Economic and Constraint Analysis of Rice Cultivation in Kaithal District of Haryana

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ABSTRACT

A study on economics and major constraints in rice cultivation in Kaithal district of Haryana was conducted during 2007-08. The study covered four villages of two blocks and data on constraints and cost-return aspects of rice cultivation were collected from 80 farmers. Total costs in rice production amounted to be Rs. 33778.68/ha. Average yield was 4.99 t/ha. Benefit-cost ratio worked out to be 1.27. Pests and disease incidence, lack of remunerative price and labour shortage were the major constraints in rice production.

Key words : *Costs, Returns; Constraints; Rice*

Rice is grown in vastly diverse conditions in India from below the sea level in parts of Kerala state to, on the hills up to an elevation of almost 3000 m above mean sea level in Himachal Pradesh and Jammu and Kashmir states. In India, the diverse rice growing conditions are mainly classified into five major ecologies namely Irrigated ecology, .Uplands, Rainfed lowlands, Deep water and Coastal wetlands. Rice is grown in 18 districts of Haryana out of which seven districts are in the high productivity group, that is, yield more than 2500 kg/ha. More than 99 % of rice crop is cultivated under irrigated condition and nearly 50 % rice area is having high productivity. More than 55 % production comes from high productivity group. Besides, average productivity (2393 kg/ha) of the state is higher than the national average productivity of 1947 kg/ha. More than 75 % area is concentrated in high and medium productivity groups.

METHODOLOGY

The study was conducted in Kaithal district of Haryana. Two blocks namely Rajound and Pundari were randomly selected, further, two villages from each block were selected. From each village twenty farmers were randomly selected. Thus in all, 80 farmers were selected. The data on cost-returns aspects of rice cultivation were collected through pre-structured questionnaires. The data collected on Kharif 2007 was subjected to statistical analysis.

The cost concepts approach to farm costing is widely used in India (Raju V.T and Rao D.V.S., 1990). The cost concepts approach to farm costing is widely used in India. These cost concepts include Cost A1, Cost A2, Cost B1, Cost B2, Cost C1, Cost C2 and Cost C3.

Various costs have been worked out by applying following methods :

Cost A1 = All actual expenses in cash and kind incurred in production

Cost A2 = Cost A1+ Rent paid for leased in land

Cost B1 = Cost A1+ Interest on value of owned capital assets

Cost B2 = Cost B1+ Rental value of owned land and rent paid for leased in land

Cost C1 = Cost B1+ Imputed value of family labour

Cost C2 = Cost B2+ Imputed value of family labour

Cost C3 = Cost C2+10% of Cost C2 on account of managerial functions performed by the farmer

RESULTS AND DISCUSSION

The costs incurred in cultivation of rice by the sample farmers are presented in Table-1. Machine labour accounted for 25.27 % to the total variable costs, followed by human labour 19.72%, fertilizers 18.9% and pesticides 11.56%. Manures accounted for 7.31% to the total variable costs. The total variable costs amounted to be Rs. 19140.87 per hectare. The fixed costs worked out to be Rs. 14637.81 and the gross costs in cultivation of rice were Rs.33778.68/- per hectare. Thus, it can be inferred from Table -1 that machine labour and human labour formed a major component of total variable costs.

Table 1. Cost of cultivation of rice crop in Kaithal district of Haryana

I.	Variable costs	% to the total variable costs
1	Seed Cost	1.93
2	Manures	7.31
3	Fertilsers	18.9
4	Pesticides	11.56
5	Irrigation	5.24
6	Transportation	4.64
7	Human labour	19.72
8	Machine labour	25.27
9	Interest on working capital	5.43
10	Total variable costs (%)	100
	Total variable costs (Rs./ha)	19140.87
II	Fixed costs (Rs./ha)	14637.81
III	Gross costs (Rs./ha)	33778.68

Various cost concepts involved in the cultivation of rice are presented inTable-2. Cost C3 includes all the possible costs and is considered as the real cost of production in a farm situation. But rental value of owned land and managerial costs for the farmer can be excluded in a marginal profit situation and Cost C1 can be taken as the standard cost of production which includes all actual expenses expressed in cash and kind, the rental value of owned capital assets (excluding land) and imputed value of family labour. It is evident from Table-2 that the Cost C1 was Rs. 21048.68/-per hectare.

Table 2. Various cost concepts in cultivation of rice

Costs	Rs./ha
A1	20128.18
A2	20878.18
B1	20528.68
B2	33778.68
C1	21048.68
C2	34298.68
C3	37616.88

Economic indicators of rice cultivation of the sample farmers are presented in Table-3. Average yield obtained on sample farms was 4.99 tons per hectare. Net returns worked out were Rs.9342.40/- per hectare. Benefit cost ratio in rice cultivation was 1.27. Farm business income which is the gross income less cost A1 is Rs. 22992.91 per hectare. Farm investment income which is farm business income less wages of family labour is Rs.22472.91/- per hectare. Gross returns minus cost C1 is Rs.22072.41/- per hectare, since cost C1 includes all actual expenses expressed in cash and kind, the rental value of owned capital assets (excluding land) and imputed value of family labour.

Table 3. Economic Indicators of rice cultivation on sample farms

Average yield (t/ha)	4.99
Price (Rs./qtl)	864.15
Gross returns (Rs./ha)	43121.09
Gross costs (Rs./ha)	33778.68
Net returns (Rs./ha)	9342.40
BC ratio	1.27
Farm business income (Rs./ha)	22992.91
Farm invest income (Rs./ha)	22472.91
Gross returns - Cost C1(Rs./ha)	22072.41

Major constraints in rice production as perceived by the farmers are presented in Table-4. The constraints are broadly categorized into institutional, bio physical, technical, soil related problems, agricultural machinery related problems and socio-economic problems. Pests and disease incidence (80%), lack of remunerative price (75%), labour shortage (65%) were the major constraints in rice production in Kaithal district. 36% of the farmers in Kaithal district reported salinity problem. Management of pests and diseases and addressing the problem of soil salinity will help in enhancing the yield levels in Kaithal district. This will result in increased income of the farmers.

Table 4. Constraints in rice production (Multiple responses)

S.No.	Constraints		No. of farmers responded	% of farmers responded	Rank
1	Institutional	Release of canal water	15	20	VIII
2	Bio physical	Natural calamities	6	8	X
3	Technical	Late transplanting	6	8	X
		Non-optimal plant population	9	12	IX
		Imbalanced use of fertilizers	21	28	V
		Ineffective weed control	20	26	VI
		Pest and disease incidence	60	80	I
4	Soil related problems	Salt affected soils	27	36	IV
		Nutritional disorders	5	6	XI
		Poor organic matter status	5	6	XI
5	Agricultural machinery		5	6	XI
6	Socio-economic	Small size of the farm	16	21	VII
		Problems of tenancy	6	8	X
		Lack of remunerative price	56	75	II
		Labor shortage	49	65	III

CONCLUSION

It may be concluded that machine labour and human labour constituted major costs in the total variable costs. Since the benefit cost ratio was 1.27, rice cultivation is economical in the study area. Pests and disease incidence, lack of remunerative price, labour shortage were the major constraints in rice production in Kaithal district. Management of pests and diseases, and addressing the problem of soil salinity will help in enhancing the yield levels in Kaithal district.

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