Original Research Article

An Economic analysis of marketing of maize and constraints faced by the maize growers in production and marketing in Ariyalur district of Tamil Nadu in India

Abstract

The present study was conducted in Ariyalur district of Tamil Nadu. Totally 100 respondents were randomly selected and interviewed from the district. The data was gathered in the form ofpre-structured interview schedule. The study shows that different marketing channels with their marketing efficiency and major constraints faced by the maize growers in production and marketing of maize in the district. Totally three channels are shown in the study channel I(producer-wholesaler-feed mills) with marketing efficiency 10.15, channel II (producer-commission agent-wholesaler-feed mills) with marketing efficiency 6.72 and channel III(producer-wholesaler-retailer-consumer) with marketing efficiency 3.84. For production the major constraints were eccentric rainfall, high input cost required for cultivation, high wage rate for labours, drastic pest occurrence and birds that eats the crop in budding stage, especially peacocks. From the above constraints, disturbance of birds was a major constraint. While discussing about marketing constraints, price fluctuation, distant market location, commission for middlemen, lack of timely credits and high transport cost. From the above marketing constraints, price fluctuation was a major constraint.

Key words: marketing of maize, producer's share in consumer rupee, major constraints

Introduction

Maize, often known as "queen of cereals", is a member of the *Graminae* family and is a native to Southern Mexico. Globally it was also called as corn. Major wheat growing states in India are Tamil Nadu, Karnataka, Bihar, Telangana, Maharashtra and Andhra Pradhesh. Maize production in India is estimated as 28.64 million tons in 2019-2020. India exported 3,690,469.12 million tons to the world for worth of Rs.7615.46 crores in 2021-2022. Major exports destinations in 2021-2022 are Bangladesh, Vietnam, Nepal, Malaysia, Myanmar and Sri Lanka.(**source: Agricultural and processed food products export development authority- APEDA)**

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Maize may be one of the oldest human domesticated plants. It origins are believed to date back to at least 10000 years ago when it was grown in the form of wild grass called *teosinte* in central Mexico. United states were the world's largest producer, consumer and exporter of maize (**Basavaraju H N*et al.*2020**).

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Maize in India contributes nearly 9% in the national food basket and more than Rs.100 billion to the agricultural GDP at current prices apart from generating employment to over 100 million

mandays at the farm and downstream agricultural and industrial sectors. Maize is globally a top ranking cereal not only in productivity but also as a human food, animal feed and as a source of large number of industrial products (**Jana Bahadur rana et al. 2018**)

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2. Research methodology

Random sampling method has been adopted to obtain responses from the respective respondents.The study was conducted in Ariyalur district, which is purposively selected because it serves a great deal of convenience to the researcher in terms of accessibility, familiarity with area, time money and effort.There are 6 blocks in the district and Thirumanur block has been selected purposively according to area of production. In this block four villages has been selected namely Melapalur, Melavannam, Angiyanur and Venganur. The marketing channels were followed from producer to consumer to know the marketing efficiency of the channel.

3. Analytical tools

a) marketing cost: The price of transporting the goods from the point of production to the point of consumption i.e., the expense incurred by numerous agencies doing the various marketing activities. An important component in affecting the profitability of maize growers and middlemen is called marketing cost.

$$C = Cf + Cm1 + Cm2 + \ldots + Cmn$$

Where, **C**= Total cost of marketing, **Cf** = Cost paid by the producer from the time the produce leaves till he sells it., **Cmn** = Cost incurred by the i^{th} middlemen in the process of buying and selling the products.

b) marketing efficiency: Marketing efficiency is a measure of market performance. The movement of goods from producers to the ultimate consumers at the lowest possible cost consistent with the provision of service desired by the consumers is termed as efficient marketing.

