Journal of Agricultural Development and Policy, 2025
Volume 35, No. 1, 80-88
https://doi.org/10.63066/23220457.35.1.011

NAAS - 4.34
UGC CARE List Journal

Economic Analysis of Basmati and Non-basmati Rice Production in Jammu District of Jammu & Kashmir

Rupali Kaundal[1], Namami Gohain[1] and Sudhakar Dwivedi[2]

[1]Department of Economics and Sociology, Punjab Agricultural University, Ludhiana, Punjab
[2]Division of Agricultural Economics and ABM, Sher-e-Kashmir University of Agricultural Sciences and Technology of Jammu, Jammu

Abstract

The study is an effort towards comparing the economics of two major crops (basmati and non-basmati rice) of Jammu district of Jammu & Kashmir UT. It is based on primary data collected from 60 basmati and 40 non-basmati growers of Jammu district purposively selected owing to its higher concentration of area under the crop. The study revealed that although the total cost of basmati and non-basmati rice cultivation were almost equivalent, there was a striking difference in the net returns obtained from both the categories owing to higher price realized by basmati as compared to non-basmati rice. The results become more evident from the values of the B-C ratio which were higher for basmati across all farm-size categories as well as for overall. Hence, the government can work towards promotion of the crop in the state with improved mechanization, better agronomic practices, high yielding varieties as well as making the farmers aware regarding sanitary and phytosanitary measures and pesticide residue limits to tap the opportunities provided by the global market.

Keywords: Basmati, Non-basmati, Costs, Returns, B-C ratio

JEL Classification: Q12, Q10, Q18

Introduction

Agriculture is the backbone of the Indian economy, with the primary goal of meeting the food, nutrition, and input needs of the country's massive population. During the financial year 2024, the Indian agriculture sector provided livelihood support to about 46.1 per cent of the population and had a share of 16 per cent in the country's GDP at current prices (GOI, 2024). Rice is the staple food for over half the world's population and China and India alone account for around 50 per cent of the rice grown and consumed globally. Additionally, it also provides up to 50 per cent of the dietary caloric supply for millions living in poverty in Asia and is, therefore, critical for food security (Muthayya *et al*, 2014). India has the largest area under rice cultivation and accounts for 20 per cent of global rice output. Basmati, known as king of rice, uses less water and soil nutrients, has high export potential and its straw is economically used for livestock feed, rather than burning in the field and creating atmospheric pollution (Singh, 2011). Moreover, the cultivation of basmati rice requires around 30 per cent less water as compared to non-basmati rice (Grover, 2012). Basmati rice captures higher returns as compared to non-basmati rice in the international as well as the domestic markets. Despite its significant global demand, India exported 5.24 million metric tons valued at USD 5.84 billion in 2023–24 (APEDA, 2024). Its high value comes from its characteristic aroma in both the raw and cooked state, and the grain is of a distinctive shape, which on cooking elongates to almost double its length while its width remains the same. In addition to having unique eating qualities, it is reported to be a good source of slow releasing carbohydrates i.e. it has a low glycogenic index compared with other rice (Dhungana *et al*, 2004). In India, basmati rice cultivation is mainly confined to traditional basmati growing areas in North-West States of Punjab, Haryana, Uttarakhand and Western Utter Pradesh and to a limited area in Himachal Pradesh and Jammu and Kashmir.

In Jammu and Kashmir, the acreage under rice during 2019 is estimated at 89.8 thousand hectares, out of which 54.3 thousand hectares were under basmati rice (GOJ&K, 2019). However, farmers prefer cultivating non-basmati rice over basmati rice despite high market demand for the latter due to several factors such as significantly higher yields (up to 60% more) offered by non-basmati as compared to basmati, which is vital for small and marginal farmers in the region

Corresponding author email: namami@pau.edu

seeking to maximize productivity per acre (Udhayakumar and Karunakaran, 2020). Additionally, non-basmati rice matures faster (90–110 days), enabling farmers to adopt multiple cropping systems such as rice–wheat or rice–vegetables, enhancing land use efficiency and income. Furthermore, non-basmati rice is less vulnerable to rejection in domestic and export markets due to lower quality and certification requirements. A lack of awareness and technical know-how among farmers about basmati-specific agronomic practices, post-harvest quality management, and market linkage also discourages its cultivation (Pandey *et al*, 2023).

