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STUDY ON POST-HARVEST LOSSES AND MARKETING OF BANANA (VARIETY: CHINIA) IN HAJIPUR, VAISHALI DISTRICT OF BIHAR.

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ABSTRACT

This study examines the post-harvest losses and marketing systems of the Chiniya variety of banana in Hajipur, Vaishali District of Bihar. It investigates the socio-economic characteristics of banana growers, identifies major marketing channels, estimates marketing costs, and evaluates marketing efficiency and price spread. Data was collected through structured surveys with farmers and market functionaries, employing random and purposive sampling techniques. The results reveal significant post-harvest losses, particularly during packaging, wholesale, and retail stages, with Channel-I (direct farmer-to-consumer) offering the highest producer share and marketing efficiency. In contrast, Channels II and III involved multiple intermediaries, leading to higher marketing costs and reduced producer margins. Key constraints identified include lack of storage facilities, poor transportation infrastructure, and dominance of middlemen. Recommendations include promoting cooperative marketing structures, improving post-harvest management practices, and enhancing farmer awareness regarding efficient marketing and handling methods. The findings aim to support policy interventions focused on minimizing losses, improving profitability, and strengthening the banana value chain in the region.

Keywords: Post-Harvest Losses, Banana Marketing Channels, Marketing Efficiency, Producer Share, Cooperative Marketing

INTRODUCTION

Banana (Musa spp.) is one of the most important and widely consumed fruits across the globe, particularly valued for its nutritional richness and economic significance. In India, banana cultivation occupies a vital position, with the country leading global production at 34.5 million tonnes annually. Bihar, specifically Hajipur in Vaishali district, is a key region where the Chiniya variety is grown commercially.

Despite its importance, banana farming faces challenges such as post-harvest losses, improper handling, inadequate storage infrastructure, and market inefficiencies. Post-harvest losses are estimated at 15 quintals per hectare, largely due to lack of efficient storage and transportation facilities. Marketing is dominated by multiple intermediaries, leading to reduced producer margins.

The study focuses on examining the socio-economic profile of banana growers, analyzing marketing channels, calculating marketing costs, efficiency, and post-harvest losses, and identifying constraints to suggest suitable measures. Understanding these aspects is crucial to improve profitability, minimize losses, and strengthen the banana supply chain in the region.

RESEARCH METHODOLOGY

The study was conducted in Hajipur block of Vaishali, Bihar, a key Banana-growing area. Using a multistage sampling method, 100 farmers from five villages were selected and categorized by landholding size. Data from 2024–2025 were collected through structured interviews and secondary sources like government reports and Market analysis. Additionally, 10% of local market functionaries were surveyed. Analytical tools included Marketing efficiency, Marketing costs, margins, post- harvest losses and Garrett's Ranking Technique were also assessed. This comprehensive approach ensured reliable findings to support practical improvements in Banana Production and post-harvest storage losses.

Analytical Tools

1. ***Acharya's marketing efficiency formula***- MME = FP/MC + MM
2. ***Garrett ranking*** - Per cent position = 100 (R_{ij}-0.5) /N_j
3. ***Marketing Cost*** = Cf+ Cm1+ Cm2+ Cm3+……. + Cmn.
4. ***Marketing margin*** = Selling price – Purchase price
5. ***Marketing Efficiency***: [RP ÷ (MC + MM)]

RESULTS AND DISCUSSION

Table 1: Age Distribution of Respondents

The age distribution of respondents shows that 38% are in the 30–50 years age group, while 28% are under 30, indicating a strong presence of younger participants. Additionally, 18% are over 50, reflecting lower involvement from the older population. This highlights a predominance of middle-aged individuals alongside notable contributions from younger respondents.

Age Group	percentage
Below 30 years	28%
30-50 years	38%
Above 50 years	18%

Table 2: Education Levels

The educational profile of the respondents indicates that the highest proportion, 27%, have attained education up to the high school level, followed by 19% who have completed middle school. Graduates and those with only primary education each constitutes 12% of the respondents, while a smaller segment, 6%, are illiterate. This distribution suggests that a majority of the respondents possess at least a basic to secondary level education, with a relatively limited number lacking formal education.

