DISCUSSION
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The farmers of the study area, in District Meerut, have displayed a high degree of entrepreneurship in the organisational and operational efficiency of farming as judged by the level of income on their farms. They have devoted a larger area to sugarcane in the cropping pattern for having larger profits from their farm business. Besides this, the farmers (specially small and marginal farmers) also raise a good number of milch cattle for additional farm income.

Taking into account the salient points of the present study, the following issues may be considered for discussion.

1. What is the stage of agricultural development—traditional, intermediate or modern, obtaining in the study area?
2. Do the farmers consider the cash crop (sugarcane) superior to foodgrain crops in their farming scheme? In other words whether they are engaged in specialized farming?
3. What is the impact of adoption of H.Y.V. crops on their farm economy?
4. What are the possibilities of increasing incomes of the small and marginal farmers by combining milk production with crop production enterprise?
5. Is there rational use of resources on individual crops and farm as a whole?
On the basis of the findings gathered from the preceding Chapter, the attribute related to such entrepreneurship are pieced together to get the stage for discussion.

Before answering the stages of agricultural development i.e. traditional, intermediate or modern, in the study area, it will be worthwhile to consider the distinction among them. A traditional stage implies a way of living rather than a business proposition, where production is subsistence oriented, the produce being mainly intended for family consumption. The inputs used in such situation i.e. crop varieties, seeds, labour, fertilizer etc. are chosen mainly on the basis of what the farmer and his family likes and owns. In these circumstances there is very little of market orientation or consequences of prices, cost and returns. At the other extremity a modern agriculture would imply careful selection of enterprises, crop varieties, fertilizers and pesticides by procuring them largely from the market. The extremity naturally implies a high degree of sensitivity to market condition, prices, cost and return. The bulk of the produce in such a case has to be sold in the market at a profit in order to obtain cash needed for purchasing inputs from the market. In modern agriculture, necessarily there is evidence of selectivity and careful decision making. The intermediate stage consisted in between these two stages.
Judged on this basis, the general picture of the farm business survey, reported in the present study, was found to be intermediate. The availability of assured means of irrigation i.e. private and government tubewells, and other agricultural inputs have led to farmers in making right farm management decisions and obtaining higher profits per unit of area and time. The per hectare average level of farm business income of the farmers came to Rs. 2843.63 which vary from Rs. 2483.82 to Rs. 3041.11 on different size groups of holdings. While that of average net income came to Rs. 2034.85 and varied from Rs. 1600.84 to Rs. 2255.14 per hectare in different size groups of holdings. Thus, the standard of farming can be considered as of the intermediate stage in development i.e. in between traditional and modern agriculture. The farming is commercial oriented as factor and product of market are relatively well developed.

The farming in the study area may be considered as 'specialized farming' because of larger area under sugarcane cultivation which was about 35% of the total cropped area and contributing about 62% income to total income, received from different crops, thus leading to commercial development for market sale. Because of higher net income per hectare, the farmers of the study area consider sugarcane (as a cash crop) more superior than foodgrain crops. The per hectare net income obtained from sugarcane planted and sugarcane ratoon crop came to Rs. 2830.08 and Rs. 2389.59 respectively as compared to wheat, the next paying crop of the study area, where the net income
was Rs. 1176.69 only. The input-output ratio came to 1:1.54 and 1:1.68 in sugarcane planted and ratoon respectively in comparison to wheat where it came to 1:1.40.

Considering the impact of high yielding and improved varieties of crops on farm economy, the contribution made by individual crops have to be accounted to locate the position of different crops in the farm economy. Sugarcane, wheat and maize are the only important crops grown in the study area, occupying 35%, 24.95% and 8.46% to total cropped area. Of the total sugarcane area improved varieties accounted for 80.72%, while high yielding wheat 82.32% to total area under wheat cultivation. In case of maize only traditional varieties are grown in the study area. As regards percentage area under H.Y.V. to total cropped area, it came to 44.19%. When contribution of income of different crops is looked into, sugarcane contributed the highest income of 62.59%, followed by wheat 24.36%, maize 4.38% and fodder crops 5.29% to total crops income. It may thus be said that high yielding and improved varieties of wheat and sugarcane crops have made a higher impact on the farm economy because sugarcane and wheat are the only two crops which contribute maximum income and have a greater influence on the farm economy of the study area.

