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Siya Ram
Department of Agri-Business
and Rural Management,
Indira Gandhi Krishi
Vishwavidyalaya, Raipur,
Chhattisgarh, India

Suryaprakash Sahu
Department of Agri-Business
and Rural Management,
Indira Gandhi Krishi
Vishwavidyalaya, Raipur,
Chhattisgarh, India

Virendra Kumar Choudhary
Department of Agri-Business
and Rural Management,
Indira Gandhi Krishi
Vishwavidyalaya, Raipur,
Chhattisgarh, India

Kajal
Department of Agri-Business
and Rural Management,
Indira Gandhi Krishi
Vishwavidyalaya, Raipur,
Chhattisgarh, India

Corresponding Author:
Siya Ram
Department of Agri-Business
and Rural Management,
Indira Gandhi Krishi
Vishwavidyalaya, Raipur,
Chhattisgarh, India

Constraints in the production and marketing of mustard in Surguja district of Chhattisgarh

Siya Ram, Suryaprakash Sahu, Virendra Kumar Choudhary and Kajal

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Abstract

The present study was conducted in the Surguja district of Chhattisgarh. 150 farmers were selected purposely on the basis of the total number of farmers in the district, with categories based on different farm categories from the 12 villages. The primary data was collected in the cropping year 2017-18 from sampled households through the personal interview method with the help of a well-prepared schedule and questionnaire. In which the cropping intensity was about (139.57 per cent). An average cost of cultivation per hectare of mustard was calculated at Rs. 18997.12. The average yield of mustard is 11.82 qtl. On an average, the input output ratio in mustard was 1:1.77 on the sample farms. The average cost of production per quintal of mustard was worked out to be Rs. 1607.19. The net income was calculated to be Rs. 37808.03 per hectare. There are three marketing channels for mustard crop marketing preferred by sample house hold as given below:-Channel I: Producer-Agent-Processor-Retailer-Consumer. Producers. Channel II: Village Traders/Agents, Wholesalers, Millers/Processors, Retailers, and Consumers. Channel III: Producer-Wholesaler-Processor-Retailer-Consumers. Only three channels were preferred by sample households for the selling of mustard. The majority of mustard seeds were sold through the agent by marginal farmers, approximately 66.67 percent, and the majority of small and medium farmers were sold through village traders, approximately 61.76 percent and 65.71 percent, respectively, while large farmers were sold through village traders, 53.33 percent. Overall, 44.52 percent of farm product is sold through agents. The mustard problem is faced by a lack of implementation of MSP in pulses and oilseed crops and a lack of a sufficient number of processing units (Rank I) (100.00 per cent). The study suggested that urgent attention must be paid towards enhancing the productivity and marketing of rapeseed-mustard by providing improved and high-yielding varieties, technology; irrigation; marketing; price support; policy; and effective extension.

Keywords: Constraints, production, marketing, mustard

1. Introduction

Mustard (*Brassica campestris*) rapeseed-mustard oil seed crop is a member of the cruciferae family and the genus Brassica. Rapeseed (*Brassica campestris*) is commonly called Sarson or Toria. Mustard is an annual herb cultivated as an oil seed crop, as a vegetable, or as fodder, of which 3 species are known for their condiment value. They are pale yellow or white mustard (*Brassica hirta*), brown mustard (*Brassica juncea*), and black mustard (*Brassica nigra*). The leaves of the plant are alternate, long, bristly branched, petiolate, and hairy on both sides. Flowers are small, yellow with 4 petals, cruciform. Seeds are 1.5-3 mm. (Spice Board India, Ministry of Commerce & Industry, Govt. of India 2018-19) the estimated area, production, and yield of rapeseed-mustard in the world were 36.59 million hectares (mha), 72.37 million tonnes (mt), and 1980 kg/ha, respectively. Globally, India accounts for 19.8% and 9.8% of the total acreage and production (USDA). During the last eight years, there has been a considerable increase in productivity from 1840 kg/ha in 2010-11 to 1980 kg/ha in 2018-19 and production has also increased from 61.64 m t in 2010-11 to 72.42 m t in 2018-19. (ICAR-Directorate of Rapeseed-Mustard Research) Rapeseed-mustard crops in India are grown in diverse agro-climatic conditions ranging from the north-eastern/north-western hills to the south-eastern/north-western plains under irrigated/rainfed, timely/late sown, saline soils, and mixed cropping. Indian mustard accounts for about 75-80% of the 6.23 m ha under these crops in the country during the 2018-19 crop season. (Source: Directorate of Economics & Statistics, DAC&FW). The total area in Chhattisgarh under rapeseed-mustard cultivation is 46.280 thousand ha. while production is 26.999 thousand tonnes in Chhattisgarh. (Source:- Commissioner, Land Record, C.G.).

