

An Economic Analysis of Marketing of Sorghum in Bundelkhand Region of Uttar Pradesh

ABSTRACT

The study focuses on the economics of marketing channels of sorghum in Bundelkhand region were estimated. The Banda district was intentionally chosen in Bundelkhand region due to the larger area under cultivation of sorghum and its higher productivity. The respondents were selected using a random sampling technique. Twenty market intermediaries and a sample of 120 farmer respondents were interviewed in two blocks of the district. The findings of study showed that Channel I had a higher producer's share in consumer rupees (96.21%), followed by Channel III (75.61%) and Channel II (70.15%). Channel I's marketing efficiency was 25.42, while Channel III's was 3.17 and Channel II's was 2.34. Due to direct acquisition of the commodity from the producer, Channel I is more efficient. Results revealed that the main issues farmers facing in the marketing of sorghum were a lack of information about the market and its unavailability. Channels involved in marketing were found to be inefficient as the involvement of middlemen were more.

Key words: Price spread, Marketing channels, constraints, and marketing efficiency

INTRODUCTION

One of the major dryland crops that rural communities in arid and semi-arid regions of the world support is sorghum. Sorghum bicolor L. is the term given to sorghum in science. It is also known as the "King of Millets" and goes by the name "jowar" in India. It is an extremely productive agricultural plant that can be used for a number of purposes, such as cereals, fodder, and livestock feed. In the world's food production hierarchy, sorghum ranks fifth, behind cereals such as rice, maize, barley, and wheat. It has several uses in food, paper, beverages, biogas, ethanol making industry. Under suitable ecological and managerial conditions, it might replace successfully its rival crops such as maize. A significant content of carbohydrates, fat and of protein are found in sorghum grain.

India witnessed a decline in the overall cultivated area of sorghum crop from 6.17 million hectares in 2014–2015 to 4.24 million hectares in 2020–2021. Moreover, throughout the last five years, or 2015–2021, production has decreased from 5.45 million tonnes to 4.78 million tonnes. However, the productivity increased from 8.84 quintals per hectare to 11.28 quintals per hectare throughout the same period, albeit with minor volatility.

OBJECTIVES

- i. To investigate and determine the price spread, marketing cost, and marketing efficiency of the channels involved in the marketing of sorghum.
- ii. To identify the constraints faced by farmers in production and marketing of sorghum in the region

Material and Methods

The Banda district in Uttar Pradesh's Bundelkhand region was purposively chosen on the basis of higher cultivated area and production. Two blocks, Baberu and Naraini, were chosen since they had the largest areas under sorghum cultivation and four villages were chosen from each block and fifteen respondents were chosen from each village to provide a sample of 120 farmers. Data from 20 market intermediaries was also gathered in order to examine the marketing channels.

Marketing Cost

The cost associated with transporting commodities from producers to consumers. The expenses incurred from the time the crop is harvested until it is in the hands of the final consumer typically make up the marketing cost. It covers the costs of handling, loading, unloading, storing, weighing, labour, market, and other expenses in addition to transportation and other costs.

$$C = C_{mf} + C_{m1} + C_{m2} + C_{m3} + \dots + C_{mi}$$

Where,

C = Entire cost of marketing Sorghum

C_{mf} = Cost paid by the producer from the time the product leaves the farm till it sells

C_{mi} = Cost incurred by the i^{th} middlemen in the process of buying and selling of product

Marketing efficiency

Marketing efficiency (Modified measures of index of marketing efficiency suggested by Acharya)

$$ME = NP_F / MC + MM$$

Where,

NP_F = Net price received by farmers

MC = Marketing cost

MM = Total market margin.

Market margin

This is the total profit that different market intermediaries make on a particular product after subtracting the expenses they incur in processing it.

