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be most anxious to sell. A precondition of movement of long term capital on an appreciable scale is that it should be free *i.e.* the lending countries should not fetter it by demanding safeguards and guarantees and thus turn it obnoxious and suspect while the borrowing country should not even indirectly attempt any discrimination. Capital will then not only move but *migrate* to the country of its choice, which from its view-point would represent 'empty spaces' of the world. Will there be free capital migration? There is a big question-mark and the challenge contained in it epitomises the world population and agricultural problem.

SOME FACTS ABOUT AGRICULTURE IN BIHAR

by

S. R. Bose, M.A., B.Sc. (London), Patna.

The sources of information regarding agriculture in Bihar are the twin publications "The Season and Crop Report of Bihar" and "The Agriculture Statistics of Bihar". These are published annually by the Director of Agriculture, Bihar, and contain practically the similar information and may with advantage be combined into one publication. It is an admitted fact that our agricultural Statistics are defective and the "Guide to Current Official statistics" issued by the Government of India says, "In the permanently settled and unsurveyed areas, owing to the absence of a trained village staff, the figures for acreage are reported by the police chaukidar and are believed to be only rough estimate. This is true of the returns from Bengal (except the area under jute), Bihar and considerable portions of Madras and the United Provinces". Recently, however, a new organisation has been set up in Bihar under the Superintendent of Agricultural Statistics and crop statistics are being collected since 1945-46 by a large staff of karmacharies, circle inspectors and district supervisors by a process of complete enumeration of agricultural lands. It is hoped that under the new organisation the reliability of our agricultural statistics will improve considerably. In undivided India excluding the states, Bihar possessed about 8 percent of both the total area and net area sown in the provinces. Although she stood seventh among the provinces of India in respect of her net area sown, in point of acreage under the different crops her position was second in maize, barley and linseed, third in rice, gram, sugarcane, jute and tobacco and fourth in rape and mustard.

Roughly speaking it may be said that of the total area of the province, 15 percent is not available for cultivation (either because it is absolutely barren or uncultivable or covered by buildings, water and roads or otherwise appropriated for non-agricultural purposes), 15 percent is covered by forests, 15 per cent consists of culturable wastes other than fallow, 15 percent current fallows and the remaining 40 percent is under crops. It is, however, surprising to find from official statistics that while the proportions of land under the first three categories have remained

almost unaltered compared with the proportions in the years of settlement and survey operations, the proportion of current fallows has increased from 3.6 per cent of the total area in the survey years to 16 per cent in 1943-44. And this has happened in spite of the very considerable increase of population and rise in agricultural prices! The proportion of her current fallows to the net area sown in 1943-44 was as high as 44 per cent. compared with 6 per cent. for the U.P., 11 per cent. for Bengal, 13 per cent for the Punjab, 14 per cent for the Central Provinces, 18 per cent for Bombay and 28 per cent for Madras. This increase in current fallows in Bihar has been at the cost of the area sown which has gone down by about 6 million acres from 23.7 million acres in the survey years. In recent years there seems to have been a remarkable diminution in the area under *rabi* crops of about 2 million acres from 1932-33 to 1945-46. The proportion of area cropped more than once has, however, increased slightly from 25 percent in the survey years to 32 percent of her net cropped area in 1945-46. The proportion of area irrigated also shows appreciable increase from 18 percent in the survey years to 30 percent in 1945-46. The proportion of gross area under foodgrains has remained unaltered since the survey years at 86 per cent of the gross cropped area although in absolute terms the acreage has dropped by about 6 million acres which means that the reduction in cropped area has been mainly at the cost of food grains. Of the gross area under foodgrains 49 per cent. is under rice and shows a slight increase of 2 percent from the survey years but an absolute reduction of 2.3 million acres. The area under sugarcane increased under the impetus of protection granted to sugar in 1933 and showed in 1940-41 an increase of 78 per cent in acreage compared with the 1932-33 figures, but since 1940-41 the area has diminished. The official figures show a *normal* gross area sown which is 5 to 6 million acres higher than the actual gross area sown. It is difficult to say how this normal gross area is arrived at.

