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**Urmila Bhagat**

Ph.D., Scholar (Ag.) Agricultural Economics, Indira Gandhi Krishi Vishwavidyalaya, Raipur, Chhattisgarh, India

**Dr. MR Chandrakar**

Professor, Department of Agricultural Economics, Indira Gandhi Krishi Vishwavidyalaya, Raipur, Chhattisgarh, India

## An economic analysis of Jeeraphool rice in Balrampur district of Chhattisgarh

**Urmila Bhagat and Dr. MR Chandrakar**

**Abstract**

This research paper is based on Business performance of SHGs in Jeeraphool rice: A case study of Balrampur district in Chhattisgarh with the objectives: To work out the cost and returns of jeeraphool rice in the study area. The study was conducted in Balrampur district of Chhattisgarh. Out of six blocks of the district, one block, namely Shankargarh was selected purposively for the study. A sample of one hundred member of SHGs were selected for the study. The primary data from the member of SHGs had been collected through personal interview method with the help of well prepared schedule for the year 2017-18. The overall total irrigated area was 0.54 hectares and un-irrigated area was 1.20 hectares and average cropping intensity was observed 134.97 per cent. The average size of holding of jeeraphool rice growers was 1.74 hectares. On an average the cost of cultivation per hectare of Jeeraphool rice were calculated at Rs.36430.77. Among different cost items contribution of total labour cost was 60.85 percent to the total cost in case of Jeeraphool rice, which indicate that the contribution of labour is very high in cost of cultivation of these variety. Gross income for Jeeraphool variety was found to be Rs.90864.17. On an average input-output ratio of aromatic rice varieties i.e., Jeeraphool came to 1:2.49. The study suggested that irrigation facilities are to be developed in the proper way so that farmers can adopt improved technologies with assured irrigation facilities.

**Keywords:** Jeeraphool rice, costs and returns, input-output ratio, Chhattisgarh, Balrampur

**Introduction**

The rice is one of the important cereal crops of the world and forms the staple food for more than 50 per cent of population. In world rice occupies an area of 162.43 million hectares with a total production of 496.46 million tones and productivity of 3056.46 kg/ha (Anonymous (a), 2018-19). In India rice occupies an area of 43.79 million hectares with a total production of 116.42 million tones and productivity of 2659 kg/ha. China and India alone supply nearly half of total world rice production.

India sub continent is very rich in aromatic rice diversity. A major character of aromatic rice is its aroma and which increases its value in international market. The demand of traditional aromatic rice has increased over the past two decades and India is a major exporter of aromatic rice in international market.

In Chhattisgarh, rice is grown in 3.61 million hectare with production of 8.23 million tones and productivity of 1810 kg/hectares. In Balrampur district, rice is grown in 83.70 ('000 hec.) with production of 127.53 ('000 m. tones) and productivity of 1524 kg/hectares (CLR 2017). Chhattisgarh has traditionally known as the bowl of scented rice in central India, particularly due to several varieties of its aromatic rice. Chhattisgarh has a sizeable area under various varieties of aromatic rice i.e., Jeeraphool, iKapoorbhog, Vishnubhog, Dubraj, Tulsimanjari, Badshahbhog, Madhuri, Chini-kapoor, Siyaram, Jawaphool, etc. These varieties are grown by the farmers in different agro climatic zones of Chhattisgarh state.

**Material and Methods**

The present study was undertaken in Balrampur district of Chhattisgarh out of six blocks of Balrampur, one blocks namely Balrampur were selected for the study. One hundred member of SHGs were selected purposively from Balrampur blocks. The primary data were collected for the year 2017-18, which were related to cost and return of jeeraphool rice. Information was collected from the respondents using well designed schedule. To work out the cost of cultivation, cost and returns, measures of farm profit of jeeraphool rice. Standard method of cost of cultivation has been adopted for analyzed the data.

**Corresponding Author:****Urmila Bhagat**

Ph.D., Scholar (Ag.) Agricultural Economics, Indira Gandhi Krishi Vishwavidyalaya, Raipur, Chhattisgarh, India

## Results and Discussion

### Demographical features of the sampled households

The demographic characteristics of the sampled farmers in the study area are described in table. It can be seen from the table 1 that the female population was seen slightly higher than male being 51.43 per cent and in case of male it was 48.57 per cent. The average family size was found highest in Parvati SHGs i.e. 8.23 and lowest in Saraswati SHGs i.e. 7.83.

