Chapter - VIII

DISCUSSION
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The present chapter attempts to discuss the issues developed on the basis of findings of the study in relation to “Production and productivity performance of pulses and their contribution in income and employment on farms in Chitrakoot Dham region of U.P. state” Of the total agricultural crops grown in India, pulses are the most important because they are the major source of protein to the majority of the people in the country who live on vegetarian diet. Pulses not only have nutritional value for human beings but also contribute to soil fertility besides providing nutritious green fodder and feed to live-stock. Pulses provide the most important food ingredient of protein in diet and are 2-3 times richer in protein than most of cereals. In U.P. there has been no growth or negative growth in pulse production during the last 20 years. However, in Chitrakoot Dham there was positive growth in pulse production during this period. Due to inadequate irrigation facilities the pulses could be grown well in Chitrakoot Dham and provided better returns as compared to input cost.

On the basis of findings in previous chapter following issues may be raised for discussion:

(i) What is the rate of growth in area, production and productivity of pulses in the State, Chitrakoot Dham division?
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(ii) Whether the productivity of pulse crops per unit of area on the sample farm is below or above the average productivity of pulses of the state?

(iii) Whether the pulses have contributed major part of the farm income?

(iv) What is the employment potential of the pulse crops?

(v) Is there any difference in the rational use of resources and level of returns amongst different size-group of farms in pulse cultivation?

(vi) What are the constraints in pulse production in the study area?

(vii) How these constraints may be removed?

Regarding the area, production and productivity of pulses in Uttar Pradesh, much increase could not be observed so far. The overall area under pulses has shown a decreasing trend at the rate of (-) 1.01 percent per annum in the state with effect from 1970-71 to 1989-90. As regards the production, it declined from 3069.26 thousands tonnes to 2412.73 thousands tonnes during the period 1970-71 to 1989-90. It’s compound growth rate was worked out to (-) 0.11 percent per annum. Likewise average yield declined from 8.24 quintals per hectare to 8.08 quintals per hectare during the period mentioned as above. The compound growth rate average yield was worked out to (+) 1.47 percent per annum. So far as the area, production and productivity of pulses in
Chitrakoot Dham district are concerned they showed a marginal positive increase. The area and production under Urd, Moong, Gram, Peas, Arhar and Lentil pulse crops in Chitrakoot Dham division increased from 13139 hectares and 51512 m.t., 2098 hectares and 495 m.t., 656014 hectare and 376481 m.t., 12816 hectares and 10841 m.t., 93612 hectares and 94102 m.t. and 55802 hectares and 32399 m.t. respectively during the year 1970-71 to 54202 hectares and 62265 m.t., 8716 hectares and 1874 m.t., 612330 hectares and 383931 m.t., 73805 hectares and 73879 m.t., 75609 hectares and 110390 m.t. and 179598 hectares and 155532 m.t., respectively during the year 1989-90. Likewise the productivity under the respective crops in the Jhansi division varied from 4.24, 2.36, 5.74, 8.46, 10.05 and 9.05 quintals per hectare, respectively during the year 1970-71 to 2.69, 2.15, 6.27, 10.01, 14.60 and 8.66 quintals per hectare, respectively during the year 1989-90 alongside with their growth rates of (+) 1.47, (+) 0.21, (+) 1.53, (-) 1.99, (+) 1.37 percent per annum, respectively. The rates of growth in area, production and productivity in Chitrakoot Dham district were calculated at (+) 5.25, (+) 2.71 and (+) 1.72 percent respectively in Urd pulse crop during the period 1970-71 to 1989-90 followed by (+) 7.30, (+) 20.06 and (+) 1.74 percent in Moong, (-) 0.94, (-) 1.33 and (-) 0.32 percent in Gram, (-) 0.86, (+) 3.15 and (+) 3.44 percent in Pea, (-) 0.33, (-) 1.15 and (+) 3.92 percent in Arhar and (+) 2.26, (+) 1.89 and (+) 0.61 percent in Lentil pulse crops. The study clearly reveals that increased production of pulses during the aforesaid period was due to the expansion of area under the pulse crops on one hand and marginal increase in productivity on the other hand. The
production growth rates were observed higher than the growth rates of area during the study period. The average productivity of pulses of the state during the year 2001-02 came to 8.57 quintals per hectare while that of Chitrakoot Dham district it came to 8.95 quintals per hectare for the same period which was higher than that of state's productivity. The marginal increase in productivity shows that technology has not helped much to increase the production in the country as well as in the study area. This is to be viewed seriously in the context of various efforts being made to increase productivity through yield increasing technology.

