ECONOMIC ANALYSIS OF ADDITIONAL INVESTMENT FOR HIGHER COTTON PRODUCTION

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The study aimed at making an economic analysis of additional capital investment for higher cotton production. The data collected from Bahawalpur district were analysed by using partial budgeting technique. The results of the study provided enough evidence to conclude that it was economically highly feasible to attain higher cotton production upto 1396 kg on an average farm by making additional investment of Rs.1012. It is, therefore, suggested to organize credit and extension services on sound footing to improve cotton productivity in the country.

INTRODUCTION

Cotton, the silver fiber of Pakistan, is an improtant cash crop of the country. It sustains millions of hands in the fields, factories and trade. Cotton is the major contributor to gross domestic product of Pakistan and also an important foreign exchange earner. We need to boost up cotton production in the country for domestic as well as export purposes. On account of the fact that increase in cotton production through area expansion has now a very limited scope, higher cotton productivity per unit area remains the only other option to accelerate cotton production in the country. A number of earlier studies have identified important factors responsible for the improvement of cotton crop i.e. ploughing, manuring, cultural practices, irrigation, crop protection against insects, pests, diseases, improved varieties and extension services (Alshi and Kumar, 1983; Virk and Singh, 1985; Tayyab, 1987). However, none of the studies, based on primary data, attempted to estimate the extent of capital requirements to achieve higher levels of cotton production. The present study aims at generating the needed information in this regard for use by the policy makers. This would help organize an appropriate credit policy and better extension services to improve cotton productivity in the country.

METHODOLOGY

Using random sampling technique, three villages were selected from Ahmad Pur East tehsil of district Bahawalpur. For collecting the desired primary data, a preliminary survey was conducted to list the total number of farm households in the selected villages alongwith information like farm size, type of cultivation, soil type, area under cotton crop, yield per acre, etc. Farmers were subsequently grouped into three yield categories i.e. farmers obtaining upto 600 kg, over 600 to 1000 kg and above 1000 kg per acre of cotton. Finally, 30 farmers were selected randomly from each category for further detailed study. Partial budgeting technique was employed for the analysis of collected data.

RESULTS AND DISCUSSION

Gross field benefits, field costs and net benefit: As is evident from Table 1, gross

Table 1. Gross field benefits, field costs and net benefits per acre of cotton

Item	Unit	Cotton yield categories					
		Upto 600 kg		Over 600 to 1000 kg		Above 1000 kg	
		Quantity	Value	Quantity	Value	Quantity	Value
Seed cotton	kg	436	3597 (1.0)	896	7392.0 (2.02)	1396	11517.0 (3.14)
Cotton sticks	Acre	1	100.0 (1.0)	1 (1.0)	100.0	1 (1.0)	100.0
Gross field benefit (1 + 2)	Rs.		3697 (1.0)		7492 (2.02)		11617 (3.14)
Variable field costs							
Preparatory ploughings	No.	3.67	146.0 (1.0)	5.16	206.0 (1.42)	6.01	240.0 (1.65)
Preparatory plankings	No.	1.77	36.0 (1.0)	2.31	46.0 (1.30)	2.89	58.0 (1.63)
Other preparatory operations	Rs.	-	35.0 (1.0)	-	40.0 (1.14)	-	42.0 (1.19)
Seed rate	kg	6.20	56.0 (1.0)	7.20	65.0 (1.16)	7.80	70.0 (1.25)
Seed treatment	Rs.	-	3.1 (1.0)	-	7.6 (2.43)	-	8.30 (2.66)
Sowing operations	Rs.	-	263 (1.0)	-	291.0 (1.11)	-	330.0 (1.25)
Farm yard manure	Cart load	14.35	258.3 (1.0)	14.10	253.80 (0.98)	10.30	185.40 (0.70)
Hoeings	No.	1.10	110.0 (1.10)	2.20	220.00 (2.0)	2.49	249.50 (2.26)
Interculture	No.	1.37	69.2 (1.0)	2.49	95.40 (1.37)	4.0	160.0 (2.31)

Chemical fertilizer (N)	kg	46.71	405.9 (1.0)	48.5	421.50 (1.04)	73.5	560.0 (1.58)
Chemical fertilizer (P)	kg	10.37	76.9 (1.0)	12.5	92.80 (1.20)	23.0	170.7 (2.22)
Plant protection	No.	3.6	1095.0 (1.0)	4.2	1154.50 (1.0)	5.7	1462.2 (1.33)
Irrigation	Rs.	-	35.60 (1.0)	-	89.60 (2.51)		103.20 (2.89)
Picking	Rs.	-	300.0 (1.0)	-	616.0 (2.05)		960.0 (3.20)
Total field costs (4 to 17)	Rs.	-	2890.0 (1.0)	-	3598.80 (1.24)		4600.10 (1.59)
Net benefit (3 - 18)	Rs.	-	807.0 (1.0)		3893.20 (4.82)		7016.90 (8.69)

field benefit per acre amounted to Rs.11617 in case of higher cotton yield category, which was 3.14 times higher compared with the lowest yield category. Progressive agriculture as we know, demands extended use of modern inputs, the higher cotton yielders

Table 2. Marginal analysis and additional capital requirements for cotton production per acre

Cotton yield categories	Net benefit (Rs.)	Change in net benefit (Rs.)	Total field costs (Rs.)	Change in total field costs (Rs.)	Marginal rate of return (3 - 5)
1	2	3	4	5	6
Upto 600 kg (Ave. 436 kg)	807.00	-	2890.80	-	-
Over 600 to 1000 kg (Ave. 896 kg)	3893.20	3086.20	3598.80	708.80	4.35
Above 1000 kg (Ave. 1396 kg)	7016.20	3123.00	4600.10	1001.30	3.12

thus were observed spending 1.59 times more per acre as compared to the lowest yielders. Break up of total field cost into individual cost items showed 2.26, 2.31, 1.58, 1.22, 1.33, 2.89 times more on ploughing, planking, seed rate, seed treatment, hoeing, interculture, N and P application, plant protection and irrigation water as compared to the lowest yield category. Similar results were obtained by Lawrance,1970; Lamykin, 1983 and Akhtar *et al.*, 1986.

Marginal rate of return and additional capital requirements for higher cotton production: According to economic criteria, if marginal increase in income offsets the marginal increase in capital investment and marginal rate of return is greater or equal to the opportunity cost of capital, it is then profitable to go in for additional investment in a particular line of production. As will be seen from Table 2, marginal rate of return in case of the highest cotton yielders (i.e. 1396 kg per acre) was calculated to be Rs. 3.12 per rupee of additional investment. This rate of return was much higher than the universally accepted minimum rate of opportunity cost of capital per rupee for new technology adoption. This level of cotton production may be considered as the most profitable, generating the highest net benefit i.e. Rs. 7016.20 with additional capital investment amounting to Rs. 1001.30 per acre.

The results of this study indicate that there exists a reasonably large potential for making improvements in cotton production. It is economically highly feasible to achieve cotton production upto 1396 kg per acre by making additional investment amounting to Rs. 1012 per acre provided there is no scarcity of capital and farmers have easy access to the capital market. It is recommended that agricultural credit as well as extension services for farmers in the country are so organized as to accelerate adoption of improved technologies for enhanced cotton production in the country.

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