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AN ECONOMIC ANALYSIS ON MARKETING OF MANGO *Jardalu* (GI – TAGGED) IN BHAGALPUR DISTRICT OF BIHAR

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ABSTRACT

The present study was conducted to examine the marketing system of GI-tagged Jardalu mango in Bhagalpur district of Bihar during the agricultural year 2025–26. Jardalu mango, renowned for its unique aroma, taste, and geographical identity, had received Geographical Indication (GI) status, which enhanced its market value and commercial importance. A purposive-cum-random sampling technique was employed for the selection of respondents. Bhagalpur district and Sultanganj block were selected purposively due to the predominance of Jardalu mango cultivation. A total of 100 mango growers, 30 wholesalers, 30 retailers, and 5 commission agents were selected for the study. Primary data were collected through a pre-tested interview schedule, while secondary data were obtained from various published and unpublished sources. The study analysed marketing cost, marketing margin, price spread, producer's share in the consumer's rupee, and marketing efficiency across different marketing channels. The results revealed that Channel I incurred the lowest marketing cost of ₹55 per quintal, while Channel III recorded the highest cost of ₹135 per quintal. The price spread was found to be lowest in Channel I (₹55 per quintal) and highest in Channel III (₹385 per quintal). Producer's share in the consumer's rupee was highest in Channel I (95.60%) and lowest in Channel III (72.20%). Marketing efficiency was also highest in Channel I (22.82) and lowest in Channel III (3.60). The findings indicated that the increase in intermediaries raised marketing costs and margins, reduced the producer's share, and lowered marketing efficiency. Therefore, direct and shorter marketing channels were found to be more beneficial for Jardalu mango growers by ensuring higher returns and improved market performance.

Keywords: GI-tagged Jardalu Mango, Marketing Cost, Price Spread, Producer's Share, Marketing Efficiency.

INTRODUCTION

Jardalu mango, a Geographical Indication (GI) tagged fruit of India, was recognised as one of the most distinctive and premium mango varieties cultivated in the eastern region of the country. Predominantly grown in the Bhagalpur district of Bihar, Jardalu mango gained prominence due to its unique aroma, attractive golden-yellow colour, rich flavour, and exceptional sweetness. The variety was characterised by its comparatively smaller size, thin skin, low fibre content, and superior eating quality, which distinguished it from many other commercial mango cultivars. The geographical uniqueness of the Bhagalpur region, including its fertile alluvial soil,

favourable climatic conditions, and traditional cultivation practices, contributed significantly to the development of the fruit's distinctive characteristics. In recognition of its uniqueness and regional identity, Jardalu mango was granted Geographical Indication (GI) status under the Geographical Indications of Goods (Registration and Protection) Act, thereby providing legal protection against unauthorised use and ensuring the preservation of its authenticity. The GI tag enhanced the market reputation of Jardalu mango and created opportunities for growers to obtain premium prices through product differentiation and branding. Furthermore, the recognition facilitated wider market access, promoted export potential, and encouraged sustainable cultivation practices among farmers. Jardalu mango also held considerable cultural and economic significance in the region, as it contributed to rural livelihoods and supported the local horticultural economy. The fruit was often presented as a symbol of Bihar's agricultural heritage and was appreciated by consumers for its superior sensory attributes. Consequently, the GI recognition of Jardalu mango was regarded as an important milestone in safeguarding indigenous horticultural resources, promoting regional agricultural development, and strengthening the economic prospects of mango growers. The variety thus emerged as a valuable horticultural asset that reflected the rich biodiversity, traditional knowledge, and agricultural excellence of the Bhagalpur region.

