. | Tambacu Tobacco | Nicotiana tabacum and N. rustica. |