

# MARKETING CHANNELS AND MARKETING EFFICIENCY OF CASTOR OIL IN GUJARAT STATE

## ABSTRACT

The research study conducted to estimate the price spread, marketing margin and marketing cost of castor oil in the Gujarat state. Purposive sampling technique was adopted as per the objective of study and total 17 functioning castor oil extractor units were selected for the study purpose. Data were gathered through personal interviews with a castor oil producer and marketing intermediaries belonging to various marketing channels, using a structured questionnaire. Two main marketing channels were identified: Producer-consumer (Channel I), Producer-trader-consumer (Channel II). A significant proportion of castor oil was marketed through Channel I, which exhibited the highest marketing efficiency. This efficiency was primarily due to the absence of market intermediaries, enabling consumers to purchase or receive castor oil directly from producers.

*Keywords: Castor Oil, Marketing channel, Marketing margin, Marketing cost, Price spread.*

## 1. INTRODUCTION

India accounts for nearly 78 per cent of world's castor area and 91 per cent of world castor production and ranks first in both area and production in the world, followed by Brazil and China [1]. India not only continued, but also expanded the cultivation of castor seeds, especially in Gujarat, as its arid land was unsuitable for other rainfed crops; Castor is a kharif non-edible oilseed crop grown in the state, which had occupied around 6 percent share in the gross cropped area of Gujarat state. The castor growing area in Gujarat is increasing day by day. Farmers are cultivating castor crop as a sole crop, intercrop and mix crops under irrigated as well as rainfed conditions. The top five major castor growing districts in the state are Banaskantha, Kutch, Mehsana, Surendranagar and Patan. The vast yield gap was observed in production and productivity of castor crop among district of Gujarat state was observed [2,3,23]. The expected yield of castor can be increased in the upcoming years by adopting scientific technologies and application of recommended dose of fertilizers, use of water soluble fertilizer, application of plant growth regulator, insecticides and environment friendly biopesticides [4,5,6,7,8,9]. Adoption of recommended NPK along with Sulphur and micronutrients, adopting good agricultural practices, organic fertilizer, judicious use of water etc will also lead to minimize yield gap [4,5,10,11,12,13]. As a result, India acquired a virtual monopoly in the cultivation of castor

seeds in the world. Being a monopoly castor producer, India has also virtual monopoly position in castor oil exports, too. In 2020–21, India accounted for 96.81 per cent of total global castor oil export [1]. Its main trading partners in this specific sector are China, Europe, Thailand and Japan. China has been one of the biggest growth drivers for castor oil due to its demand for sebacic acid (a basic industrial chemical compound) which is developed from castor oil. China currently imported 325 thousand tons of its total castor oil requirement from India in 2020-21 [14].

Castor oil extraction industry is highly dependent upon the sufficient quantity, quality and regularity of castor seed supply and castor seed production is depend on vagaries of monsoon, occurrence of pest and diseases, shifting in cropping patterns and agricultural policies. Thus, raw material supplies to the industry, to a greater extent, make this industry highly prone to risk and uncertainty. At this junction identification of efficient marketing channel and analysis of value chain have great importance for castor oil producer units to improve castor's oil contribution to local edible oil supply and world export [15,16,17,18,19,20,21,24,25]. As a result, it is essential to estimate castor oil price spread and measure the marketing efficiency of castor oil producers of Gujarat.

## 2. METHODOLOGY

### 2.1 Source of data

The present study was carried out in Gujarat state. Primary data was obtained from a survey relating to castor oil extractors for the agricultural year 2021 with the help of the pre-

tested questionnaires through personal interview of castor oil extractors. Out of 22 total castor oil extractor units, a sample of 17 functioning castor oil extractor units were selected purposively from the eight districts of Gujarat state. Marketing efficiency were calculated by using Acharya model of Modified marketing efficiency.