In Surguja district, rapeseed-mustard crops were grown on 5493 ha. and production was 3.603 thousand mt. of total oilseeds area and production in the Northern Hills. This district has the 2nd position in area and the 3rd position in production of rapeseed-mustard in the state. (Source: Superintendent of land records, Ambikapur 2016-17)

1. Calculate the cost and return on the mustard crop in the study area.
2. To examine the marketing pattern of mustard crop in the study area.
3. To identify the constraints in production and marketing of mustard crop and to suggest remedial measures to overcome them.

2. Methodology

2.1 Cultivation costs

The cost concept approach to farm costing is widely used in India. To work out the cost of cultivation, the standard method of cost of cultivation employed by the Commission on Agricultural Costs and Prices (CACP), Directorate of Economics and Statistics, Government of India was adopted, which includes Cost A1, Cost A2, Cost B1, Cost B2, Cost C1, Cost C2 and Cost C3.

2.2 Disposable pattern

A simple analysis was done to examine the marketing pattern of mustard at different categories of farms. To estimate the marketable surplus of produce, the total quantity used for different purposes was estimated as under:

Where,

$$MS = P - (C + Cf + W + S)$$

MS = Marketable surplus

P = Production

C = Family consumption

Cf = Quantity use for cattle feed

W = Quantity use for wage

S = Quantity kept for seed

3. Results and Discussion

3.1 Cost of cultivation of mustard crops

The cost of mustard cultivation is shown in table 1 and fig 1. It can be seen that, on an average, the cost of cultivation of mustard was estimated at Rs. 18997.12, which varied from Rs. 18338.92 per hectare at marginal farms to Rs. 19527.19 per hectare at large farms, respectively. The average per hectare human labour cost (both family and human) was estimated at Rs. 4098.49 per hectare, which varied from Rs. 3999.99 per hectare at marginal farms to Rs. 4649.99 per hectare at large farms, which observed 22.93 per cent of the total cost of cultivation. The next mustard cost was observed as the bullock and machinery cost, which was estimated at Rs. 2563.05 per hectare, which varied from Rs. 2859.09 per hectare at marginal farms to Rs. 2490.00 per hectare at large farms, respectively. Bullock and machinery were discovered to contribute 13.62 percent of total cultivation costs. The average cost of seed was estimated at Rs. 960.00 per hectare, which varied from Rs. 960.00 per hectare at marginal farms to Rs. 960.00 per hectare at large farms, respectively, and the average cost of manure and fertilizer was estimated at Rs. 5071.06 per hectare, which varied from Rs. 4759.87 per hectare at marginal farms to Rs. 5243.87 per hectare at large farms, respectively. The contribution of manure and fertilizer was observed to be 26.57 percent respectively, of the total cultivation cost.

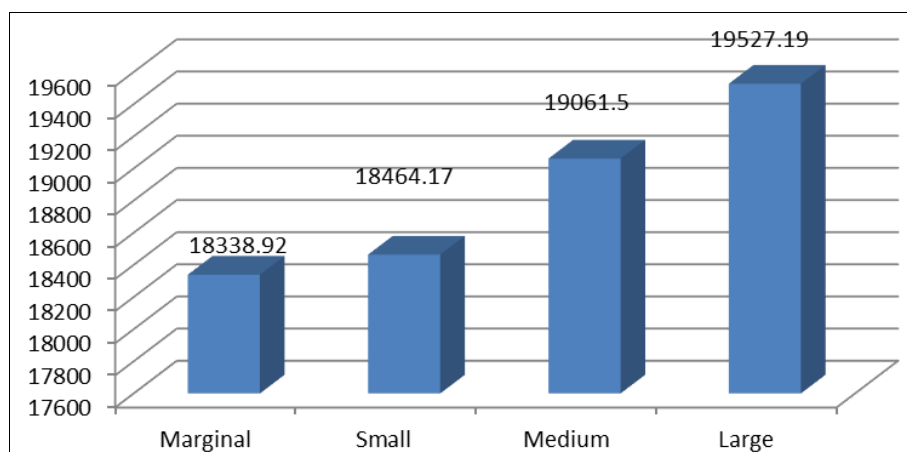


Fig 1: Cost of cultivation of mustard at sampled households (Rs/ha.)