In Jammu district, basmati rice is mostly grown in the irrigated belt of R.S. Pura and Bishnah and is world-famous for its high aroma (Kumar *et al*, 2019), particularly the one grown in the R.S Pura belt and very much gainful for predominant growers of this region. However, with the passage of time, the farmers are diversifying towards high-value cash crops. R.S. Pura is one of the agriculturally leading blocks of Jammu district having 55480 ha cultivated area under irrigated and rainfed conditions. The business from basmati rice annually fetches more than 45 crore rupees; thus, its cultivation in the region offers a great potential for its further improvement. Hence the current study is an effort to assess the economics of basmati and non-basmati rice in Jammu district of J&K and to measure farm income and resource use efficiency of the crops.

Data Sources and Methodology

The present study is based on primary data collected during the year 2021-22 conducted in Jammu district of Jammu and Kashmir Union Territory. Primary data was collected from the rice growers of the study area using a well-structured schedule post pre-testing. The district was purposively selected owing to its highest concentration of basmati and non-basmati rice area as compared to other districts of Jammu region. A multistage sampling technique was used for the selection of blocks, villages, and farmers. Two blocks namely R.S. Pura and Bishnah of Jammu district were selected purposively based on highest area sown under the crops. A list of villages falling under each selected block was prepared and five villages from each block were selected randomly to constitute a total of 10 villages from 2 blocks. Ten farmers were selected randomly from each village to constitute a sample size of 100 farmers out of which 60 farmers were basmati growers and 40 non-basmati growers. The farmers were classified into three categories according to their size of land holding i.e. marginal (up to 1 ha.), small (1.01-2 ha.) and medium (2.01-4.0 ha.). There was no farmer in the category of large farmers in the study area. Simple tabular analysis, descriptive statistics and various CACP cost concepts were used for the analysis of the collected data. The interest on working capital was calculated at the prevailing J&K *Grameen* Bank rate for short term loans (7.00 per cent per annum for the period of 6 months). The interest on fixed capital was calculated at the prevailing J&K *Grameen* Bank bank rate for long term loans (7.50 per cent per annum for the period of 6 months).

Results and Discussion

Costs and returns structure of Basmati rice cultivation

Item wise cost structure for Basmati rice cultivation (Rs./ha)

The item wise cost of cultivation of Basmati rice on sampled farm is presented in Table 1. The table showed that the overall cost of cultivation of Basmati rice was Rs. 41206.08 whereas the same for marginal, small and medium was Rs. 43962.22, Rs. 42094.81, and Rs. 37561.22 respectively. The data further revealed that the expenditure incurred on machine labour (23.87% of total cost) was the highest followed human labour and manures & fertilizers. Similar results were obtained from a study conducted by Kumar et al, 2013 where machine labour, human labour, fertilizers and manures, irrigation and seed were found to be the most important components of variable cost of basmati rice cultivation. Overall, the operational cost was Rs. 28235.20 per hectare and fixed cost was Rs. 12970.89 per hectare which constituted 68.52 per cent and 31.47 per cent, respectively of total cost.

Cost concept-wise analysis of Basmati Rice cultivation (Rs./ha)

