

Original Research Article

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An Economic Analysis of Production and Marketing in Rapeseed-Mustard Crop in Meerut District of Western Uttar Pradesh, India

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ABSTRACT

An attempt has been made in this study to examine the economic analysis of production and marketing of rapeseed-mustard in Meerut district of Western Uttar Pradesh State, India. The study was conducted in Sardhana and Sharurpur Khurd blocks in Meerut district of Uttar Pradesh State, India. Hundred farmers were selected randomly from ten villages from these blocks to collect the required information on the cost of cultivation, marketing and other aspects for the present study. The primary data was collected from the rapeseed-mustard producers through personal interview method with the help of well-prepared schedule and questionnaire for the production and post-harvest year for Rabi rapeseed-mustard 2012-13. The average cost of cultivation and input-output ratio of rapeseed-mustard was worked out as Rs. 50310.84 /ha. And 1: 1.22. The average Cost A1, Cost B1, Cost B2, Cost C1, and Cost C2 were observed as Rs.30294.63, Rs.31945, Rs. 46945.78, Rs.35086.38, and Rs.50310.84 per hectare. The three type of marketing channel identified in the study area were Channel-I: Producer – Consumer, Channel-II: Producer – Retailer – consumer and Channel-III: Producer – Wholesaler - Retailer – Consumer. Price spread of mustard cultivation in channel-I net price received by the producer in consumer's rupee 95.82 per cent was found and total marketing cost is 4.18 per cent. Chanel-II net price received by the producer in consumer rupee's 90.59 per cent and total marketing cost was found is 9.41 per cent. Channel-III net price received by the producer in consumer rupee's 83.53 per cent and total marketing cost is 16.47 per cent. More than 81.00 per cent rapeseed-mustard producers perceived that transportation of small quantity of produce was not an economical option if they sold their small produce in the market. 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

Rapeseed-mustard,
Cost and returns,
Marketing.

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Introduction

Rapeseed-mustard belongs to family cruciferae and genus Brassica. Rapeseed (*Brassica campestris*) commonly called is Sarson or Toria is herbaceous annual plant shorter than mustard (rai) between 45-150 cm. Mustard (*Brassica juncea*) common name is called rai. Rapeseed-mustard, its oil and its oil

meal may contain anti-nutritional factor such as goiterogens (thioglucosided or glucosinolates), tannic acid, erucic acid, sinapine (cholinester), pectins and oligosaccharides. Mustard stimulates digestion and salivary secretion. Mustard seeds have high energy content, having 28-

32% oil with relatively high protein content (28-36%). The amino acid composition of mustard protein is well balanced; it is rich in essential amino acids. Mustard oil has 20-28% oleic acid, 10-20% linoleic and 30-40% erucic acid. India accounts for about 14.46 per cent of world's oilseeds area and 6.97 per cent of world's oilseeds output (FAO Year Book, 2013). It has second and third rank in the world in the production of groundnut (8.2%) and rapeseed-mustard (13.7%). The vegetable oil consumption in India is continuously rising and has sharply increased in the couple of years touching around 13.8 kg/head/year. States ranking of oilseeds in 2012-2013 are Madhya Pradesh (29.93%), Rajasthan (19.99%) and Maharashtra (16.19%) (*Pocket Book on Agricultural Statistics*, 2013). Total area, production and productivity in U.P. were 0.61 million hectare, 0.68 million tones and 1113 Kg /ha respectively (2009-10 Directorate of Economics and statistics, New Delhi). During the same period area, production and productivity of Mustard in Meerut District was 0.004438 million hectare, 0.0574351 million tones and 1324 kg/ha respectively (2009-10). Very few studies have been conducted in the past to examine the production and marketing of rapeseed- mustard in Uttar Pradesh more so, in Meerut district and so looking to above facts, a study is essential to undertake through which a detailed insight can be obtained to analyse an economic analysis of production and marketing of rapeseed-mustard in Meerut district of Western Uttar.

