

A study on Marketing Efficiency of Oilseeds in Jaipur District of Rajasthan, with special reference to Rapeseed and Mustard

Gaurav Tiwari

ABSTRACT

The present study attempts to examine the marketing efficiency of rapeseed and mustard crop in Jaipur district of Rajasthan for the two identified marketing channels. The primary data for the study was purposefully collected from a total of sixty sample farmers from Shahpura, Bassi, and Govindgarh blocks of the Jaipur district using a multi-stage stratified random sampling technique. The findings of the study confirm that, in terms of cost-related market performance, higher price spreads lead to lower marketing efficiency. The study concludes that with lower total marketing costs and lower producer's share, the marketing efficiency of channel I (Producer → Consumer) was better as compared to that of channel II (Producer → Retailer → Consumer).

Keywords: Marketing Efficiency, Market Channels, Rapeseed, Mustard, Costs and Margins.

INTRODUCTION

Cereals and oilseeds, within the segment of field crops, are the most significant determinants of an agricultural economy. In this context, the oilseed crops occupy a vital position in India's agricultural economy, next to cereals, in terms of cultivation area, yield, and economic value. India is the world's fourth-largest oilseed-producing country, next to the United States, China, and Brazil. India's oilseed production accounts for 9-10% of the world's total oilseed production, and India's oilseed production area accounts for about 20% of the world's oilseed production area [1].

In India, the production of oilseeds is mainly concentrated in the central and western states, with Rajasthan accounting for nearly 21.5% of the total production [1]. From the perspective of employment and income generation, production of oilseeds plays an important role in the agricultural economy of Rajasthan. Rapeseed and mustard are the main oilseed crops produced in Rajasthan, accounting for 43.1% of the total area (2.97 million hectares) and 45.7% of total rapeseed and mustard production (3.28 million tons) in 2020-21 [2]. In Rajasthan, rapeseed and mustard are mainly grown in Bharatpur, Jaipur, Alwar, Hanumangarh, Sriganganagar, and Kota districts.

Due to its adaptability to irrigated and rain-fed areas and its adaptability to single and mixed planting, rapeseed and mustard crops are being widely grown by the farmers [3]. Even the introduction of high-yielding varieties and improved production technology are playing a significant role in improving the quality and production of rapeseed-mustard yield. Besides offering a high margin with a low cost of production, there exists a huge potential in reducing the gap between supply and demand for edible oil in India.

Despite its wide adaptability and huge potentials, the increase in rapeseed-mustard production during the past two decades have not been quite satisfactory in India, especially in Rajasthan [4,5]. In addition to natural constraints to improving the production of rapeseed and mustard crops, such as saline soil, lack of moisture during seeding, and high temperature during planting, there exists a large degree of marketing inefficiency. Therefore, apart from improving the quality and yield, there is an urgent need to improve the marketing efficiency of the rapeseed-mustard crops in Rajasthan. Hence, the present paper attempts to examine the marketing efficiency of rapeseed-mustard crop in Rajasthan, in the special context of Jaipur district.

METHODOLOGY

The present research was conducted in the year 2021 in the Jaipur district of Rajasthan. Among the 33 districts in Rajasthan, Jaipur ranks fourth in terms of area and production of rapeseed and mustard. As such, Jaipur district was purposefully selected for the study. Keeping the research aim in mind, the primary data was purposefully selected

from three blocks of the Jaipur district (Shahpura, Bassi, and Govindgarh) using a multi-stage stratified random sampling technique. The villages falling under the jurisdiction of the selected blocks were listed separately, and two villages from the Shahpura block, two villages from the Bassi block, and two villages from the Govindgarh block (i.e., a total of six villages) were randomly selected. Subsequently, the farmers growing rapeseed-mustard crop in the selected villages were listed separately and ten farmers were randomly selected from each sample village. Thus, the sample for the current study constituted of sixty farmers ($n = 60$). Further, based on the responding farmers' area of landholding, the selected sample farmers were divided into three groups, as summarized under Table-1.