Various cost concepts were worked out on per hectare basis for basmati rice and are presented in Table 2. The data revealed that per hectare cost A_1 on marginal, small and medium farms were Rs. 29088.38, Rs. 28156.90 and Rs. 24103.29 with an overall average of Rs. 27116.19, respectively. Cost A_2 on the marginal, small and medium farms was Rs. 29088.38, Rs. 28156.90 and Rs. 24103.29 with an overall average of Rs.27116.19, respectively. Similarly, per hectare cost B_1 was Rs. 30057.06, Rs. 28906.75 and Rs. 24819.47 in marginal, small and medium farms, respectively with an overall average of Rs. 27927.76/ ha whereas cost B_2 was Rs. 40057.06, Rs. 38906.75 and Rs. 34959.47 for marginal, small and medium farms with an overall average of Rs. 37974.43/ha, respectively. The per hectare cost C_1 was Rs.33962.22, Rs. 32094.81 and Rs. 27421.22 of marginal, small and medium farms with an overall average of Rs. 31159.42/ha, respectively. The per hectare cost C_2 for marginal, small and medium farms was found to be Rs. 43962.22, Rs. 42094.81 and Rs. 37561.22 with an overall average of Rs. 41206.08, respectively. After working out managerial cost, i.e., 10 per cent of cost C_2, per hectare cost C_3 was found to be Rs. 48358.44, Rs. 46304.29 and Rs.41317.34 in marginal, small and medium farms, respectively with an overall average of Rs.45326.69 on all farms.

Category-wise returns from Basmati rice cultivation

The productivity and income from cultivation of Basmati rice is presented in Table 3. The data indicate that Basmati

Table 1: Item-wise cost of cultivation of Basmati rice on sampled farms under study (Rs. /ha)

Sr. No.	Particulars	Farm size group			
		Marginall	Small	Medium	Overall
	A. Operational Cost				
1.	Machine Labour				
(i)	Owned	2156.57	1665.67	777.55	1533.26
(ii)	Hired	8830.24	8804.48	7281.96	8305.56
	Total machine labour	10986.81	10470.15	8059.51	9838.82
		(36.10)	(35.57)	(32.45)	(34.85)
2.	Human Labour				
(i)	Hired Labour	2498.32	2907.46	1565.24	2323.67
(ii)	Family Labour	3905.16	3188.06	2601.75	3231.66
	Total human labour	6403.48	6095.52	4166.99	5555.33
		(21.04)	(20.71)	(16.78)	(19.68)
3.	Seed	2399.46	2392.84	2321.84	2371.38
		(7.88)	(8.13)	(9.35)	(8.40)
4.	Manures and fertilizers	7995.42	7962.96	7914.82	7957.73
		(26.27)	(27.05)	(31.86)	(28.18)
5.	Herbicides	1240.78	1224.48	1218.22	1227.83
		(4.08)	(4.16)	(4.90)	(4.35)
6.	Insecticides	494.30	465.67	368.49	442.82
		(1.62)	(1.58)	(1.48)	(1.57)
7.	Irrigation charges	257.21	217.91	208.76	227.96
		(0.85)	(0.74)	(0.84)	(0.81)
8.	Miscellaneous expenditure	271.75	235.82	212.98	240.18
		(0.89)	(0.80)	(0.86)	(0.85)
9.	Interest on working capital	381.99	370.36	367.07	373.14
		(1.26)	(1.26)	(1.48)	(1.32)
	Sub Total (A) from 1to 9	30431.20	29435.71	24838.68	28235.20
	B. Fixed Cost				
10.	Rental value of owned land	10000.00	10000.00	10000.00	10000.00
11.	Land Revenue	0.00	0.00	140.00	140.00
12.	Sub- total (10+11)	10000.00	10000.00	10140.00	10140.00
13.	Depreciation	2562.34	1909.25	1866.36	2112.65
		(18.94)	(15.08)	(14.67)	(16.29)
14.	Interest on fixed capital	968.67	749.85	716.18	811.57
		(7.16)	(5.92)	(5.63)	(6.26)
	Sub- total (B) From (12 to 14)	13531.02	12659.10	12722.54	12970.89
	Total cost (A+B)	43962.22	42094.81	37561.22	41206.08

Note: Figures in parentheses indicates per cent to total cost

Table 2: Concept-wise cost of cultivation of Basmati rice on sampled farms under study

(Rs./ha)