Literacy among the family member of self help group was observed to be higher in Shankar SHGs 94.34. Over all literacy rate was observed to be 81.61 among the SHGs. The scheduled tribe, scheduled castes, other backward caste and general shared 81.00 per cent, 9.00 per cent, 8.00 per cent and 2.00 per cent to the total population of SHGs of the study area respectively.

**Table 1:** Demographical features of the sampled member of SHGs

Demographic features of the sampled households										
S. No.	Particulars	Surya	Shankar	Rani	Saraswati	Laxmi	Parvati	Durga	Moti	Overall
1	Total no. of households	14	13	11	12	13	13	12	12	100
2	Total family member	113 (100)	106 (100)	89 (100)	94 (100)	103 (100)	107 (100)	98 (100)	95 (100)	805 (100)
	a. Male	58 (51.33)	49 (46.23)	42 (47.19)	45 (47.87)	56 (54.37)	48 (44.86)	44 (44.90)	49 (51.58)	391 (48.57)
	b. female	55 (48.67)	57 (53.77)	47 (52.81)	49 (52.13)	47 (45.63)	59 (55.14)	54 (55.10)	46 (48.42)	414 (51.43)
3	Average family member	8.07	8.15	8.09	7.83	7.92	8.23	8.17	7.92	8.05
4	<b>Education</b>									
	a. Literacy percentage	82.30	94.34	63.19	70.5	86.52	93.09	79.38	73.15	81.61
5	<b>Social group</b>									
	a. Scheduled Tribes	10 (71.43)	11 (84.62)	9 (81.82)	10 (83.33)	10 (76.92)	11 (84.62)	9 (75.00)	11 (91.67)	81 (81.00)
	b. Scheduled Castes	2 (14.29)	1 (7.69)	1 (9.09)	1 (8.33)	2 (15.38)	1 (7.69)	1 (8.33)	—	9 (9.00)
	c. Other Backward Castes	1 (7.14)	1 (7.69)	1 (9.09)	1 (1.33)	1 (7.69)	1 (7.69)	1 (8.33)	1 (8.33)	8 (8.00)
	d. General	1 (7.14)	—	—	—	—	—	1 (8.33)	—	2 (2.00)

**Note:** Figures in the parenthesis indicate the percentages to total member of SHGs and total number of family.

### Cost of cultivation of jeeraphool Paddy

#### Input wise cost of cultivation of Jeeraphool paddy

The present section deals with the input wise cost for the cultivation of Jeeraphool by SHGs in the study area. Table 2 and fig 1 clearly shows that input cost for the cultivation of Jeeraphool by group of SHGs per hectare was highest in case of Surya SHGs with a value of 82.72 per cent SHGs followed by Shankar (82.62%), Durga (82.64%), Saraswati (82.66%), Rani (82.67%), Moti (81.81%), Laxmi (82.11%), and Parvati 81.47 per cent SHGs. Surya SHGs had highest input cost because the member of this self help group could incurred more expenditure on modern farm inputs like quality seeds, fertilizers, hired labours, etc. The overall cost of cultivation of Jeeraphool paddy was observed as Rs. 36430.77 per hectare.

The major share of cost among different cost items was found in labour, bullock and machine power cost contribute 60.85 per cent to the total cost of cultivation, out of which 35.19, per cent contribution was by the human labour, bullock labour and machine labour together contribute 25.66 percent. Total input cost was found 82.35 percent whereas the total fixed cost was 17.65 percent to the total cost. The rental value of land is highest among fixed costs which are 16.47 percent to the total cost of cultivation.

#### Cost and returns on the basis of cost concept

The cost and returns based on cost concept in the production of Jeeraphool paddy had been presented in the table 3 and fig. 2, table 4 and fig. 3 which that, on an average Cost A1. cost A2, Cost B1, Cost B2, Cost C1, Cost C2 and Cost C3 were working out to Rs. 28680.38, Rs. 28680.38, Rs. 29099.57, Rs. 35099.57, Rs. 30410.77, Rs. 36410.77 and Rs. 40073.85

per hectare respectively on the sample SHGs. It was noted that rupees 6000 were considered as the imputed rental value of owned land for one crop season.

