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## An economic analysis of marketing of Bajra in Alwar district of Rajasthan

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### Abstract

The present study entitled, 'Economic analysis of marketing of *Bajra* in Alwar district of Rajasthan' is based on a sample of 90 *Bajra* farmers drawn from Behror and Neemrana tahsil of Alwar district. The present study was carried out to find out the Marketing costs, Marketing margins, price spread of *Bajra*. The data pertained to the agricultural year 2020-21. The findings of study regarding disposal of produce showed that around 86.48 percent was the total marketable surplus at overall level. The total marketed surplus was 70.95 percent at overall level. The maximum quantity was sold through channel-III (Producer –Wholesaler – Retailer – Consumer) i.e., 58.98 percent and 23.37 percent was sold through channel-II (Producer – Village Trader-Wholesaler -Retailer – Consumer) and 17.66 percent was sold through channel I (Producer-Consumer). The per quintal marketing cost was maximum in channel-II i.e., Rs. 231 per quintal and in channel-III and channel-I marketing cost were Rs. 320.75 and Rs. 46.25 per quintal respectively. The marketing margin per quintal was Rs.180 and Rs. 125 in channel-II and Channel-III respectively. The producer's share in the consumer's rupee was the maximum in channel-I (97.37 percent), followed by channel-III (85.64 percent), and channel-II (81.46 percent). The marketing efficiency was maximum for Channel-I (38.07 percent), followed by Channel-III (6.97 percent) and Channel-II (5.39 percent) respectively which shows that Channel I was the most efficient channel in marketing of *Bajra*.

**Keywords:** Marketing costs, marketing margins, price spread, marketing channel, marketed surplus, marketable surplus

### Introduction

*Bajra* is popularly known as "Pearl millet". It is one of the most widely grown cereal crops in tropical and semi-arid regions of the world. Its scientific name is *Pennisetum glaucum* L. It is also known as cattail millet or bulrush millet. *Bajra* is the most widely grown millets in India due to its tolerance to harsh growing conditions such as drought, low soil fertility and high temperature and it can be grown in areas where other cereal crops such as maize (*Zea mays*) or wheat (*Triticum aestivum*) would not survive. *Bajra* is the second most important millet crop in India in terms of area and production after sorghum crop (Kumari *et al.*, 2021) [10]. Pearl millet is a warm-season crop and grows best between 20 to 28 degrees Celsius. *Bajra* tolerates higher temperatures than any other cultivated cereal. The best temperature for pearl millet to germinate is 23 to 32 degrees Celsius. Pearl millet does not germinate and grows well in cool soil conditions. The optimum rainfall required for pearl millet ranges between 35-50 cm but pearl millet can also survive in areas that receives less than 35 cm of annual rainfall. India produced 9.13 million tonnes of *bajra* from an area of 7.38 million hectares with an average yield of 1237 kg/ha (GOI.,2019). Rajasthan, Uttar Pradesh, Haryana, Gujarat, Madhya Pradesh are the major *bajra* producing states in India. Rajasthan is largest *Bajra* producing state with a production of 4.68 Mt and contains maximum area of about 4.15 M ha. The nutritional value of *bajra* seed is quite high with carbohydrate (69.40 percent), fat (5.00 percent), marginal protein (9-11 percent) and minerals (2.70 percent).

### Research Methodology

The research used a two stage purposive and random sampling strategy with the sample tehsil functioning as the primary unit of sampling and the village functioning as secondary unit of sampling. Alwar district is selected for the study because it contains maximum production in state of Rajasthan and it is one of the largest growing regions of *Bajra* in terms of area. On the basis of area under *Bajra* cultivation, three villages each from Behror and Neemrana tehsils

were selected for study on the basis of information collected from village revenue office. A list of *Bajra* growers was constructed for each of the selected villages, together with their operating area and area under *Bajra* cultivation. The *Bajra* growing farmers were arranged in descending order of their area under *Bajra* cultivation for each of the selected villages and farmers from each village categorized under three predetermined size classes based on area under *Bajra* cultivation viz., Group I (below 1ha), Group II (1to 2 ha) and Group III (2 ha and above). Thereby making a total of 15 farmers from each village was selected randomly. Thus, the total sample size for the study consists of 90 *Bajra* farmers comprising 30 Marginal, 30 Small, 30 large farmers.

**Analysis of data**

For achieving the stated objective, following analytical procedure was used.

**Total Marketing Cost**

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

Where,

C = Total marketing cost.

C<sub>f</sub> = Cost paid by the producer from the time of produce leaves the farm till he sells it.