Sr. No.	Particulars	Farm Size group			
		Marginal	**Small**	**Medium**	**Overall**
	Cost – A_1				
(i)	Hired Labour	2498.32	2907.46	1565.24	2323.67
(ii)	Machine Labour	10986.81	10470.15	8059.51	9838.82
(iii)	Seed	2399.46	2392.84	2321.84	2371.38
(iv)	Manures and fertilizers	7995.42	7962.96	7914.82	7957.73
(v)	Herbicides	1240.78	1224.48	1218.22	1227.83
(vi)	Pesticides	494.30	465.67	368.49	442.82
(vii)	Irrigation Charges	257.21	217.91	208.76	227.96
(viii)	Miscellaneous	271.75	235.82	212.98	240.18
(ix)	Interest on working capital	381.99	370.36	367.07	373.14
(x)	Depreciation Charges	2562.34	1909.25	1866.36	2112.65
	Total cost – A_1	29088.38	28156.90	24103.29	27116.19
	Cost –A_2				
(i)	Cost-A_1	29088.38	28156.90	24103.29	27116.19
(ii)	Rental paid for leased in land	0.00	0.00	0.00	0.00
	Total cost –A_2	29088.38	28156.90	24103.29	27116.19
	Cost-B_1				
(I)	Cost –A_1	29088.38	28156.90	24103.29	27116.19
(ii)	Interest on fixed capital (excluding land)	968.67	749.85	716.18	811.57
	Total cost –B_1	30057.06	28906.75	24819.47	27927.76
	Cost- B_2				
(i)	Cost -B1	30057.06	28906.75	24819.47	27927.76
(ii)	Rental value of owned land	10000.00	10000.00	10000.00	10000.00
(iii)	Land revenue	0.00	0.00	140.00	140.00
	Total cost –B_2	40057.06	38906.75	34959.47	37974.43
	Cost –C_1				
(i)	Cost B1	30057.06	28906.75	24819.47	27927.76
(ii)	Family labour	3905.16	3188.06	2601.75	3231.66
	Total Cost C_1	33962.22	32094.81	27421.22	31159.42
	Cost C_2				
(i)	Cost B2	40057.06	38906.75	34959.47	37974.43
(ii)	Family Labour	3905.16	3188.06	2601.75	3231.66
	Total Cost C_2	43962.22	42094.81	37561.22	41206.08
	Cost C_3				
(i)	Cost C_2	43962.22	42094.81	37561.22	41206.08
(ii)	Cost of management (10% of cost C_2)	4396.22	4209.48	3756.12	4120.61
	Total Cost C_3	48358.44	46304.29	41317.34	45326.69

Table 3: Category-wise returns from Basmati rice cultivation

Particular	Marginal	Small	Medium	Overall
Yield of main product (q/ha.)	25.20	23.70	21.40	23.43
Yield of by product (q/ha)	30.44	28.60	25.80	28.28
Price of main product (Rs./q)	3500.00	3700.00	4000.00	3733.33
Price of by product (Rs./q)	200.00	200.00	200.00	200.00
Returns from main product (Rs./ha)	88200.00	87690.00	85600.00	87163.33
Returns from by product (Rs./ha)	6087.45	5720.00	5160.00	5655.82
Gross Income (Rs./ha.)	94287.45	93410.00	90760.00	92819.15

rice productivity of marginal farms was highest i.e. 25.20 q/ha followed by small and medium farms with the productivity of 23.70 and 21.40 q/ha, respectively with overall average of 23.43 q/ha. It was found that gross income from Basmati rice was highest on the marginal farms (Rs. 94287.45/ha) followed by small farms (Rs. 93410.00/ha) and medium farms (Rs. 90760.00/ha). The gross income from Basmati rice on all farms was Rs. 92819.15/ha.