The average income per hectare over different Cost A1, Cost A2, Cost B1, Cost B2, Cost C1, Cost C2 and Cost C3 were worked out to Rs. 62163.78, Rs. 62163.78, Rs. 61744.60, Rs. 55744.60, Rs. 60433.39, Rs. 54433.39 and Rs. 50790.32 respectively. The income over different costs also different for SHGs with the different in the farm size because of the different output about total input cost.

#### Measures of farm profit of Jeeraphool paddy

It is quite evident from table 5 and fig. 4 that, on average, the value of net income, family labour income, SGHs business income and SGHs investment income per hectare came to Rs. 54433.39, Rs. 55744.60, Rs. 62163.78 and Rs. 60852.58 respectively from Jeeraphool paddy. The gross income of the SHGs by the main product and byproduct together was found to be Rs. 90864.17 per hectare. The overall input-output ratio was found to be 1:2.49 in Jeeraphool paddy cultivation.

#### Conclusion

It can be conducted that Jeeraphool paddy was found economical in the study area. The yield can be increased by adopting better package of practices. The study suggested that irrigation facilities area to be developed in the proper way so that farmers can adopt improved technologies with assured irrigation facilities. SHGs should be trained about strategic decisions, awareness and knowledge about management and marketing skills for production of organic jeeraphool rice production. So that jeeraphool rice gets organic certification.

**Table 2:** Input wise cost of cultivation of Jeeraphool

(Rs/ha.)										
S. No.	Particulars	Surya	Shankar	Rani	Saraswati	Laxmi	Parvati	Durga	Moti	Overall
(A)	<b>Input cost</b>									
1	<b>Human labour</b>									
	a. Family labour	1083.12 (2.89)	1191.18 (3.20)	1845.07 (4.98)	1157.48 (3.12)	1205.61 (3.36)	1247.42 (3.62)	1533.02 (4.13)	1333.33 (3.79)	1311.20 (3.60)
	b. Hired labour	12241.81 (32.63)	12125.00 (32.55)	11281.69 (30.46)	12118.90 (32.70)	11485.98 (32.06)	10845.36 (31.45)	11344.34 (30.56)	10484.85 (29.83)	11507.94 (31.59)
	Total human labour	13324.94 (35.52)	13316.18 (35.75)	13126.76 (35.44)	13276.38 (35.82)	12691.59 (35.42)	12092.78 (35.06)	12877.36 (34.69)	11818.18 (33.62)	12819.14 (35.19)
	c. Bullock power	931.99 (2.48)	1529.41 (4.11)	2915.49 (7.87)	1535.43 (4.14)	1401.87 (3.91)	1494.85 (4.33)	2040.09 (5.50)	1535.35 (4.37)	1639.88 (4.50)
	d. Machine power	8369.02 (22.31)	8014.71 (21.52)	7154.93 (19.32)	7889.76 (21.29)	7626.17 (21.28)	7072.17 (20.51)	7889.15 (21.25)	7525.25 (21.41)	7707.90 (21.16)
	Total bullock and machine power	9301.01 (24.79)	9544.12 (25.62)	10070.42 (27.19)	9425.20 (25.43)	9028.04 (25.20)	8567.01 (24.84)	9929.24 (26.75)	9060.61 (25.78)	9347.78 (25.66)
2	Total labour cost	22625.94 (60.31)	22860.29 (61.37)	23197.18 (62.63)	22701.57 (61.25)	21719.63 (60.62)	20659.79 (59.90)	22806.60 (61.44)	20878.79 (59.40)	22166.92 (60.85)
3	Seed	1013.85 (2.70)	1058.82 (2.84)	1000.00 (2.70)	1031.50 (2.78)	1000.00 (2.79)	1000.00 (2.90)	1733.49 (4.67)	1000.00 (2.84)	1101.39 (3.02)
4	Manure and Fertilizer	5491.18 (14.64)	5132.35 (13.78)	4577.46 (12.36)	5141.73 (13.87)	4953.27 (13.82)	4845.36 (14.05)	4422.17 (11.91)	5252.53 (14.94)	4991.29 (13.70)
5	Plant protection	319.90 (0.85)	319.12 (0.86)	338.02 (0.91)	326.77 (0.88)	311.21 (0.87)	301.03 (0.87)	290.09 (0.78)	309.09 (0.88)	314.16 (0.86)
6	Irrigation	390.43 (1.04)	230.88 (0.62)	329.58 (0.89)	255.12 (0.69)	307.48 (0.86)	213.40 (0.62)	246.46 (0.66)	209.09 (0.59)	273.92 (0.75)
7	Interest on working capital 4%	1193.65 (3.18)	1184.06 (3.18)	1177.69 (3.18)	1178.27 (3.18)	1131.66 (3.16)	1080.78 (3.13)	1179.95 (3.18)	1105.98 (3.15)	1153.91 (3.17)
	Total input cost	31034.96 (82.72)	30785.53 (82.65)	30619.94 (82.67)	30634.96 (82.66)	29423.25 (82.11)	28100.37 (81.47)	30678.77 (82.64)	28755.48 (81.81)	30001.58 (82.35)
(B)	<b>Fixed cost</b>									
	Land revenue	10 (0.03)	10 (0.02)	10 (0.03)	10 (0.03)	10 (0.03)	10 (0.03)	10 (0.03)	10 (0.03)	10 (0.03)
2	Rental value of land	6000 (15.99)	6000 (16.11)	6000 (16.20)	6000 (16.19)	6000 (16.74)	6000 (17.40)	6000 (16.16)	6000 (17.07)	6000 (16.47)
3	Interest on fixed capital	471.17 (1.26)	453.42 (1.22)	409.38 (1.11)	417.56 (1.13)	398.53 (1.11)	379.25 (1.10)	432.74 (1.17)	384.17 (1.09)	419.19 (1.15)
	Sub total	6481.17 (17.28)	6463.42 (17.35)	6419.38 (17.33)	6427.56 (17.34)	6408.53 (17.89)	6389.25 (18.53)	6442.74 (17.36)	6394.17 (18.19)	6429.19 (17.65)
(C)	Total cost (A+B)	37516.13 (100)	37248.95 (100)	37039.32 (100)	37062.52 (100)	35831.78 (100)	34489.62 (100)	37121.51 (100)	35149.65 (100)	36430.77 (100)

