



International Journal of Research in Agronomy

E-ISSN: 2618-0618
P-ISSN: 2618-060X
© Agronomy
NAAS Rating (2026): 5.20
www.agronomyjournals.com
2026; SP-9(5): 407-412
Received: 03-03-2026
Accepted: 15-04-2026

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An economic analysis of maize marketing in Warangal District, Telangana

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DOI: <https://www.doi.org/10.33545/2618060X.2026.v9.i5Se.5600>

Abstract

The present study entitled was undertaken to analyse the marketing aspects of maize and to examine the socio-economic characteristics of maize growers in the study area. The study reveals that the distribution of maize growers in the study area is heavily skewed towards small landholders. A majority of the respondents (75 percent) were marginal farmers, followed by small farmers (13 percent), medium farmers (8 percent), and only a small proportion of large farmers (4 percent). This indicates that maize cultivation in the area is predominantly practiced by farmers with limited land resources. The analysis of disposal patterns, marketing costs, marketing margins, price spreads, and marketing efficiency across different marketing channels reveals significant variation. Marketing efficiency under Channel I (Producer–Consumer) was found to be the highest at 3.78, followed by Channel II (Producer–Retailer–Consumer) with an efficiency of 1.99, while Channel III (Producer–Wholesaler–Retailer–Consumer) recorded the lowest efficiency at 1.34. Although the total marketing price was highest in Channel III, farmers received the maximum net price in Channel I, indicating that shorter or more efficient channels result in better returns to producers. Additionally, the study identified high labour costs (15.13%) and frequent price fluctuations (12.28%) as the primary constraints hindering maize production and marketing, respectively.

Keywords: Maize marketing, marketing efficiency, price spread, producer share, marketable surplus, Telangana

Introduction

Maize is a versatile food cereal crop that can be grown in diverse seasons and ecological conditions. Besides this, maize has many types such as normal yellow and white grain maize, sweet corn, baby corn, popcorn, waxy corn, high amylase corn, high oil corn, and quality protein maize. Apart from this, maize is an important industrial raw material and provides significant opportunities for value addition.

In India, maize is the third most important cereal crop after rice and wheat. It is cultivated in both kharif and rabi seasons, with a major share under rainfed conditions. Maize contributes significantly to the national food basket and plays an important role in employment generation and industrial development. It is widely used for feed, food, and industrial purposes such as starch and ethanol production, making it an important commercial crop in the country.

In Telangana, maize is one of the major crops grown due to favourable agro-climatic conditions and increasing demand from poultry and feed industries. The crop is predominantly cultivated during the kharif season, although rabi cultivation is also practiced in some irrigated areas. Farmers in Telangana are increasingly adopting improved varieties and modern cultivation practices, which have contributed to higher productivity levels compared to the national average in certain regions.

Warangal district is one of the prominent maize-growing regions in Telangana. The district has suitable soil and climatic conditions that support maize cultivation, making it an important crop for farmers' livelihood. Maize cultivation in Warangal plays a significant role in income generation, employment, and agricultural development. However, despite its importance, farmers face several challenges related to production and marketing, including price fluctuations, high input costs, lack of storage facilities, and inefficient marketing systems. Therefore, a detailed study on the marketing of maize in Warangal district is essential to

understand the existing marketing channels, cost structures, and constraints faced by farmers. Such an analysis will help in identifying suitable measures to improve marketing efficiency, enhance farmers' income, and strengthen the overall maize value chain in the region.

Objectives of the study

1. To identify and analyse the existing marketing channels used for maize in the study area.
2. To calculate the marketing cost, marketing efficiency, marketing margin, price spread, producer's share in consumer's rupee of maize in study area.

