Maximizing Marketing Efficiency: A Deep Dive into Castor Analysis

Abstract

The study focused on the marketing efficiency, price spread, and constraints of Castor farming in Namakkal district of Tamil Nadu. 125 samples were analyzed, with 75 farmers surveyed using random sampling. Three marketing channels were identified for Castor disposal. Price spread was highest in Channel II, followed by Channel III and Channel I. Marketing efficiency was found to be highest in Channel I, followed by Channel III and Channel II. Farmers had the greatest share in consumer's rupee in Channel I. The main constraints identified were high insect pest incidence, inadequate labor, monsoon failure, high input and labor costs. Marketing constraints included insufficient storage and credit facilities, high labor costs, limited demand, and lack of market information for Castor.

Comment [lm1]: Review Abstract. It must contain: 1) objective of research, 2) methodology used 3) main conclusions

Key words: Castor, marketing efficiency, price spread, village trader, wholesaler, constraints

Introduction

Castor is an important industrial non-edible oil seed crop. It is best suited for dry land farming and may thrive in low fertility and rainfall environments. With 19.0% of the world's total oilseed acreage and 10.0% of the world's oilseed production, India is known as an oilseed crop paradise. India is second in the world for oilseed production and is the fourth-largest producer in terms of output (Kalpana M, et al., 2023).With the introduction of the first hybrid GCH-3 in 1976, India is the only nation in the world to have commercially utilized hybrid technology. Numerous high-yielding hybrids that were resistant to numerous biotic challenges came after this. (Landoni, M., et. al., 2023)

Castor is largely produced in India, China, Brazil, Russia, Ethiopia, and the Philippines, which together account for 88% of global production. Due to its substantial economic contribution to the nation in the form of foreign exchange, the Indian castor crop has gained importance in recent years. Castor oil is the main commodity in the market, making up around 80% of the entire Castor trade in terms of both quantity and value, including both oil and beans.

After pepper, castor oil is the second commodity to enter the international commodities market and the fourth one to be allowed for future trading. There is now a global supply and demand balance for castor oil. The top three countries that use castor seed are China, the EU, and Brazil. India holds a 70% global share of castor oil exports, making it the largest exporter, followed by China and Brazil.(Kumar, R. M., & Boraiah, B., 2021)

As the world's largest producer of castor, India accounts for almost 85% of worldwide output and dominates international trade with a share of about 9%. Approximately 10 lakh tones of castor seed and 5.5 lakh tones of castor oil are produced in India. (P. Murugan and Akila, N., 2020). In Tamil Nadu, the districts of Salem, Namakkal, Dharmapuri, and Perambalur have played a significant role in increasing the acreage and output of castor, which is mostly produced as an intercrop and border crop in rainfed conditions. The Namakkal district's 1300 hectares of castor growing fields were primarily irrigated and rainfed (Senthilkumar M., et. at., 2019),major seasons for Castor cultivation are June-July and November-December. The productivity of Castor hybrid as pure crop under rainfed ecosystem is 1800 kg/ha and 3000 kg/ha as pure crop under irrigated ecosystem.

Castor is grown in high-risk areas in Tamil Nadu where investment returns are unpredictable. Prioritizing price, production, and marketing risk management has not received enough attention in the past when it comes to castor cultivation. There is a need to modify this scenario. A rising number of people are realizing that in order for the stakeholders to continue cultivating castor crops, effective resource management in crop production and marketing is essential. To this end, identifying obstacles in the production and marketing of castors as well as improving marketing efficiency are crucial. Since there is still a significant disparity between the supply and demand for castor, more land needs to be converted from crop growing to castor farming in order to help create jobs and additional revenue.Keeping all these points in view regarding marketing efficiency and constraints analysis of Castor, the present study will be under taken with the following specific objectives:

(i) to identify the major distribution channels involved in the marketing Castor.
(ii) to study price spread and marketing efficiency of Castor
(iii) to identify the constraints in production and marketing of Castor and suggests suitable policy measures to overcome the constraints.

The results of the study will be useful for policy makers, farmers and input agencies involved in promotion of Castor cultivation in formulation policies and strategies to boost the production of Castor.

Methodology

Among the major Castor producing districts in Tamil Nadu, Namakkal district was purposefully selected taking into consideration of time and resource availability to the researcher. Castor farmers of Namakkal district was the universe of study. In Namakkal district three blocks were selected based on largest area and production of Castor. In each block five villages were selected at randomly and each village five farmers were selected randomly total farmers was 75. Total sample size consists of 125 and 50 intermediaries were selected randomly based on largest volume of transaction. The primary data were collected from the sample respondents during the months of March-April, 2023 and the data collected were relating to the agriculture year of 2022-23. Primary data was used for this study. The data collection was carried out through personal interview using well-structured and pre-tested interview schedules. Three separate sets of interview schedules were prepared to collect details from farmers and market intermediaries. The data collected were tabulated, processed and subjected to statistical analysis.