(Note: Figures in the parenthesis indicate the percentages to the total cost.)

**Table 3:** Cost and returns of jeeraphool paddy among various categories of SHGs

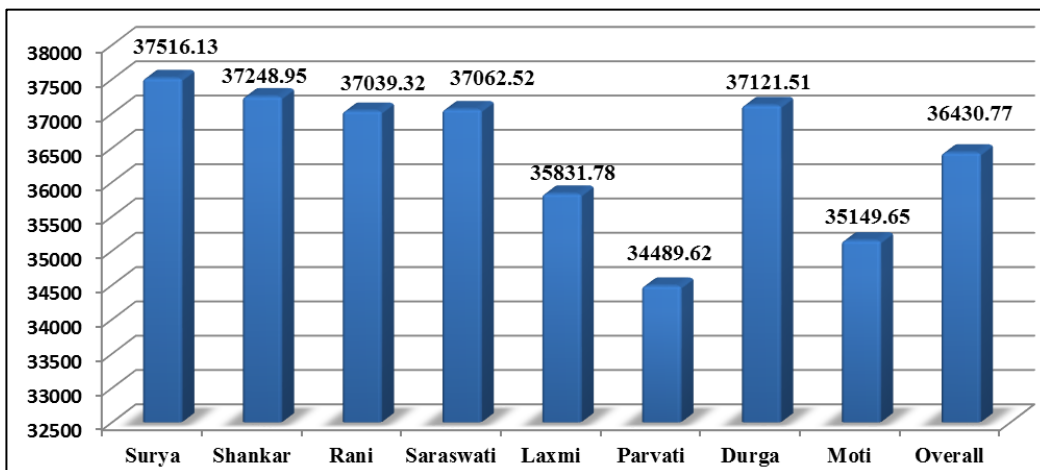
(Rs/ha.)										
<b>Self Help Groups</b>										
S. No.	Particulars	Surya	Shankar	Rani	Saraswati	Laxmi	Parvati	Durga	Moti	Overall
1	Cost A1	29941.84	29584.35	28764.87	29467.48	28207.65	26842.95	29135.76	27412.14	28680.38
2	Cost A2	29941.84	29584.35	28764.87	29467.48	28207.65	26842.95	29135.76	27412.14	28680.38
3	Cost B1	30413.01	30037.77	29174.25	29885.04	28606.18	27222.20	29568.50	27796.31	29099.57
4	Cost B2	36413.01	36037.77	35174.25	35885.04	34606.18	33222.20	35568.50	33796.31	35099.57
5	Cost C1	31496.13	31228.95	31019.32	31042.52	29811.78	28469.62	31101.51	29129.65	30410.77
6	Cost C2	37496.13	37228.95	37019.32	37042.52	35811.78	34469.62	37101.51	35129.65	36410.77
7	Cost C3	41267.75	40973.84	40743.26	40768.77	39414.96	37938.58	40833.67	38664.61	40073.85

