



# Economics of Production and Marketing of Fine Rice in Kaimur District of Bihar

Amit Kumar Singh and Surendra Kumar Singh

Krishi Vigyan Kendra, Kaimur- 821102

## ABSTRACT

A study was undertaken to analyze the economics of production and marketing of fine rice variety-Puja in the year 2017. One hundred twenty farmers from twelve villages were randomly selected and were categorized in three categories namely - marginal, small and large. It was found that total cost of cultivation was maximum Rs.72795/-ha for large farmers followed by small farmers Rs. 65458/ha whereas Rs. 62820/-ha by marginal farmers. Return over cost of cultivation was found maximum Rs.2205/- at marginal farm and rest were in loss. Maximum loss of Rs.13195/- was found over total cost in small farm followed by Rs.795/- in large farm due to lower market rate than cost of production.

**Key Words:** Cost of cultivation, Cost of production, Gross and net return, Cost- Benefit Ratio and Marketing.

## INTRODUCTION

In Kaimur district, out of total rice area 1,04,860 ha, 31per cent area was covered by fine rice while mostly area 72,588 ha (69.0%) was covered by non-fine rice due to procurement by government, assured irrigation by canal and tube wells. All farmers (marginal, small, semi medium, medium and large) were growing coarse and fine rice in the district. It has been found that medium farmers had got maximum yield and income/ha followed by small, marginal and landless farmers but lowest yield and income/ha was achieved by large farmers. Pushpa *et al* (2017) reported that per hectare cost of cultivation, yield and gross income were recorded higher by large, medium, small and marginal farmers, respectively but per hectare net return of marginal farmers was more than medium farmers. Highest net return was got by large farmers followed by medium farmers. Because massive cultivation/ production of coarse, medium and fine rice and economic contribution in the development of Kaimur district of Bihar from the last two decades. Medium fine and fine rice had lesser contribution in area, production and income than coarse paddy in the district. Only coarse paddy was being procured on the Minimum Support

Price (MSP) under Grade B quality in the district. Medium and fine rice that come under Grade A were not purchased by Govt. at all and that's why farmers were not getting a remunerative price for fine rice. The club classification transcends agro-climatic boundaries, indicating a role for policy to aid growth in the lagging districts. The shifts in credit allocation over the years do not appear to be driving the yield divergence, highlighting the limitations of a macro credit-driven policy (Sinha, 2021). Singh *et al* (2015) reported that during the period when there was a heavy glut of paddy in the grain market, buyers used to pay less than MSP to the farmers. Neetha and Prema (2020) examined the market access to paddy farmers and attempts to quantify the losses to them due to lockdown in the Kerala state during the pandemic period and revealed that 89 per cent of the paddy farmers accessed public procurement system and the paddy marketing channel which involves private traders were totally absent during the pandemic period. On an average, total economic loss due to lockdown for paddy farmer amounted to Rs.3691/-ha. This study was conducted to analyze the economics of fine rice cultivation/production on the different size of

**Table 1. Demography of sample households (categories/ farm size wise).**

Type/ Category of Farmers	House-holds (No)	Population				Working population
		Male	Female	Total	> 60 yr	
Marginal	40	168	132	300 (27.62)	30 (27.78)	137 (37.43)
Small	40	191	172	363 (33.43)	33 (30.56)	115 (31.42)
Large	40	240	183	423 (38.95)	45 (41.66)	114 (31.15)
Overall	120	599	487	1086 (100.00)	108 (100.00)	366 (100.00)

Source: Households' survey (analysed primary data), Figures in parenthesis showed percentage

sample farms, analyze the economics of marketing of fine rice and ultimately give suggestions to policy makers for farmers' benefits.