Coming to the district figures, we find that the proportion of land not available for cultivation to the net area sown in 1945-46 varied from 160 and 107 percent in the case of Singhbhum and Bhagalpur respectively to 12 and 5 per cent in the case of Saran in the province, in the Chotanagpur division and excluding Santal Parganas; the rest of the province has no forest at all. The proportion of culturable wastes (other than fallows) is highest in Purnea, Singhbhum and Bhagalpur where they form 111, 100 and 99 percent respectively of the net area sown; and lowest in Darbhanga and Patna where the proportions are 10 and 5 percent respectively. The proportion of current fallows to the net area sown is highest in Bhagalpur and Manbhum where they form 128 and 125 percent respectively and lowest in Saran and Champaran where the proportions are 10 and less than one percent. Thus Saran, Patna, Champaran and Darbhanga are the most highly cultivated districts of the province. The proportion of area sown with rice to the total sown area varied from 22 percent in the case of Saran to 90 percent in the case of Singhbhum, and the highest acreages under this crop were in Muzaffarpur, Champaran, Ranchi and Santal Parganas districts, and the lowest acreage in Palamau and Saran districts. Shahabad appears to be diverting lands from the cultivation of rice to that of

wheat, Muzaffarpur from rice to gram, sugarcane and tobacco and Purnea from rice to maize. Cultivation of rice has been increasing in Palamau, Singhbhum, Monghyr and Santal Pargana. The acreage under wheat is highest in Shahabad and Monghyr which devote 14 to 10 percent of the sown area to this crop respectively. The highest acreages devoted to barley are in Champaran and Muzaffarpur where the proportion varies from 12 to 13 percent. Monghyr and Saran have highest acreages of maize, the percentage varying upto 13 percent of the sown area. The districts with the highest acreages under gram are Shahabad and Patna, the percentages varying from 16 to 20. The acreage under gram appears to have increased materially during the 15 years 1931-46. The two districts with the highest acreage of sugarcane are Champaran and Saran which between them account for 41 percent of the total area under this crop in Bihar. The acreage under sugarcane has increased materially in Darbhanga, Patna, Muzaffarpur and Shahabad district and decreased in Bhagalpur and Purnea districts. Saran and Champaran have the highest acreages in arhar; Shahabad and Champaran in linseed, Purnea and Santal Pargana in rape and mustard. The highest acreage in tobacco is in Muzaffarpur and Purnea districts, while Darbhanga appears to be losing ground to Monghyr. Purnea has practically a monopoly of jute; while Saran, Darbhanga and Patna have the largest areas under potato.

Gaya district has the highest proportion of cultivated land which is irrigated and the portion of Bihar situated south of the Ganges but excluding Chotanagpur has the highest proportion of irrigated land. The proportion of irrigated land to the net area sown in the Patna and Bhagalpur divisions excluding Purnea, is as high as 56 percent i.e., almost twice as high as the proportion for the province as a whole. Of the different crops sown, 35 percent of the area under rice, 29 percent of the area under wheat, 22 percent of the area under barley and 37 percent of the area under sugarcane were irrigated during the period 1942-43 to 1945-46; and these four crops constituted 77 percent of the total crops under irrigation.

The official crop forecasts are based on three factors viz., the actual acreage under the crop in the year, the condition factor (i.e., the proportion of the normal yield of that crop which can be expected in that particular year) and the normal yield of the crop. The condition factor is expressed in annas or percentages. It is a curious fact, now less true, that there is a tendency to under-estimate the yield of the crop. Thus, over a period of 11 years (1935-36 to 1945-46) it is seen that the conditions factor averaged to only 80 to 85 percent of the normal. This is the reason why the Madhya Pradesh Government takes 13.3 annas (instead of 16 annas) as representing the normal yield. It would conduce to greater accuracy to estimates of yield if the condition factor, instead of depending on the guess of an individual could be objectively estimated in terms of the weather and other factors. It is usual to ascertain the normal yield of a crop by crop cutting experiments. But these crops cutting experiments have not been undertaken for many years in Bihar, and only since the complete enumeration of method of recording acreages were adopted

