RESEARCH ARTICLE

STUDY ON COSTS AND RETURNS OF PADDY PRODUCTION IN MEERUT DISTRICT OF WESTERN UTTAR PRADESH

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Received-02.03.2016, Revised-11.03.2016

Abstract: The present study was conducted during 2011-12 on costs and returns of paddy production. It was found that cost of cultivation has increased due to increase the cost of productive resources. The share of variable and fixed cost to total cost was 55.54 and 8.11 percent, rental value of land was to be 27.00 per cent and 9.09 per cent was the managerial cost to the total cost. The overall profit margin was only Rs. 255.50 per quintal. The benefit cost ration was found to be highest for the large farmer followed by small.

Keywords: Paddy production, Coats, Meerut district

INTRODUCTION

Paddy is a choice crop of the millions of poor and small farmers not only for income but also for household food security. Global food demand is rising because of population growth, increasing affluence and changing dietary habits. The FAO forecasted the global food production will need to increase over 40% by 2030 and 70% by 2050 (FAO, 2009). Green revolution was initiated during the mid-sixties, the adoption of new dwarf high yielding variety of wheat and Rice resulted the food production increased manifold, which transformed the status from food deficit to a net food surplus country. Paddy is one of the most important cereal crops and India is second largest producer of paddy next to china. The area under paddy cultivation has increased from 30.81 (1950- 1951) to 42.56 million hectare (2010-2011) and production from 20.58 to 95.33 million tonnes and the productivity increased by 668 to 2240 kilogram per hectare in the reported period. Rice along with wheat forms the bedrock of Indian food security and to meet the country's stated goal of ensuring food for all.

Paddy is an intensive input utilization crop varies from the region to region and farmer to farmers Under changing climatic conditions, water is anticipated to become scarce and increasing competition for land, putting added pressure on agricultural production. Rapidly increase input price, poor infrastructure facilities, declining the size of holding, with low marketable surplus, cost of production is increasing and adversely affecting the margin of the cultivars. Therefore, it is required to produce more output from scarce resources in cost effective manner. Keeping in view the above discussion and importance present study is an attempt on economic analysis of paddy production with the objective of its costs and returns as per cost concept of commission for agricultural costs and prices.

METHODOLOGY

Meerut district of Western Uttar Pradesh occupy an important place in area and production and productivity of paddy. Therefore, Meerut district was selected purposively for the present investigation. Out of 12 community blocks, two blocks were selected purposively on the basis of highest area and production under paddy cultivation. A complete list of all the villages of the each selected block was prepared with the help of block officials and arranged in alphabetical order. From each selected block, two villages and a total of four villages were selected randomly for the selection of the respondents.

A list of all the farmers of each of selected villages was obtained from gram pradhan of the respective villages, and the information on their land holding possess by each category of farmers were procure from the record of village revenue officer and tehsil head quarter. All the farmers were then categorised into four size groups i.e. marginal (less than one hectare), small (1 to 2 hectare), medium (2 to 4 hectares) and large category (more than 4 hectares). From the list of the farmers 25 respondents from each village and a total of 100 were selected in probability proportion to their population for the collection of data.

The primary information's were collected by personal interview method with the help of pre-tested and well-structured survey schedules, The information related to expenditure on human labour, machine labour, bullock labour, seed, manure & fertilizers, irrigation and plant protection chemicals and output (main product and by-product) was also collected in quantity terms and their prices were also collected. The required secondary information was

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collected from published sources. Tabular analysis was employed to work out the costs and returns as per adopted CACP cost concepts.

Cost Concepts used

Cost A_1 = All the variable costs excluding family labour cost and including depreciation. The items covered in cost A1 was

1. Cost of hired human labour. **2.** Cost of hired bullock labour. **3.** Cost of owned bullock labour. **4.** Cost of owned machinery **5.** Cost of hired machinery. **6.** Cost of fertilizer. **7.** Cost of manure. **8.** Cost of seed (owned /purchased) **9.** Cost of plant protection chemicals. **10.** Irrigation charges (both owned and hired tube well, pumping sets etc.) **11.** Canal water charges. **12.** Land revenue, land development and other taxes. **13.** Depreciation of farm machinery, equipment's and farm buildings. **14.** Interest on owned working capital. **15.** Interest payment on crop loan. **16.** Miscellaneous expenses.