Research Methodology

Telangana consists of several districts, among which Warangal district was purposively selected for the present study due to its prominence in maize cultivation, favourable agroclimatic conditions, and active participation of farmers in agricultural marketing. The study was conducted in selected villages and markets of Warangal district to analyse the production and

marketing aspects of maize. Out of 13 Mandals, Duggondi mandal was purposively selected for the present study based on the highest area under maize cultivation and the maximum number of maize-growing farmers. A complete list of villages growing maize in the selected mandal was prepared with the help of the Mandal Agriculture Officer. From this list, four villages were randomly selected from the selected mandal for the present study to ensure unbiased representation. The villages selected were Muddunoor, Duggondi, Mallampalle and Venkatapur. A Total number of farmers selected was 100.

Primary and secondary markets near the selected villages were purposively selected for the study. Warangal market was considered as the primary market, while Narsampet market was taken as the secondary market. These markets were commonly used by maize farmers and were suitable for analysing marketing channels, costs, and margins. From the total number of market functionaries in the selected markets, 10 percent were selected randomly from each selected market for the present study.

Table 1: Selection of Market Functionaries

Sl. No.	Market	Type of Functionary	Total Functionaries	Selected Sample
1.	Warangal (Primary Market)	Retailer/Middleman	34	04
		Wholesaler	126	15
2.	Narsampet (Secondary Market)	Retailer/Middleman	183	21
		Wholesaler	65	07
	Total		408	47

Primary data were collected through the survey method. Personal interviews were conducted with the selected maize growers and market functionaries using a pre-tested structured schedule. Information related to production, disposal pattern, marketing channels, costs, margins, price spread, and constraints was collected. Secondary data were collected from various sources such as District Agriculture Office, Department of Agriculture, Telangana and published reports, journals, and records related to maize production and marketing.

Analytical tools and techniques employed

Marketing cost

The total cost, incurred on marketing either in cash or in kind by the producer seller and by the Various intermediaries involved in the sale and purchase of the commodity reaches the ultimate consumer.

$$C = CF + CM1 + CM2 + CM3 + \dots + CMN$$

Where, C = Total cost of marketing of commodity

CF = Cost paid by the producer from the time of produce leave farm till he sale it

CMI = Cost incurred by the ith middleman in the process of buying and selling the product.

Marketable Surplus

$$MS = P - C$$

Where

MS = Marketable surplus

P = Total production

C = Total requirements (family consumption, farm needs, payment to labour, artisans, landlord and payment for social and religious work)

Producer Share in Consumer Rupee

It is the price received by the farmer expressed as a percentage of the retail price (i.e., price paid by the consumer)

$$PS = (PF \div PR) \times 100$$

Where,

PF = Price received by the farmer

PR = Retail price (consumer price)

Price Spread (PS)

It is the difference between the two prices, i.e., the price paid by the consumer and the price received by the producer.

$$PS = P1 - P2$$

Where,

P1 = Price at one level or stage in the market.

P2 = Price at another level.

Marketing Margin of Middlemen:

(a) Absolute margin

$$= P_{Ri} (P_{Pi} + C_{mi})$$

(a) Percentage margin of i^{th} middlemen

$$\frac{P_{Ri} - (P_{Pi} + C_{mi})}{P_{Ri}} \times 100$$

Where,

P_{Ri} = Total value of receipts per unit (sale price)

P_{Pi} = Purchase value of goods per unit (purchase price)

C_{mi} = Cost incurred on marketing per unit.

The margin includes profit to the middlemen and returns to storage, interest on capital, overheads and establishment expenditure.

Marketing Efficiency

It was calculated using Acharya's Modified Marketing efficiency formula as follows-

$$MME = \frac{FP}{MC + MM}$$

Where,

MME is modified measure of marketing efficiency

FP = Price received by farmers

MC = Marketing cost

MM = Marketing margin

Results and Discussion

In the study area mainly three marketing channels were identified which are as follows:

Channel-I: Producer – Consumer

Channel-II: Producer- Retailer -Consumer

Channel-III: Producer –Wholesaler -Retailer -Consumer.

