CHAPTER II
REVIEW OF LITERATURE

The review of the previous contributions in the literature on, "Farm structure, resource use and productivity in agriculture" have been discussed in the present Chapter.

Basak and Chawdhari (1955-56)\(^1\) fitted Linear Function to study the influence of different levels of factors of production of two important crops, namely, Aman paddy and jute. The variables included in the analysis were area, human labour, bullock labour and manures. They concluded that less fertile soil required more fertilizers than more fertile soil.

Heady and Russel (1955)\(^2\) conducted a study in selected area of Iowa mountains and Alabama as to know the behaviour of resource returns and productivity coefficients for crops and live-stock. The Cobb-Douglas function was considered to be the best fitted in measuring the marginal value productivities of resources and their services were used in different farming regions.


Driver and Desai (1955-56)\(^3\) used partial regression analysis to determine the marginal productivity of human labour, bullock labour and manures for different crops of Ahmadnagar and Nasik Districts. In Ahmadnagar, the marginal value product of manures was negative being Re. 0.38 for dry Bajra.

Agrawal and Foreman (1959)\(^4\) studied resource productivity in Western Uttar Pradesh for farm business as a whole and as well as for planted sugarcane and wheat separately. They observed that the profitability could be increased by increasing the levels of human and bullock labour on sugarcane and seed, manure and irrigation in wheat.

Johl and Kahlon (1963)\(^5\) analysed the data received from 12 farms of the two villages of Ludhiana district and found that the normative cropping pattern obtained in this process envisaged a shift from rabi to kharif season crop to the extent of 8.94 per cent of the cropped area. In the rabi season, there was a little shift from wheat to gram.

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Ram Saran (1964)\(^6\) conducted an experiment on production function approach for measurement of productivity in agriculture. The resources, land, human labour, bullock labour and working expenses and capital assets in rupees were taken for measuring marginal productivities at their geometric mean levels. The Cobb-Douglas Function was fitted for the farm business as a whole and for important crops also. The regression comparison in respect of capital productivity for capital services showed that in all the three States, viz. Uttar Pradesh, Andhra Pradesh and Madras, the expenses on use of manures, fertilizers, improved seeds etc. could increase profitability of farming excepting paddy in Madras.

Naik (1965)\(^7\) analysed the marginal value productivities of variables viz. water charges, hired labour, implements, manures and fertilizers and land. The Cobb-Douglas production function was fitted for the purpose. Marginal value productivities showed that except land and manure and fertilizers, the other three variables could increase the production if applied in more quantity.

Don-Kanel (1967)\(^8\) stated that the difference among farm can be explained as adjustment to the economic situation in which different kinds of farmers find themselves. This provides a theoretical explanation for the higher production

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per acre on small farms, such higher production is achieved primarily by a more intensive combination of input and livestock enterprises and represents adjustment to relatively small amount of land per family worker. However, such tendencies for negative association between size and output per acre can be counteracted and even revised if larger farms make greater advance in adoption of yield increasing technology than smaller units.

Sahni and Johl (1967) in their paper on "Economic Potentialities of Vegetable Cultivation in sullage water farms in Punjab" concluded that vegetable cultivation required heavy capital inputs. Maize (fodder)-potato-sarson green, potato-maize (fodder) and maize (fodder)-potato-tomato, late cauliflower or cabbage were supposed to be most profitable vegetable crop rotations. They further concluded that it was possible to enhance the returns to fixed farm resources to the tune of over 29.00 per cent over the returns from the existing production plan through rationalization of resource use alone even on progressive farms in suburbs of the cities.

Kapoor and Kahlon (1967) in their study, "Optimum cropping pattern for Upper Dharia Region of intensive agriculture District Programme District Ludhiana (Punjab)" reported that due to corresponding increase in cropping intensity to the extent of 18.5, 28.5 and 31.86 per cent, the net farm earning increased by 127.32%, 138.86% & 99.03% on small, medium & large farms respectively.