Table 1: Cost of cultivation of mustard at different size groups of farms. (Rs/ha)

S. no.	Particular	Marginal	Small	Medium	Large	Overall
A	Variable cost					
	Human labour					
	Family labour	2522.88 (13.76)	2252.88 (12.20)	2058.67 (10.80)	1828.22 (9.36)	2074.06 (11.53)
	Hired labour	1477.11 (8.05)	1897.11 (10.27)	2441.32 (12.81)	2821.77 (14.45)	2345.17 (11.40)
	Total human labour	3999.99 (21.81)	4149.99 (22.48)	4499.99 (23.61)	4649.99 (23.81)	4098.49 (22.93)
2	Bullock and machinery power					
	Bullock	909.09 (4.96)	384.61 (2.08)	278.48 (1.46)	250.00 (1.28)	344.58 (2.45)
	Machinery	1950.00 (10.63)	2080.00 (11.27)	2160.00 (11.33)	2240.00 (11.47)	2147.79 (11.18)
	Total Bullock and machinery	2859.09 (15.59)	2464.61 (13.35)	2438.48 (12.79)	2490.00 (12.75)	2563.05 (13.62)
3	Seed	960.00 (5.23)	960.00 (5.20)	960.00 (5.04)	960.00 (4.92)	960.00 (5.10)
4	Manure & fertilizers	4759.87 (25.96)	4952.30 (26.82)	5076.45 (26.63)	5243.87 (26.85)	5071.06 (26.57)
5	Plant protection	309.40 (1.69)	379.00 (2.05)	434.17 (2.28)	450.80 (2.31)	416.05 (2.08)

6	Irrigation charge	320.00 (1.74)	400.00 (2.17)	450.00 (2.36)	480.00 (2.46)	436.53 (2.18)
7	Miscellaneous cost	100.00 (0.55)	110.00 (0.60)	120.00 (0.63)	140.00 (0.72)	121.91 (0.62)
8	Interest on working capital	431.41 (2.35)	442.15 (2.39)	472.01 (2.48)	497.85 (2.55)	469.15 (2.44)
	Total variable cost	13739.76 (74.92)	13858.05 (75.05)	14451.10 (75.81)	14912.51 (76.37)	14387.39 (75.73)
B	Fixed cost					
9	Land revenue	12.00 (0.07)	12.00 (0.06)	12.00 (0.06)	12.00 (0.06)	12.00 (0.06)
10	Depreciation	97.50 (0.53)	104.00 (0.56)	108.00 (0.57)	112.00 (0.57)	107.38 (0.57)
11	Interest on fixed capital	301.66 (1.64)	302.12 (1.64)	302.40 (1.59)	302.68 (1.55)	302.35 (1.59)
12	Rental value of owned land	4200.00 (22.90)	4200.00 (22.75)	4200.00 (22.03)	4200.00 (21.51)	4200.00 (22.11)
	Total fixed cost	4611.16 (25.14)	4618.12 (25.01)	4622.40 (24.25)	4626.68 (23.69)	4621.73 (24.33)
C	Total cost (A+B)	18338.92 (100.00)	18464.17 (100.00)	19061.50 (100.00)	19527.19 (100.00)	18997.12 (100.00)

Note: Figures in the parentheses are percentage to total cost of cultivation of mustard

3.2 Cost and returns of the mustard crop on the basis of cost concept

Costs and yields were provided in table 2. based on cost idea in the cultivation of Mustard. Overall on an average Cost-A1, Cost-A2, Cost-B1, Cost- B2, Cost-C1, Cost-C2 and Cost-C3 were worked out to Rs. 12420.71, Rs.

