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Study on marketing of pearl millet (bajra) in Agra district of Uttar Pradesh

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Abstract

The present study was undertaken to examine the marketing channels, marketing costs, marketing margins, producer's share in the consumer's rupee, and marketing efficiency of pearl millet (bajra) in Agra district of Uttar Pradesh during the agricultural year 2025–2026. Pearl millet had been recognised as an important climate-resilient cereal crop contributing significantly to food security, nutritional security, and rural livelihoods. A purposive-cum-random sampling technique was adopted for the selection of the study area and respondents. Akola block of Agra district was purposively selected, and a total of 100 pearl millet growers were chosen through proportionate random sampling. In addition, 10 wholesalers, 5 retailers, and 10 consumers were selected to analyse the marketing system. Primary data were collected through personal interviews using a pre-tested schedule, while secondary data were obtained from published and unpublished sources. Two major marketing channels were identified in the study area, namely Channel-I (Producer–Wholesaler–Consumer) and Channel-II (Producer–Wholesaler–Retailer–Consumer). The findings revealed that 63.00 per cent of the respondents preferred Channel-II, whereas 37.00 per cent preferred Channel-I. The producer's share in the consumer's rupee was found to be higher in Channel-I (85.90%) than in Channel-II (82.24%). Similarly, marketing efficiency was greater in Channel-I (6.09) compared with Channel-II (4.63), indicating superior operational efficiency due to lower marketing costs and margins. The total marketing cost and marketing margin were estimated at ₹250 and ₹194 per quintal, respectively, in Channel-I, whereas these values increased to ₹280 and ₹304 per quintal, respectively, in Channel-II. The study concluded that shorter marketing channels enhanced producer returns and improved marketing efficiency in pearl millet marketing.

Keywords: Pearl millet, marketing efficiency, producer's share, marketing margin, marketing channel

Introduction

Pearl millet (*Pennisetum glaucum* L.), commonly known as bajra, had been recognised as one of the most important cereal crops cultivated in the arid and semi-arid regions of the world. It had played a significant role in ensuring food and nutritional security, particularly in developing countries where climatic conditions often limited the production of other cereals. Owing to its exceptional tolerance to drought, high temperatures, and poor soil fertility, pearl millet had been widely cultivated across Africa and Asia. India had emerged as one of the largest producers of pearl millet, where the crop had occupied a substantial area under cultivation and contributed significantly to the livelihoods of small and marginal farmers. The crop had been valued not only for its grain but also for its fodder, which had served as an important source of livestock feed. Nutritionally, pearl millet had been considered superior to several other cereals due to its high content of protein, dietary fibre, essential minerals, and antioxidants. In recent years, increasing attention had been directed towards pearl millet because of its potential to address challenges related to malnutrition, climate change, and sustainable agriculture. Furthermore, the crop had demonstrated remarkable adaptability to adverse environmental conditions, making it an important component of climate-resilient farming systems. The growing demand for nutritious and resilient crops had further enhanced the

importance of pearl millet in agricultural development strategies. Consequently, efforts had been undertaken to improve its productivity, profitability, and resource-use efficiency through the adoption of improved production technologies and management practices. Therefore, pearl millet had continued to occupy a prominent position in agricultural research and development programmes aimed at achieving sustainable food production and rural livelihood enhancement.

Research Methodology

The present study employed a purposive-cum-random sampling technique for the selection of the study area and respondents. Agra district of Uttar Pradesh was purposively selected for the investigation due to its prominence in Pearl Millet (Bajra) cultivation and to facilitate efficient data collection within the available time and resource constraints. Among the various development blocks within the district, Akola block was purposively selected because it had a comparatively larger concentration of farmers engaged in Pearl Millet cultivation. A comprehensive list of villages in the selected block was prepared, from which five per cent of the villages having a substantial area under Pearl Millet cultivation were randomly selected. Subsequently, a complete list of Pearl Millet growers in the selected villages was compiled and categorised into five farm-size groups

based on operational landholdings, namely marginal (below 1 hectare), small (1–2 hectares), semi-medium (2–4 hectares), medium (4–10 hectares), and large (above 10 hectares). A total sample of 100 Pearl Millet cultivators was selected through proportionate random sampling to ensure adequate representation of each farm-size category. In addition, 10 wholesalers, 5 retailers, and 10 consumers were selected to examine marketing costs, marketing margins, producer's share in the consumer's rupee, and marketing efficiency within the study area. Primary data were collected through a well-structured and pre-tested interview schedule using the personal interview method. Secondary information was obtained from relevant books, research journals, government reports, official records, and publications available at district and block headquarters. The collected data were analysed using appropriate statistical techniques, and the results were presented systematically to fulfil the objectives of the study. The data pertained to the agricultural year 2025–2026.