Sisodia (1968) reported that high yielding varieties programme can give good results if proper care is taken in time to ensure the use of the required supplies of seed and fertilizers duly supported by the prescribed package of practices. It is further stated that the main problems which are hindering the extension of new varieties are its cost, failure to use the recommended doses and non-availability of fertilizers, long duration of crop like maize and timely and cautious practices required by these varieties.

Dhondyal (1968) studied cost and effectiveness of modern technology on farm production and farm income by taking two categories of cultivators, (A) using high yielding varieties and (B) using traditional varieties. He concluded that the levels of production and net income per hectare has been pushed up by high yielding varieties in conjunction with increased complementary inputs of water and fertilizers. He observed that there was increase in cost of input for (A) category farmers over (B) category, to the extent of 9.01 per cent but the net income rises by 76.16 per cent.

Saini (1969) on the basis of studies in farm management conducted in Meerut and Muzaffarnagar Districts of U.P. and Amritsar and Farezpur districts of Punjab by the

Government of India (1954-57) evaluated the efficiency of resources and concluded that land and human labour were the important inputs to which output was highly responsive and the regression coefficients showed constant returns to scale. The study further showed that marginal value product of labour in the two states intended to be higher than the wage rate and land appeared to be utilized more intensively on smaller farms.

Kishan and Lakhanpal (1969) conducted a survey to assess the increase in the average yield of paddy, jowar, bajra, maize and wheat crops as a adoption of high yielding varieties. They found that the percentage increase in average yield of wheat as a result of high yielding varieties over local grown varieties was 63.88 in 1966-67 and 57.37 in 1967-68. Similar increase in the average yields was also observed in other crops.

Prasad and Chandwani (1970) in a study conducted in Farrukhabad District, U.P. concluded that the existing institutional arrangements of peasant farming can maximise farm profit even on tiny holdings if good quality seed, right type of fertilizer and adequate quantity of irrigation water is available with them. The intensity of cropping was highest (298.0 per cent) in 0-1 hectare size group which gave the highest income of Rs.4129.52 per hectare on the farm economy as a whole. The values

of input, output, net income, family labour income and farm business income showed a decreasing trend with the decrease in the intensity of cropping.

Shukla (1971)\(^\text{16}\) concluded that the potential rise in the income largely depends upon the level of technology and the extent of resource expansion on farms. However, if the gains of technology and resource expansion assumed to be additive, the potential of income exceeds 60.0 per cent. It is found that the net gain by technology alone is 32.0 per cent whereas the contribution of additive resource was 28.0 per cent in advanced category of farms of unirrigated area.

Rathor and Sohan (1972)\(^\text{17}\) studied the impact of modern technology on input-output behaviour of different types and size of farms at Bharatpur District of Rajasthan. It was found that on the progressive farm, the percentage area under hybrid bajra was more on the small size group, whereas the medium size group was having proportionately more area under high yielding varieties of wheat. Gross farm income per acre was highest on the medium size group whereas the high yielding varieties of crops contributed the highest, while it was lowest on the traditional small size group. In spite of the variable as well as fixed cost

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being high, the return on the variable cost and net profit was highest on the progressive medium size group indicating the profitability of improved agricultural inputs and efficiency of the progressive medium size group in using the input.

Singh et al (1974) studied the relative economics and production function for the commercial crops of cotton, sugarcane and oilseed which cover 12.0 per cent of the total cultivated area of Haryana. The Cobb-Douglas type production function was used to estimate the marginal value productivities of inputs and the crop production functions. The study reveals that the use of fertilizers, irrigation water and human labour explains about 87.72 and 59.00 per cent of the variation in production of sugarcane, cotton and rape and mustard, respectively. However, the regression coefficient of fertilizer and irrigation with respect to sugarcane, of irrigation and human labour for cotton and of human labour for rape and mustard indicate negative contribution to the production of the respective crops in Haryana during 1973-74.