Regarding the level of resources used and the level of returns received on farms as a whole of different sizes, it may be mentioned that higher use of inputs have resulted in higher yields and greater profits to the pulse growers. On an average, the yield per hectare of gram came to 14.65 quintals followed by 6.86 quintals of Arhar and 8.16 quintals of Lentil on the sample farms of different sizes during the year 1990-91 whereas the average yield per hectare in the state of Uttar Pradesh for the same period was 7.43 quintals for Gram, 11.93 quintals for Arhar and 7.08 quintals for Lentil which were lower, except arhar, than that of the sample farms in the study area. On an average, the total input cost on per farm basis was worked out to Rs. 7716.96. Out of which rental value of land contributed the highest being 28.22 percent followed by human labour 27 percent. The values of human labour were noted higher on large sized farms in comparison to small one because of their higher investment capacity. Likewise the value of output was higher on large sized farms being Rs. 10564.75 per hectare. The average
values of net income, family labour income and farm business income on per hectare basis came to Rs. 4750.36, Rs. 5508.98 and Rs. 6686.84, respectively, whereas on per farm basis, these values were calculated at Rs. 10703.34, Rs. 12506.38 and Rs. 15304.95, respectively. All these values were higher on large farms. The large sized farms could invest more on modern farm inputs like-quality seed, manures and fertilizers, irrigation etc. which intern resulted into higher yield and income on these farms. The average values of cost A, cost B and cost C were worked out to Rs. 4738.79, Rs. 7537.24 and Rs. 9255.24 per farm, respectively. As regards the income over cost A, cost B and cost C, they came to Rs. 15311.29, Rs. 12512.72 and Rs. 10789.68 per farm, respectively on the sample farms of different sizes. A size group-wise examination in size of farms due to higher yield and output value in relation to total input cost on the big farms.

Several production function studies have been reported in Indian agriculture. Rao (1966), Azad and Garg (1974), Acharya and Shukla (1975), Pradesh (1975), Sohani and Pawar (1977), Chiswick (1983), Ram Kumar (1985) and Ramesh (1988). All the above workers used Cobb-Douglas production function model due to its relative merits. In the production function analysis productivities of manures and fertilizers and irrigation were higher. The analysis clearly suggests that in order of priority, more expenditure on manures and fertilizers, irrigation, plant protection and seed will help in raising the level of production and productivity of Gram, Jowar + Arhar and Lentil crops under different situations on the sample farms.
With regard to poor income of the sampled farmers, it may be pointed out that these farmers have to operate under complex nature of economic, technical and institutional constraints. Unassured and irregular irrigation, lower yields of the existing varieties, absence of suitable varieties for mixed cropping, growing pulses under marginal and undulated land, non-adoption of improved management practices, non-adoption of plant protection measures, inadequate application of fertilizers, non-availability of good quality seed, competition with wheat and paddy, non-availability of salt resistant varieties and improved planting implements and gaps in knowledge about farming are the serious constraints to pulse production in the study area.

Regarding the technical know-how and the use of resources, it can be pointed out that it should be arranged according to the requirement of the existing conditions. Thus, for enhancing the productivity of pulses and income of the pulse growers, three components, i.e. irrigation, knowledge regarding the pulse production and credit are essential. Assured irrigation facilities have to be evolved in the areas wherever it is possible. With regard to knowledge about the cultivation of different crops in general and pulse crops in particular, the smooth transfer of technology generated in the research stations to the farmers require a highly complement and well informed extension services. It will not only build-up sound communication system with the farmers but also infuse confidence in them about the economic profitability of the new technology.
Test of Hypothesis:

The hypothesis number one that “there has been no growth or negative in area, production and productivity of pulses in the state” was approved as per findings given in Table V-1 of Chapter V.

The hypothesis number two that “in district Chitrakoot Dham division, the growth in area, production and productivity has been positive” was found to be valid as per results given in Tables V-2 to V-7 of Chapter V.

The hypothesis number three that “the costs and returns from pulses vary under different size groups” was found to be true as per the findings discussed in Table VI-8 to VI-29 in Chapter VI.

The hypothesis number four that “the production of pulses suffers from many constraints” was approved as per opinion survey.