Cost and returns of Basmati rice

Cost and return analysis of Basmati rice on all the sampled farms were analyzed and are presented in Table 4 which revealed that the total cost of cultivation for Basmati-rice was highest in marginal farms (Rs. 43962.22 ha) followed by small farms (Rs. 42094.81/ha), and least in medium farms (Rs. 37561.22/ha) with an overall average of Rs. 41206.08/ha. The gross returns for Basmati-rice was highest on marginal farms (Rs. 94287.45/ha) than the small farms (Rs. 93410.00/ha) and medium farms (Rs. 90760.00/ha). This is due to the high productivity of marginal farms (table 3) which was primarily encountered owing to adoption of better management practices, timely sowing & transplanting and proper application of manures & fertilizers used by the marginal farmers. Similar result was obtained by Kumar *et al*, 2013 in their study on costs and returns for basmati in Jammu district of Jammu and Kashmir. The gross income on all farms was (Rs. 92819.15/ha). The net returns per hectare were found to be highest for the medium farms (Rs. 53198.78/ha) followed by small (Rs. 51315.19/ha) and least for marginal farms (Rs. 50325.24/ha). The net returns realized from all farms on overall basis were Rs. 51613.07/ha. The cost benefit ratio was highest for medium farms (1:2.42) and least in marginal farms (1:2.14) with an overall average of 1:2.26.

Costs and returns structure of non-basmati rice cultivation

Item wise cost structure for non-basmati rice cultivation (Rs./ha)

The item wise cost of cultivation of non-basmati rice on sampled farm is presented in Table 5. A perusal of data in Table 5 revealed that per hectare cost of cultivation of non-basmati rice was Rs. 43995.45, Rs. 41974.34 and Rs. 39075.91 for marginal, small and medium farms respectively. Expenditure on human labour, seed, farm yard manure and plant protection chemicals were the important components of operational cost. Similarly, rental paid for leased in land and depreciation were the most important components of fixed cost. The results further revealed that among the operational cost components, expenditure incurred on machine labour was the highest which was 44.47 per cent of operational cost and 30.63 per cent of total cost followed by expenditure on human labour and manures and fertilizers. These findings are in line with a similar study conducted by Nirmala and

Table 4: Cost and returns of Basmati rice on sampled farms **(Rs./ha)**

Particulars	Marginal	Small	Medium	Overall
Cost				
Total variable cost	30431.20	29435.71	24838.68	28235.20
Total fixed cost	13531.02	12659.10	12722.54	12970.89
Total cost	43962.22	42094.81	37561.22	41206.08
Returns				
Gross returns	94287.45	93410.00	90760.00	92819.15
Net returns	50325.24	51315.19	53198.78	51613.07
Benefit-Cost (B-C) ratio	1:2.14	1:2.22	1:2.42	1:2.26

Table 5: Item-wise cost of cultivation of non-basmati rice on sampled farms under study (Rs./ha)

Sr. No.	Particulars	Farm size group			
		Marginal	Small	Medium	Overall
	A. Operational Cost				
1.	Machine Labour				
(i)	Owned	4889.75	3666.67	2370.75	3642.39
(ii)	Hired	8786.75	9666.67	8922.50	9125.31
	Total machine labour	13676.50	13333.33	11293.25	12767.69
		(44.89)	(45.48)	(42.85)	(44.47)
2.	Human Labour				
(i)	Hired Labour	0.00	0.00	3071.25	1023.75
(ii)	Family Labour	6642.50	6140.00	2689.63	5157.38
	Total human labour	6642.50	6140.00	5760.88	6181.13
		(21.80)	(20.94)	(21.86)	(21.53)
3.	Seed	508.88	503.33	502.25	504.82
		(1.67)	(1.72)	(1.91)	(1.76)
4.	Manures and fertilizers	6129.38	6065.33	5732.00	5975.57
		(20.12)	(20.69)	(21.75)	(20.81)
5.	Herbicides	1415.50	1306.67	1249.00	1323.72
		(4.65)	(4.46)	(4.74)	(4.61)
6.	Insecticides	478.00	400.00	344.75	407.58
		(1.57)	(1.36)	(1.31)	(1.42)
7.	Irrigation charges	470.63	440.00	400.75	437.13
		(1.54)	(1.50)	(1.52)	(1.52)
8.	Miscellaneous expenditure	705.88	693.33	668.00	689.07
		(2.32)	(2.37)	(2.53)	(2.40)
9.	Interest on working capital	437.18	433.23	402.49	424.30
		(1.44)	(1.48)	(1.53)	(1.48)
	Sub Total (A) from 1to 9	30464.43	29315.23	26353.36	28711.01
	B. Fixed Costs				
10.	Rental value of owned land	10000.00	10000.00	10000.00	10000.00
11.	Land Revenue	0.00	0.00	140.00	140.00
12.	Sub- total (10+11)	10000.00	10000.00	10140.00	10140.00
13.	Depreciation	2562.34	1909.25	1866.36	2112.65
		(18.94)	(15.08)	(14.67)	(16.29)
14.	Interest on fixed capital	968.67	749.85	716.18	811.57
		(7.16)	(5.92)	(5.63)	(6.26)
	Sub- total (B) From (12 to 14)	13531.02	12659.11	12722.54	12970.89
	Total cost (A+B)	43995.45	41974.34	39075.91	41681.90