Table 2: Disposal pattern of maize crop in different farm size groups

Sl. No.	Particulars	Farm size groups				Sample average
		Marginal	Small	Medium	Large	
1.	Area under maize cultivation in hectares	10	12	14	16	13
2.	Total production of maize in quintals per farm level	900	1104	1316	1520	1210
3.	Retain of maize (qtls)					
	Home consumption	6	7	8	9	7.5
	Kind payment as wages	4	5	6	7	4.75
	Relatives and religious person	5	7	8	10	7.5
	Retain for next year	10	12	14	18	13.5
4.	Total retention of maize	25	31	36	44	34
5.	Marketable surplus	875	1073	1280	1476	1176

Note: figure in parenthesis indicate percentage to the total.

Table 2 shows disposal pattern of maize among different farm size groups. The table reveals that total production of maize in marginal, small, medium and large size farms were 900, 1104, 1316 and 1520 quintals respectively. Sample average of total production among different farm groups was 1210 quintals. Total retention of maize was lowest in marginal size farms i.e.,

25 qtl followed by medium i.e., 31 qtl, small i.e., 36 qtl and lowest in large size farms i.e., 44 qtl that makes a sample average of 34 qtl. Marketable surplus was highest in large size farms i.e., 1476 qtl, followed by medium i.e., 1280 qtl, small i.e., 1073 qtl and lowest in marginal size farms i.e., 875 qtl that makes a sample average of 1176 qtl.

Table 3: Disposal pattern of marketable surplus in different channels of marketing in different farm size groups

Sl. No.	Particulars	Different farm size groups				Sample average
		Marginal	Small	Medium	Large	
1.	Actual marketable surplus	875	1073	1280	1476	1176
2.	Disposal of actual marketed surplus of maize in different marketing channels					
I	Producer - Consumer	210	280	310	370	292.5
II	Producer - Retailers -Consumers	310	350	420	510	397.5
III	Producer – Commission agents / wholesaler – Retailers – Consumers	355	443	550	596	486

Note: figures in parenthesis indicate percentage to the total

Table 3 shows that the disposal pattern of marketable surplus in different channels of marketing in different farm size groups and detailed explanation is shown in table 4.16. Marketable surplus was highest in large size farms i.e., 1476 qtl, followed by medium i.e., 1280 qtl, small i.e., 1073 qtl and lowest in marginal size farms i.e., 875 qtl that makes a sample average of 1176 qtl. Disposal pattern of actual marketable surplus of maize can be

seen in three different channels i.e., channel I, channel II and channel III. Sample average of disposal of actual marketed surplus through channel III was highest i.e., 486 quintals followed by channel I i.e., 292.5 quintals.

Marketing cost, Marketing margin and Price spread for maize crop per quintal

Table 4: Channel I: Producer –Consumer

SL. No.	Particulars	Rs/ Quintal
1.	Producer sale Price to Consumer	2080
2.	Cost incurred by the Producer	
I	Transportation Cost	300
ii	Gunny bags	100
iii	Loading and unloading Cost	50
iv	Weighing cost	50
v	Miscellaneous charges	50
vi	Total Cost incurred by Producer	550
3.	Net Price Received by Producer	1530
4.	Price Spread	550
5.	Consumer's Paid Price	2080
6.	Producer's Share in Consumer Rupees (%)	73.6
7.	Marketing Efficiency (%)	3.78

(Note: Figures in Parenthesis indicates percentage to the total consumer Price)

Table 4 reveals the marketing cost when producers sold their product directly to consumers in the local market which was Rs 2080/ quintal. Among this cost transportation was Rs 300/ quintal, Gunny bags Rs 100/ quintal, loading and unloading cost Rs 50/ quintal, weighing charges Rs 50/ quintal and Miscellaneous charges was Rs 50/ quintal respectively. The Producer net share was 73.6 per cent in consumer's Price the

price spread was Rs 550/ quintal, Marketing Efficiency was worked out to know the efficiency of different Channels. Marketing efficiency for Channel 1 was 2.78 Per cent.