Tools of analysis

The following tools have been used to measure the marketing efficiency and price spread to full fill the objectives of the study.

Price Spread Analysis: Price spread in general is referred to as difference between the price paid by the ultimate consumer and that received by the growers per unit of the commodity. Price spread analysis would estimate the share of different market functionaries in the consumer's rupee and this would often facilitate the understanding of the relative efficiencies and otherwise of alternate marketing channels (Acharya SS &Agarwal NL, 1994). For the present study, concurrent margin method is used to analyze the price spread.

Price Spread = Pp - Pf

Where,

Pp = price paid by the consumer

Pf = price received by the farmer

Moreover, farmer's share in consumer's rupee was also worked out in the estimation of price spread.

Farmer's Share in Consumer Rupee

Further, the Farmer's share in consumer rupee was calculated with the help of the following formula. (K. Kalidas et al., 2021)

$$Fs = (Fp / Cp) X 100$$

Where,

Fs = Farmer's share in consumer rupee (percentage)

Fp = Farmer's price

Cp = consumer's price

Estimation of Marketing Efficiency

The following formulae were used to estimate the marketing efficiency of different channels of marketing of Castor in the present study.

a) Shepherd's Formula

Shepherd evaluated marketing efficiency as the ratio of total value of the goods marketed to the marketing cost.

$$ME = [(V/I)-1] * 100$$

Where,

ME= Farmer's share in consumer rupee

V= Farmer's net selling price

I = Price paid by the consumer

Garrett's Ranking Technique

The respondents were asked to rank their constraints in Castor production and marketing. In Garrett's ranking technique, these ranks were converted into per cent position by using the formula (V. Shanjeevika et. al.,2022)

$$\text{Percent position} = \frac{100 X (R_{ij} - 0.5)}{N_j}$$

Where,

R_{ij} = Ranking given to the i^{th} attribute by the j^{th} individual

N_j = Number of attributes ranked by the j^{th} individual.

By referring to the Garrett's table, the per cent positions estimated were converted into scores. Thus, for each factor the scores of various respondents were added and the mean values were estimated. The mean values thus obtained for each of the attributes were arranged in descending order. The attributes with the highest mean value were considered as the most important one and the others followed in that order (Sathya, K. N., et. al., 2022).

Result and discussion

Marketing of Castor: The produce from the Castor producers was sold to the wholesaler and processor or to the local dealer. Except for the farmers cultivating castor on greater grounds, the majority of farmers used to sell their produce to the local traders. The observed cause was that their produce needed to travel a considerable distance to reach the distributor. Because they couldn't afford the expense of transporting their produce individually, small farmers used to sell their produce to the village traders. The study region of Castor was also found to be geographically closer to the market, with superior road and transportation infrastructure, enabling them to more readily transfer their produce to the wholesaler and processor, where they would receive a higher price than small farmers. The major market destinations were Namakkal and Tiruchengode followed by Paramathi.

Marketing channels

The many market channels that Castor was sold through were identified in order to comprehend the marketing strategies and limitations used in its promotion. In the research area, the following marketing outlets were found. Castor growers in the study area sold their produce through the three distinct channels shown in Table 1.

Table. 1. Marketing channel followed by sample Castor farmers

Channel no.	Marketing channel	No. of farmers adopted
I	Producer ⟶ Village Trader ⟶ Processor	30 (40.00)
II	Producer ⟶ Wholesaler ⟶ Processor	29 (38.67)
III	Producer ⟶ Processor	16 (21.33)
	Total	**75 (100.00)**

Figures in parentheses indicate percentage to total

Channel I: 40% of farmers preferred to use Channel I. For the primary reason that the farmers chose this channel, they preferred to offer their produce through village traders since they paid on the moment for their purchases.

Channel II: Approximately 38.67% of survey respondents used this channel for their marketing efforts. They were paid a fair price for their produce when they sold through wholesalers.

Channel III: Out of the respondents in the survey, only 21.33% sold their produce straight to the factories that process it.

Price spread and marketing efficiency of different marketing channels

Table 2 shows that in Channel I (57.61%), the farmer received the largest percentage of the consumer price, followed by Channel III (53.00) and Channel II (49.48). Nonetheless, in absolute terms, channel III provided the farmer with the most advantage. The statistics clearly show that selling castor directly to processors yields the highest share, although a relatively small proportion of farmers are able to use this channel.

