

REVIEW ARTICLE

A REVIEW ON MARKETING LOSS AND CHANNELS OF FRUITS AND VEGETABLES

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ARTICLE DETAILS

Article History:

Received 08 August 2022
Revised 11 September 2022
Accepted 28 October 2022
Available online 02 November 2022

ABSTRACT

Being highly perishable in nature, there is huge amount of losses of fruits and vegetables. After harvest, huge proportion of fresh fruits and vegetables are being damaged and loss worldwide. After the harvesting of horticultural produce, there undergoes various operations like grading, sorting, packaging, transportation, and storage. Lack of proper handling, transportation, storage facilities and unmanaged distribution play major role in marketing loss. There is still traditional marketing existing in Nepal where sellers have to travel long distance for hat bazar. This paper aims to describe the marketing loss and channels of fruits and vegetables. This study fills the knowledge gap of marketing losses of fruits and vegetables. Data were obtained through the related research article, books, and gather information. However, losses can be minimize by proper handling of fruits and vegetables, proper storage facilities, proper transportation facilities, cleaning, grading procedure and good market management. Then, there will be reduction of marketing losses and proper linkage between intermediaries.

KEYWORDS

Market, Fruits, Vegetables, Loss, Poor, Postharvest

1. INTRODUCTION

There is huge amount of postharvest loss of fruits and vegetables. This has become the tremendous problem that hits the global economy as worldwide. Postharvest loss is defined as the measurable qualitative and quantitative loss of a product during any movement and it also includes the change in availability, edibility, wholesomeness or quality of food preventing it from consumption (Adeoye et al., 2009; Buyukbay et al., 2011). After the harvesting of fruits and vegetables, further process like sorting, grading, storage, cooling, transportation and packaging affect the quality of market. The haphazard harvesting practices and improper postharvest practices result in spoilage and degradation of fruits and vegetables before it reach to market. The market loss of fruits and vegetables led to the reduction in economic activities of farmer, wholesaler, and retailer. Due to high perishable nature of fruit and vegetables, physical and mechanical injuries, lack of proper facilities at storage, market loss is at greater extent.

During the loading and unloading of packed products, difficult road lead to the vibration of vehicles, highly airtight condition lead to heating of vehicles cause damage to fruits and vegetables (Devkota et al., 2014). In recent few years, the efficient of marketing of fruits and vegetables has been significant concern in the world. Due to lack of appropriate marketing channels and insufficient marketing services and infrastructure, there is high fluctuating prices of fruits and vegetables. There is still traditional vegetables and fruits marketing dominant in Nepal. All the fruits and vegetables are supplied through traditional channels like small local hat bazaars and retailer which is started from farm-gate and ends with the consumer (ADB, 2018).

Middle man deliver the fruits and vegetables to wholesale markets by collecting from different places. Farmer mostly depend upon the middlemen for their marketing. So, the middlemen had capture over the

market and producers and consumers often got weak deal. Due to discrepancy between demand and supply, there is also huge wastage and in quality also. Postharvest loss of fruits and vegetables assessment at different stages of handling would help to know about the factor that causes loss. This would help to adopt proper strategies at different stages to reduce such losses and also increase the availability of produce for self-consumption and for market purposes. Thus, overall aims of present paper major is assess the cause of loss of fruits and vegetables in the market and the best possible strategies of reducing such losses as well.

2. DISCUSSION

2.1 Major Cause of the Loss of Produce

The major wastage in market are caused by the different market functions like packaging, grading, handling, storage availability. A group researchers found out the root factor that causes loss of produce was lack of cold storage facility, followed by inappropriate packaging and poor handling and at last poor quality of the produce which was ranked according to the respondents (Devkota et al., 2014). Similarly, handling may causes injuries on fruits that increases ethylene production leading early ripening and they are attack by moulds that decay. The high temperature that increases respiration and metabolism process (Saltveit, 2019). Being climacteric fruits, bananas should be harvested earlier slightly than usual to avoid over ripening (FAO, 1989; Saltveit, 2019). Poor storage facilities result in cross contamination of fruits and vegetables inside the crates.

The infrastructure like packaging, transport, road, storage facilities and distance from field to final market play major role in distribution and marketing of fruits and vegetables (Debela et al., 2011). Due to lack of proper temperature and humidity control storage facility, about 5-10% of perishable fruits and vegetables product are thrown away every year in Chennai city at wholesale market (Lakshmi, 2010). The waste of fruits and

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10.26480/fabm.01.2022.25.27

vegetables is about 35% due to scarcity of proper post-harvest practices like storage, transportation, cold chain facilities and other infrastructures (MFPI,2007). In Nepal, almost all the market lacks both infrastructure and proper investment. There are some other problems like lack of cold storage facility including cold chain, modern equipment for loading and unloading of goods, some quality control measure and lack of proper information. Similarly, due to long intermediaries, there will be more losses of fruits and vegetables and also high cost of the produce.