The marginal value productivity of fertilizer and irrigation for sugarcane, of irrigation and human labour for cotton and of human labour for rape and mustard are found to be less than zero. Cotton is more profitable than sugarcane and rape and mustard in Haryana. However, sugarcane affords more

employment potential for human as well as for bullock labour compared to cotton or rape and mustard.

Dhawan and Kahlon (1974)\textsuperscript{19} worked out the impact of yield increasing foodgrains technology on the cultivation of commercial crops in Punjab. The analysis of the existing cropping pattern showed that with the existing structure of technology and yield levels together with their price structure, the foodgrains occupied more than 50.0 per cent of the total cropped area. This indicated that with the development of high yielding varieties of paddy and wheat the cropping pattern was skewed in favour of foodgrains and the acreage under commercial crops, therefore, declined.

Chauhan et al (1974)\textsuperscript{20} examined the impact of commercial crops on farm incomes and resource use in Jaipur district of Rajasthan. The study indicated that the productivity of land is generally determined by physical yields and by cropping pattern i.e. by the relative proportion of high value of commercial crops and low value of foodgrain crops.

Singh and Kunwar (1974)\textsuperscript{21} in their study of economic indicator of cotton cultivation in Bulandshahr District, U.P. reported that the American Kapas required about 25.0 per cent


higher expenses over desi Kapas. The expenses on operating cost in American Kapas in comparison to desi Kapas were about 26.0 per cent higher due to higher expenses on labour, seed, manure and fertilizers, irrigation and plant protection. The yield of American Kapas was about 1.31 times higher than the desi. The net income per hectare from sugarcane was 3½ times higher than cotton mainly due to the fact that sugarcane was more assured irrigation and is highly responsive to irrigation and manures and fertilizers.

Kahlon et al (1975) conducted a study on relative profitability of dairy enterprise vis-a-vis crop cultivation in the Punjab in Ludhiana where the Punjab Dairy Development Corporation was actively engaged. The results of the study showed that the cross-bred cows were relatively more profitable than the buffaloes. Secondly in the case of crop cultivation, the Punjab farmers were not operating at an optimal level, particularly they were not following plant protection measures with kharif season which lowered down the profitability of crops as compared to the milch cattle. Thirdly, the demand for milk is income elastic so the relative price increase was more in milk than in the crops in the last two years.

Banerjee and Sirohi (1975) conducted economic analysis of farm business of small farmers of village Tindui, Varanasi District and observed that extension of credit facilities to the farmers increased the net returns considerably on these farms. The increase was more marked in the case of non-viable small farms where the farm income increased by 54.61 per cent over the existing income. This indicated that the income increasing effect of credit facilities was more on the non-viable and small farms than on the viable farms.

Singh and Srivastava (1975) made case study of cropping pattern and resource use of small farmers. The efficiency of farm business was judged by the level of resource use and farm income per unit of cultivated area. The input, output and net income per unit of cultivated area, per hectare, on an average came to Rs. 1,037.11, 1,856.06 and Rs. 818.95 respectively. The input-output ratio was 1:1.71 only.

Singh and Singh (1975) conducted an inquiry in the cropping pattern, employment, investment and income pattern of small farmers in District Meerut. The study reveals that food crops occupied largest area, accounting for 85.40 per cent of:

the total cultivated area followed by cash crops (9.36 per cent). The investment in fixed capital excluding land, on an average, came to Rs.2,874.79. The employment of human labour on an average on production and livestock maintenance came to 1,062.63 and 199.11 respectively. The input-output and net income per farm showed an increasing trend with an increase in the size of holding, mainly because of higher cropping intensity and higher expenditure on cash inputs.

On the basis of the above review of literature the following hypothesis may be developed.

**Hypothesis**

1. The intensity of resource use and income per hectare increases with the increase in the area under cash crops.

2. Combination of milk enterprises with crop production (mixed farming) raises income of the small and marginal farms.

3. The farmers of the study area consider sugarcane superior to other crops.

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