**Table 4:** Income over different cost of jeeraphool paddy among various categories of SHGs

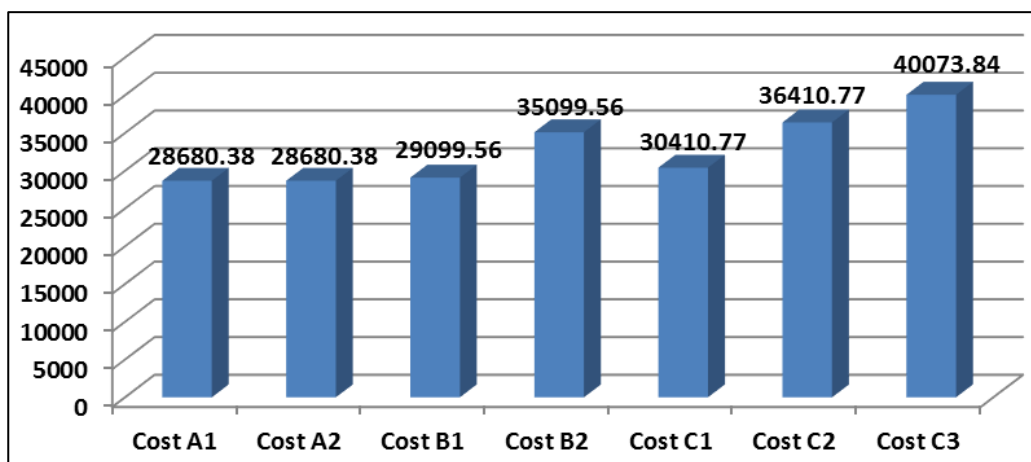
(Rs/ha.)										
<b>Self Help Groups</b>										
S. No.	Particulars	Surya	Shankar	Rani	Saraswati	Laxmi	Parvati	Durga	Moti	Overall
1	Cost A1	65064.66	65288.65	62943.13	64117.02	60387.86	56180.05	65126.75	58169.86	62163.78
2	Cost A2	65064.66	65288.65	62943.13	64117.02	60387.86	56180.05	65126.75	58169.86	62163.78
3	Cost B1	64593.49	64835.23	62533.75	63699.46	59989.33	55800.80	64694.01	57785.69	61744.60
4	Cost B2	58593.49	58835.23	56533.75	57699.46	53989.33	49800.80	58694.01	51785.69	55744.60
5	Cost C1	63510.37	63644.05	60688.68	62541.98	58783.72	54553.38	63160.99	56452.36	60433.39
6	Cost C2	57510.37	57644.05	54688.68	56541.98	52783.72	48553.38	57160.99	50452.36	54433.39
7	Cost C3	53758.75	53919.16	50984.74	52835.73	49200.54	45104.42	53448.84	46937.39	50790.32