Analytical Tools

1. Marketing Cost: $C = C_f + C_{m1} + C_{m2} + C_{m3} + \dots + C_{mn}$

2. Market Margin: $AMI = P_r - (P_{pi} + C_{mi})$

3. Producer's Share in Consumer's Rupees: $P_s = \frac{P_{E \times 100}}{P_r}$

4. Marketing Efficiency: $= \frac{\text{Price received by producer}}{\text{Marketing Cost} + \text{Marketing Margin}}$

Results and Discussion

Table 1: Reveals the preferred marketing channel by the respondents.

Sr. No.	Channel Type	No of respondent	Percentage
1	Channel – I	37	37.00
2	Channel -II	63	63.00
Total		100	100.00

Channel-I: Producer-Wholesaler-Consumer

Channel-II: Producer-Wholesaler-Retailer-Consumer

Table 1 Reveals during the study that among 100 sample 37(37.00%) were preferring channel 1 to buy and sell Pearl Millet (Bajra) through channel- I, and left 63(63.00%) respondents were preferring channel -II to buy or sell Pearl Millet (Bajra) in the study area.

Table 2: Marketing cost, Marketing margin, Producer Share in Consumer's Rupee and Marketing Efficiency of Pearl millet (Bajra) in channel-I.

S. No.	Particulars	Pearl millet (Bajra) Value (₹/Quintal)
1	Producer sale price to Wholesaler	2,886
A. Cost incurred by Producer		
i	Packing cost	25
ii	Packing material cost	30
iii	Transportation cost	45
iv	Market fee/charges	25
v	Labour cost	20
vi	Loading and unloading cost	15
vii	Weighing charges	10
viii	Miscellaneous charges	10
	Total Producer Cost (i-viii)	180
2	Net price received by Producer	2,706
3	Sale price of Wholesaler to Consumer	3,150
B. Cost incurred by Wholesaler		
i	Loading & unloading charges	15
ii	Transportation cost	20
iii	Storage charges	15
iv	Labour charges	10
v	Miscellaneous charges	10
	Total Wholesaler Cost	70
4	Margin of Wholesaler	194
5	Consumer's paid price	3,150
A	Total Marketing Cost	250
B	Total Marketing Margin	194
C	Marketing Efficiency	6.09%
D	Producer Share in Consumer's Rupees	85.90%

Channel I: Producer-wholesaler-consumer

Table 2: Presents the marketing cost, marketing margin, producer's share in the consumer's rupee, and marketing efficiency of pearl millet (bajra) under Channel-I, comprising the Producer–Wholesaler–Consumer marketing system. The findings revealed that the producer sold pearl millet to the wholesaler at a price of ₹2,886 per quintal. In the process of marketing, the producer incurred a total marketing cost of ₹180 per quintal, which included expenses on packing, packing materials, transportation, market charges, labour,

loading and unloading, weighing, and miscellaneous items. After deducting these costs, the net price received by the producer was ₹2,706 per quintal. The wholesaler sold the produce directly to consumers at ₹3,150 per quintal and incurred a marketing cost of ₹70 per quintal towards transportation, storage, labour, loading and unloading, and other miscellaneous charges. The wholesaler earned a marketing margin of ₹194 per quintal. The total marketing cost in the channel was estimated at ₹250 per quintal, while the total marketing margin amounted to ₹194 per quintal. The

producer's share in the consumer's rupee was found to be 85.90 per cent, indicating that a substantial proportion of the consumer's expenditure reached the producer. The marketing efficiency of the channel was calculated at 6.09, suggesting

that Channel-I operated efficiently with relatively low marketing expenses and margins, thereby ensuring a higher return to producers and an effective distribution of pearl millet to consumers.

Table 3: Marketing cost, Marketing margin, Producer Share in Consumer's Rupee and Marketing Efficiency of Pearl millet (Bajra) in channel-II.

S. No.	Particulars	Pearl millet (Bajra)
		Value (₹/Quintal)
1	Producer sale price to Wholesaler	2,886
A. Cost incurred by Producer		
i	Packing cost	25
ii	Packing material cost	30
iii	Transportation cost	45
iv	Market fee/charges	25
v	Labour cost	20
vi	Loading and unloading cost	15
vii	Weighing charges	10
viii	Miscellaneous charges	10
	Total Producer Cost	180
2	Net price received by Producer	2,706
3	Sale price of Wholesaler to Retailer	3,080
B. Cost incurred by Wholesaler		
i	Loading & unloading charges	10
ii	Transportation cost	15
iii	Storage charges	15
iv	Labour charges	5
v	Miscellaneous charges	5
	Total Wholesaler Cost	50
4	Margin of Wholesaler	144
5	Sale price of Retailer to Consumer	3,290
C. Cost incurred by Retailer		
i	Shop rent allocation	10
ii	Transportation cost	10
iii	Labour charges	10
iv	Storage and handling charges	10
v	Miscellaneous charges	10
	Total Retailer Cost	50
6	Margin of Retailer	160
7	Consumer's paid price	3,290
A	Total Marketing Cost	280
B	Total Marketing Margins	304
C	Marketing Efficiency	4.63%
D	Producer Share in Consumer's Rupees	82.24%