### MATERIALS AND METHODS

The primary data were collected from sampled farmers after interviewing them personally by the researcher with pre-tested/ pre-structured schedules during the crop year 2017-2018. At the first stage of sampling two sub-divisions of Kaimur District *i.e.*, Bhabua and Mohania were selected purposively due to massive cultivation of fine rice variety Puja. At the second stage Community Development Blocks lying in the selected sub-division were enlisted with respect to area under fine rice. Out of total 11 blocks, 3 blocks namely Bhabua, Bhagwanpur and Cainpur blocks in Bhabua Sub-

Division and 3 blocks Kudra and Ramgarh and Mahania blocks in Mohania Sub-Division were taken in this study on the basis of greater area coverage under variety Puja. At the third stage of sampling, the villages lying in the selected blocks were enlisted in respect of area under fine rice and its production. Thereafter, two villages from each selected block were taken randomly in the sample. Mokari and Betari villages from Bhabua block, Kaser and Parauti villages from Bhagwanpur block, Damodarpur and Awkhara villages from Chainpur block, Deohaliya and Daharak from Ramgarh block, Bhakhar and Ahinaura from Mahania block as well as Nathopur and Kudra villages under Kudra block were selected. At the ultimate stage of sampling, 10 farmers from each village thus making a total 120 farmers for detailed investigation. Selected farmers

**Table 2. Status of rice (paddy) cultivation of sample household.**

Sr. No.	Particular	Marginal	Small	Large	Overall
1.	Total area (ha.)	12.80 (15.96)	23.20 (28.94)	44.16 (55.10)	80.16 (100.0)
2.	Production (q.)	522.88 (16.56)	758.06 (24.01)	1876.80 (59.43)	3157.74 (100.0)
3.	Productivity (q./ha)	41.40	32.68	42.50	39.40
4.	No. of household	40	40	40	120
5.	Av. production per household (q.).	13.07	18.95	46.92	26.31
6.	Market rate (Rs./q.)	1500	1500	1500	1500

Source: Analyzed primary data Figures in parenthesis showed percentage

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**Table 3. Economics of paddy cultivation in different categories of farmers (Rs/ha).**

Sr. No	Cost Component	Marginal (Rs.)	Small (Rs.)	Large (Rs.)
<b>I. Variable Cost</b>				
1.	Human Labour (a+b)	16,063	16,418	16,165
	a.Family/ Owned	10,375	10,250	3,500
	b.Hired	5,688	6,168	12,635
2.	Seed	613	608	618
3.	FYM/Compost	500	625	250
4.	Chemical fertilizer (a+b+c+d)	3,726	3,648	3,763
	a.DAP	1,988	1,875	1,913
	b.Urea	1,113	1,200	1,085
	c.MOP	375	400	440
	d.Others (micronutrients)	250	173	325
5.	Plant protection	625	1,125	1750
6.	Irrigation charges	4,813	4,653	4,738
7.	Machinery charges	4,798	4,705	4,905
8.	Total (1-7)	31,138	31,782	32,189
9.	Interest on working capital @8 per cent per annum for 5 m	1,038	1,060	1,073
10.	Harvesting, threshing and winnowing	4,875	4,688	5,125
11.	Total Variable Cost (TVC), 8-10=I	37,051	37,530	38,387
<b>II. Fixed cost</b>				
12.	Depreciation	1,000	1,125	1,500
13.	Land Revenue	35	35	35
14.	Rental value of land for 5 m @ Rs.48000/annum.	20,000	20,000	20,000
15.	Interest on fixed capital @11 per cent per annum for 5 month	3,438	5,725	11,458
16.	Crop insurance(Premium charges)@ 2 per cent of expected value of main product	1,300	1,045	1,440
17.	Total fixed cost(TFC, 12-16)=II	25,733	27,930	34,433
18.	Total cost(I+II)=11+17	62,784	65,460	72,820
<b>Output/Return</b>				
19.	Main product(Rs./ha)	61,275	49,020	63,750
	Price(Rs./qN)	1,500	1,500	1,500
	Main product(qN/ha)	40.85	32.68	42.50
	By product(Rs./ha)	3,750	3,250	4,000
	Price(Rs./q)	100	100	100
	By product(q/ha)	37.50	32.50	40.00

Sr. No	Cost Component	Marginal (Rs.)	Small (Rs.)	Large (Rs.)
20.	Gross Return (Main product+By product) in Rs.	65025	52270	67750
21.	Return over variable cost	27974	14740	29363
22.	Return over total cost	2241	(-) 13190	(-) 5070
23.	Benefit-Cost Ratio over			
	variable cost	1.76	1.39	1.76
	Total cost	1.04	0.08	0.93
24.	Cost of production			
	(Rs/q) over			
	variable cost	907	1148	903
	Total cost	1536	2003	1713

were stratified in accordance with their operational holding *i.e.*, marginal up to 1 ha., small (1-2 ha), and large (>2 ha). Semi-medium and medium farmers were merged into large farmers in this study.