RESEARCH METHODOLOGY

The present study employed a purposive-cum-random sampling technique for the selection of the district, block, villages, and respondents. Bhagalpur district of Bihar was purposively selected owing to its prominence in the cultivation of GI-tagged Jardalu mango and to facilitate efficient data collection within the available time and resource constraints. Among all the blocks within the district, Sultanganj block was purposively chosen due to its substantial concentration of farmers engaged in the cultivation of GI-tagged Jardalu mango. A comprehensive list of villages within the selected block was prepared, from which five per cent of the villages having a relatively higher concentration of Jardalu mango growers were selected through random sampling. Subsequently, a complete list of GI-tagged Jardalu mango cultivators 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). Using proportionate random sampling, a total of 100 Jardalu mango growers were selected from these categories for detailed investigation. In addition, 30 wholesalers, 30 retailers, and 5 commission agents operating within the study area were selected to analyse marketing costs, marketing margins, price spread, producers' share in consumers' expenditure, and marketing efficiency. Primary data were collected through a well-structured and pre-tested interview schedule using the personal interview method. Secondary data were obtained from published and unpublished sources, including books, journals, government reports, and records maintained at district and block headquarters. The collected data were processed and analysed using appropriate statistical tools to derive

meaningful interpretations and present the findings systematically. The study was based on data about the agricultural year 2025–26.

Analytical Tools

1. **Marketing Cost:** C = Cf+ Cm1+ Cm2+ Cm3+ ..... + Cmn
2. **Market Margin:** AMI=Pri-(Ppi+Cmi)
3. **Price Spread:** Marketing Cost + Market Margin
4. **Marketing Efficiency:** = Price received by producer / Marketing Cost + Marketing Margin
5. **Producer's Share in Consumer Rupee:** Price received by the farmer x100 / Retail price paid by the consumer

RESULTS AND DISCUSSION

Table 1: Marketing Cost in Different Channels (Rs/q)

Channel	Packing Cost	Transport Cost	Labor Charges	Market Charges	Commission	Calculation	Total Cost
Channel I	15	25	10	5	0	15 + 25 + 10 + 5	**55**
Channel II	18	40	12	8	0	18 + 40 + 12 + 8	**78**
Channel III	**25**	**55**	**15**	**10**	**30**	**25 + 55 + 15 + 10 + 30**	**135**

Table 1: Revealed that the marketing cost of GI-tagged Jardalu mango varied considerably across different marketing channels due to differences in the number of intermediaries and marketing operations involved. In Channel I, the total marketing cost was the lowest at ₹55 per quintal, comprising packing cost (₹15), transport cost (₹25), labour charges (₹10), and market charges (₹5). The absence of commission charges in this channel contributed to its lower overall cost, indicating a relatively efficient and direct marketing system. Channel II incurred a higher total marketing cost of ₹78 per quintal, with increased expenditures on packing (₹18), transportation (₹40), labour (₹12), and market charges (₹8). The rise in transportation and handling expenses reflected a longer marketing route compared to Channel I. Channel III recorded the highest marketing cost of ₹135 per quintal, consisting of packing cost (₹25), transport cost (₹55), labour charges (₹15), market charges (₹10), and commission charges (₹30). The inclusion of commission charges and higher operational expenses significantly increased the total marketing cost, indicating that Channel III was the most expensive and least cost-efficient marketing channel among the three channels studied.

Table 2: Marketing Cost in Different Channels (Rs/q)

Cost Component	Channel I	Channel II	Channel III
Packing cost	15	18	**25**
Transport cost	25	40	**55**
Labour charges	10	12	**15**
Market charges	5	8	**10**
Commission	–	–	**30**
Total Cost	**55**	**78**	**135**