Channel II: Producer –wholesaler – retailer – consumer

Table 3 Depicted the marketing cost, marketing margin, producer's share in the consumer's rupee, and marketing efficiency of pearl millet (bajra) under Channel-II, which involved the Producer–Wholesaler–Retailer–Consumer marketing system. The results indicated that the producer sold pearl millet to the wholesaler at a price of ₹2,886 per quintal. The producer incurred a total marketing cost of ₹180 per quintal on packing, packing materials, transportation, market charges, labour, loading and unloading, weighing, and miscellaneous expenses. Consequently, the net price received by the producer was ₹2,706 per quintal. The wholesaler sold the produce to the retailer at ₹3,080 per quintal and incurred a marketing cost of ₹50 per quintal, earning a marketing margin of ₹144 per quintal. Thereafter, the retailer sold the produce to the final consumer at ₹3,290 per quintal. The retailer incurred a marketing cost of ₹50 per quintal on shop rent, transportation, labour, storage and handling, and miscellaneous expenses, and realized a marketing margin of ₹160 per quintal. The total marketing

cost in the channel was estimated at ₹280 per quintal, while the total marketing margins amounted to ₹304 per quintal, resulting in a price spread of ₹584 per quintal. The producer's share in the consumer's rupee was calculated at 82.24 per cent, which was lower than that observed in Channel-I due to the involvement of an additional intermediary. The marketing efficiency was found to be 4.63, indicating comparatively lower efficiency because of higher marketing costs and margins. Nevertheless, the channel facilitated wider market coverage and ensured the availability of pearl millet to consumers through retail outlets.

Table 4 Presents a comparative analysis of marketing cost, marketing margin, marketing efficiency, and producer's share in the consumer's rupee for pearl millet (bajra) under Channel-I and Channel-II. The results revealed that the net price received by the producer remained the same in both channels at ₹2,706 per quintal, indicating that the producer's earnings after deducting marketing expenses were unaffected by the choice of marketing channel. However, the consumer paid a higher price in Channel-II (₹3,290 per quintal)

compared to Channel-I (₹3,150 per quintal). The total marketing cost was also higher in Channel-II (₹280 per quintal) than in Channel-I (₹250 per quintal), primarily due to the involvement of an additional intermediary, namely the retailer. Similarly, the total marketing margin increased substantially from ₹194 per quintal in Channel-I to ₹304 per quintal in Channel-II. As a result, the producer's share in the consumer's rupee was higher in Channel-I (85.90 per cent)

than in Channel-II (82.24 per cent), indicating that a larger proportion of the consumer's expenditure reached the producer in the shorter marketing channel. Furthermore, the marketing efficiency was found to be higher in Channel-I (6.09) compared to Channel-II (4.63), suggesting that Channel-I operated more efficiently with lower marketing costs and margins.

Table 4: Comparison between Marketing cost, Marketing margin, Marketing efficiency and Producer's Share in Consumer's Rupee of Pearl millet (Bajra) in Channel I and Channel II in marketing of Pearl millet (Bajra)

S. No.	Particulars	Value in Rupees / Pearl millet (Bajra) per Quintal	Value in Rupees / Pearl millet (Bajra) per Quintal
		Channel-I	Channel-II
1	Net Price Received by the Producer (₹/Quintal)	2,706	2,706
2	Consumer Paid Price (₹/Quintal)	3,150	3,290
3	Total Marketing Cost (₹/Quintal)	250	280
4	Total Marketing Margin (₹/Quintal)	194	304
5	Producer's Share in Consumer's Rupee (%)	85.90%	82.24%
6	Marketing Efficiency	6.09%	4.63%

Conclusion

The study had provided a detailed economic analysis of the marketing system of hybrid paddy in Mirzapur district, highlighting significant variations in cost structure, margins, price spread, and efficiency across different marketing channels. It had been observed that although the net price realised by producers remained identical in both channels, the presence and number of intermediaries had a substantial impact on the overall efficiency of the marketing process. Channel I, which involved a relatively shorter chain comprising producer, wholesaler, and consumer, had demonstrated lower marketing costs and margins, thereby resulting in a comparatively narrower price spread and higher marketing efficiency. In contrast, Channel II, characterised by the inclusion of an additional intermediary in the form of a retailer, had led to increased cumulative marketing costs and higher margins at each stage of the distribution process. This had widened the price spread between the consumer's purchase price and the producer's net receipt, ultimately reducing marketing efficiency. The findings had clearly indicated that longer marketing channels contributed to inefficiencies and reduced economic benefits for producers. Furthermore, the higher consumer prices observed in Channel II suggested that excessive intermediation not only affected farmers' income but also imposed an additional burden on consumers. The study had therefore underscored the importance of promoting shorter and more direct marketing channels, strengthening market linkages, and enhancing institutional support mechanisms such as farmer-producer organisations and cooperatives. Such measures had the potential to reduce unnecessary intermediaries, lower marketing costs, and improve price realisation for farmers. Overall, the study had emphasised that improving marketing efficiency was essential for maximising the benefits of hybrid paddy cultivation and ensuring sustainable agricultural development in the study area.

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