Table 1 – Grouping of Selected Sample Farmers based on landholding area

Groups	Landholding(In Hectares)	Number of Sample Farmers			
		ShahpuraBlock	BassiBlock	GovindgarhBlock	TOTAL
Marginal-sized	Up to 2.00	4	5	5	14
Small-sized	2.01 – 4.00	9	8	10	27
Medium-sized	4.01 & above	7	7	5	19
	TOTAL	20	20	20	N = 60

Marketable and Marketed Surplus

Marketable surplus represents the residual produce or surplus left with the farmer after making provisions for the family consumption needs, agricultural needs (seeds & cattle feed), wastage, payment in kind to workers, and payment to landlord as rent [6]. Therefore, the marketable surplus is the expected quantity of produce which can be made available for disposal to the non-agricultural population of the country, to earn a profit. Thus, $MeS = P - R$, where MeS = Marketable Surplus, P = Annual Production and R = Estimated Requirements (for family consumption, agricultural purposes, wastage, payment to workers and landlord).

The concept of marketed surplus is more practical in nature that represents the quantity of produce actually sold in the market from the producer's annual production without considering the family consumption needs, agricultural needs, and other payments. It refers to the actual quantity that enters the market for disposal [7]. The greater the marketed surplus, the greater will be the cash income of the producer farmer.

Marketing Channels

Marketing channels are the routes (agencies and functionaries) through which agricultural produce reaches from the producers to the consumers. Based on the middlemen and intermediaries involved from the stage of production to the stage of produce reaching the final consumer, this study identified two channels for marketing the rapeseed-mustard crop in the Jaipur district of Rajasthan:

Channel I: Producer → Consumer.

Channel II: Producer → Retailer → Consumer.

Marketing Costs and Margins

Marketing cost refers to the costs incurred after the harvest of the crop, till it reaches the end consumers. It incorporates weighing costs, storage costs, packaging costs, loading and unloading costs, market fees, handling costs, and transportation costs. The different elements of marketing costs of rapeseed-mustard were individually calculated and finally, these individual costs were added to estimate marketing cost.

The marketing margin was calculated by deducting the purchase price and the marketing cost from the selling price for middleman at each stage and finally, aggregating these margins to calculate total marketing margins. This can be expressed as: $MM_n = SP_n - (PP_n + MC_n)$, where MM_n = Marketing Margin of the n^{th} middleman, SP_n = Selling Price of the n^{th} middleman, PP_n = Purchase Price of the n^{th} middleman, MC_n = Marketing Cost incurred by the n^{th} middleman.

Price Spread

The price spread is the excess of the price paid by consumers over the price received by producers, therefore representing marketing costs and margins. The price spread was calculated as follows:

Producer's share (%) = (price received by producer) ÷ (price paid by consumer) × 100.

Similarly, the share of marketing costs and marketing margins were also estimated to analyze the price spread.

Marketing Efficiency

Marketing efficiency is an important means to improve the income level of farmers, and it is crucial to the

performance of the market. It is expressed as a ratio, and an increase in the ratio represents an increase in efficiency and vice versa. An empirical evaluation of the marketing efficiency index (MEI) was carried out by using two different approaches:

Shepherd's Model: Shepherd proposed a model to measure marketing efficiency by expressing it as a ratio of the price paid by consumer to the marketing cost. Thus, $MEI = CPP \div MC$, where CPP = Price Paid by Consumer and MC = Marketing Cost.

Acharya's Formula: Taking into account the limitations and ambiguities of the above model, Acharya proposed a modified formula for measuring marketing efficiency. According to Acharya's formula, $MEI = PPR \div (MM + MC)$, where PPR = Price Received by Producer, MM = Marketing Margin, and MC = Marketing Cost.

FINDINGS & DISCUSSION

Table 2 summarizes the annual production, marketable surplus, and marketed surplus of the selected sample farmers, along with the total area and average farm size.