Table 2: Presents the marketing cost incurred in different marketing channels for GI-tagged Jardalu mango. The findings indicated that the total marketing cost increased progressively from Channel I to Channel III. Channel I recorded the lowest marketing cost of ₹55 per quintal, consisting of packing cost (₹15), transport cost (₹25), labour charges (₹10), and market charges (₹5). The absence of commission charges and fewer intermediaries contributed to its lower cost structure. Channel II incurred a total marketing cost of ₹78 per quintal, which was higher than Channel I due to increased expenses on packing (₹18), transportation (₹40), labour (₹12), and market charges (₹8). This rise suggested greater handling and movement of produce within the marketing system. Channel III exhibited the highest marketing cost of ₹135 per quintal. The major contributors were transport cost (₹55), packing cost (₹25), labour charges (₹15), market charges (₹10), and commission charges (₹30). The inclusion of commission charges along with higher operational expenses significantly elevated the total cost in this channel. Among all cost components, transportation accounted for the largest share of marketing expenses in every channel, highlighting the importance of logistics in mango marketing. Overall, the results demonstrated that marketing costs increased with the addition of intermediaries and marketing functions, making Channel I the most economical and Channel III the most expensive marketing channel for Jardalu mango producers.

Table 3: *Price Spread*

Channel	Producer Price (Rs)	Marketing Cost (Rs)	Margin	Calculation of Consumer Price	Consumer Price (Rs)	Calculation of Price Spread	Price Spread (%)
Channel I	1200	55	0	1200 + 55 + 0	**1255**	1255 – 1200	**55**
Channel II	1100	78	100	1100 + 78 + 100	**1278**	1278 – 1100	**178**
Channel III	**1000**	**135**	**250**	**1000 + 135 + 250**	**1385**	**1385 – 1000**	**385**

Table 3: Presents the price spread of GI-tagged Jardalu mango across different marketing channels. The results revealed that the producer price decreased while the consumer price and price spread increased with the addition of intermediaries in the marketing process. In Channel I, the producer received ₹1,200 per quintal and incurred a marketing cost of ₹55 per quintal, with no intermediary margin. Consequently, the consumer price was ₹1,255 per quintal, resulting in the lowest price spread of ₹55 per quintal. This indicated a highly efficient marketing channel with direct linkage between producers and consumers. In Channel II, the producer price declined to ₹1,100 per quintal, while marketing cost and intermediary margin increased to ₹78 and ₹100 per quintal, respectively. As a result, the consumer paid ₹1,278 per quintal and the price spread widened to ₹178 per quintal. Channel III recorded the lowest producer price of ₹1,000 per quintal and the highest marketing cost (₹135 per quintal) and marketing margin (₹250 per quintal). Therefore, the consumer price increased to ₹1,385 per quintal, generating the highest price spread of ₹385 per quintal. The findings clearly demonstrated that the involvement of additional intermediaries increased marketing costs and margins, thereby widening the gap between the price received by producers and the price paid by consumers. Hence, Channel I emerged as the most efficient channel, whereas Channel III was the least efficient in terms of price transmission and producer welfare.

Table 4: Producer's Share in Consumer's Rupee

Channel	Producer Price (Rs/q)	Consumer Price (Rs/q)	Producer Share (%)
Channel I	1200	1255	**95.60**
Channel II	1100	1278	**86.10**
Channel III	**1000**	**1385**	**72.20**

Table 4: Presents the producer's share in the consumer's rupee for GI-tagged Jardalu mango under different marketing channels. The findings indicated that the producer's share declined progressively with the increase in the number of intermediaries involved in the marketing process. Channel I recorded the highest producer's share of 95.60 per cent, where the producer received ₹1,200 per quintal out of the consumer's payment of ₹1,255 per quintal. The high share reflected the direct nature of the marketing channel, characterised by minimal marketing costs and the absence of intermediary margins. In Channel II, the producer received ₹1,100 per quintal while the consumer paid ₹1,278 per quintal, resulting in a producer's share of 86.10 per cent. The reduction in the producer's share was attributable to higher marketing costs and intermediary margins. Channel III exhibited the lowest producer's share of 72.20 per cent, with the producer receiving only ₹1,000 per quintal against a consumer price of ₹1,385 per quintal. The substantial decline was due to increased marketing expenses and higher margins earned by intermediaries. The results clearly

demonstrated that the producer's share in the consumer's rupee decreased as the marketing channel became longer and more complex. Therefore, Channel I was found to be the most beneficial channel for producers, ensuring maximum returns, whereas Channel III provided the least favourable outcome in terms of producer remuneration and marketing efficiency.