**Table 5:** Measures of SHGs profit of Jeeraphool rice (Rs/ha.)

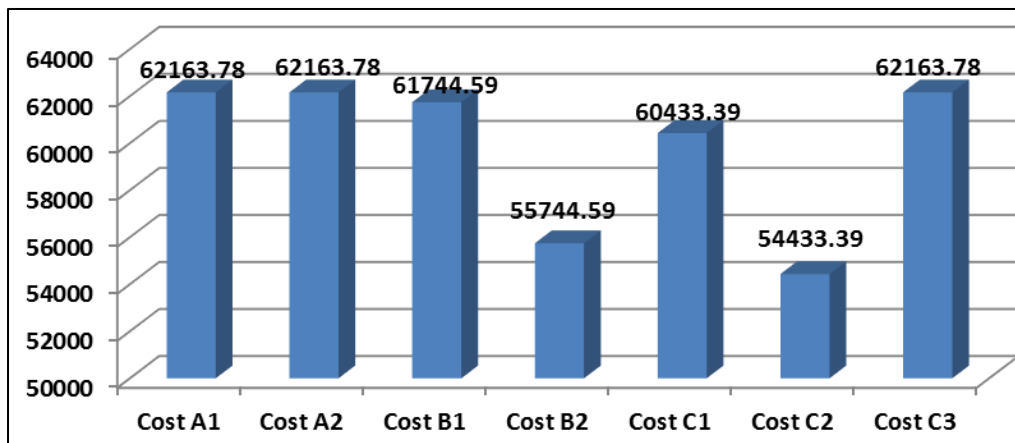
S. No	Particulars	Surya		Shankar		Rani		Saraswathi		Laxmi		Parvati		Durga		Moti		Overall	
1	Gross income	95026.5		94893		91728		93604.5		88615.5		83043		94282.5		85602		90864.17	
		Qt	Total value	Qt	Total value	Qt	Total value	Qt	Total value	Qt	Total value	Qt	Total value	Qt	Total value	Qt	Total value	Qt	Total value
	Yield of main product (3000)	30.04	90120	30.02	90060	29.12	87360	29.62	88860	28.03	84090	26.25	78750	29.83	89490	27.07	81210	28.75	86250.6
	Yield of by product (150)	32.71	4906.5	32.22	4833	31.53	4368	31.63	4744.5	30.17	4525.5	28.62	4293	31.95	4792.5	29.28	4392	31.02	4613.57
2	Net income (Rs.)	57510.37		57644.05		54688.68		56541.98		52783.72		48553.38		57160.99		50452.36		54433.39	
3	Family labour income (Rs.)	58593.49		58835.23		56533.75		57699.46		53989.33		49800.80		58694.01		51785.69		55744.60	
4	Farm business income (Rs.)	65064.66		65288.65		62943.13		64117.02		60387.86		56180.05		65126.75		58169.86		62163.78	
5	Farm investment income (Rs.)	63981.54		64097.47		61098.06		62959.54		59182.25		54932.63		63593.73		56836.53		60852.58	
6	Input output ratio	1:2.53		1:2.55		1:2.48		1:2.53		1:2.47		1:2.41		1:2.54		1:2.44		1:2.49	



**Fig 1:** Cost of cultivation of jeeraphool



**Fig 2:** Cost and returns on the basis of cost concept of jeeraphool



**Fig 3:** Income over different cost of jeeraphool

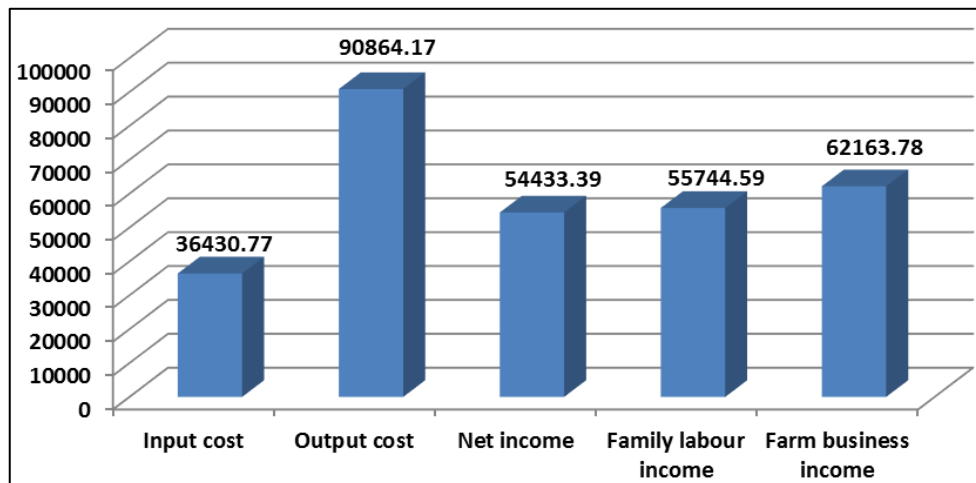


Fig 4: Measures of farm profit by different category of farm of Jeeraphool

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