Cost A_2 = Cost A1 + rent paid for Leased in land

Cost B_1 =Cost A1 + Interest on owned fixed capital assets excluding land

Cost B_2 = CostB1 + Rental value of own land (net of land revenue) + Rent paid for leased in land

Cost C_1 = Cost B1 + Imputed value of family labour

Cost C_2= Cost B2 + Imputed value of family labour

Cost C_2* = Cost C2 was estimated by taking into account statutory minimum Or actual wage rate, whichever is higher.

Cost C_3=Cost C_2* +10 per cent of cost C_2* on account of managerial function performed by the farmer.

RESULT AND DISCUSSION

Component wise cost of cultivation of paddy

The component wise various costs incurred in the cultivation of paddy crop are given in the table 1. A perusal of table reveals that, the overall cost of production of paddy was Rs. 69954.30. Off the total cost of cultivation, 32 per cent (Rs.22344.83/ha) expenditure was incurred as operational cost, human labour constituted the most important component of operational cost with its share of more than 23.50 per cent followed by machinery expenses being 5.25 per cent of the total cost. The material cost accounted for 23.62 per cent (Rs.16532.00/ha) of the total cost, among the material cost items 11.73 per cent expenses incurred on manure & fertilizer followed by seed, irrigation and plant protection chemicals accounted 1.68, 6.91 and 3.30 per cent respectively. The share of rental value of land alone accounted 27 per cent (Rs.18950.00/ha) and the remaining was incurred on land revenue, depreciation on implements (2.13%), interest on working capital (4.57%) and interest on fixed capital (1.47%) of the total cost of cultivation.

Table also present category wise comparison and shows that expenditure share on family labour was negatively related with size of farm while hired labour was positively related to it. Among the categories expenditure on machine labour varies from 4.66 per cent on large farms to 6.02 per cent on marginal farms.

Expenditure on bullock labour and transportation expenditure was found less than 2 per cent to the total cost. Among the categories share of material costs was by and large same. No significant variation was observed on expenditure on seed, manure and fertilizer, irrigation and plant protection chemicals. Rental value of land accounted to almost same for all categories of farms.

Cost concept wise cost of paddy crop on various sized farms groups

The results related to various categories of cost as per CACP cost concepts for the paddy of different sized farms are presented in table2. Table indicates that per hectare cost A_1 was Rs. 33684.46, 35468.09, 39210.61 and Rs.41686.07on marginal, small, medium and large farm respectively. The share of cost A_1 was 50.01, 51.70, 54.33 and 56.37 per cent of "Cost C_3 "on the respective categories. It has also been observed that as the land holding size increases, the cost A_1 also increases. And it was also found that cost A_2 cost B_1, cost B_2, cost C_1, cost C_2 & cost C_3 on per hectare basis showed the increasing trends with the farm size groups. It was found the actual wage rate (Rs. 200/ man day) was higher than minimum statuary waging rate (Rs. 150/ Man day) thus, the cost C_2 & cost C_2^* were same for all the farm size groups and per hectare cost C_3 is the total cost of cultivation of paddy crop, includes the managerial cost of farmers also. Average (overall) cost A_1 was to be Rs. 36936.29, found to be 52.80 per cent of the total cost. The overall average per hectare cost of paddy production was Rs. 69954.30/ hectare.