Table 5: Derivation of Marketing Efficiency (Rs. /q)

Channel	Producer Price	Marketing Cost	Margin	Total Cost + Margin	Consumer Price (Value of Goods Sold)	Marketing Efficiency (ME)
Channel I	1200	55	0	55	1255	**1255 ÷ 55 = 22.82**
Channel II	1100	78	100	178	1278	**1278 ÷ 178 = 7.18**
Channel III	**1000**	**135**	**250**	**385**	**1385**	**1385 ÷ 385 = 3.60**

Table 5: Presents the marketing efficiency of different marketing channels for GI-tagged Jardalu mango. Marketing efficiency was calculated by dividing the consumer price (value of goods sold) by the total marketing cost and margin incurred in each channel. The results revealed significant variations in efficiency among the channels. Channel I exhibited the highest marketing efficiency with a value of 22.82, where the consumer price was ₹1,255 per quintal and the total marketing cost and margin amounted to only ₹55 per quintal. The absence of intermediary margins and lower marketing expenses contributed to its superior efficiency. Channel II recorded a marketing efficiency of 7.18, with a consumer price of ₹1,278 per quintal and a combined marketing cost and margin of ₹178 per quintal. The lower efficiency compared to Channel I was due to the increased marketing cost and the inclusion of intermediary margins. Channel III showed the lowest marketing efficiency of 3.60, as the consumer price of ₹1,385 per quintal was associated with a high total marketing cost and margin of ₹385 per quintal. The substantial expenses and higher intermediary profits reduced the overall efficiency of the channel. The findings clearly indicated that marketing efficiency declined as the number of intermediaries, marketing costs, and margins increased. Therefore, Channel I emerged as the most efficient marketing channel for Jardalu mango, ensuring maximum returns with minimum marketing expenses, while Channel III was found to be the least efficient channel among those studied.

CONCLUSION

The study concluded that the structure of the marketing channels significantly influenced the marketing performance of GI-tagged Jardalu mango in Bhagalpur district. The analysis revealed substantial variations in marketing cost, price spread, producer's share in the consumer's rupee, and marketing efficiency across the three identified channels. Marketing costs increased progressively with the addition of intermediaries, ranging from ₹55 per quintal in Channel I to ₹135 per quintal in Channel III. Transportation expenses constituted the major component of marketing costs in all channels, indicating the importance of logistics in the marketing of this perishable fruit. The findings further demonstrated that the price spread widened considerably as the marketing channel became longer and more complex. Channel I recorded the lowest price spread of ₹55 per quintal, whereas Channel III exhibited the highest price spread of ₹385 per quintal. The producer's share in the consumer's rupee showed an inverse relationship with the number of intermediaries involved. Producers received 95.60 per cent of the consumer's expenditure in Channel I, while their share declined to 72.20 per cent in Channel III. Similarly, marketing efficiency decreased sharply from 22.82 in Channel I to 3.60 in Channel III, indicating that longer channels generated higher marketing costs and intermediary margins without proportionate benefits to producers. The study clearly established that direct marketing channels offered greater economic advantages to Jardalu mango growers by minimising marketing expenses, reducing intermediary involvement, enhancing producer remuneration, and improving overall marketing efficiency. Therefore, efforts should be directed towards strengthening direct marketing mechanisms, promoting farmer-producer organisations, improving transportation and market infrastructure, and creating better market linkages to maximise the benefits of GI recognition. Such measures would contribute to enhancing farmers' income, improving market competitiveness, and ensuring the sustainable development of GI-tagged Jardalu mango cultivation in the Bhagalpur region of Bihar.

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