Note: Figures in parentheses indicates per cent to total cost.

Table 6: Concept- wise cost of cultivation of non-basmati rice on sampled farms (Rs./ha)

Sr. No.	Particulars	Farm Size Group			
		Marginal	Small	Medium	Overall
	Cost – A_1				
(i)	Hired Labour	0.00	0.00	3071.25	1023.75
(ii)	Machine Labour	13676.50	13333.33	11293.25	12767.69
(iii)	Seed	508.88	503.33	502.25	504.82
(iv)	Manures and fertilizers	6129.38	6065.33	5732.00	5975.57
(v)	Herbicides	1415.50	1306.67	1249.00	1323.72
(vi)	Pesticides	478.00	400.00	344.75	407.58
(vii)	Irrigation Charges	470.63	440.00	400.75	437.13
(viii)	Miscellaneous	705.88	693.33	668.00	689.07
(ix)	Interest on working capital	437.18	433.23	402.49	424.30
(x)	Depreciation Charges	2562.34	1909.25	1866.36	2112.65
	Total cost – A_1	26384.28	25084.48	25530.10	25666.29
	Cost –A_2				
(i)	Cost-A_1	26384.28	25084.48	25530.10	25666.29
(ii)	Rental paid for leased in land	0.00	0.00	0.00	0.00
	Total cost –A_2	26384.28	25084.48	25530.10	25666.29
	Cost-B_1				
(I)	Cost –A_1	26384.28	25084.48	25530.10	25666.29
(ii)	Interest on fixed capital (excluding land)	968.67	749.85	716.18	811.57
	Total cost –B_1	27352.95	25834.34	26246.28	26477.86
	Cost- B_2				
(i)	Cost –B_1	27352.95	25834.34	26246.28	26477.86
(ii)	Rental value of owned land	10000.00	10000.00	10000.00	10000.00
(iii)	Land revenue	0.00	0.00	140.00	140.00
	Total cost –B_2	37352.95	35834.34	36386.28	36524.52
	Cost –C_1				
(i)	Cost B_1	27352.95	25834.34	26246.28	26477.86
(ii)	Family labour	6642.50	6140.00	2689.63	5157.38
	Total Cost C_1	33995.45	31974.34	28935.91	31635.23
	Cost C_2				
(i)	Cost B_2	37352.95	35834.34	36386.28	36524.52
(ii)	Family Labour	6642.50	6140.00	2689.63	5157.38
	Total Cost C_2	43995.45	41974.34	39075.91	41681.90
	Cost C_3				
(i)	Cost C_2	43995.45	41974.34	39075.91	41681.90
(ii)	Cost of management (10% of cost C_2)	4399.54	4197.43	3907.59	4168.19
	Total Cost C_3	48394.99	46171.77	42983.50	45850.09

