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An Analysis of Farm Productivity and Fertilizer Consumption in Bharatpur Region of Rajasthan

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ABSTRACT

The present study was conducted to analysis the farm productivity and fertilizer consumption of major crops in Bharatpur region of Rajasthan under three level of irrigation. Study was mainly based on primary data, which were collected through Interview method from selected sample respondents having (80 low irrigated, 80 medium irrigated and 80 highly irrigated farms) for the agriculture year 2016-2017. The overall result revealed that the per hectare yield of major crops like wheat, mustard in Rabi season was highest (3975 kg and 1750 kg) respectively on highly irrigated farms. As well as per hectare yield of major kharif crop i.e., Bajra and Jowar fodder was also highest (2260 kg and 39030 kg) respectively on highly integrated farms. Further the role of fertilizer is very important in the application of modern techniques of agriculture, enhancing soil fertility, cropping intensity productivity and commercial cropping patterns and Systems. Further the study indicated that the maximum quantity (same as recommended dose) of NPK was applied to highly irrigated farms in comparison to other categories of farms. Hence positive relation have seen between agricultural productivity, farm modernization and fertilizer consumption with the proper and adequate irrigation system.

Key words: Farm Productivity, Fertilizer Consumption, Cropping intensity, Irrigation system

The Indian agriculture is the backbone of Indian economy. Higher agricultural productivity is a key element in economic development of a country. The Most important prerequisite to raise productivity is efficient allocation and better utilization of available farm resources in general and water resources for crop production in particular. improvement in agricultural productivity in India depends upon the use of fertilizers pesticides tools and machines and the availability of facilities for storage processing and marketing of farm products ration of agriculture live in increasing capital investment both in the form of materials as well as skills a major goal of India economic development planning since its Inception has been to achieve self-sufficiency in food grains the food policy has been placing emphasis on increasing agricultural production through extension of area under agriculture [1-2]. However, with limited availability of land the emphasis, later on, had

been shifted to intensification of agriculture and increased productivity through the judicious combination of available resources including irrigation and improved technologies in agriculture called new-seed-fertilizer based technology [3]. Rajasthan is having diverse agroclimatic conditions which favour growing of large number of horticulture crops like fruits, vegetables, spices, flowers and medicinal and aromatic plans throughout the year. Therefore, the present study has taken to make an analysis of farm productivity and fertilizer consumption on different type of farms in Bharatpur region of Rajasthan.

MATERIALS AND METHODS

A four-stage sampling design was adopted for the selection of sample farms. The area of the study was Bharatpur region of Rajasthan state. Bharatpur region consisted for district namely Bharatpur, Dhaulpur, Karauli and Sawai Madhopur. From the four district eight tehsils was selected based on the highest operational holdings. From these selected tehsils 24 villages (3 from each Tehsil) and ten farmers from each village were selected randomly (total 240 farmers) farms was Classified on the basis of irrigation facilities, in order to determine the low irrigated, medium irrigated and large irrigated farms.

Collection of data

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The present study was mainly based on the primary data which were collected through Interview method from selected sample respondents for the agriculture year 2016-17. The data was collected with the help of specially developed interview schedule to know the human labour participation in from activities of Bharatpur region in Rajasthan.

RESULTS AND DISCUSSION

Agricultural productivity and total fertilizer consumption on low irrigated farm in Bharatpur region

The (Table 1) shows that the per hectare productivity of kharif crops namely Bajra, urad, Arhar, jowar seeds and guava seeds are 1330 kg, 4600 kg, 1020 kg 760 kg and 1000 kg respective. The yield of by-product of Bajra is 9000 kg/hector. The yield of kharif green fodder crop namely jowar Fodder and jowar + Bajra fodder 30500 kg and 29000 kg/hectare respectively [4]. During Rabi season the per hectare productivity of wheat, mustard and Barley is 3020 kg, 1295 kg and 2800 kg respectively, while the by-products of wheat and Barley is 3700 kg and 3170 kg per hectare respectively which were used as the dry fodder for livestock. Further the table also shows the total fertilizer consumption NPK of major crops namely Bajra, wheat, mustard and barley is 42.00 kg, 149.50 kg 67.70 kg and 57.20 kg respectively. Wheat is the dominant crop of Rabi season which required more fertilizers than the other crop [5-7].

Table 1 Agricultural productivity and total fertilizer consumption on low irrigated farm in Bharatpur region (2016-2017)

Name of crop	Agricultural productivity	Total fertilizer consumption (Kg/ha)
Bajra	1330 (9000)	42.00
Jowar Fodder	30500	18.50
Urad	4600	39.00
Arhar	1020	45.00
Jowar+Bajra fodder	29000	33.00
Jowar seed	760	40.00
Guar seed	1000	56.60
Wheat	3020 (3700)	149.50
Mustard	1295	67.70
Barley	2800 (3190)	57.20
Sesamum	370	49.80

Figures in parenthesis represent by product

Agriculture productivity and total fertilizer consumption on medium irrigated farm in Bharatpur region