12420.71, Rs. 12723.06, Rs. 16923.06, Rs. 1418997.12, and Rs. 18997.12, Rs. 20896.83 per hectare respectively on the Sam The average net income over Cost-A1, Cost-A2, Cost-B1, Cost-B2, Cost-C1, Cost-2, and Cost-C3 was calculated to be Rs. 40184.44, Rs. 39882.09, Rs. 35682.09, Rs. 37808.03, Rs. 33608.03, and Rs. 31708.32. respectively.

Table 2: Break-up of total cost, cost concept wise income over different cost of mustard (Rs./ha)

S. No.	Particular	Marginal	Small	Medium	Large	Overall
A	Break-up of cost					
1	Cost A1	11314.38	11709.17	12500.43	13196.29	12420.71
2	Cost A2	11314.38	11709.17	12500.43	13196.29	12420.71
3	Cost B1	11616.04	12011.29	12802.83	13498.97	12723.06
4	Cost B2	15816.04	16211.29	17002.83	17698.97	16923.06
	A2+FL	13837.26	13962.05	14559.1	15024.51	14494.77
5	Cost C1	14138.92	14264.17	14861.5	15327.19	14797.12
6	Cost C2	18338.92	18464.17	19061.5	19527.19	18997.12
7	Cost C3	20172.81	20310.59	20967.65	21479.91	20896.83
B	Gross income over different cost					
1	Income over cost A1	30965.62	35898.83	41737.57	44175.71	40184.44
2	Income over cost A2	30965.62	35898.83	41737.57	44175.71	40184.44
3	Income over cost B1	30663.96	35596.71	41435.17	43873.03	39882.09
4	Income over cost B2	26463.96	31396.71	37235.17	39673.03	35682.09
5	Income over cost C1	28141.08	33343.83	39376.50	42044.81	37808.03
6	Income over cost C2	23941.08	29143.83	35176.50	37844.81	33608.03
7	Income over cost C3	22107.19	27297.41	33270.35	35892.09	31708.32

3.3 Yield Value of Output and Cost of Production of Mustard

The yield value of the output per hectare and the cultivation price per quintal Mustard is given in Table 3 and fig 2. The average cost was to be estimated at Rs. 18997.00 per hectare, which varied from Rs. 18338.95 per hectare at marginal farms to Rs. 19527.22 per hectare at large farms. Overall with total output (main and by-product yield) was

observed 21.16 quintals per hectare. The gross return was varied from Rs. 42280.00 per hectare at marginal farms to Rs. 57372.00 per hectare at large farms. On an average, the net income was Rs. 33607.60 per hectare. The average output price per quintal was estimated at Rs. 4400.00. On an average Input Output Ratio was 1:1.77 which varies from 1:1.31 at marginal farms to 1:1.94 at large farms.

Table 3: Economics value of mustard at sample farms (Rs / ha)

S. No.	Particulars	Marginal	Small	Medium	Large	Overall
1	Yield (qt /ha.)	9.50	10.70	12.20	12.90	11.82
	Price/qt.	4400.00	4400.00	4400.00	4400.00	4400.00
	Return (Rs./ha.)	41800.00	47080.00	53680.00	56760.00	52044.00
2	By product yield (qt /ha.)	8.00	8.80	9.30	10.20	9.34
	Price/qt.	60.00	60.00	60.00	60.00	60.00
	Return (Rs./ha.)	480.00	528.00	558.00	612.00	560.60
3	Gross Return (Rs./ha.)	42280.00	47608.00	54238.00	57372.00	52604.60
4	Cost of cultivation (Rs./ha.)	18338.95	18465.00	19061.53	19527.22	18997.00
5	Net Return (Rs./ha.)	23941.05	29143.00	35176.47	37844.78	33607.60
6	Cost of production (Rs./qt.)	1930.42	1725.70	1562.42	1513.74	1607.19
7	Input- output ratio	1:1.31	1:1.58	1:1.85	1:1.94	1:1.77