that crop cutting experiments have come to be reintroduced. The average yield per acre for the four years 1942-43 to 1945-46 works out at 627 lbs for rice and maize, 672 lbs for gram, 717 lbs for barley and 787 lbs for wheat. The gross income per acre from the cultivation of different crops at 1945-46 prices works out at Rs. 88 for rice, Rs. 124 for wheat, Rs. 74 for barley, Rs. 60 for maize, Rs. 82 for gram, Rs. 30 for linseed, Rs. 82 for mustard, Rs. 273 for sugarcane and Rs. 860 for tobacco. It must be understood of course, that the cost of cultivation and other subsidiary processes before the crop can be marketed would vary from crop to crop.

Taking the average yield of cereals and pulses at 8 maunds per acre and taking the population of Bihar in 1941 as given in the census report, the outturn of foodgrain gives about 4 maunds per head of the population. Or, in other words, about half an acre of cultivated land is required to raise the food-grains to feed an individual. We have also seen that the area devoted to rice in the province is about fifty per cent of the area devoted to foodgrains. Adopting this standard of half an acre for foodgrains of which half is required for growing rice, and taking the population of the different districts as given in the census report of 1941 and the areas in each district devoted to foodgrains and rice in 1941-42, we find that Gaya, Champaran, Santal Pargana, Hazaribagh and Ranchi district are surplus both in respect of total foodgrains production and rice; while Saran Muzaffarpur, Darbhanga, Purnea and Manbhum districts are deficit areas both in respect of total production and rice. Patna, Shahabad, Mongyr and Palamau are deficit areas in rice only, while Bhagalpur and Singhbhum are deficit in total foodgrains only. The heavily deficit areas are Saran, Darbhanga, Purnea and Manbhum, while the heavily surplus areas are Champaran, Santal Pargana and Ranchi.

The total foodgrains produced in 1940-41 was about 5 million tons and the net amount imported was about 3,45,000 tons; or, in other words, the imports formed about seven percent of the production. To cover this up at the existing rate of production per acre we needed an increase of 7 per cent in the area of land devoted to the production of foodgrains. From 1941 to 1946 our population has been increasing at the rate of 189,000 per annum and to feed this increasing population we require half a percent increase in acreage under foodgrains every year, besides covering up the imports, if we are to be self-sufficient in food at the 1941 standard of consumption. Converting the 1941 population into adult male units and allowing for imports we find that the food available for consumption per adult male in 1941 was 9 chataks per day or 10.5 chataks per day if instead of rice we take paddy. This, however, would make no allowance for seeds, wastage, etc. Our agricultural statistics, imperfect as they are, give no indication that the yield of crops per acre has been going up. If anything, the average yield of the important crops such as rice, wheat, barley, maize gram appears to have gone down from 0.376 ton per acre to 0.286 ton per acre during the period from 1930-31 to 1945-46. Assuming that the yield per acre is not likely to increase in future, it should not be difficult to cover up the deficit remembering that we have large areas of fallow and uncultivated lands

in Gaya, Bhagalpur, Purnea, Palamau, Manbhum and Singhbhum districts. If we can cut down our fallow lands only by the provision of drainage and irrigation facilities to an average of 33 $\frac{1}{3}$ per cent of the net area sown, we get about one and a half million acres to supplement our net area sown. The menace of rapidly increasing population will, however, always remain before us, and unless the population growth can be controlled, the race between population and food supply will assume increasingly menacing proportions.