## 2.2 Statistical tools

### 2.2.1 Marketing efficiency

The marketing efficiency as the ratio of price received by producers to the sum of marketing cost and margins of the intermediaries [22]. According to Acharya, an ideal measure of marketing efficiency was calculated by using the formula:

$$ME = \frac{\text{Net selling price of producer}}{\text{Total marketing cost} + \text{Total marketing margin}}$$

### 2.2.2 Marketing cost

The total cost incurred on marketing in cash by the producer and of various intermediaries involved in the movement of castor oil till it reaches the ultimate consumer. It was computed as follows:

$$C = C_f + C_{m1} + C_{m2} + \dots + C_{mi} + \dots + C_{mn} \dots$$

Where,

C = Total cost of marketing of the commodity.  
 $C_f$  = Cost incurred by the producer on marketing  
 $C_{mi}$  = Cost incurred by the  $i^{\text{th}}$  middlemen ( $i = 1, 2, 3, \dots, n$ )

### 2.2.3 Marketing margin

This is the difference between the total payments (costs + purchase price) and receipts (sale price) of the middlemen. It was calculated as follows:

$$\text{Marketing margin of } i^{\text{th}} \text{ middlemen} = P_{ri} - (P_{pi} + C_{mi})$$

Where,

$P_{ri}$  = Sale price of the  $i^{\text{th}}$  middlemen  
 $P_{pi}$  = Purchase price of the  $i^{\text{th}}$  middlemen  
 $C_{mi}$  = Cost incurred on marketing by the  $i^{\text{th}}$  middlemen.

## 3. RESULTS AND DISCUSSION

Primary data was collected with the well prepared questionnaire and 17 functioning castor oil extractor units were selected and interviewed. According to the study, there was a business-to-business marketing channel for castor oil. Castor oil mainly moves from producers to consumers through two marketing channels. Out of the two marketing channels, marketing channel-II was looked at for the movement of castor oil from the place of production to traders who were export houses, export agents and industrial users. In which the producer loads or packs the castor oil; no other traders load or unload the oil. While marketing channel-I operates from producer to consumer, who buy castor oil as a raw material or process castor oil for value addition.

The two marketing channels observed are as under:

Channel-I: Producer – Consumer (Processor, Industries)

Channel-II: Producer – Trader (Export house, Export agent, Industries) – Consumer

### 3.1 Price spread, margins and producer's share in consumer's rupee

The results pertaining to price spread, marketing cost, marketing margins and producer's share in consumer's rupee are presented in Table 1. The results revealed that the producer's share in consumer's price was found to be 86.74 and 83.11 per cent in Channel I and II respectively.

The costs incurred by traders in Channel II on castor oil sell accounted for 12.26 per cent of the consumer's price (Rs. 13.90 per one kg castor oil), packaging cost formed 8.90 per cent (Rs. 10), transportation cost formed 2.04 per cent (Rs. 2.30) and the value of loading and unloading of castor oil accounted to 1.32 per cent of the consumers price (Rs. 1.5), respectively. The wholesaler's margin was Rs. 3055 per one tons castor oil (2.69 per cent of the consumer's price), hence, the producer's share in consumer's rupee in Channel II was 83.11 per cent, the remaining 14.20 per cent accounting for the different costs and 2.69 per cent formed for the trader's margin.

Table 1. Price spread, margins and producer's share in consumer's rupee in different channels for castor oil (n=17)

S. No	Particulars	Channel-I (Rs./Tons)	% of consumer price	Channel-II (Rs./Tons)	% of consumer price
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1		Net price received by producer	95544.44	86.74	94279.56	83.11
2		Expenses incurred by the producer				
	A	Packaging cost	11064.28	10.04	0	0.00
	B	Transportation cost	2547.42	2.31	1205	1.06
	C	Load/Unload cost	997.44	0.91	997.44	0.88
		<b>Sub total</b>	14609.14	13.26	2202.44	1.94
3		Producers sale price/Trader purchase price	0	0	96482	85.05
4		Marketing cost incurred by trader				
	A	Packaging cost	0	0	10095.45	8.90
	B	Transportation cost	0	0	2313.63	2.04
	C	Load/Unload cost	0	0	1496.16	1.32
		<b>Sub total</b>	0	0	13905.24	12.26
5		Traders margin	0	0	3054.54	2.69
6		<b>Total marketing cost</b>	14609.14	13.26	16107.68	14.20
7		<b>Total marketing margin</b>	0	0	3054.54	2.69
8		<b>Consumers purchase price</b>	110153.58	100	113441.8	100
9		<b>Producer's share in consumer's rupees</b>	86.74	-	83.11	-