Materials and Methods

Keeping in view the objective of the study, Meerut district of western Uttar Pradesh was purposively selected. Block wise data on the area under mustard and the total cropped area were obtaining from secondary sources. Based on data block wise percentage area under mustard to the corresponding total crop area of the block was calculating and these blocks were arranged in descending order. The two

blocks with maximum percentage area under mustard were selected. For each selected block, percentage area under mustard to the corresponding total cropped area was worked out for each of the villages of the block and the ten villages having maximum concentration of relative area under mustard were selected from each of the selected two block. For each selected randomly of villages, a separate list of mustard growing farmers was prepared and these farmers was regarded in to marginal (below 1ha.), small (1-2 ha), medium (2-4 ha) and large (4 ha and above) size group of farms. From each selected randomly of villages, 100 farmers were randomly selected. The allocation of these 100 selected farms of a selected randomly of villages in to marginal, small, medium, and large farms was based on the proportion of the mustard growing farms under each size groups to the total mustard growing farms. Simple tabular analysis was applied to work out the cost of cultivation. The primary data were collected by survey method through personal interview on well-structured and pre tested schedule, while secondary data were collected from books, journals, report and records of the district and block headquarters. Both the tabular and functional analysis was used. Price spread was studied at the point of time in the selected markets. The prices for the purpose were calculated through the mode method. In mode method, model prices at different levels were obtained to work-out the gross margin of various agencies. To arrive at the net margins, the costs incurred by the concerned agencies were deducted from the gross margin.

Results and Discussion

The cost of cultivation of rapeseed-mustard production is presented in table 1. It reveals that average total cost of cultivation was found to be Rs.50310.57/ha which was varies from Rs. 56834.60/ha at marginal farms to Rs. 46943.53/ha at large farms.

Table.1 Costs of cultivation (Rs) of Mustard crop on different size group of sample farms in the study area

S. No.	Particular	Size of sample farms (ha)				Overall average
		Marginal	Small	Medium	Large	
1.	Family labour	8210.51 (14.44)	2492.45 (5.07)	1803.71 (3.82)	1377.56 (2.93)	3140.06 (6.24)
2.	Hired labour	13115.78 (23.07)	11535.16 (23.48)	10297.50 (21.82)	10722.40 (22.84)	11280.13 (22.42)
.	Total human labour	21326.29 (37.52)	14027.61 (28.56)	12101.21 (25.64)	12099.96 (25.77)	14420.19 (28.66)
3.	Tractor labour	4665.78 (8.20)	4500.00 (9.17)	4407.01 (9.34)	4375.84 (9.32)	4487.15 (8.91)
4.	Bullock labour	-	-	-	-	-
5.	Seed	1209.36 (2.13)	1127.64 (2.29)	1154.95 (2.44)	1064.64 (2.26)	1107.57 (2.20)
6.	Manures and fertilizers	7556.72 (13.29)	7143.96 (14.54)	6953.70 (14.73)	6474.45 (13.79)	7382.22 (14.67)
7.	Irrigation charge	3276.31 (5.77)	3105.52 (6.32)	3134.28 (6.64)	3113.79 (6.63)	3150.92 (6.26)
8.	Plant protection	1871.04 (3.29)	2052.74 (4.17)	2169.40 (4.59)	2715.51 (5.78)	2254.61 (4.48)
9.	Interest on working capital	644.10 (1.14)	618.00 (1.25)	670.61 (1.42)	601.58 (1.28)	632.03 (1.25)
10.	Rental value of owned land	15000.00 (26.39)	15000.00 (30.54)	15000.00 (31.79)	15000.00 (31.95)	15000.00 (29.81)
11.	Interest on fixed capital	1285.00 (2.27)	1534.08 (3.12)	1368.28 (2.89)	1273.26 (2.71)	1651.15 (3.28)
12.	Land revenue	-	-	225.00 (0.47)	225.00 (0.47)	225.00 (0.44)
	Grand total	56834.60 (100.00)	49109.51 (100.00)	47184.44 (100.00)	46943.53 (100.00)	50310.84 (100.00)

Table.2 Per hectare costs and income from the production of Mustard crop on various costs concept (Rs.)