The (Table 2) exhibit the agricultural productivity and total fertilizer consumption of major crops on medium irrigated farms. It reveals that the per hectare productivity of bajra, Jowar seeds and guar seed is 1620 kg, 890 kg and 1200 kg respectively. Jowar fodder and jowar + bajra fodder are the important green fodder crop grown in the kharif season. They have given a yield of 34020 kg and 33500 kg per hectare respectively. The average yield of wheat, mustard, sesamum and barley in the rabi season is 3475 kg, 1525 kg, 460 kg, and 3000 kg respectively. The per hectare productivity of pulse crop namely Gram and masoor have been found 1190 kg and 830 kg respectively on medium irrigated farms [8-10]. Whereas the total consumptions of fertilizer of major crop namely bajra, guar seed, wheat, mustard, and barley is 52.00 kg, 67.20 kg, 184.90 kg, 98.80

kg and 71.40 kg respectively. The total application of NPK for pulse crop like Gram and masoor is 42.25 and 36.00 kg per hectare respectively [11].

Table 2 Agriculture productivity and total fertilizer consumption on medium irrigated farm in Bharatpur region 2016-17

Name of crop	Agricultural productivity	Total fertilizer consumption (Kg/ha)
Bajra	1620 (9300)	52.00
Jowar Fodder	34020	21.80
Jowar+Bajra fodder	33500	33.50
Jowar seed	890	45.40
Guar seed	1200	67.20
Wheat	3475 (4350)	184.90
Mustard	1525	98.80
Sesamum	460	62.00
Barley	3000 (3450)	71.40
Gram	1190	42.25
Masoor	830	36.00

Figure in parenthesis represent the by-product

Table 3 Agricultural productivity and total fertilizer consumption on highly related farms in Bharatpur region 2016-17

Name of crop	Agricultural productivity	Total fertilizer consumption (Kg/ha)
Bajra	2260 (8500)	56.30
Paddy	4200	165.80
Sugarcane	65070	215.60
Cotton	1100	100.00
Jowar fodder	39030	25.00
Urad	700	50.00
Arhar	1335	52.00
Guar seed	1300	74.00
Ground nut	2125	68.00
Moong	750	53.50
Wheat	3975 (4950)	207.96
Mustard	1750	106.80
Sesamum	545	68.00
Barley	3165 (3600)	79.32
Gram	1380	51.10
Masoor	945	40.00
Potato	28000	223.40
Brinjal	17000	173.00

Figure in parenthesis represent the by-product

Agricultural productivity and total fertilizer consumption on highly related farms in Bharatpur region

The (Table 3) highlights that on highly educated farms, a greater number of crops have grown if compared with low irrigated and medium irrigated farms the per hectare productivity of Bajra, paddy, sugarcane and fibre crop cotton is 2260 kg, 4200 kg, 65070 kg and 1100 kg respectively. the respective yield of pulse crop like urad, arhar and moong is 700 kg, 1335 kg and 750 kg. The per hectare productivity of Guar seed and groundnut is 1300 kg and 2125 kg respectively on these farms [12-14]. It is also observed that during Rabi season the per hectare productivity of wheat, mustard, sesamum, barley and masoor is 3975 kg, 1750 kg, 545 kg, 3165 kg, 1380 kg and 945 kg respectively. On highly irrigated farms important

vegetable crops like potato and brinjal are produced with quantity as 22000 kg and 17000 kg per hectare respectively [15-16]. The (Table 3) also shows the total fertilizer consumption of major kharif crop namely Bajra, paddy, sugarcane and cotton is 56.30 kg/hectar, 165.80 kg/hect, 215.60 kg/hectar, 100 kg/hectar respectively. Wheat and mustard major crops of Rabi season have occupied an average application of NPK of 207.96 kg and 106.80 kg respectively. Further the same farms produce some vegetable crops like potato and brinjal and their respective fertilizer consumption is 223.40 kg and 173.00 kg [17-18]. It is also clear from the table that the fertilizer consumption for the major crops like Bajra, paddy, wheat, mustard and Barley which are grown in highly irrigated farms is higher than that of low irrigated and medium irrigated farms.

CONCLUSION

It can be concluded from the study that higher agricultural productivity is a key element in economic development of a country. The important prerequisite to raise productivity is efficient allocation and better utilization of available farm resources in general and water resources

for crop production in particular. Improvement in agricultural productivity in the study area depend upon the use of fertilizers pesticides tools and machines. It is evident from the study that the per hectare yield of major crops like Bajra, wheat, mustard is highest on highly irrigated Farms and lowest on low irrigated farms. As well as the use of fertilizers in terms of plant nutrient is maximum on highly irrigated farms. Therefore, the study suggests that non-price factor mainly irrigation and high yielding varieties are the important factors affecting fertilizer demand and productivity level in the region. This study also suggest that an assured and adequate irrigation boosted up the peasant to use high and standardized dose of fertilizers in their field to gain more and more production. Hence appropriate management chemical fertilizers are a necessary tool to achieve the targeted field level and to meet future requirements. Therefore, there is a strong correlation between the farm modernization and agricultural productivity. The study clearly depicted that the highly irrigated farm have an advantage and Supremacy over other categories of farms in providing timely adequate and assured supply of irrigation and fertilizer consumption, results in higher level of Agricultural productivity.

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