Marketing cost, Marketing margin and Price spread for maize crop per quintal

Table 5: Channel II = Producer – Retailer– Consumer

SL. No.	Particulars	Rs/ quintal
1.	Producer sale price to Retailer	2080
2.	Cost incurred by the Producer	
I.	Transportation Cost	300
II.	Gunny Bags	100
III.	Loading and Unloading charges	50
IV.	Weighing Charges	50
V.	Miscellaneous Charges	50
VI.	Total Cost incurred by Producer	550
3.	Net Price received by Producer	1530
4.	Sale Price of producer to retailer	2080
5.	Cost incurred by retailer	
I.	Transportation Cost	300
II.	Loading and unloading charges	50
III.	Market Fee	50
IV.	Weighing Charges	50
V.	Losses and Miscellaneous Charges	50
VI.	Gunny bags	100
VII.	Total Cost incurred by retailer	600
6.	Net amount Paid by retailer	2680
7.	Sale Price of retailer to Consumers	3080
8.	retailer's Margin	400
9.	Price Spread	1550
10.	Consumer's Paid Price	3080
11.	Producer's Share in Consumer's Rupee (%)	67.53
12.	Marketing Efficiency (in%)	1.99

Note: Figure in the Parenthesis indicates percentage to the total consumer Price

Table 5 shows that Marketing cost, marketing margin, and Price spread for Channel II. One intermediary were identified through which maize reaches to the consumers i.e. retailer, who in turn sell it to consumer in the market. Finally, the produce reaches the consumers after collecting margin. Marketing cost when producers sold their produce to retailer in the market was Rs 2080/ quintal, among these Cost of transportation was Rs 300/quintal, loading and unloading cost Rs 50/quintal, Gunny bags Rs 100/quintal, weighing charges Rs 50/quintal, and

miscellaneous charges Rs 50/quintal respectively. Sale price of the producer to retailer was Rs 2080/quintal. Producers share in consumer price, Price spread, and Marketing Efficiency was 67.53 Per cent, 1550 and 0.99 per cent respectively, in different size of farms group.

Marketing cost, Marketing margin and Price spread for maize crop per quintal

Table 6: Channel III = Producer – Wholesaler – Retailer – Consumer

SL No.	Particulars	Rs/ quintal
1.	Producer sale price to Wholesaler	2080
2.	Cost incurred by the Producer	
I.	Transportation Cost	300
II.	Gunny Bags	100
III.	Loading and Unloading charges	50
IV.	Weighing Charges	50
V.	Miscellaneous Charges	50
VI.	Total Cost incurred by Producer	550
3.	Net Price received by Producer	1530
4.	Sale Price of producer to Wholesaler	2080
5.	Cost incurred by Wholesaler	
I.	Transportation Cost	300
II.	Loading and unloading charges	50
III.	Market Fee	50
IV.	Weighing Charges	50
V.	Losses and Miscellaneous Charges	50
VI.	Gunny bags	100

VII.	Total Cost incurred by Wholesaler	600
6.	Net amount Paid by Wholesaler	2680
7.	Sale Price of Wholesalers to Retailers	3080
8.	Wholesaler's Margin	400
9.	Cost incurred by the Retailers	
I.	Transportation Cost	300
II.	Weighing Charges	50
III.	Gunny bags	100
IV.	Miscellaneous Charges	50
V.	Town Charges	40
VI.	Carriage up to Shop	20
VII.	Loading and Unloading charges	30
VIII.	Total Cost incurred by Retailer	590
10.	Net amount paid by Retailer	3670
11.	Sale Price of Retailers to Consumers	4270
12.	Retailer's Margin	600
13.	Price Spread	2740
14.	Consumer's Paid Price	4270
15.	Producer's Share in Consumer's Rupee (%)	56.7
16.	Marketing Efficiency (in%)	1.34

Note: Figure in the Parenthesis indicates percentage to the total consumer Price

Table 6 shows marketing costs, marketing margin and price spread in maize crop per quintal in disposal through channel III that included producer – wholesaler– retailer – consumer. Sale price of producer to commission agent/wholesaler was identified as RS 2080/ql. Total cost incurred by producer are shown in table 4.17 and accounted for RS 550/ql. Net price received by producer was RS 1530/ql.