Regarding the economic efficiency of marketing channels, channel I (1.01) was found to be the most efficient, followed by channel III (0.92) and channel II (0.57). Nevertheless, farmers with little resources and little excess output are unable to use this channel, which causes them to lose market share to middlemen.Thus, in order to allow Castor growers to sell their produce directly to consumers, it is imperative that they receive financial support in the form of low-interest loans and other incentives. Well-thought-out marketing tactics are required to lower these expenses and increase marketing effectiveness.

Table 2. Price spread and marketing efficiency of different marketing channels (Rs. /Qtl.)

S. No.	Particulars	Channel I	Channel II	Channel III
1	**Farmer**			
	Gross price received by farmer	4134.00 (58.32)	4061.07 (50.20)	4081.08 (53.77)
A	Marketing cost			
I	Packing material cost	23.15 (0.33)	23.15 (0.29)	23.15 (0.31)
ii	Loading/ unloading	27.72 (0.39)	27.72 (0.34)	27.72 (0.37)
iii	Transport cost	-	7.40	7.40

			(0.09)	(0.10)
	Sub total	50.87 (0.72)	58.27 (0.72)	58.27 (0.77)
B	Net price received by farmer	4083.13 (57.61)	4002.80 (49.48)	4022.81 (53.00)
2	**Village Trader**			
	Price paid by village trader	4083.13 (57.61)	-	-
A	Marketing cost		-	-
I	Packing material cost	55.65 (0.79)	-	-
ii	Loading/ unloading	13.39 (0.19)	-	-
iii	Transport cost	55.65 (0.79)	-	-
	Sub total	124.69 (1.76)	-	-
B	Profit margin	79.27 (1.12)	-	-
C	Marketing Margin	203.96 (2.88)	-	-
	Price received by village trader	4287.10 (60.48)	-	-
3	**Wholesaler**			
	Price paid by wholesaler	-	4002.80 (49.48)	-
A	Marketing cost			
I	Labour charge	-	60.84 (0.75)	-
ii	Shop rent	-	601.40 (7.43)	-
iii	Loading/ unloading	-	6.43 (0.08)	-
iv	Losses	-	10.49 (0.13)	-
	Sub total	-	679.16 (8.40)	-
B	Profit margin	-	470.07 (5.81)	-
C	Marketing Margin	-	1149.23 (14.21)	-
	Price received by wholesaler	-	5152.03 (63.68)	-
4	**Processor**			
	Price paid by processor	4287.10 (60.48)	5152.03 (63.68)	4022.81 (53.00)
A	Marketing cost			

I	Cost of processing	445.17 (6.28)	445.17 (5.50)	445.17 (5.87)
ii	Labour charge	27.42 (0.39)	27.42 (0.34)	27.42 (0.36)
iii	Packing material cost	103.35 (1.46)	103.35 (1.28)	103.35 (1.36)
iv	Loading/ unloading	6.88 (0.10)	6.88 (0.09)	6.88 (0.09)
V	Transport cost	10.00 (0.14)	10.00 (0.12)	10.00 (0.13)
	Sub total	592.82 (8.36)	592.82 (7.33)	592.82 (7.81)
B	Profit margin	2208.15 (31.15)	2345.15 (28.99)	2974.37 (39.19)
	Castor cake	1000.00 (14.11)	2000.00 (24.72)	1500.00 (19.76)
C	Marketing Margin	3800.97 (53.62)	4937.97 (61.04)	5067.19 (66.76)
	Price paid by processor	7088.07 (100.00)	8090.00 (100.00)	7590.00 (100.00)
	Price Spread	3004.94	4067.19	3567.19
	Marketing Efficiency	1.01	0.57	0.92

Figures in parentheses indicate percentage to total

Constraints faced by sample farmers

Production constraints faced by sample farmers: The production of castor presented a number of challenges for the farmers in the research region. Therefore, it was determined to investigate the primary obstacles to Castor production within the research region. Table 3 presents the results of applying Garrett's ranking technique to the five restrictions that the sample Castor producers mentioned.

According to the producers, the main issue is the high frequency of insect pests (67.40). Inadequate labor was the second largest barrier to castor production (58.67). The failure of the monsoon (42.33) was the next major issue. The fourth issue was the high price of plant protection chemicals and fertilizers (41.80). High labor costs for water were the sixth major issue for the producers of castor (39.80).