C<sub>mi</sub> = Cost incurred by middleman in the process of buying and selling the product.

**Price Spread**

Price spread: It is the difference between Price paid by Consumer and price received by the farmer

$$P_s = C_p - P_f$$

Where,

P<sub>s</sub> = Price spread

C<sub>p</sub> = Consumer’s price

P<sub>f</sub> = Price received by farmer

**Marketing Margin**

$$MT = \sum (S_i - P_i) / Q_i$$

Where,

MT = Total Marketing Margin

S<sub>i</sub> = Sale value of a product paid by i<sup>th</sup> firm

P<sub>i</sub> = Purchase value of a product paid by i<sup>th</sup> firm

Q<sub>i</sub> = Quantity of product handled by i<sup>th</sup> firm

**Marketing Efficiency**

The marketing efficiency will be calculated by using the

modified method as suggested by Acharya and Agarwal (1999) [23].

$$MME = RP / (MC + MM)$$

Where,

MME = Modified measure of marketing efficiency.

RP = Price paid by consumer or retailer’s sale price.

MC = Total marketing cost

MM = Net marketing margin

**Results and Discussion**

Production process of an any agricultural commodity is said to be complete only when it reaches to their ultimate users, i.e., the consumers. India is a country with diverse climatic conditions so that all the commodities may not be produced in all the parts of country. Hence, there is need arises for the movement of goods from producers to ultimate consumers. Here, a study has been conducted to study the marketing channels and to estimate the marketing costs and margins and prices received by the various marketing agencies and farmers involved in the marketing of *bajra* in that study area.

**Production and Disposal Pattern of Bajra**

The Table 1 shows that the majority of the *Bajra* crop was marketed after being given away to people, as well as livestock feed and some quantity was kept by the farmers. At the overall level, the total quantity of *Bajra* produced was 23.44 q per farm. Whereas, 1.54 q (6.56 percent), 1.05q (4.48 percent) and 0.58q (2.49 percent) of total produce were utilized for home consumption, livestock feed, and wages in kind, respectively. At the overall level, the marketable surplus was 86.48 percent.

The Total *Bajra* produced per farm was 10.20 q for marginal size group of holding and for home consumption, livestock feed, Wages in kind, and marketed surplus were, 1.46q (14.31 percent), 0.22q (2.16 percent), 0.10q (0.98 percent), 8.42q (82.55 percent) in marginal size groups, respectively. The total *Bajra* produced per farm for small size group of holding was 22.85q and for home consumption, livestock feed, Wages in kind, and marketed surplus were, 1.50q (6.56 percent), 0.93q (4.07 percent), 0.37q (1.62 percent), 20.05q (87.75 percent) in marginal size groups, respectively. The total *Bajra* produced per farm for large size group of holding was 37.27q and for home consumption, livestock feed, Wages in kind, and marketed surplus were, 1.65q (4.43 percent), 2.00q (5.37 percent), 1.28q (3.43 percent), 32.34q (86.77 percent) in marginal size groups, respectively. The total quantity kept by farmers at overall level was 3.64q (15.53 percent) and the total marketed surplus at overall was 16.63q (70.95 percent).

**Table 1:** Production and disposal pattern of *Bajra* Production (q/farm)

Sr. No.	Particulars	Size Groups			
		Marginal	Small	Large	Overall
1	Total Production	10.20 (100.00)	22.85 (100.00)	37.27 (100.00)	23.44 (100.00)
2	Home consumption	1.46 (14.31)	1.50 (6.56)	1.65 (4.43)	1.54 (6.56)
3	Livestock feed	0.22 (2.16)	0.93 (4.07)	2.00 (5.37)	1.05 (4.48)
4	Wages in kind	0.10 (0.98)	0.37 (1.62)	1.28 (3.43)	0.58 (2.49)
5	Marketable quantity	8.42 (82.55)	20.05 (87.75)	32.34 (86.77)	20.27 (86.48)
6	Quantity kept by farmers	1.42 (13.92)	3.25 (14.22)	6.24 (16.74)	3.64 (15.53)
7	Marketed quantity	7.00 (68.63)	16.80 (73.52)	26.10 (70.95)	16.63 (70.95)
8	Per farm size(ha)	0.68	1.55	2.74	1.66

### Marketing Channels of Bajra

Marketing channels describe how produce moves from the producer to the consumers through various marketing channels. During the current study, it is essential to highlight the marketing channels utilized in *Bajra* marketing. Various marketing channels noticed throughout the study are listed below.