Table 1. Component wise cost of cultivation of paddy. (Rs/ha)

Particulars	**Farm size group**				
1.Operational cost	**Marginal**	**Small**	**Medium**	**Large**	**Overall**
Family labour	7714.33 (11.45)	6985.32 (10.18)	6353.08 (8.80)	5342.27 (7.22)	6678.76 (9.54)
Hired labour	7692.78	8804.59	11245.71	13410.82	9763.37
	(11.42)	(12.83)	(15.58)	(18.13)	(13.95)
Bullock labour	1227.39	1259.10	1207.68	1200	1226.76
	(1.82)	(1.83)	(1.67)	(1.62)	(1.75)

Machine labour	4059.32 (6.02)	3643.46 (5.31)	3512.64 (4.86)	3452.12 (4.66)	3666.21 (5.24)
Total transportation cost	927.55 (1.37)	969.22 (1.41)	1091.37 (1.51)	1052.13 (1.42)	1009.73 (1.44)
Subtotal (A)	**21621.37 (32.10)**	**21661.69 (31.57)**	**23410. (32.43)**	**22717.34 (33.07)**	**22344.83 (31.93)**
2.Material cost					
Seed	1241.97 (1.84)	1200.41 (1.74)	1164.32 (1.61)	1065.50 (1.44)	1175.71 (1.68)
Manure and fertilizer	7144.71 (10.60)	8144.52 (11.80)	8648.88 (11.98)	8952.85 (12.10)	8207.08 (11.73)
Irrigation	5583.80 (8.29)	4888.70 (7.12)	4555.83 (6.31)	4250.25 (5.74)	4837.60 (6.91)
Plant protection& Intercultural	1953.65 (2.90)	2181.77 (3.18)	2523.97 (3.49)	2650.25 (3.58)	2311.63 (3.30)
Subtotal (B)	**15924.13 (23.64)**	**16415.40 (23.92)**	**16893.00 (23.40)**	**16918.85 (22.87)**	**16532.02 (23.62)**
3.Other cost					
7 % interest on working capital	2748.13 (4.08)	2977.31 (4.34)	3515.37 (4.87)	3654.25 (4.94)	3200.24 (4.57)
Depreciation	1067.64 (1.58)	1358.53s (1.96)	1701.16 (2.35)	1952.45 (2.64)	1496.35 (2.13)
Land revenue	37.52 (0.05)	40.48 (0.05)	43.68 (0.06)	45.45 (0.06)	41.61 (0.05)
Interest on own Fixed capital	873.55 (1.29)	959.01 (1.39)	1096.03 (1.51)	1245.65 (1.68)	1029.77 (1.47)
Rental value of own land	18950 (28.13)	18950 (27.47)	18950 (26.25)	18950 (25.62)	18950 (27.08)
Subtotal (C)	23676.84 (35.15)	24285.33 (35.66)	25306.24 (35.06)	25847.80 (34.95)	24717.97 (35.32)
TOTAL (A+B+C)	**61222.30 (90.91)**	**62362.40 (90.91)**	**65609.70 (90.91)**	**67223.90 (90.91)**	**63594.80 (90.91)**
10 % of C_2* for managerial work	6122.23 (9.09)	6236.24 (9.09)	6560.97 (9.09)	6722.39 (9.09)	6359.48 (9.09)
Total cost C_3	**67344.17 (100.00)**	**68598.66 (100.00)**	**72170.69 (100.00)**	**73946.38 (100.00)**	**69954.30 (100.00)**

Figures in the parenthesis indicate the percentage to the total costs

Table 2. Cost concept wise cost of cultivation (Rs/ha)