Shepherd's Formula: Shepherd (1965) suggested that the ratio of total value of goods marketed to the marketing cost could be used as a measure of marketing efficiency. The higher the ratio, higher would be the efficiency and vice versa. This can be expressed in the following form:

$$ME = \frac{V}{I} - 1$$

Where**, ME** = Index of marketing efficiency**V** = Value of goods sold, **I** = Total marketing cost

C) Price spread analysis

i) Sum-of-Average Gross Margin Method : The average gross margins of all the intermediaries were added to obtain the total marketing margin as well as the breakup of the consumer's rupee.

$$MT = \sum_{i=1}^{n} \frac{S_i - P_i}{Q_i}$$

Where, **MT** = Total Marketing Margin**S_i** = Sale value of a product for i^{th} intermediary, P_i = Purchase value paid by the i^{th} intermediary, **Q_i**= Quantity of the product handled by the i^{th} intermediary, **i** = 1, 2, 3 … N (Number of intermediaries involved in the marketing channel)

ii) Farmers' share in consumers' rupee: Further, the farmer's share in consumer rupee was calculated with the help of the following formula

$$F_s = \frac{F_p}{C_p} \times 100$$

Where,F_s = Farmers' share in consumer's rupee (percentage). F_p = Farmers' price, C_p = Consumers' price

Garrett's Ranking Technique: In the Garrett's scoring technique, the respondents were asked to rank the factors or problems and these ranks were converted into percent position by using the formula,

$$\text{Percent position} = \frac{R_{ij} - 0.5}{N_j} \times 100$$

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.

4. Result and discussion

Marketing of Maize

Marketing channels

Channel 1- Producer (farmer)-wholesaler-feed mills
Channel 2- Producer (farmer) - Commission Agent- wholesaler- Feed Mills
Channel 3 - producer (farmer) –Wholesaler- Retailer - Consumer

Three marketing channels were identified in the district. The first channel comprised of Farmer, Regulated market, wholesaler and feed mills. The second channel includes farmers, commission agent, wholesaler and feed mills. The last channel identified was farmer, wholesaler, retailer and consumer.

Table 1Channel 1 (producer-wholesaler-feed industries) (Rs/quintal)

S.No	Particulars	Channel I
1.	**Farmer**	
	Net price received	2000 (90.57)
2.	**Wholesaler**	
	Purchase price	2000 (90.57)
	Commission	-

	Loading and unloading	30.00 (1.35)
	Transport cost	90.00 (4.07)
	Packaging material and packaging cost	38.00 (1.72)
	Marketing margin	40.00 (1.81)
	Marketing cost	158 (7.15)
	Sale price	2208.00 (100.00)
3	**Feed mills/Consumer**	
	Purchase price/ consumer's price (Rs.)	2208.00
	Total Marketing cost	**158**
	Price spread	**198**
	Marketing efficiency	**10.15**
	Farmers' share in consumers' rupees (per cent)	**90.57**

(figures in parenthesis indicates percent to total)

From the table 1, 10.15 was the marketing efficiency of channel 1 which was high, due to less involvement of intermediaries.the price sprerad was 198 and total marketing cost were 158 and the producer's share in consumer rupee were 90.57 (in percent).

Table 2Channel 2 (producer-commission agent-wholesaler-feed mills) (Rs/quintal)

S.No	Particulars	Channel II
1.	**Farmer**	
	Net price received	2000.00 (87.71)
2.	**Price incurred for Commission agent**	
	Purchase price	-
	Commission	15.00 (0.65)
	Transport cost	-
	Storage cost	-
	Marketing margin	-
	Marketing cost	15.00 (0.65)
	Sale price	2000 (87.71)

3.	**Price incurred for Wholesaler**	
	Purchase price	2000.00 (87.71)
	Commission	15.00 (0.65)
	Loading and unloading	30.00 (1.31)
	Transport cost	100.00 (4.38)
	Packaging material and packaging cost	35.00 (1.53)
	Marketing margin	100 (4.38)
	Marketing cost	180 (7.89)
	Sale price	2280.00 (100.00)
4.	**Feed mills/ Consumer**	
	Purchase price/ consumer's price (Rs.)	2280.00
	Total Marketing cost	**195**
	Price spread	**280**
	Marketing efficiency	**6.72**
	Farmers' share in consumers' rupees (per cent)	**87.71**

(figures in parenthesis indicates percent to total)

From the table 2, the marketing efficiency of channel 2 was 6.72 bit lower than channel 1, due to involvement of intermediaries. The total marketing cost in this channel were 195 and the price spread was 280. The producer's share in consumer rupee was 87.71 (in percent) here.