S. No.	Particular	Size of sample farms				Overall average
		Marginal	Small	Medium	Large	
1.	Cost A ₁ /A ₂	32339.09	30082.98	28787.45	29068.21	30294.63
2.	Cost B ₁	33624.09	31617.06	30155.73	30341.47	31945.78
3.	Cost B ₂	48624.09	46617.06	45155.73	45341.47	46945.78
4.	Cost C ₁	41834.09	34109.51	31959.44	31719.03	35086.38
5.	Cost C ₂	56834.60	49109.51	47184.44	46943.53	50310.84
6.	Gross income	67910.52	63500.00	58752.06	59634.48	61532.57
7.	Net income	11075.92	14390.49	11567.62	12691.48	11221.73
8.	Family labour income	19286.43	16882.94	13596.33	14293.01	14586.79
9.	Farm investment income	27360.92	30924.57	27935.90	28964.74	27872.88
10.	Farm business income	35571.43	33417.02	29964.61	30566.27	31237.94
11.	Cost of production per (q)	2783.28	2461.75	2414.14	2583.57	2583.95
12.	Yield (q/ha)	20.84	19.94	19.54	18.17	19.46
13.	Input output relationship					
i)	On the basis of C ₂	1:1.19	1:1.29	1:1.24	1:1.27	1:1.22
ii)	On the basis of C ₁	1:1.62	1:1.86	1:1.83	1:1.88	1:1.75
iii)	On the basis of B ₂	1:1.45	1:1.36	1:1.30	1:1.31	1:1.31
iv)	On the basis of B ₁	1:2.01	1:2.00	1:1.94	1:1.96	1:1.92
v)	On the basis of A ₁ /A ₂	1:2.09	1:2.11	1:2.04	1:2.05	1:2.03

Table.3 Inter comparison as a whole channel

Sr. No.	Name of functionary	Channel-I		Channel-II		Channel-III	
		Rs./Q	Producer & share in consumer rupees	Rs./Q	Producer & share in consumer rupees	Rs./Q	Producer & share in consumer rupees
1	Net price received by producer	3193.20	95.82	3171.93	90.59	3164.13	83.54
2	Marketing cost incurred by the producer	139.11	4.18	103.45	2.95	133.25	3.51
3	Producer sale price/wholesaler purchase price	-	-	-	-	3297.38	87.04
4	Marketing cost incurred by the wholesaler	-	-	-	-	164.77	4.35
5	Wholesaler net margin	-	-	-	-	114.01	3.00
6	Wholesaler sale price/retailer purchase price	-	-	3275.44	93.54	3576.16	94.39
7	Marketing cost incurred by the retailer	-	-	111.97	3.19	104.97	2.76
8	Retailer margin	-	-	113.83	3.27	127.21	3.35
9	Total marketing cost	139.11	4.18	329.25	9.41	623.58	16.46
10	Retailer sale price/ consumer price	3332.31	100	3501.24	100	3787.71	100

The higher cost incurred on cultivation was by marginal farms followed by large farms. The contribution of total labour cost for cultivation of crop was found to be Rs.18907.34/ha. The average total human labour share to total cost for cultivation was observed as Rs. 14420.19/ha which was 28.66 per cent to the total cost of cultivation, which was higher at marginal farms Rs.21326.29/ha. Followed by small Rs. 14027.61/ha., medium farms Rs. 12101.21/ha and large farms Rs. 12099.96/ha. When we see through the operation wise labour use, then the average intercultural operation cost was higher, followed by harvesting operation. The contribution of manures and fertilizers estimated was Rs. 7556.72/ha. (13.29 per cent) marginal farmers followed by Rs. 7143.96/ ha. (14.54 per cent) small farms, Rs. 6953.70/ha. (14.73 per cent) and Rs. 6474.45/ha. (13.79 per cent) at large farms. The figure shows that total input cost decreased with farm size. Yield, cost and return of rapeseed-mustard at the sampled farms. The yield, value of output per hectare and cost of production per quintal of rapeseed-mustard on the sample farms have been worked out in table 2. It indicates that the average yield per hectare of rapeseed-mustard came to 19.46 qtl./ha. Where higher yield was found at marginal farms (20.84 qtl./ha.) and the lowest was observed at large farms (18.17 qtl./ha.). The average gross return estimated was Rs. 61532.57/ha. Which varies from Rs. 67910.52/ha. At marginal farms and Rs. 59634.48/ha. At large farms. The average net return was calculated as Rs. 11221.73/ha. Which was higher at small farms (Rs.14390.49/ha.), followed by marginal farms (Rs. 11075.92/ha.), which is found economically best for farmers.

Inter comparison channel of marketing

Quantity sold of rapeseed-mustard the three type of marketing channel identified in the

study area were as Channel-I: Producer – consumer, Channel-II: Producer – Retailer – consumer and Channel-III: Producer – Wholesaler –Retailer – Consumer at the producer level. The quantity sold by the producers is given in table 3 It is clear that three types of Inter channel comparison of price spread, marketing cost and margin of retailer and wholesaler Sardhana market of Meerut is displayed in table 3. Inter channel comparison reveals that the gross price and net price received by the producer was maximum in channel-I (Producer- Consumer) followed by channel-II (Producer- Retailer- Consumer) and channel III (Producer- Wholesaler- Retailer- Consumer).

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