Education	Percentage
Illiterate	6%
Primary	12%
Middle School	19%
High School	27%
Graduate	12%

Post-Harvest Losses

Losses varied across marketing channels

- **Channel I (Producer→ Consumer):** 2 kg/quintal (physical), ₹44/quintal (economic).
- **Channel II (Multi-intermediary):** 5.25 kg/quintal, ₹104.5/quintal.
- **Channel III (Producer→ Wholesaler→ Retailer):** 4.5 kg/quintal, ₹99/quintal

Table 3: Physical Losses by Channel

The table illustrates the post-harvest losses of bananas across different marketing channels. At the farm level, a uniform loss of 2 kg is observed across all three channels. In Channel I, no further losses occur beyond the farm level, resulting in a total loss of 2 kg. Channel II experiences the highest cumulative loss of 5.25 kg, with additional losses of 1 kg during packaging, 0.5 kg at the commission agent level, 0.75 kg at the wholesale level, and 1 kg at retail. Channel III records a total loss of 4.5 kg, with 1 kg lost during packaging, 0.5 kg at wholesale, and 1 kg at the retail level. This comparison highlights that Channel I is the most efficient in minimizing post-harvest losses, while Channel II incurs the highest losses across multiple stages.

Stage	Channel I	Channel II	Channel III
Farm Level	2 kg	2 kg	2 kg
Packaging	-	1 kg	1 kg
Commission Agent	-	0.5 kg	-
Wholesaler	-	0.75 kg	0.5 kg
Retailer	-	1 kg	1 kg
Total	2 kg	5.25 kg	4.5 kg

Marketing Efficiency

- **Channel I:** Highest efficiency (MME = 48.8), producer share = 97.99%.
- **Channel II:** Lowest efficiency (MME = 1.97), producer share = 66.36%.
- **Channel III:** Moderate efficiency (MME = 2.23), producer share = 69.13%

Table 4: Marketing Efficiency Across Channels

The marketing efficiency analysis of different banana marketing channels reveals significant variations. In Channel I, the producer receives the highest price of ₹2200, with a minimal marketing cost of ₹45 and a high producer share of 97.99%, indicating a highly efficient and direct marketing route. In contrast, Channel II and Channel III show lower producer prices of ₹2100 and ₹2150, respectively, with much higher consumer prices of ₹3165 and ₹3110, and marketing costs of ₹285 and ₹280. Consequently, the producer shares drop to 66.36% in Channel II and 69.13% in Channel III. These figures highlight that Channel I is the most beneficial for farmers, offering them a greater share of the consumer price and involving the least marketing expenses.

Parameter	Channel I	Channel II	Channel III
Producer Price (₹)	2200	2100	2150
Consumer Price (₹)	2245	3165	3110
Marketing Cost (₹)	45	285	280
Producer Share (%)	97.99	66.36	69.13

Table 5: Garrett's Ranking of Constraints

The table presents the major marketing constraints faced by banana growers, ranked based on their mean scores. The most significant constraint is the long distance to markets, with the highest mean score of 72.14, indicating substantial logistical challenges. This is followed by heavy post-harvest losses (70.52), price fluctuations (69.45), and high transport costs (69.14), all of which contribute to marketing inefficiencies and income instability for farmers. The lack of market information, with a mean score of 68.51, ranks sixth but remains a noteworthy barrier to effective market participation. Overall, these findings suggest that both physical and informational constraints are critical issues affecting the marketing of bananas.

Constraint	Mean Score	Rank
Long distance to markets	72.14	1
Heavy losses	70.52	2
Price fluctuations	69.45	3
High transport costs	69.14	4
Lack of market information	68.51	5

CONCLUSION

The majority of producers are middle-aged (30–50 years), have completed high school or an intermediate level of education, and earn between ₹1,00,000 and ₹1,50,000 annually, according to research on post-harvest losses and selling of the Chiniya type of banana in Hajipur, Vaishali District. The main occupation was horticulture. Direct farmer-to-consumer, or Channel I, was shown to be the most effective of the three main marketing channels, with a 97.99% producer share and negligible losses. The use of intermediaries in Channels II and III

resulted in increased post-harvest and financial losses. The dominance of intermediaries and the absence of cooperative institutions were major problems. In order to increase productivity and farmer profitability, the study emphasizes the necessity of improved post-harvest management, infrastructure development, farmer education, and the encouragement of direct or cooperative marketing.

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