

Chapter VI

SUMMARY AND CONCLUSIONS

The main objective of the study was to estimate the normative static demand for fertilisers in the Punjab State. The effect of fertiliser prices, product prices and capital availability on the per annum quantity of fertilisers demanded were quantified for the three different homogeneous agro-climatic zones of the State. These zones were demarcated on the basis of homogeneity of cropping pattern, soil type, irrigation, rainfall, productivity, etc

The data for the study were obtained from the scheme "Cost of Cultivation of Principal Crops in Punjab" run by the Department of Economics and Sociology, Punjab Agricultural University, Ludhiana. On the basis of these data, a bench-mark or representative farm situation was constructed taking the means of farm size resources, input-output coefficients etc., in each of the three homogeneous zones of the State. The three representative farm situations constructed in this way were considered as the basis of programming analysis.

The empirical technique used for deriving the normative demand functions was variable price programming, incorporating various constraints of land, labour, capital, maximum and minimum area under certain crops etc. Individual demand functions were derived for each of the three crop homogeneous zones using three fertiliser prices, four product prices and two capital levels.

In all, twenty four observations were generated to fit the continuous demand functions for estimating the coefficients of elasticities with respect to fertiliser price, product price (measured as price index) and capital level. The demand functions were fitted only for nitrogenous fertiliser because these were the most important chemical fertilisers used in the State.

An examination of the average quantity demanded at average relative prices of fertiliser showed, in general, that with the provision of capital borrowing facility, the demand functions shifted to the right. Moreover, the average price elasticities of demand were higher in case of all the three fertilisers, N, P_2O_5 and K_2O when there was restricted capital than when the capital was unrestricted. In zone I, the highest price elasticities (ignoring the signs) for N, P_2O_5 and K_2O , when the capital was restricted were -0.3067, -0.5787 and -1.4580 respectively whereas corresponding figures were -0.0606, -0.507 and -0.1990 when capital was unrestricted. The corresponding estimates in zone II were -0.5223, -0.5282, and -0.3963 with the restricted capital and -0.3737, -0.0240 and -0.420 with unrestricted capital. In zone III, the highest coefficients of price elasticities of demand for N, P_2O_5 and K_2O when the capital was restricted, were -0.3842, -1.7402 and -1.5014 respectively and -0.8163, -0.5560 and -0.5846 with unrestricted capital. These estimates of elasticities showed that with the unrestricted capital, the demand of fertilizer was relatively less elastic with respect to fertiliser prices as compared to that when the capital availability was restricted.

In the detailed study of nitrogenous fertilisers, the elasticities with respect to fertiliser price, obtained from log functions were re-spectively -0.1401, 0.2612 and -0.2964 in zone I, II and III. Its demand elasticity with respect to product price was -0.0726, 0.1624 and 0.4309 for the three zones, I, II and III respectively. It was 0.9934 for zone I, 0.8182 for zone II and 0.9289 for zone III with respect to capital level. The elasticity estimates were also worked out from the linear function at the mean levels of the fertiliser price, product price and capital level and these were quite close to their corresponding estimates obtained from the log functions. From these estimates of different elasticities it might be inferred that capital is an important variable affecting the fertilizer demand whereas the fertilizer price might not be an important factor affecting the fertilizer demand. It may, therefore, be suggested that under a compelling situation when the Government cannot do without increasing the prices of fertilizer, liberal credit facilities for the purchase of fertilisers should be made available to the farmers so as to compensate the adverse effect of price increase on its quantity demanded and agricultural production. In an economy where increased agricultural production is aimed at, such a policy assumes even more importance. To some extent, a corresponding increase in the product prices would also help to sustain the quantity demanded of fertilisers and consequently the agricultural production. But the

latter may not be a preferred instrument of policy in a developing country struggling to contain its high rate of inflation.

The total normative demand for the Punjab State of N, P_2O_5 and K_2O was worked out as 412.85, 117.18 and 10.82 thousand tonnes per annum as compared to 240.00, 65.60 and 18.00 thousand tonnes of actual consumption in 1972-73, whereas the fertiliser need on the soil test and existing cropping pattern (1972-73) were 495.8, 218.4, and 77.2 thousand tonnes of N, P_2O_5 and K_2O respectively.