Cattle is a vital link in Indian agriculture. Statistics of cattle are available from the records of the survey and settlement operations which are reproduced in the "Agricultural Statistics of Bihar" and cattle censuses have been taken periodically in 1913, 1920, 1925, 1930, 1940 and 1945. The statistics show that the number of bulls, bullocks and male buffaloes has remained stationary at 3 per acre of net area sown since 1930 although there has been diminution in the number of animals. The number of acres sown per plough was 10.2 in the survey years, 7.1 in 1930, 6.6 in 1940 and 7.2 in 1945. The number of acres sown per bull, bullock and male buffalo in 1944-45 varied from 1.5 and 1.7 in Bhagalpur and Manbhum districts to 4.2 in Saran and Champaran and 4.6 in Darbhanga. The number of acres sown per plough in 1944-45 varied from 11.1 in Champaran and 10.6 in Saran and Darbhanga to 4 in Bhagalpur, Manbhum and Singhbhum districts.

Now coming to prices of agricultural products, the Season and Crop Reports contain a table giving the harvest prices in each district of the important crops for which crop forecasts are prepared. The harvest price is defined as the average wholesale price at which the product is disposed of at the village site during the harvesting period. The figures of harvest prices do not appear to be very reliable, as sometimes the harvest prices appear to be higher than the annual averages of the wholesale and retail prices at the district headquarters. An attempt is now being made to improve the accuracy of harvest prices. Price statistics are now collected through the staff of the Superintednent of Agricultural Statistics. An index number based on the wholesale prices of rice, wheat, gram and rahar dal at Gaya with September 1939 prices taken as 100, shows the following movements of prices:—

Year	Index Number	Year	Index Number
1940	107	1945	301
1941	113	1946	486
1942	154	1947	593
1943	369	1948	560
1944	316	1949	528

The above figures show that there was a steep rise of agricultural prices in 1943 which was arrested in 1944 and 1945. There was another steep price rise which reached its peak in 1947. Since then the rise has again been arrested.

Lastly, a word about agricultural wages. Periodical censuses of rural wages were taken at irregular intervals in Bihar in 1911, 1916, 1924 and 1932. The daily rates of wages of certain categories of workers such as ploughmen, gharamies, etc. were collected from a dozen representative villages in each sub-division. Since April 1948 fortnightly wage statistics of agricultural labour are being collected regularly. One village in each district has been selected as a representative unit and money wages and cash equivalent of wages in kind are being collected by the staff of the Superintendent of Agricultural Statistic from (*a*) field labourers, (*b*) herdsmen and (*c*) other agricultural labourers on the 15th and last day of each month, and the wages of men, women and children are shown separately.

POSITION OF FARM LABOUR IN CONTAI

by

A. GHOSH (*Indian Statistical Institute, Calcutta.*)

and

S. GUPTA (*City College, Calcutta.*)

A survey was conducted by the authors in the middle of October 1945 in five villages which were badly affected during the Flood and the Famine of 1943. Five villages* were fully covered by the survey and included 167 families in all. Among other points of enquiry about the economic condition of these families certain data were obtained regarding the demand and supply of farm labour and the cattle in the villages concerned. In this article the position in the villages regarding farm labour will be discussed.

Before going into the position of farm labour it is necessary to find out the nature of the organisation of farming (whether in small or medium or big holdings) in the area. Table (I) gives the number of families classified by the acreage cultivated by them in 1945 and the mean area owned by such groups.

TABLE 1

Acreage Cultivated	No. of families in 1945	P.C. of families.	Mean area owned per family.
0	41	24.5	0.33
Up to 1 acre	30	17.9	0.44
Up to 2 acres.	21	12.5	0.45
Up to 3 acres.	24	14.2	0.74
Up to 4 acres.	17	10.1	1.10
Up to 5 acres.	14	8.3	1.24
5 to 10 acres.	16	9.5	5.34
Above 10 acres.	4	2.4	3.22
Total ..	167	100.0	1.13

*The five villages covered in the survey are (1) Patapukuria, (2) Kaltolia, (3) Hatiberya (4) South Patapukuria and (5) Kushbani, all within a range of 10 miles from Contai town.