Particulars	**Farm size group**				
	Marginal	**Small**	**Medium**	**Large**	**Overall**
Cost A_1	33684.46	35468.09	39210.61	41686.07	36936.29
	(50.01)	(51.70)	(54.33)	(56.37)	(52.80)
Cost A_2	33684.46	35468.09	39210.61	41686.07	36936.29
	(50.01)	(51.70)	(54.33)	(56.37)	(52.80)
Cost B_1	34558.01	36427.10	40306.64	42931.72	37966.06
	(51.31)	(53.10)	(55.84)	(58.05)	(54.27)
Cost B_2	53508.01	55377.10	59256.64	61881.72	56916.06
	(79.45)	(80.72)	(82.10)	(83.68)	(81.36)
Cost C_1	42272.34	43412.42	46659.72	48273.99	44644.82
	(62.77)	(63.28)	(64.65)	(65.28)	(63.81)
Cost C_2	61222.34	62362.42	65609.72	67223.90	63594.82
	(90.90)	(90.90)	(90.90)	(90.90)	(90.90)
Cost C_2*	61222.34	62362.42	65609.72	67223.90	63594.82
	(90.90)	(90.90)	(90.90)	(90.90)	(90.90)
Cost C_3	**67344.17**	**68598.66**	**72170.69**	**73946.38**	**69954.30**

Figures in the parenthesis indicate the percentage of the total costs

Table 3. Per hectare and per quintal returns from paddy on various farm size groups.

Particulars	**Farm size groups**				
	Marginal	**Small**	**Medium**	**Large**	**Overall**
Yield of main product (qt/ha)	40.86	42.50	44.10	44.96	42.86
Yield of By- product (qt/ha)	60.81	62.83	63.10	65.52	62.44
Price of main product (Rs/qt)	1710.25	1725.25	1745.52	1788.33	1741.56
Price of By-product (Rs/qt)	100.00	100.00	100.00	100.00	100.00
Return from main product (Rs/ha)	69880.82	73323.13	76977.43	80403.31	74643.26
Return from By-product (Rs/ha)	6081.00	6283.00	6310.00	6552.00	6244.00
Gross returns (Rs/ha)	75961.82	79606.13	83287.43	86955.31	80887.26
Return over various Costs (Rs/ha)					
Cost A_1	42277.36	44138.04	44076.82	45269.24	43950.97
Cost A_2	42277.36	44138.04	44076.82	45269.24	43950.67
Cost B_1	41403.81	43179.03	42980.79	44023.59	42921.20
Cost B_2	22453.81	24229.03	24030.79	25073.59	23971.20
Cost C_1	33689.48	36193.71	36627.71	38681.32	36242.44
Cost C_2	14739.48	17243.71	17677.71	19731.41	17292.44
Cost C_2^*	14739.48	17273.71	17677.71	19731.41	17292.44
Cost C_3	8617.65	11007.47	11116.74	13008.93	10932.96
Cost of production (Rs/qtl)	1499.36	1466.25	1493.36	1498.98	1486.12
Profit Margin (Rs/qtl)	210.89	259.00	252.16	289.35	255.44
B : C Ratio	**1.12**	**1.16**	**1.15**	**1.17**	**1.15**

Cost of production and returns from paddy cultivation

Table 3. shows the yield of main product, by-product and their prices, the yield of paddy was observed to be 40.86, 42.50, 44.10 and 44.96 quintal and by-products 60.81, 62.83, 63.10, and 65.52 quintals per hectare under marginal, small, medium and large category of farms. The prices received by the farmers in the respective category was Rs. 1710.25, 1725.25, 1745.52, and 1788.33 per qtl. The price of by-product was taken as Rs100.00 per quintal for all the categories. The gross return and net return per hectare was estimated to be Rs. 75961.82, 79606.13, 83287.43 and Rs. 86955.31 and Rs. 8617.65, Rs.11007.47, Rs.11116.74 and Rs. 13008.93 on marginal, small, medium, large size of farms respectively. The net return per hectare was observed positively related with the size of farms. The per quintal profit margin on the respective category of farms was found to be Rs.210.89, Rs.259.00, Rs.252.16 and Rs.289.35 respectively. Benefit: Cost ratio was found highest for large farms (1.17) and lowest for marginal farms (1.12). It is clear from the study that as the size of farm increases the returns per hectare also increases.

On the basis it is concluded that in case of marginal and small farmers mostly inputs used by the farmers were hired, directly affect the cost of production. The profit margin may be increased if the resources to be utilised rationally and if available at subsidised rate.

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