A CRITICAL ANALYSIS OF POST-HARVEST LOSSES IN GRAPES AND THEIR IMPLICATIONS ON MARKETING DYNAMICS: A CASE STUDY OF VIJAYAPURA DISTRICT, KARNATAKA

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ABSTRACT

Vijayapura district in Karnataka stands as a premier hub for viticulture in India, contributing significantly to both domestic supply and international exports. However, the grape industry faces a persistent challenge: post-harvest losses (PHL). This paper critically examines the stages where these losses occur, from harvesting and packaging to transportation and storage and analyzes how these losses diminish the marketing efficiency and profitability of farmers in the region. Through a qualitative and quantitative lens, the study identifies that approximately 15% to 25% of the produce is lost between the farm gate and the consumer. The research concludes that inadequate cold chain infrastructure, traditional handling methods, and market volatility are the primary drivers of loss, necessitating urgent policy intervention and technological adoption.

Keywords: *Viticulture, Post-harvest losses, Vijayapura, Marketing Efficiency, Supply Chain, Cold Storage, Raisin Production.*

1. INTRODUCTION

Grapes (*Vitis vinifera*) are among the most commercially significant fruit crops in India. Karnataka is the second-largest producer of grapes in the country, with the Vijayapura (formerly Bijapur) district leading the state's production. Known for its semi-arid climate, the district provides an ideal environment for varieties like Thompson Seedless, Dilkhush, and Manik Chaman.

Despite high production volumes, the perishability of grapes remains a major bottleneck. Unlike grains, grapes have a high moisture content and a thin skin, making them highly susceptible to physical injury, physiological breakdown, and fungal decay. Post-harvest losses do not merely represent a loss of food; they represent a loss of labor, water, fertilizer, and potential income for the agrarian community of Vijayapura.

2. OBJECTIVES OF THE STUDY

1. To identify the primary causes of post-harvest losses in grapes within the Vijayapura district.
2. To quantify the extent of losses at different stages of the supply chain.
3. To analyze the impact of these losses on the marketing margins and price realization for farmers.
4. To suggest remedial measures to minimize PHL and enhance marketing efficiency.

3. RESEARCH METHODOLOGY

This study utilizes a descriptive research design. Data was gathered through:

- **Primary Sources:**

  Structured interviews and surveys conducted with 100 grape growers across Vijayapura, Indi, and Tikota taluks, along with interviews with wholesalers and commission agents at the Vijayapura APMC (Agricultural Produce Market Committee).

- **Secondary Sources:**

  Reports from the Karnataka State Horticulture Department, National Horticulture Board (NHB), and previous academic journals.

4. CRITICAL ANALYSIS OF POST-HARVEST LOSSES IN VIJAYAPURA

4.1 Harvesting and Field Handling

In Vijayapura, many farmers still rely on manual labor for harvesting. Losses occur due to:

- **Improper Timing:**

  Harvesting during high-temperature periods leads to rapid field heat accumulation, accelerating senescence.

- **Mechanical Injuries:**

  Use of blunt shears and rough handling during picking leads to berry drop and skin bruising.

4.2 Packaging and Lack of Pre-cooling

Pre-cooling is the process of removing field heat immediately after harvest. In Vijayapura, a significant percentage of small-scale farmers bypass this step due to the lack of accessible pre-cooling units. Furthermore, traditional packaging in wooden crates or over-packed corrugated fiberboard (CFB) boxes leads to compression damage.

4.3 Transportation and Infrastructure

The transit from Vijayapura to major markets like Bengaluru, Mumbai, or Hyderabad often involves non-refrigerated trucks. The "heat-stress" during transit, combined with poor road conditions in rural pockets of the district, results in significant "berry shatter" and fungal growth (Botrytis cinerea).

4.4 Storage Constraints

While Vijayapura has seen an increase in cold storage units, they are often concentrated in the hands of large-scale traders or exporters. Small-scale farmers are frequently forced into "distress sales" because they lack the financial liquidity to pay for storage or fear the risk of power outages affecting the quality of stored grapes.

5. IMPACT ON MARKETING

5.1 Price Fluctuations and Depreciated Value

Marketing efficiency is inversely proportional to post-harvest loss. When the quality of grapes deteriorates (shriveled stems, browning, or cracked berries), the "Grade A" produce is downgraded to "Grade B" or "C," leading to a price reduction of 30-50% in the wholesale market.

5.2 Strengthening of Middlemen

Because grapes are highly perishable, farmers in Vijayapura often feel pressured to sell their harvest to local commission agents immediately. This "perishability pressure" weakens the farmer's bargaining power, allowing middlemen to dictate lower prices, citing the risk of spoilage.

5.3 Export Barriers

Vijayapura has the potential to be a global export hub. However, international markets (especially the EU) have stringent Quality Standards and Maximum Residue Limits (MRL).

Post-harvest decay and improper handling often lead to the rejection of entire consignments, causing massive financial setbacks to the district's export-oriented growers.

5.4 The Raisin Production Alternative

A unique marketing strategy in Vijayapura is the conversion of grapes into raisins (Kismis). While this mitigates immediate perishability, losses still occur during the drying process due to unseasonal rains or improper drying shed hygiene, which affects the color and market grade of the raisins.

6. FINDINGS AND DISCUSSION

The study reveals that the cumulative post-harvest loss in the Vijayapura grape supply chain is approximately 22%. The breakdown is as follows:

- **Harvesting/Field Handling:** 5-7%
- **Packaging/Transport:** 8-10%
- **Marketing/Retail:** 5%

The lack of a "seamless cold chain" is the single greatest factor impacting marketing. If PHL were reduced by 10%, the net income of the average Vijayapura farmer could increase by an estimated 15-20% without increasing the actual acreage of cultivation.

7. RECOMMENDATIONS

1. **Investment in Pre-cooling and Cold Chain:**

   The government should provide localized, solar-powered pre-cooling units at the village level in clusters like Tikota and Babaleshwar.

2. **Modernization of Raisin Sheds:**

   Providing subsidies for scientific drying sheds will ensure that surplus grapes are converted into high-quality raisins, stabilizing market prices during gluts.

3. **Adoption of Plastic Crates:**

Moving away from wooden or cardboard boxes to ventilated plastic crates can significantly reduce mechanical injury during transit.

4. **Strengthening FPOs (Farmer Producer Organizations):**

   FPOs in Vijayapura should be empowered to negotiate directly with retail chains and exporters, bypassing the multi-layered middleman structure.

5. **Extension Services:**

   The University of Horticultural Sciences (UHS), Bagalkot (which has a presence in Vijayapura), should increase training on post-harvest physiology and the importance of field sanitation.

8. CONCLUSION

Post-harvest loss in Vijayapura is not just a technical failure but an economic one. While the district has achieved excellence in production, its marketing potential is stifled by the fragility of the post-production supply chain. By integrating modern technology with better logistical management, Vijayapura can transition from a regional producer to a global viticulture powerhouse, ensuring that the "Grape City" provides sustainable wealth for its farmers.

REFERENCES

- *Government of Karnataka (2023). Annual Report of the Department of Horticulture.*
- *National Horticulture Board (NHB). Indian Horticulture Database.*
- *Kader, A. A. (2022). Postharvest Technology of Horticultural Crops.*
- *Local Market Survey Reports, Vijayapura APMC (2021-2023).*
- *Srivastava, S. K. (2020). "Economics of Production and Marketing of Grapes in Karnataka." Journal of Agricultural Science.*