Table 2 – Marketable and Marketed Surplus

Groups	Total Area (Hectares)	Avg. Size (Hectares)	Total Production (Quintals)	Avg. Production per Hectare	Requirement for family consumption, etc. (Quintals)	Marketable Surplus (Quintals)	Marketed Surplus (Quintals)
Marginal-sized	17.92	1.28	191.4	10.68	38.5	152.9	156.9
Small-sized	83.97	3.11	1084.1	12.91	61.8	1022.3	1045.7
Medium-sized	103.74	5.46	1530.2	14.75	68.3	1461.9	1482.2

The above table reveals that the mean landholding size under rapeseed-mustard cultivation for marginal, small, and medium farms is 1.28, 3.11, and 5.46 hectares respectively. The mean production per hectare is highest for medium-sized farms (14.75), followed by small-sized (12.91) and marginal-sized (10.68) farms. Further, the above table shows that the marketed surplus is greater than the marketable surplus, which indicates that the quantity of crops retained by the farmers is less than their actual for family and farm. This situation is called distress sales and holds true especially for small-sized and marginal-sized farm holders who desperately need cash [8].

Table 3 summarizes the effectiveness of the two identified marketing channels for rapeseed-mustard crop.

Table 3 – Relative Effectiveness of Marketing Channels

Marketing Channels	Marginal-sized		Small-sized		Medium-sized		TOTAL	
	(Quintals)	(%)	(Quintals)	(%)	(Quintals)	(%)	(Quintals)	(%)
Channel I	32.6	20.8	298.1	28.5	337.2	22.7	667.9	24.9
Channel II	124.3	79.2	747.6	71.5	1145.0	77.3	2016.9	75.1
TOTAL	156.9	100	1045.7	100	1482.2	100	2684.8	100

The above table reveals that the marginal-sized, small-sized, and medium-sized farmers transacted 79.2%, 71.5%, and 77.3% of their marketed surplus respectively through marketing channel II. Most of the farmers opted for channel II to sell their produce. As such, the marketing channel II may be regarded as more effective than the marketing channel I.

Table 4 summarizes the various elements of marketing costs incurred by the producer, along with the producer's share for marketing channel I.

Table 4 – Marketing Costs for Channel I

Marketing Costs for Channel I	Marginal-sized	Small-sized	Medium-sized	Pooled
(A) Price Paid by Consumer	4125	4125	4125	4125
(B) Cost incurred by Producer				
Weighing Cost	5	6	7	6
Storage Cost	180	202	270	217.3
Packing Cost	20	19	17	18.7
Handling Cost	40	38	36	38
Market Fees	--	--	--	--
Transportation Cost	250	250	230	243.3
TOTAL	495	515	560	523.3

The above table reveals that the transportation cost and storage cost are the most significant marketing cost for channel I. The pooled marketing costs was Rs.523.3. The maximum producer's share was 88.0% for marginal-sized farmers, followed by small-sized (87.5%) and medium-sized (86.4%) farmers.

Table 5 summarizes the various elements of marketing costs incurred by both producer and retailer, along with the producer's share, retailer's margin, and retailer's selling price for marketing channel II.

Table 5 – Marketing Costs and Margins for Channel II

Marketing Costs for Channel II	Marginal-sized	Small-sized	Medium-sized	Pooled
(A) Price Paid by Retailer	4100	4100	4100	4100
(B) Cost incurred by Producer				
Weighing Cost	5	6	7	6
Storage Cost	180	202	270	217.3
Packing Cost	20	19	17	18.7
Handling Cost	40	38	36	38
Market Fees	--	--	--	--
Transportation Cost	200	180	160	180
TOTAL	445	445	490	460
(C) Price received by Producer	3655	3655	3610	3640
(D) Cost incurred by Retailer				
Storage Cost	75	80	80	78.3
Handling Cost	10	10	10	10
Transportation Cost	110	120	130	120

TOTAL	195	210	220	208.3
(E) Retailer's Margin	105	110	125	113.3
(F) Price paid by Consumer	4400	4420	4445	4421.7

The above table reveals that for marketing channel II, the storage and transportation costs are the main marketing costs, incurred by both producer and retailer. The pooled total marketing costs incurred by producer amounts to Rs.460 and that incurred by retailer is Rs.208.30. The pooled retailer's margin for channel II amounts to Rs.113.30.

Table 6 summarizes the analysis results of price spread, along with the total marketing costs and margins of the intermediaries during the marketing of rapeseed-mustard crop for the two marketing channels.