Price Spread

It is the difference between the net price that final consumer pays and the producer gets paid for producing the same amount of goods. It is made up of marketing margins and costs.

$$\text{Price Spread} = T_c + T_m$$

Where,

T_c = Total marketing cost

T_m = Total market margin

Producer's Share: It shows the percentage share of producer in the price paid by the consumer.

$$P_s = P_f / P_c * 100$$

Where,

P_s = Producer's share in consumer's rupee

P_f = Price of the produce received by a farmer

P_c = Price of the produce paid by the final consumer

Marketing Channels

The organisation of all the people, businesses, assets, processes, and technological advancements involved in the creation and marketing of a product is known as a marketing channel.

In the research area, three marketing channels were discovered.

- i. Channel I: Producer-Consumer
- ii. Channel II :Producer -----Commission agents ----- Wholesaler ----- Retailer----- Consumer
- iii. Channel III: Producer ----- Retailer----- Consumer

Constraints

The issues that growers encountered when marketing sorghum were gathered. Following a conversation with the farmer respondents who were asked to rate the constraints Garret's Ranking Technique was utilised to determine the constraints.

For converting rank into per cent Garrett's formula was given:

$$\text{Per cent position} = 100 * (R_{ij} - 0.5) / N_j$$

Where,

R_{ij} = Rank given for I^{th} factor by J^{th} individual

N_j = Number of factors ranked by J^{th} individual

RESULTS AND DISCUSSION

In Banda district, the study was done on the economics and marketing aspects of Sorghum and identified three marketing channels. Among three different channels , Channel III handled large quantity of produce 41 per cent of 49 farmers followed by Channel I (32 per cent) 39 farmers the channel I involved direct sale of sorghum in the village, and Channel II (27 Per cent) 32 farmers respectively. A lack of knowledge or awareness of the market pricing may be the reason why the majority of farmers decide to sell their produce through Channel III.

Table 1. Distribution of Farmers/ Producers adopting different Marketing Channels

Marketing Channels	Farmer's Category				All Farms
	Marginal	Small	Medium	Large	
Channel I	18(34.61)	15(42.85)	4(16)	2(25)	39(32)
Channel II	13(25)	7(20)	8(32)	4(50)	32(26.66)
Channel III	21(40.38)	13(37.14)	13(52)	2(25)	49(40.83)

Total	52 (100)	35 (100)	25 (100)	8 (100)	120 (100)
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Table 2: Price spread, marketing cost, marketing margin, and marketing efficiency of Channel I (Rs/q)

S.No.	Particulars	Farmer's Category				
		Marginal	Small	Medium	Large	All farms
1.	Consumer's Price	3500	3500	3500	3500	3500
2.	Total Marketing Cost	132.4	132.4	133	132	132.45
3.	Total Marketing Margin	0	0	0	0	0
4.	Net price received by the farmer	3367.3	3367.6	3367	3368	3367.47
5.	Producer's share in Consumer's price (per cent)	96.20	96.21	96.2	96.22	96.21
6.	Price Spread	132.4	132.4	133	132	132.45
7.	Marketing efficiency (Acharya's method)	25.43	25.43	25.31	25.51	25.42

Table 2 reveals the producer's portion of the consumer rupee, the farmer's net price, the price spread, and the marketing efficiency of sorghum in the research area. With a net price received by farmers of Rs. 3367.47/q, a price spread of Rs. 132.45/q, and a producer's share of the consumer price of 96.21 percent, Channel I had an overall marketing efficiency of 25.42. In the case of marginal 25.43, small 25.43, medium 25.31, and large 25.51, the marketing cost was low and the marketing margin sustained by an intermediary in the channel, making it much more efficient than another channel. (Ravekar and others, 2015). had additionally made a contribution to the producer-consumer rupee share, which was largest in channel I.