**Channel-I:** Producer – Consumer

**Channel-II:** Producer – Village trader – Wholesaler-Retailer- Consumer

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

Table 2 provides extensive information on the quantity of produce sold through various marketing channels by *Bajra* producers. It can be seen that in *Bajra* marketing three different marketing channels were used. Among the three marketing channels, the most popular was channel III (Producer – Wholesaler – Retailer – Consumer), which accounted for 58.98 percent of total produce sales, followed

by channel II (Producer–Village Trader-Wholesaler-Retailer–Consumer), which accounted for 23.37 percent of total sales. The amount of produce sold through channel-I (Producer – Consumer) was 17.66 percent of the total. The maximum quantity of 52.86 percent was marketed through channel-I (Producer – Consumer) in the case of marginal size group, followed by channel-II (Producer –Village Trader-Wholesaler- Retailer – Consumer) accounts for 26.43 percent, whereas channel – III (Producer – Wholesaler – Retailer – Consumer) accounts for 20.71 percent. The small sized *Bajra* farmers sold the most produce, 51.37 percent, through channel-III (Producer –Wholesaler – Retailer – Consumer), followed by 33.10 percent for channel-II (Producer – Village Trader-Wholesaler -Retailer – Consumer) and 15.54 percent for channel-I (Producer – Consumer). In the case of large group, channel-III (Producer –Wholesaler – Retailer – Consumer) accounted for the largest amount of 74.14 percent of total produce, followed by channel-II (Producer – Village Trader-Wholesaler -Retailer – Consumer) at 16.28 percent and channel-I (Producer – Consumer) at 9.58 percent.

**Table 2:** Channel Wise Quantity Sold (q/farm)

Sr. No.	Marketing channel	Size Groups			
		Marginal	Small	Large	Overall
1	I (P-C)	3.70 (52.86)	2.61 (15.54)	2.50 (9.58)	2.94 (17.66)
2	II (P-VT-W-R-C)	1.85 (26.43)	5.56 (33.10)	4.25 (16.28)	3.89 (23.37)
3	III (P-W-R-C)	1.45 (20.71)	8.63 (51.37)	19.35 (74.14)	9.81 (58.98)
	Total quantity marketed	7.00 (100.00)	16.80 (100.00)	26.10 (100.00)	16.63 (100.00)

(P-C=Producer-Consumer, P-VT-W-R-C=Producer-Village Trader-Wholesaler-Retailer-Consumer, P-W-R-C=Producer-Wholesaler-Retailer-Consumer)

### Marketing Cost

Marketing cost is the cost required for performing different marketing functions. Cost of marketing affects the producer's net share in the consumer rupee. An attempt has been made here to work out the item wise per quintal cost of marketing of *Bajra*. It can be seen from the Table 3 that in channel-I per

quintal marketing cost was 46.25 Rs per quintal while in channel-II per quintal marketing cost was 231 Rs per quintal while in channel-III per quintal marketing cost was 195.75 Rs per quintal. It can be clearly shown from the Table that marketing cost is maximum in case of channel-II because there are more middlemen are involved in this channel.

**Table 3:** Marketing Cost in Different Channels (Rs/q)

Sr. No.	Particulars	Channel I	Channel II	Channel III
<b>a)</b>	<b>Marketing cost incurred by producer</b>			
1	Transportation	10	10	15
2	Loading and unloading	8.75	8.75	8.75
3	Weighing	2.5	2.5	2.5
4	Cost of gunny bags and sutli charges	15	15	15
5	Losses and miscellaneous charges	10	15	15
	Sub total	46.25	51.25	56.25
<b>b)</b>	<b>Marketing cost incurred by village trader</b>			
1	Transportation	0	20	0
2	Loading and unloading	0	8.75	0
3	Weighing	0	2.5	0
4	Cost of gunny bags and sutli charges	0	17.5	0
5	Losses and miscellaneous charges	0	10	0
	Sub total	0	58.75	0
<b>c)</b>	<b>Marketing cost incurred by Wholesaler</b>			
1	Transportation	0	17.5	20
2	Loading and unloading	0	10	10
3	Weighing charges	0	2.5	2.5
4	Market fees	0	10	10
5	Commission charges	0	15	15
6	Cost of gunny bags and sutli charges	0	20	17.5
7	Losses and miscellaneous charges	0	10	20
	Sub total	0	85	95

d)	Marketing cost incurred by Retailer			
1	Transportation	0	15	17
2	Loading and unloading	0	8.5	10
3	Weighing charges	0	2.5	2.5
4	Losses and miscellaneous charges	0	10	15
	Sub total	0	36	44.5
	Total	46.25	231	195.75

### Price Spread in Different Marketing Channel

The difference between the price paid by the customer and the price received by the producer is known as the price spread. This includes marketing costs and margins for various channels. The costs and margins of agency in various channels were estimated, and the results are shown in Table 4. The net price obtained by the producer in Channel-I, Channel-II, and Channel-III, respectively, was Rs. 1714.58, Rs. 1805.37, and Rs. 1913.45, as shown in Table 4. In channel-I (Producer – Consumer), the price spread was the lowest (Rs.