Table 3. Constraints faced by Castor production by sample farmers

S. No.	Nature of Constraints	Mean Score	Rank
1	Inadequate of labour supply	58.67	II
2	High cost of inputs	41.80	IV

3	High incidence of insect- pests	67.40	I
4	Monsoon failure	42.33	III
5	High labour cost	39.80	V

Marketing constraints faced by sample farmers: The study area's castor growers had to deal with marketing challenges. Table 4 presents the results of rating the five main marketing limitations using Garrett's ranking technique.

The growers of Castor determined that inadequate storage facilities were the biggest obstacle (65.07). According to the sample farmers, the second biggest obstacle was a lack of finance facilities (62.27). The next significant barrier facing Castor growers was the high cost of labor (54.87). The main marketing-related challenges identified by the Castor growers were low demand (35.80) and a lack of market knowledge (32.80).

Table 4. Constraints faced by Castor marketing by sample farmers

S. No.	Constraints	Score	Rank
1	Insufficient storage facility	65.07	I
2	Lack of credit facility	62.27	II
3	High cost of labour	54.87	III
4	Lack of market information	32.80	V
5	Limited demand	35.80	IV

Conclusions

Based on the findings of the current study, Castor producers typically sold their harvest either to local village merchants or to wholesalers and processors. While larger-scale farmers tended to sell directly to these larger entities, the majority of farmers in the area opted to sell their Castor produce to local traders.The research identified three distinct marketing channels within the study area. Approximately 40% of farmers utilized channel I, 38.67% utilized channel II, and 21.33% utilized channel III for selling their goods.

The price spread for channels I, II, and III was Rs. 3004.94, Rs. 4067.19, and Rs. 3567, respectively, with Channel II commanding the highest price spread and Channel I the lowest.The percentage of the consumer rupee that ultimately reached the farmer was highest in channel I at 57.61%, followed by channel III at 53.00%, and channel II at 49.48%.Applying Shepherd's approach, channel I demonstrated the highest marketing efficiency index at 1.01, with channel III following at 0.92 and channel II at 0.57.

Policy implications

- The marketing efficiency of agricultural commodities like castor may not always increase with value addition. Before making changes to the marketing system, the benefits should be carefully considered to ensure they reach the farmer or customer.
- The Commission on Cost and Price can help address low prices by setting a minimum support price for castor raw materials and oil early on.
- Dealing with insect pests is crucial, and farmers should be given access to resistant cultivars and pest management methods. Weather-based crop insurance could protect against production risks.
- The lack of infrastructure is holding back the castor industry, and improvements are needed for processing, value addition, grading, packaging, storage, and market infrastructure. Encouraging farmers to add value to castor could be a profitable option.

References

1. Senthilkumar, M., Deivamani, M., Venkatachalam, S. R., & Vijaykumar, M (2019) Journal of Innovative Agriculture.
2. https://agricoop.nic.in/ accessed on 27.01.2023
3. Kalpana. M, Sivasankari. B, Vasanthi R, Pangayar Selvi. R and Gitanjali. J (2023) Agriculture Association of Textile Chemical and Critical Reviews Journal 01-04
4. Murugan, P., & Akila, N. (2020). Performance of high yielding castor hybrids as pure crop suitable for Namakkal district of Tamil Nadu. *Journal of Krishi Vigyan*, *8*(2), 332-335.
5. V. Shanjeevika et. al., (2022) Evaluation of Constraints Encountered by Banana Growers in Adopting Water Management Practices using Henry Garrett Ranking Technique, international Journal of Environment and Climate Change 12(11): 1965-1971, Article no.IJECC.91245 ISSN: 2581-8627
6. K. Kalidas et al., (2021) Price Spread and Farmers Share in Consumer Rupee of Coconut Value Chains in Coimbatore District—A Systematic Analysis, Frontiers in Crop

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7. Kumar, R. M., &Boraiah, B. (2021) Performance of Elite Castor (Ricinus Communis L.) Hybrids and Varieties Under Rainfed Alfisols: Performance of Elite Castor Hybrids and Varieties Under Rainfed Alfisols. *Journal of Oilseeds Research*, *38*(1).
8. Sathya, K. N., Palanichamy, N. V., Rohini, A., & Selvi, R. P. (2022). An economic analysis on production of betel vine in Thanjavur district of Tamil Nadu. *Asian Journal of Agricultural Extension, Economics & Sociology*, *40*(10), 703-709.
9. Landoni, M., Bertagnon, G., Ghidoli, M., Cassani, E., Adani, F., & Pilu, R. (2023). Opportunities and challenges of castor bean (Ricinus communis L.) genetic improvement. *Agronomy*, *13*(8), 2076.
10. Acharya SS, Agarwal NL. (1994) Agricultural marketing in India. New Delhi: Oxford and IBH Publishing Company;302–312.