## RESULTS AND DISCUSSION

The data (Table 1) revealed that out of total population of 1086, maximum population was 423 (38.95%) in large farm size group followed by small farm size group 363 (33.43%). Highest working population was found in marginal farm size group 137 (37.43%) in total working population 366 and lowest for large farmer group 114 (31.15%). Out of 108 who were more than 60 yr old, maximum 45 members (41.66%) were found in large farmers whereas minimum in marginal farmers 30 (27.78%). Table 1 indicated that a long life were found in the members large farmers' families in comparison to small and marginal due to better health management, better income, education and treatment which played a vital role for long life.

### Status of paddy

The data (Table 2) indicated that all three farm size groups had cultivated Puja variety of paddy. Large size groups contributed maximum production 59.43% (1876.80q) with maximum area 55.10%. The productivity was found to be 42.5q/ha followed by 41.40q/ha and 32.68q/ha in large, marginal and small category of farmers, respectively.

The data (Table 3) revealed the per hectare variable cost, fixed cost and total cost/cost of cultivation of paddy variety Puja in different size groups of farms viz; marginal, small and large. It included yield, gross income, return (profit) and cost of production over variable and total cost. Yield was achieved maximum 42.50 q on large farm followed by marginal farm 41.40 q. Maximum total cost of cultivation was calculated Rs.72,820/-ha for large farm followed by small farm Rs.65,460/-ha. Highest return over variable cost was found Rs.29,363/-ha in large farm followed by marginal farm of Rs.27,974/-ha whereas minimum Rs.14,740/-ha was for small farm. Returns over total costs (cost of cultivation) were found maximum Rs.2,241/-ha by marginal farm and rest were in loss. Maximum loss of Rs.13,190/- was found over total cost in small farm followed by large farm Rs.5070/-ha due to lower productivity with higher cost. Cost of production on the basis of total cost were found Rs.1536/-q, Rs.2003/-q and Rs.1713/-q in marginal, small and large farm, respectively whereas gross return was highest in large farm Rs.67,750/-ha followed by Rs.65,025/-ha in marginal farm. Costs of production based on total cost were found more than market rate Rs.1500/-q in all size of sampled farm indicated that income through by-product (paddy straw) supported marginal farm to get profit as indicated in table 3. Cost-Benefit Ratio was

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found 1.04 in marginal, 0.08 in small and 0.93 in large farm on the basis of total cost whereas based on variable cost, cost-benefit ratios were achieved more than 1 in all three farm sizes. The contribution of fixed costs was calculated between 40 per cent and 47 per cent in all sampled sizes.

The data (Table 4) showed that producers'/farmer's share in consumers' price in marketing of rice variety Puja was 53.57 per cent. They indicated that if consumer spent Rs.100 for rice then farmer got only minimum Rs 53.57 for selling of their paddy. In middleman, Miller's profit ranked first 29.64 percent followed by wholesaler and retailer in the same percentage 5.71 in the distribution of price. Farmers' share in consumer price was only 53.57 per cent due to sale of paddy in the harvesting season and were advised to sell their paddy in rice form for better income.

**Table 4. Marketing cost, processing cost and price-spread of fine rice in Kaimur district.**

Particular	Puja (Value in Rs.)	
	Value (Rs.)	Value (%)
1.Producer's (Farmer's) share	1,500	53.57
2.Marketing cost	122	4.36
3.Processing cost	28	1.00
4.Miller's profit	830	29.65
5. Wholesalers' profit	160	5.71
6.Retailers profit	160	5.71
7.Price paid by consumer	2,800	100

*Source:* Farmers and market survey

## CONCLUSION

It was noticed during study that no procurement was done of grade –A paddy that were medium fine and fine paddy like Puja by Govt. at all. Only grade –B was purchased to some extent by the government at minimum support price. Farmers sold their fine (Puja) paddy to rice millers and other agencies at the lower rate than cost of production due to storage problem. Mostly farmers were helpless (in stress) or not in position to wait and watch for a long time to get better price after harvesting due to loan repayment and to fulfill their essential need immediately. Minimum Support Price (MSP) must be declared for fine rice also and procured by Central Govt. as well as State Govt. also at village level.

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