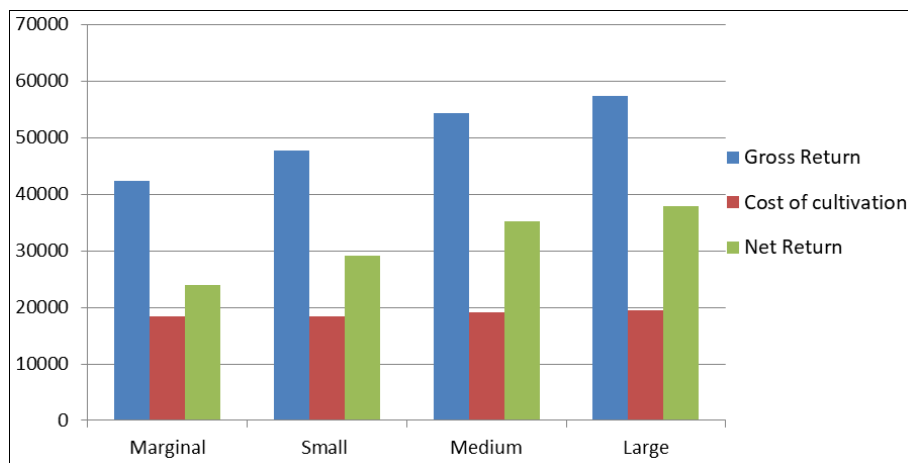


Fig 2: Economics value of Mustard at Sample farms (Rs/ha.)

3.4 Marketing channel for Mustard

The channels prevalent for farm product marketing in the study area were as follows: There were two marketing channels for mustard marketing preferred by sample households.

Channel-I: Producer – Agent - Processor - Retailer – Consumer

Channel-I I: Producer – village traders/agent – wholesalers – Miller/Processor – retailers – customers

Channel III: Producer-Wholesaler-Processor-Retailer-

Consumers.

It is clear from table no. 4 that most of the mustard seeds were sold through the agent by marginal farmers, about 66.67 percent, and the maximum small farmers and medium farmers were sold through village traders, about 61.76 percent and 65.71 percent, while large farmers were sold through village traders, 53.33 percent, respectively. Overall, about 51.52 percent of mustard seeds are sold through village traders, with the remaining 32.32 percent sold through agents. Due to the long distance of oil mills, farmers do not sell directly to oil mills.

Table 4: Quantity of mustard seeds sold by producer to different functionaries of sample household (Q/farm)

S. No	Particulars	Marginal		Small		Medium		Large		Overall	
		No.	Qty	No.	Qty	No.	Qty	No.	Qty	No.	Qty
1	Mustard	2.00	1.25	5.00	1.55	3.00	1.70	2.00	0.63	12.00	1.28
	Consumer	(13.33)	(13.71)	(14.71)	(15.05)	(8.57)	(14.26)	(13.33)	(5.05)	(12.12)	(11.71)
2	Agent	10.00	6.51	8.00	2.40	6.00	2.25	8.00	8.35	32.00	4.88
		(66.67)	(71.38)	(23.53)	(23.30)	(17.14)	(18.88)	(53.33)	(66.91)	(32.32)	(44.52)
3	Village Traders	3.00	1.36	21.00	6.35	23.00	6.47	4.00	2.50	51.00	4.17
		(20.00)	(14.91)	(61.76)	(61.65)	(65.71)	(54.28)	(26.67)	(20.03)	(51.52)	(38.06)
4	Wholesaler	0.00	0.00	0.00	0.00	3.00	1.50	1.00	1.00	4.00	0.63
		(0.00)	(0.00)	(0.00)	(0.00)	(8.57)	(12.58)	(6.67)	(8.01)	(4.04)	(5.71)
5	Miller/ Processor	0.00	0.00	0.00	0.00	0.00s	0.00	0.00	0.00	0.00	0.00
		(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
	Total	15.00	9.12	34.00	10.30	35.00	11.92	15.00	12.48	99.00	10.96
		(100.00)	(100.00)	(100.00)	(100.00)	(100.00)	(100.00)	(100.00)	(100.00)	(100.00)	(100.00)

Table 5: Marketable surplus of mustard crops of sample farms (Qtl /farm)