### 3.2 Marketing efficiency

The marketing efficiency is directly related to the cost involved to move produce from the producer to the consumer and required services provided or desired by the ultimate consumers. If the cost compared with the services involved is low, such marketing said to be efficient and vice-versa. More importantly, any improvement that reduces the cost of a particular function without reducing consumers' satisfaction indicates an improvement in the marketing efficiency.

The marketing efficiency was computed using Acharya's method and the results are presented in the Table 2. The results revealed that highest marketing efficiency index (6.54) was in Channal I (producer to consumer), followed by Channal II (producer to trader to consumer) with a marketing efficiency index of 4.92. The highest marketing efficiency in Channel I was mainly due to an absence of market intermediaries, since consumers either purchased or received castor oil directly from producers. It was observed that the higher proportion of castor oil was marketed through Channel I.

Table 2. Indices of marketing efficiency in the selected castor channels n=17

Particulars	Chann el-I	Channe l-II
Price received by the producer	95544.44	94279.56

Marketing costs + margins	14609.14	19162.22
Index of Marketing efficiency	6.54	4.92

### 4. CONCLUSION

The results revealed that highest marketing efficiency index was found in Channal I (producer to consumer), followed by Channal II (producer to trader to consumer) with a marketing efficiency index of 4.92. A significant proportion of castor oil was marketed through Channel I having highest marketing efficiency which was primarily attributed to the absence of market intermediaries, allowing consumers to purchase or receive castor oil directly from producers.

#### Disclaimer (Artificial intelligence)

#### Option 1:

Author(s) hereby declare that NO generative AI technologies such as Large Language Models (ChatGPT, COPILOT, etc.) and text-to-image generators have been used during the writing or editing of this manuscript.