Table 6 – Price Spread Analysis of Marketing Channels

Items	Channel I	Channel II
Producer's cost	523.3	460
Retailer's cost	----	208.3
Total Marketing cost	523.3	668.3
Marketing margin	----	113.3
Price paid by Consumer	4125	4421.7
Price received by Producer	3601.7	3640

The above table reveals that greater marketing costs are incurred under marketing channel II due to higher number of intermediaries involved in the marketing the rapeseed- mustard crop. The prices paid by the consumer are Rs.4125 and Rs.4421.70 respectively for channels I & II respectively. Similarly, the prices received by the consumer are Rs.3601.70 and Rs.3640 respectively for channels I & II respectively.

To gain an insight into the extent of market performance, it is necessary to interpret the marketing efficiency indices. In this context, marketing efficiency can be defined as obtaining the greatest customer satisfaction at the least cost through the prevailing marketing system. It incorporates the following two main components because the lowest possible consumer satisfaction is accompanied by the maintenance of large amounts of agricultural output.

- Effectiveness in executing the marketing services.
- Effectiveness of marketing services related to the costs and methods of production and consumption.

Table 7 summarizes the estimates of the marketing efficiency index for the two channels, using Shepherd's model and Acharya's formula.

Table 7 – Computation of Marketing Efficiency Index

Approach	Items	Channel I	Channel II
Shepherd's Model	Price paid by Consumer	4125	4421.7
	÷ Total Marketing Costs	523.3	668.3
	Marketing Efficiency Index	7.883	6.616
Acharya's Formula	Price received by Producer	3601.7	3640
	÷ Aggregate of Marketing Costs & Margins	523.3	781.6
	Marketing Efficiency Index	6.883	4.657

The above table discloses the estimates of the marketing efficiency of rapeseed-mustard crops through the identified marketing channels, using both, Shepherd's and Acharya's approaches. The table shows that under the Shepherd model, the marketing efficiency of channel I (7.883) is higher than that of channel II (6.616). It further shows that

under the Acharya formula, channel I (6.883) has a higher marketing efficiency index as compared to channel II (4.657). This confirms that in terms of cost-related market performance, higher price spreads lead to lower marketing efficiency.

CONCLUSION

Based on the above findings and discussions, it can be concluded from the present study that the marketing efficiency of channel I was higher than that of channel II, which may be attributed to the lower total marketing costs and overheads. Further, the producer share was also found lower in channel I, whereas the involvement of intermediary agencies was higher in channel II. Therefore, as evidenced by both Shepherd's model and Acharya's formula, the marketing efficiency of channel I was better as compared to that of channel II.

REFERENCES

- [1]. Kumar, V. and Tiwari, A. (2020). Sparking Yellow Revolution in India Again. Rural Pulse, XXXIV (June-July): 1-4.
- [2]. IARI Report (2020). Indian Agricultural Research Institute, New Delhi.
- [3]. Sharma, A. (2018). Current trends in oilseed production: an overview. International Journal of Agricultural Sciences, 10(3): 5104–5114.
- [4]. Prasad, P., Bhargava, R. and Kulshrestha, S.K. (2020). Growth analysis of the area, production, and yield of rapeseed and mustard crop in Rajasthan. Retrieved from: <https://www.researchgate.net/publication/351088508>
- [5]. Kumrawat, M. and Yadav, M. (2018). Trends in Area, Production, and Yield of Mustard crop in Bharatpur Region of Rajasthan. International Journal of Engineering Development and Research, 6(1): 315-321.
- [6]. Kumar, P., Kannan, E., Chaudhary, R. and Vishnu, K. (2013). Assessment of Marketed and Marketable Surplus of Foodgrain crops in Karnataka. Agricultural Development and Rural Transformation Centre, Institute for Social and Economic Change, Bangalore. Retrieved from: <http://www.isec.ac.in/Assessment-Marketed-Surplus.pdf>
- [7]. Kumar, P. (2007). Farm size and marketing efficiency: pre- and post-liberalization. New Delhi: Concept Publication.
- [8]. Alagh, M. (2014). Assessment of Marketed and Marketable Surplus of Major Foodgrains in Gujarat (Final Report). Centre for Management in Agriculture, Indian Institute of Management, Ahmedabad. Retrieved from: https://www.iima.ac.in/c/document_library/13Assessment_Marketed_Surplus_Gujarat%20_Final6a3e.pdf?uuid=7ed1fc64-e12e-48ce-b29b-43f0c3503903&groupId=62390