S. No.	Particulars	Marginal	Small	Medium	Large	Overall
D.	Mustard					
1	Total quantity Produced	9.50 (100.00)	10.70 (100.00)	12.20 (100.00)	12.90 (100.00)	11.82 (100.00)
2	Quantity retained for seed	0.03 (0.34)	0.05 (0.46)	0.04 (0.34)	0.04 (0.29)	0.04 (0.34)
3	Consumption	0.34 (3.56)	0.35 (3.23)	0.23 (1.93)	0.38 (2.96)	0.33 (2.75)
4	Total quantity Utilized	0.37 (3.90)	0.40 (3.69)	0.28 (2.26)	0.42 (3.25)	0.37 (3.09)
5	Marketable Surplus	9.13 96.10)	10.30 (96.31)	11.92 (97.74)	12.48 (96.75)	11.45 (96.91)

3.5 Constraints in marketing of mustard crops

The mustard constraints in the marketing of mustard crops are presented in Table 6. The mustard problem faced by farmers was lack of implementation of msp in oilseed, Rank I (100.00 per cent). Lack of sufficient processing units

(Rank II) (86.87%); low product price (Rank III) (81.82%); and lack of awareness of market news and intelligence (Rank IV) (65.66%). and other marketing constraints, including those in the table.

Table 6: Constraints in marketing of mustard crops

S. No.	Particular	Mustard	
		No.	Rank
1	Lack of implementation of MSP in oilseed	99.00 (100.00)	I
2	Low price of product	81.00 (81.82)	III
3	Lack of sufficient number of processing unit	86.00 (86.87)	II
4	Exploitation by middleman	44.00 (44.44)	IX
5	Whether you like to store your produce in storage to get high prices	54.00 (54.55)	VII
6	Lack of marketing information	55.00 (55.56)	VI
7	Whether you face problem because the quantity is small	58.00 (58.59)	V
8	. Lack of storage facilities in growing area	51.00 (51.52)	VIII
9	Lack of awareness about market news and intelligence	65.00 (65.66)	IV
10	Lack of small marketable surplus	16.00 (16.16)	X

4. Conclusion

- From the above discussion, it may be concluded that there are three types of constraints faced by mustard growers, i.e., technical problems, management problems, and labour problems. Technical problems are ranked first, followed by management problems and labour problems. All the problems are faced more by marginal farmers, followed by small farmers and medium farmers. Thus, it can be concluded that problems and the number of farms have an indirect relationship. This means that as the size of the farm increases, the problems faced decrease. Mustard is a lucrative crop and is suitable for doubling the income of the farmers of the study area. Horizontal growth in rapeseed-mustard can be achieved in those rapeseed-mustard growing areas/districts of the country, wherever the yield is lower than the national average. Production technologies for different agro-ecological cropping systems, crop growing situations like intercropping, salinity, rainfall, and so forth, under unutilized farmsituations like rice-fallows, mustard to be followed by cotton, sugarcane, soyabean, and so forth, and mustard as a paira crop in rice with lathyrus, lentil, or any other competing rabi crop in traditional and non-traditional areas, need to be worked out. Through the adoption of such cropping systems, at least 1 million hectares can be brought under cultivation. The major marketing constraints are also included.

5. Suggestion for futuristic research work

- To provide a source of credit facilities to farmers, which may be the further scope for research work?
- Policy makers can utilize these results for policy implications to fix MSP policy.
- Use of good quality seed
- Timely sowing is one use for which efficient weather forecasting may be used.
- Use of scientific package and practices of mustard production
- An application of balanced doses of nutrients
- The plant's protection measures are mainly the use of integrated pest management.
- Use of improved post-harvest technology
- A crop insurance incentive
- The current market situation has an impact on farmers and how to improve it.
- In future research, an experimental or comparative study should be conducted between normal farming and organic farming. This may be used to measure the B: C ratio precisely.
- In future research, an experimental or comparative

study should be conducted between vegetable farming and food grain, oil seed, or pulse farming to measure the relative advantages and B: C ratio precisely.

- A deep analysis of problems should be done to determine why not use hybrid varieties of farmers and how to conveniently replace local varieties with hybrid varieties.
- Changing the pattern of cropping with the incorporation of medicinal and aromatic plants along with cereals, pulses crops to achieve more income in some parts of land.
- Analyses the technology used by farmers for cultivation, marketing, and assessment of demand for farm produce; scope for research work.
- Appropriate on-farm extension service

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