Table 7: Category-wise returns from non-basmati rice cultivation

Particular	Marginal	Small	Medium	Overall
Yield of main product (q/ha.)	37.88	35.17	33.60	35.55
Yield of by product (q/ha)	40.25	38.17	36.75	38.39
Price of main product (Rs. /q)	1500.00	1550.00	1600.00	1550.00
Price of by product (Rs. /q)	200.00	200.00	200.00	200.00
Returns from main product(Rs. /ha)	56812.50	54508.33	53760.00	55026.94
Returns from by product(Rs. /ha)	8050.00	7633.33	7350.00	7677.78
Gross Income (Rs. /ha.)	64862.50	62141.67	61110.00	62704.72

Muthuraman, 2009 on economic analysis of rice cultivation in Kaithal district of Haryana. However, on overall basis, the operational cost and fixed cost constituted 68.88 per cent and 31.11 per cent, respectively of total cost.

Cost concept-wise analysis of non-basmati rice cultivation (Rs./ha)

The data in table 6 revealed that per hectare cost A_1 was the highest on marginal farms followed by medium and small farms. A similar pattern was observed for costs A_2, B_1 and B_2. The costs C_1 and C_2 were found to be highest in marginal farms followed by small and then medium farms. After working out managerial cost, i.e., 10 per cent of cost C_2, per hectare cost C_3 was found to be Rs. 48394.99, Rs. 46171.77 and Rs. 42983.50 in marginal, small and medium farms, respectively with an overall average of Rs.45850.09 on all farms.

Category-wise returns from non-basmati rice cultivation

The details of productivity and returns from cultivation of non-basmati rice is presented in Table 7. The data indicate that non-basmati rice productivity of marginal farms was highest i.e. 37.88 q/ha followed by small and medium farms with the productivity of 35.17q/ha and 33.60q/ha, respectively with average productivity of 35.55 q/ha of all farms. It was found that gross income from non-basmati rice was highest on the marginal farms (Rs. 64862.50/ha) followed by small farms (Rs. 62141.67/ha) and medium farms (Rs. 61110.00/ha). On all farms, gross income from non-basmati rice was Rs. 62704.72/ha.

Cost and returns of non-basmati rice

Cost and return analysis of non-basmati rice on per hectare basis on all the sampled farms were analyzed and are presented in Table 8. Results of the analysis revealed that the total cost of cultivation for non-basmati rice was highest in marginal farms followed by small farms and medium farms. The gross returns for non-basmati rice were also highest on marginal farms (Rs. 64862.50/ha) followed by small and medium farms. The results are in line with a study conducted by Poudel *et al*, 2021 on economic analysis of rice cultivation in Gorkha district of Nepal. The net returns per hectare were found to be highest for the medium farms (Rs. 22034.09/ha) followed by small (Rs. 20167.33/ha) and least for marginal farms (Rs. 20867.05/ha). The net returns from all farms on overall basis were Rs. 21022.82/ha. The cost benefit ratio was highest for medium farms (1:1.56) and least in marginal farms (1:1.47) with an overall average of 1:1.51.

Conclusions and Policy Implications

From the conducted study, it was seen that the total cost of basmati and non-basmati rice cultivation were almost equivalent whereas there is a striking difference in the gross

Table 8: Cost and returns from non-basmati rice **(Rs. /ha)**

Particulars	Marginal	Small	Medium	Overall
Cost				
Total variable cost	30464.43	29315.23	26353.36	28711.01
Total fixed cost	13531.02	12659.11	12722.54	12970.89
Total cost	43995.45	41974.34	39075.91	41681.90
Returns				
Gross returns	64862.50	62141.67	61110.00	62704.72
Net returns	20867.05	20167.33	22034.09	21022.82
Benefit-Cost (B-C) ratio	1:1.47	1:1.48	1:1.56	1:1.51