Wholesaler/commission agent margin was identified as RS 400/ql and total costs incurred by wholesaler/commission agent was shown in table 4.17 and accounted for RS 1000/ql. Sale price of wholesaler/commission agent to retailer was RS 2680/ql.

Retailer margin was identified as RS 600/ql and total costs incurred by retailer are shown in table 4.17 and accounted for RS 590/ql. The sale price of retailers to consumers (consumer purchase price) was RS 4270/ql.

Price spread in channel III was identified as RS 2740/ql. Marketing efficiency was identified as 1.34.

Marketing efficiency was high for disposal through channel I compared to channel II and channel III. So, most growers are willing to dispose their produce through channel I.

Conclusion

In India, maize ranks as the third most important food crop after rice and wheat. As per available data (2024-2025), maize is cultivated on 8.6 million hectares, with nearly 80 percent of the area under the Kharif season. The total production stands at 21.7 million tonnes, with an average productivity of 2.5 tonnes per hectare. Despite being largely, a rainfed crop, maize productivity in India is relatively higher than that of rice, which is mostly grown under irrigated conditions. Maize contributes about 9 percent to the national food basket and adds more than ₹400 billion to the agricultural GDP at current prices. Furthermore, maize cultivation and its allied activities generate employment for over 1,000 million man-days, highlighting its socio-economic importance.

The utilization pattern of maize in India reveals its growing industrial significance. Nearly 60 percent of maize production is used for animal feed, 24 percent for human consumption, and 14 percent for industrial purposes such as starch, while beverages and seed account for about 1 percent each. Overall, nearly 75 percent of maize production is utilized by the feed and starch industries, emphasizing its role as an industrial crop. Although

maize is predominantly cultivated under rainfed conditions, focused research efforts, especially on the development and adoption of single-cross hybrids, have opened new avenues for enhancing productivity.

In conclusion, maize occupies a vital position in global and Indian agriculture due to its high yield potential, diverse uses, and industrial relevance. However, the significant gap between global and Indian maize productivity highlights the need for improved technologies, better input management, expansion of hybrid seed adoption, and efficient production and marketing systems. Strengthening research, extension services, and infrastructure related to maize production and marketing will not only enhance productivity and profitability but also contribute substantially to food security, employment generation, and overall agricultural growth in the country.

The distribution of sample farmers across farm size groups showed that 30 farmers were marginal, 27 small, 20 medium, and 23 large farmers, indicating a reasonable representation of all farm categories in the study area.

When maize was sold directly by producers to consumers (Channel I), the marketing cost was ₹2,080 per quintal, which included transportation (₹300), gunny bags (₹100), loading and unloading (₹50), weighing charges (₹50), and miscellaneous expenses (₹50). The producer's share in the consumer's price was 73.6 per cent, with a price spread of ₹550 per quintal and marketing efficiency of 3.78. In Channel II, the producer's share in consumer price declined to 67.53 per cent, the price spread increased to ₹1,550 per quintal, and marketing efficiency reduced to 1.99.

In Channel III, the price spread was the highest at ₹2,740 per quintal, while marketing efficiency was the lowest at 1.34, indicating higher involvement of intermediaries and increased marketing costs.

Overall, marketing efficiency was highest in Channel I, followed by Channel II and Channel III. Consequently, most maize growers preferred Channel I for disposal of their produce due to higher producer share and better marketing efficiency.

Hence, the study revealed that greater involvement of middlemen in marketing Channels II and III led to higher marketing costs and wider price spread, which in turn reduced marketing efficiency and producer's share in the consumer's price. In contrast, marketing channels with fewer intermediaries enabled farmers to receive a higher share of the consumer's

rupee due to lower marketing expenses and reduced margins captured by intermediaries.