Table 3: Marketing cost, Marketing margin, Marketing efficiency, and Price Spread of Channel II (Rs./q)

Farmer's category						
S.NO	Particulars	Marginal	Small	Medium	Large	All farm
1.	Consumer's Price	4500	4800	5000	5000	4825
2.	Total Marketing Cost	524	613	554	739.25	607.25
3.	Total Marketing Margin	708.21	848	940.27	895.5	847.99
4.	Net price received by	3188	3334.3	3527.01	3488	3384.32

	the farmer					
5.	Producer's share in Consumer's price (per cent)	70.84	69.46	70.54	69.76	70.15
6.	Price Spread	1232.21	1461	1494.27	1634.75	1455.55
7.	Marketing efficiency(Acharya's method)	2.58	2.82	2.36	2.13	2.47

Table 3 showed the price spread, producer's share of the consumer rupee, farmer's net price, and the marketing effectiveness of sorghum in the research area. It was noted that Channel II was less efficient than other channels, that the number of market intermediaries had increased, and that the channel's marketing margin and cost were the greatest. The overall marketing efficiency in the cases of marginal farmers (2.58), small farmers (2.82), medium farmers (2.36), and large farmers (2.13), is 2.47. The net price obtained by farmers is Rs. 3384.32/q, the price spread is Rs. 1455.55/q, and the producer's share of the consumer's price is 70.15 percent.

Table 4: Marketing cost, Marketing margin, Marketing Efficiency, and Price Spread of Channel III (Rs./q)

Farmer's Category						
S.NO	Particulars	Marginal	Small	Medium	Large	All farms
1.	Consumer's price	4500	4600	4800	4800	4675
2.	Total Marketing Cost	445.72	428	431	403.5	427.05
3.	Total Marketing Margin	780.81	634	681	681	694.20
4.	Net price received by the farmer	3273.47	3538	3688	3685.5	3546.24
5.	Producer's share in Consumer's Price (per cent)	72.74	76.91	76.83	76.78	75.81
6.	Price Spread	1226.53	1062	1112	1084.5	1121.25
7.	Marketing efficiency (Acharya's	2.66	3.33	3.31	3.39	3.17

	method)					
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Table 4 reveals the producer's share in consumer rupee, Net price received by farmer, price spread and marketing efficiency of Sorghum in channel III of the study area. In Channel III, it was observed that the marketing efficiency of marginal farmers was found (2.66), Small (3.33), Medium (3.31), and Large (3.39). Overall marketing efficiency is 3.17, price spread is Rs. 1121.25/q, Net price received by the farmer is Rs. 3546.24/q, and Producer's share in Consumer's price is 75.81 per cent. Similar work related to present investigation was done by (Kumar *et al.*, 2022). Sidhu *et al.* (2011) also estimated channel wise marketing efficiency of green peas which is comparable to the present study. A few observations on pricing spread, market margin, and marketing costs in various Fig marketing channels were made by Bhosale *et al.* (2011). In Punjab, Singh *et al.* (2018) provided some information on the pricing distribution and marketing trends of green fodder. Additionally, Mounika *et al.* (2020) provided some statistics on the price spread, market margin, and marketing costs associated with sorghum in various marketing channels.

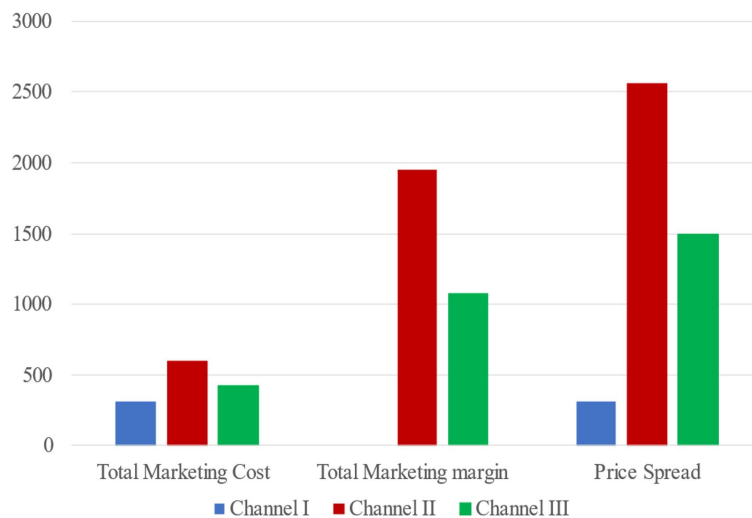


Fig 2 : Marketing cost, Marketing margin and Price Spread of Sorghum under three Marketing Channels