Raising of milch cattle by the farmers is a very common feature of the study area. The number of milch cattle per hectare was higher on small farms as compared to larger ones. It was due to the fact that small farmers try to maximise
their farm income by having more number of milch cattles on
their farms. The net income per hectare from milk production
was higher i.e. Rs.925.88, on smallest farm as compared to largest
farms i.e. Rs.230.08 per hectare. The total gross income and
expenditure, combining crop and milk production, came to Rs.6930.00
and Rs.4476.75 per hectare respectively. The values of net income,
family labour income and farm business income came to Rs.2453.20,
Rs.3109.12 and Rs.3127.60 respectively. All these values were found
more or less the same on all size groups of farms. If only crop
production is taken into account, the income values were lowest
on small farms, but when milk production values are combined with
crop production, the income values of small farmers also increase
and come to the level of big farmers, because of comparatively
higher incomes from milk production.

Thus, the importance of raising of milch cattles can
be over-ruled in raising the level of income of small and margi-
nal farmers. A greater emphasis is needed to improve the live-
stock sector to establish a near perfect relationship between
crop and livestock enterprises.

Coming to the use of resources it can be examined that
with the availability of resources, sugarcane planted, sugarcane
ratoon and wheat have the potential for giving the higher returns
per hectare. In regard to the M.WP. of different inputs it can
be said that there is scope for improving the farming efficiency
through more use of resources. So far as the resource efficiency
is concerned the implication of the production function merit
detail discussion. The M.V.P. of capital indicates that one rupee service flow of capital yields around Rs. 4.50 for fertilizers and Rs. 4.0 for irrigation.

Testing of Hypothesis

(i) The first hypothesis that the intensity of resource-use and income per hectare increases with the increase in the area under cash crops can be supported by the findings presented in Chapter VI and VII. The area under cash crops was 32.83% in 0-1, 36.31 in 1-2, 35.38 in 2-3, 36.86 in 3-4 and 43.63% in 4 & above hectares size group of farms. The input cost per hectare came to Rs. 3480.59 on 0-1, Rs. 3551.66 on 1-2, Rs. 3907.93 in 2-3, Rs. 4003.60 in 3-4 and Rs. 3812.10 on 4 & above hectares size group. The net income per hectare from crop production also followed the same trend which rose from Rs. 1600.84 on 0-1 hectare size group to Rs. 1850.22 on 1-2, Rs. 2106.39 on 2-3, Rs. 2255.44 on 3-4 and Rs. 2005.79 on 4 & above hectares size group. Thus, the first hypothesis is tested.

(ii) The second hypothesis i.e. 'combination of milk enterprise with crop production (mixed farming) raises the income of small and marginal farmers' is supported by the results given in Chapter VIII. The results show that there are much differences in income on per hectare basis amongst different size groups of farms when only crop production is considered. The net income on per hectare basis from crop produc-
tion came to Rs. 1600.84 on 0-1, Rs. 1850.22 on 1-2, Rs. 2106.79 on 2-3, Rs. 2255.14 on 3-4 and Rs. 2005.79 on 4 & above hectares size group. It gave an increasing trend with the increase in farm size. But the net income received from milk production per hectare basis gave a reverse trend. It was higher on small farms and gave a decreasing trend with the rise in farm size. It was Rs. 926.88 on 0-1 hectare and decreased to Rs. 642.71 on 1-2, Rs. 413.35 on 2-3, Rs. 288.71 on 3-4 and Rs. 230.08 on 4 & above hectares size group. When the income received from crop and milk production are combined together, the incomes of marginal and small farms come nearly equal to big farms. Thus, the above hypothesis is tested.

(iii) The third hypothesis that farmers of the study area consider sugarcane superior to other crops is supported by the results obtained in cropping pattern and crop enterprise analysis. The area under sugarcane was highest being 34.89% to total cropped area under study. It was because of its cash paying ability. An analysis of crop enterprises showed that sugarcane planted and ratoon gave a net income of Rs. 2829.88 and Rs. 2389.52 respectively, which was much higher than other crops. The H.Y.V. wheat next important crop of the area gave only Rs. 1178.69 as net income on per hectare basis. As regards contribution of income from different crops, sugarcane alone accounted for 62.79% income to total income. Further, the input-output ratio also came higher for sugarcane, being 1:1.54 while it was only 1:1.40 for wheat crop. Thus, this hypothesis is also tested.