## REFERENCE

1. SEA (The Solvent Extractors' Association of India) 2021. Castor crop survey 2020-21. *In: Global Castor Conference 2021*. On Zoom online Platform. February 19, 2021.
2. GOI. Agricultural Statistics at a Glance 2019. Directorate of Economics & Statistics, Ministry of Agriculture, Government of India.2020; <https://eands.da.gov.in/PDF/At%20a%20Glance%202019%20Eng.pdf>
3. Oganja YH, Maheta HY, Kumar K, Bharodia CR. Identification of mutation point and trend analysis of area, production and yield of wheat crop in Gujarat, India. *Asian Res. J. Agric.* 2024; 17(4):150-156.
4. Sathish KM, Maheta HY, Kalpesh Kumar, Bharodia CR, Srinivas M. Factors affecting the adoption of water soluble fertilizers by banana growers in Trichy district, Tamil Nadu. *International Journal of Agriculture Sciences.* 2019; 11(12):8645-8646.
5. Sathish KM, Maheta HY, Lad YA, Mahera AB. Factors influencing banana growers to purchase water soluble fertilizers in Trichy district, Tamil Nadu. *British Journal of Marketing Studies.* 2022; 10(4):55-63.
6. Pithiya KN, Maheta HY, Kalpesh Kumar, Bharodia CR. Bridging the gap: Factors influencing farmers' willingness and behaviour in biopesticide application. *Journal of Agriculture and Ecology Research International.* 2024; 25(5):1-6.
7. Oganja YH, Maheta HY, Kalpesh Kumar, Bharodia CR. Factors influencing farmers purchase intention toward insecticides of Rajkot district, India. *Archives of Current Research International.* 2024; 24(8):67-74.
8. Kumar N, Maheta HY, Kumar K, Bharodia CR. Perception towards plant growth regulators among vegetable growers in Junagadh district of Gujarat, India. *Asian J. Adv. Agric. Res.* 2024; 24(8) :93-101.
9. Kumar N, Maheta HY, Kumar K, Bharodia CR. Discriminant analysis of plant growth regulators among vegetable growers in Junagadh district of Gujarat, India. *Asian Res. J. Agric.* 2024;17(4):88-99.
10. Vennila M, Lakhlani CD, Maheta HY. Constraints faced by the groundnut farmers in adoption of organic fertilizers. *AGRES - An International e. Journal.* 2018; 7(2):220-225.
11. Ghangale SN, Maheta HY, Khunt KA. Constraints faced by the farmers in relation to organic fertilizers. *International Journal of Agriculture Sciences.* 2018; 10(17):7102-7103.
12. Rohit BR, Maheta HY, Khorajiya MH, Chaudhari VP. Current status, potential and economics of micro irrigation system in Sabarkantha district of Gujarat. *Trends in Biosciences.* 2015; 8(9):2446-2454.
13. Parmar AB, Bharodia CR, Maheta HY, Kumar K. Assessment of farmer's attitude towards drip and traditional irrigation system in Junagadh district, Gujarat. *Asian J. Adv. Agric. Res.* 2024;24(10):53-59
14. Mielke T. Global supply, demand and price outlook of castor oil. *In: Global 2021 castor conference.* Ahmedabad. February 25, 2021. 1-26.
15. Kormla GS, Maheta HY, Kalpesh Kumar, Bharodia C, Chaudhari V. Impact of ICT on the supply chain management of seed companies. *Trends in Biosciences.* 2015; 8(10):2675-2678.
16. Katariya BB, Maheta HY, Kalsariya R, Khorajiya M, Chaudhari VP. A study on marketing of milk in Junagadh district of Gujarat. *Advances in Life Sciences.* 2016; 5(1):239-246.
17. Bhuva C, Maheta HY, Kumar K. Export competitiveness of processed castor oil. *AGRES - An International e. Journal.* 2018; 7(3):349-354.
18. Sulthana R, Kumar K, Maheta H, Bharodia C, Doke VY. Marketing distribution channel of tomato at Madanapalle block of Chittoor district in Andhra Pradesh. *International Journal of Agriculture Sciences.* 2019; 11(15):8841-8843.
19. Vasoya PR, Maheta HY, Bharodia CR, Kumar K. Analysis of marketing channels, price spread and costs of wheat in Junagadh district of Gujarat, India. *Asian J. Adv. Agric. Res.* 2024; 24(9):68-74.

20. Subhashree M, Palanichamy NV, Prahadeeswaran M, Paramaeswari E. price spread analysis of castor in Salem and Namakkal District. *Asian Journal of Agricultural Extension, Economics & Sociology*. 2022; 40(10):742-748.
21. Venkatesa Palanichamy N, Suresh A, Balamurugan V, Kalpana M, Balakrishnan N. Maximizing marketing efficiency: a deep dive analysis into castor crop in Namakkal district, Tamil Nadu, India. *J. Agric. Ecol. Res. Int.* 2024; 25(3):107-113.
22. Acharya SS. Agricultural marketing in India. *Indian Journal of Agricultural Economics*. 1998; **53(3)**: 385-417.
23. Bhuva CM, Trivedi SM, Patel DV. Growth performance and instability of castor crop. *International Journal of Agriculture Sciences*. 2022; 14(8):11612-11616.
24. Mubofu EB. Castor oil as a potential renewable resource for the production of functional materials. *Sustainable Chemical Processes*. 2016; 4:1-12.
25. Singh S, Syed N, Chaturvedi S, Nannaware AD, Rout PK, Hung YT. Castor oil: A promising source for the production of flavor and fragrance through lipase-mediated biotransformation. In waste treatment in the biotechnology, agricultural and food industries, Springer International Publishing. 2022; 1: 363-389.