Overall, the study concludes that improving marketing efficiency in maize requires minimizing unnecessary intermediaries, strengthening direct or short marketing channels, and enhancing farmers' access to markets. Such measures would help increase producer share, reduce price spread, and improve farm income, particularly for small and marginal maize growers in Warangal district.

Suggestions for policy implications

Enhance Market Intelligence: Farmers should be encouraged and trained to develop a better understanding of market structure, price behavior, and demand trends. Improved market intelligence and awareness will help farmers forecast future prices, choose appropriate marketing channels, and reduce the impact of price fluctuations.

Expand Crop Insurance: Crop insurance coverage for maize should be strengthened and expanded to ensure farmers are protected against production risks arising from climatic variability, pest attacks, and market uncertainties.

Promote Cooperative Marketing: To mitigate the impact of frequent price fluctuations and high commission charges—identified as primary marketing constraints—the establishment and strengthening of cooperative marketing societies at the village level should be prioritized. This will enhance farmers' collective bargaining power, reduce dependency on intermediaries, and provide better access to direct marketing channels.

References

1. Acharya SP, *et al.* Growth in area, production and productivity of major crops in Karnataka. *Karnataka Journal of Agricultural Sciences*. 2012;25(4):431-436.
2. Banchhor SK, Kumar D. An economic analysis of production and marketing of maize in Durg district of Chhattisgarh. *Journal of Pharmacognosy and Phytochemistry*. 2017;6(5):1291-1293.
3. Dangore *et al.* Constraints faced by maize growers in production and marketing in Maharashtra. *Agriculture Update*. 2015;10(3):252-254.
4. Jagtap PP, *et al.* Resource use efficiency and economics of maize marketing. *Journal of Agriculture Crops*. 2014;23(1):32-37.
5. Jorwar *et al.* Economics of production and marketing of maize in Amravati district. *Journal of Pharmacognosy and Phytochemistry*. 2018;7(2):310-316.
6. Olayiwola *et al.* Economic analysis of maize production in Oyo State. *Journal of Research in Management and Technology*. 2014;3:47-53.
7. Sowjanya S, Kumari RV. Constraints in adoption of integrated crop management in maize. *International Journal of Pure and Applied Bioscience*. 2017;5(4):1135-1140.
8. Srikala *et al.* Cost of cultivation and price spread of maize in Andhra Pradesh. *International Journal of Agriculture, Environment and Biotechnology*. 2016;9(2):299-303.
9. Tirapur LN, Mundinamani SM. Economics of crop production in Dharwad district. *Karnataka Journal of Agricultural Sciences*. 2014;27(2):165-169.
10. Uma *et al.* Resource use efficiency in maize production. *International Journal of Farm Sciences*. 2019;9(3):72-76.
11. Velayutham *et al.* Growth rate of maize production in Andhra Pradesh. *International Journal of Research in Humanities and Social Studies*. 2015;2(11):1-5.
12. Inbathamizhan M, Tiwari M, Kumar S. 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. *Journal of Experimental Agriculture International*. 2023;45(7):165-171. doi:10.9734/jeai/2023/v45i72145.
13. Maheshnath M, Kumari RV, Suhasini K, Reddy DS, Meena A. Trends in area, production, productivity and market prices of maize in Telangana state. *Agronomy Journal*. 2024;7(9):256-260.
14. Parimalarangan R, Kiruthika N, Senthil Nathan S, Gurunathan S, Elenchezian T, Rajendran T, *et al.* An economic analysis on production and marketing of maize in Perambalur district of Tamil Nadu, India. *Journal of Scientific Research and Reports*. 2023;29(12):77-84. doi:10.9734/jsrr/2023/v29i121846.
15. Basavaraj *et al.* Economics of kharif maize in Udaipur district of Rajasthan. *Asian Journal of Agricultural Extension, Economics and Sociology*. 2022;40(6):1-7.