46.25) because there was no marketing margin between the producer and the consumer. Channel-II had the largest price spread (Rs. 411.00), followed by channel-III (Rs. 320.75). This is owing to the fact that as the number of intermediaries increases does the price spread. Consumers paid the highest price in channel III, followed by channel II. Table 4.16 reveals that in channel-I, the producer's share in the consumer's rupee was the maximum (97.37 percent), followed by channel-III (85.64 percent), and channel-II (81.46 percent).

**Table 4:** Channel Wise Price Spread (Rs/q)

Sr. No.	Particulars	Channel I	Channel II	Channel III
1	Gross Price received by Producer	1760.83 (100.00)	1856.62 (83.19)	1969.70 (88.16)
	Cost incurred by Producer	46.25 (2.63)	51.25 (2.31)	56.25 (2.51)
	Net price received by Producer	1714.58 (97.37)	1805.37 (81.46)	1913.45 (85.64)
2	<b>Village trader</b>			
	Price paid by village trader	-	1856.62 (83.77)	-
	Cost incurred by village trader	-	58.75 (2.65)	-
	Margin of village trader	-	50 (2.26)	-
3	<b>Wholesaler</b>			
	Price paid by Wholesaler	-	1965.37 (88.68)	1969.70 (88.16)
	Cost incurred by Wholesaler	-	85 (3.83)	95 (4.25)
	Margin of Wholesaler	-	70 (3.16)	75 (3.36)
4	<b>Retailer</b>			
	Price paid by Retailer	-	2120.37 (95.66)	2139.70 (95.77)
	Cost incurred by Retailer	-	36 (1.62)	44.5 (1.99)
	Margin of Retailer	-	60 (2.71)	50 (2.23)
5	<b>Consumer</b>			
	Price paid by consumer	1760.83 (100.00)	2216.37 (100.00)	2234.20 (100.00)
	Marketing cost	46.25	231	195.75
	Marketing margin	-	180	125
	<b>Price spread</b>	46.25	411	320.75
	<b>Producers share in Consumers Rupee</b>	1714.58 (97.37)	1805.37 (81.46)	1913.45 (85.64)

### Marketing Efficiency in Different Marketing Channels

Marketing efficiency was worked out by using modified method as suggested by Acharya and Agarwal. In Table 5 it was seen that, the marketing efficiency was maximum for

Channel-I (38.07 percent), followed by Channel-III (6.97 percent) and Channel-II (5.39 percent) respectively. Channel-I was the most efficient channel in marketing of *Bajra*.

**Table 5:** Marketing Efficiency of Identified Channels of *Bajra* (value in Rs)

Sr. No.	Particulars	Channel-I	Channel-II	Channel-III
1	Net price Received by the farmer	1714.58	1805.37	1913.45
2	Total marketing cost	46.25	231	195.75
3	Total marketing margin	-	180	125
	<b>MM+MC</b>	46.25	411	320.75
4	Price paid by consumer	1760.83	2216.37	2234.20
5	Marketing efficiency ratio	38.07	5.39	6.97

### Conclusion

The per quintal marketing costs for channel I, channel II, and channel III were Rs. 46.25, Rs. 231, and Rs. 195.75, respectively, for channel I, channel II, and channel III. Costs such as transportation and packing were shown to be the most important. Certain solutions, such as effective transportation facilities, can help to reduce these expenses. The producer's share of the consumer's rupee was 97.37 percent in channel I,

81.46 percent in channel II, and 85.64 percent in channel III. Thus, in channel I, the producer's share of the consumer's rupee was higher than in channels II and III, and the Channel II and Channel III margins were Rs. 180 and Rs. 125 per quintal, respectively. Due to no involvement of middlemen, the producer's share of the consumer's rupee was higher in channel I than in channels II and III. As a result, the study recommends that farmers be encouraged to form *Bajra*

Producers Organizations in order to reduce the number of middlemen in distant marketing and gain a larger share of the consumer's rupee.

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