iii) Table 3Channel 3 (producer-wholesaler-retailer-consumer) (Rs/quintal)

S.No	Particulars	Channel III
1.	**Farmer**	
	Net price received	2000 (79.36)
2	**Cost incurred for wholesaler**	
	Purchase price	2000 (79.36)

	Commission	-
	Loading and unloading	30 (1.19)
	Transport cost	70 (2.77)
	Packaging material and packaging cost	40 (1.58)
	Marketing margin	120 (4.76)
	Marketing cost	140 (5.55)
	Sale price	2260.00 (89.68)
3	**Cost incurred for retailer**	
	Purchase price	2260.00 (89.68)
	Loading and unloading	30.00 (1.19)
	Transport cost	70.00 (2.77)
	Packaging material and packaging cost	40.00 (1.58)
	Marketing margin	120.00 (4.76)
	Marketing cost	140.00 (5.55)
	Sale price	2520.00 (100.00)
4	Purchase price/ consumer's price (Rs.)	2520.00*
	Total Marketing cost	**280**
	Price spread	**520**
	Marketing efficiency	**3.84**
	Farmers' share in consumers' rupees (per cent)	**79.36**

* Indicates Rs.2520/ qtl is calculated using consumer purchase price per kg (Figure in parenthesis indicates percentage to total)

The above table 3, the marketing efficiency of channel 3 is 3.84 which is much more less than channel 1 and 2 because of involvement of retailer in this channel. The price spread here was 520 and total marketing cost were 280 and producer's share in consumer rupee were 79.36 (in percent)

Constraints in production and marketing of maize

Table 4Production constraints faced by farmers

S.no	Particulars	Garette's score	Rank
1.	Erratic rainfall	36.6	V
2	High input cost	47.9	IV
3	High wage rate	48.2	III
4	Severe pest incidence	54	II
5	Birds (peacock)	63.6	I

From table 3, damages through birds ranks the top followed by severe pest incidence and high wage rate. The fourth major problem of irrigated farming system was high input cost and the fifth one is erratic rainfall. Here rainfall is listed as problem because if there is proper rainfall in the region number of irrigations and cost for irrigation will be reduced thereby reducing cost of cultivation.

Table 5Marketing constraints faced by farmers

S.no	Particulars	Score	Rank
1.	Price fluctuations	73.2	I
2	High transport cost	31.3	V
3	Lack of credits	33.9	IV
4	Distant market location	51.6	II
5	Commission for middlemen	46	III

From the above table 4, it is revealed in case of rainfed conditions, price fluctuation is the major constraint with the score of 73.2 and followed by distant market location with the score of 51.6 then followed by commission for middlemen with the score of 46 and ranks third. And lack of credits ranks fourth with the score 33.9 followed by high transport cost ranks fifth with the score of 31.3.

5. Conclusion

The farmers share in consumer rupees was found to be 90.57 per cent in channel I, 90.40 per cent in channel II,87.71 per cent in channel III and 79.36 percent in channel VI. The marketing cost of wholesaler was Rs.158 (7.15 per cent) and marketing margin was found Rs.40. In channel II,

net price received by farmers was 2000 which accounted 87.71 per cent. Marketing cost and margin of wholesaler was Rs.180 and Rs.100 respectively.In channel III, net price received by farmers was 2000 which accounted 79.36 percent. Marketing cost and margin of wholesaler was 140 and 120 respectively. Marketing cost and margin of retailer as same as wholesaler.It was observed among the three types of marketing channels in study area, the marketing channel I (Farmers – Wholesaler – Feed industries) exhibits high marketing efficiency (10.15) and Channel II (Farmers –commission agent – wholesaler – Consumer) with ME 6.72 and channel III (farmer-wholesaler-retailer-consumer) with ME 3.84. from the above discussion, involvement of more intermediaries which increases price spread. Similar findings were also reported by **(Abinaya R. 2018)**

In production constraints, damages caused by birds were the major problem followed by high wage rate in production of maize.In marketing of maize price fluctuation was the major constraint in marketing similar findings also reported by **(Minithra R, 2019).**

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