returns obtained from both the categories. Basmati rice owing to its high market price has led to such a difference in the price realized by basmati as compared to non-basmati rice. Hence, the net returns per hectare was far more in case of basmati than non-basmati rice. The results become more evident from the values of the B-C ratio which were higher for basmati across all farm-size categories as well as for overall. This indicates the profitability of basmati rice cultivation in the study area as compared to non-basmati rice growers. The favourable environmental conditions of Jammu ideally suited for cultivation of both basmati and non-basmati rice on a commercial basis. The results showed that the cost of the cultivation was high owing to high wage rate and requirement of massive amounts of labor for agronomic. Hence, plans and policies need to focus on farm mechanization by considering the geographical limitations. This would aid in reducing the use of human and bullock labor, which in turn would reduce the labour cost. Hence with improved mechanization, better agronomic practices, and high yielding varieties the government can work towards promotion of the crop for domestic consumption as well as export. Moreover, majority of farmers in the study area were marginal and small resulting in smaller surplus which reduced their bargaining capacity for better price of their produce. In such situations, Farmer Producer Organization (F.P.O) could be proven helpful for collective marketing of the produce.

References

Agricultural and Processed Food Products Export Development Authority (APEDA). (2024). *Basmati Rice Export Data*. Retrieved from https://www.apeda.gov.in

Dhungana B R, Nuthall P L and Nartea G V 2004. Measuring the economic inefficiency of Napalese rice farms using data envelopment analysis. *Australian Journal of Agricultural and Resource Economics* **48**: 347-369. DOI:10.1111/j.1467-8489.2004.00243.x

Government of Jammu and Kashmir (GOJ&K). *Digest of Statistics*. Directorate of Economics and Statistics, 2019, Jammu and Kashmir**.** Directorate of Economics and Statistics, UT Administration of Jammu & Kashmir.

Government of India (GOI). Economic Survey. Ministry of Finance, 2024, New Delhi. echapter.pdf

Grover D K 2012. Basmati rice cultivation for resource conservation and use efficiency in context of sustainable agriculture in Punjab. *Indian Journal of Economics and Development* **8**: 11-26. Available from ijor.aspx

Kumar N, Singh S P, Kachroo J, Singh H, Kumar C and Ahmed N 2013. Economic analysis of cost and return for basmati rice cultivation in Jammu district of J&K state. *International Journal of Agricultural Sciences* **9***:* 674-677. Available from Economic-analysis-of-cost-and-return-for-basmati-rice-cultivation-in-Jammu-district-of-J-K-state.pdf

Kumar N, Tripathi N K and Tomer R S 2019. Marketing of basmati rice in Jammu district of J&K state: an economic analysis of marketing channels and their efficiency. *Journal of Pharmacognosy and Phytochemistry* **3**: 19-21. Available from SP-8-3-5-696.pdf

Muthayya S, Sugimoto J D, Montgomery S, and Maberly G F 2014. An overview of global rice production, supply, trade, and consumption. *Annals of the New York Academy of Sciences* **1324**: 7-14. DOI:10.1111/nyas.12540

Nirmala B and Muthuraman P 2009. Economic and constraint analysis of rice cultivation in Kaithal district of Haryana. *Indian Research Journal of Extension Education* **9**: 47-49. Available from D:\1_PUBL~1\1NEWPA~1\02-JOU~1\2

Pandey M K, Singh D and Singh A 2023. Knowledge and adoption level of farmers with respect to package of practices of basmati rice cultivation. *Gujarat Journal of Extension Education* **36***:* 5-11. DOI: 10.56572/gjoee.2023.36.1.0002

Poudel U, Kattel R R, Gurung B, Shrestha S, Paudel A and Paudel A 2021. Economic analysis of rice (Oryza sativa L.) cultivation in Gorkha district of Nepal. *Archives of Agriculture and Environmental Science* **6**: 489-497. DOI: 10.26832/24566632.2021.0604011

Singh J 2011. Impact assessment study of IPM basmati project for boosting diversification process in Punjab. Project Report, Sir Ratan Tata Trust, Mumbai. Available from Farmer's Schedule

Udhayakumar M and Karunakaran K R 2020. Growth and Stability of Basmati and Non-basmati Rice Export in India. *Current Journal of Applied Science and Technology* **39**: 107-115. DOI: 10.9734/cjast/2020/v39i4031107

Received: April 12, 2025 Accepted: May 08, 2025