Table 5 Constraints faced by farmer in marketing of Sorghum

Constraints	Mean (%)	Rank
Price Fluctuations	29.3	VIII
Malpractice in weighing	32.37	VI
Market Places are far away	70.38	II
A small quantity of Marketable surplus	30.22	VII
Non-availability of Market-related information	72.40	I
Limited buyer's in Market	63.75	III
Poor transport facility	51.84	IV
High Cost of Transportation	48.7	V

The findings presented in Table 5 shows the diverse obstacles encountered by the sorghum cultivators within the research region. According to the study, the main obstacles farmers in the study area face when marketing sorghum are the lack of market-related information (rank I, mean score: 72.40), market locations that are far away (rank II: 70.38), few buyers in the market (rank III: 63.75), poor transport facilities (rank IV: 51.84), high transportation costs (rank V: 48.7), weighing errors (rank VII: 32.37), and price fluctuations (rank VIII: 29.3). The respondents expressed dissatisfaction at the lack of information relevant to the market. The majority of farmers are unable to obtain market information. The reason for this was the involvement of middlemen. Research akin to the current study was conducted on strawberries by Sharma *et al.* (2022) and bananas by Mungalparaet *al.* (2017). The main issue with finger millet marketing was lack of transportation facilities, which was followed by high transportation costs (Tandel *et al.*, 2018). When finger millet was studied for marketing channels and marketing efficiency in the Kolar area of Karnataka, price fluctuations (56%) and a lack of market intelligence (45%) were found to be the main issues. (Venkatamanaet *al.*, 2015).

CONCLUSIONS

The present investigation was intended to represent the conditions of Sorghum producer farmers in Banda district of U.P Bundelkhand region. The previous discussion on various aspects of study led to draw the following conclusions.

The study revealed that, there were three marketing channels identified, Out of these three channels, Channel I (Producer----Consumer), was found more efficient than Channel III (Producer---- Retailer---- Consumer), and Channel II (Producer---- Commission agent---- Wholesaler---- Retailer----Consumer).

In respect of market efficiency, Channel I producer's share in the consumer's rupee was 96.21 per cent, the total marketing margin was zero because there is no middleman involvement, the total marketing cost was Rs.132.52/q, Price Spread was Rs.132.52/q, the Net price received by the farmer was Rs.3367.47 and marketing efficiency was 25.42. The marketing efficiency decreased by increase in number of intermediaries. In Channel II producer's share in the consumer's rupee was 70.15 per cent, the total marketing margin was Rs. 847.99, the total marketing cost was Rs. 607.56, Price Spread was Rs.1455.55, the Net price received by the farmer was Rs.3384.32/q, and marketing efficiency was 2.47.

The producer's share of the consumer's rupee in Channel III was 75.81 percent; the total marketing cost was 427.05; the price spread was Rs. 1121.25; the net price obtained by the farmer was Rs. 2872.94; and the marketing efficiency was 3.17.

Out of the eight constraints, the lack of market-related knowledge rank I (with a Garrett score of 72.40) and market locations being far distant rank II (with a Garrett score of 70.38) posed the biggest challenges to farmers selling sorghum. Low number of buyers in the market rank III (Gartner score: 63.75), inadequate transportation infrastructure rank IV (Gartner score: 51.84), and high transportation costs rank V (Gartner score: 48.7) Poor transport facility rank VII (with a Garrett score of 51.84), Price fluctuation rank VIII (with a Garrett score of 29.3), and malpractice in weighing rank VI (with a Garrett score of 32.37).

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