2.2 Type of Losses During Handling

A group researchers found out during handling, major loss were due to rotting, mechanical damage and physiological loss. 51% of the loss were due to fruits and vegetables rotting, 22% due to mechanical damage and 27% as physiological loss (Devkota et al., 2014). Various pathogens infect the fruits and vegetables that cause rotting and decay of the produce. Similarly, bruises and injury during harvesting and handling leads to the mechanical damage and those which are deformed, wilted, shriveled cause physiological loss of fruits and vegetables. Due to high moisture content and tenderness texture, fresh fruits and vegetables are mostly susceptible towards mechanical injury. Due to lack of proper handling, improper packaging, poor road facilities, unsystematic and unscientific packaging for transportation are the causes of mechanical damage like bruising, cutting, wounding. After the harvest of the fruits and vegetables, they still continue their physiological activity as they are alive. Due to unfavorable environmental conditions, high and low temperature injury, nutrient deficiency leads to the over ripeness, senescence.

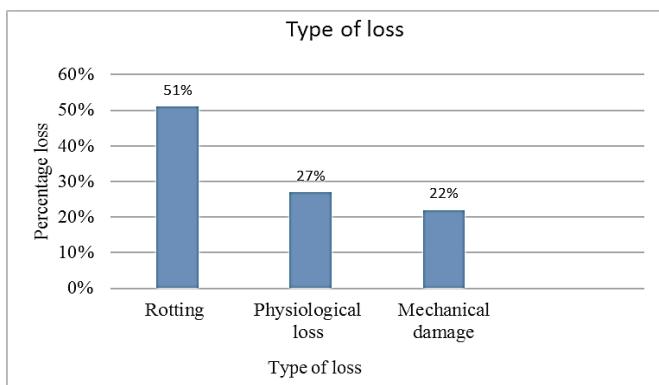


Figure 1: Types of losses of the produce during handling at three major wholesale markets in Nepal, 2012 (Devkota et al., 2014)

2.3 Marketing Channel

The process of selling different commodities on various stages, where there is major connection and participation of traders, like producers, contractors, commission agents, wholesalers and retailers is known as marketing channel. Longer the chain of traders, more will be costlier and also less efficient marketing operation, as each traders has role and participation in the chain. Due to perishable nature, seasonal production, need of proper care and maintenance, a quick disposal, there is various problems including fluctuation in price on the market supply chain. The series of price on the market supply chain, is the result of demand and supply between various intermediaries at different level in marketing system, which is distinctive for fruits and vegetables (Raj et al., 2017). There are various loss during those intermediate operations. Due to the perennial nature and large production of fruits and vegetables, there is practice of pre-harvest contractor, where the contractors purchase whole orchard before flowering and fruiting stage and contract to buy at the harvest time. The four marketing channel followed on the acid lime and hill lemon in Nepal are given below according to (Dhakal et al., 2005).

- Channel 1: Producers-Retailers-Consumers
- Channel 2: Producers-Wholesalers-Retailers-Consumer
- Channel 3: Producers-Commission agent-Wholesalers-Retailers-Consumers
- Channel 4: Producers-Collector-Wholesalers-Retailers-Consumers.

The proper managed marketing channel still did not exist in Nepal. Every farmers individually carried out the market operation or through the co-operative and sell through middlemen (Bhattarai, 2018).

2.3.1 Farm Gate Selling

Some buyers reach to the farm level to buy their produce. They usually go the farm site and fix the price of the product and took the produce on fixed

time given by the producers. But this practice is not well-known practice in Nepal.

2.3.2 Direct Selling

Some producers go to sell their products by themselves in order to fetch some good price. They grade their products by themselves and take them in a bamboo basket or plastic/jute sacks on nearby market on foot. This could be some time consuming and tiresome process.

2.3.3 Selling to Middlemen

Due to more time consuming, tiresome process and high volume of products, direct selling is also being discarding these days. There are some middlemen that collects from producer and after they get demanded high volume, they sell the collection to retailer shop. Here, middlemen have captive over market and consumer and producer get often a weak deal.

2.3.4 Collective Marketing

In some cases, fruits and vegetables are sale through cooperative or marketing groups of the farmer and deliver their products to the collection center where market man groups managed and trade them at the collection center.

Here in Nepal, some market whose entrance and exits points are directly linked with the main road which create traffic difficulties and jam around the market. Kalimati wholesale market is surrounded by the tall buildings, and there is no chances of further expansion (ADB, 2018). Similarly, market cost is also high due to lack of understanding between the traders, high loading and unloading time and transport cost. So, there should be proper infrastructure to avoid losses at the market centers.

2.4 Reduction of Market Loss

Market loss has been the major burning problem that affects the global economy. For the reduction of market losses there should be proper harvesting practices, sorting and grading, precooling, proper packaging, transportation and storage facilities. Proper sanitation of the products is the major concern to all the farmers, intermediaries and consumers to control post-harvest losses and diseases. To reduce the market loss, market should be provided with the proper storage facilities which prevents from deterioration and increases the shelf life of fruits and vegetables. At 10-15° and relative humidity 85-95%, ripe tomatoes can be stored for long term storage without deterioration (Castro et al., 2005). Similarly, there should be proper provision of packaging material to protect products from mechanical injuries and external contamination.

The packaging materials should allow rapid cooling, free from chemical substances and should meet handling and marketing requirements. Also, market should be accessible via road, drainage, electricity. Transport should be provided with good refrigeration facilities. During transportation, most losses occur through physical, mechanical injury, vibration of transport means and other factors like temperature and humidity. So, for the reduction of losses products should be properly packed and placed in well ventilated containers (SM, 2019). Then, there will be reduction of market losses and stabilization in the price fluctuation of the marketed fruits and vegetables. Some researchers found out that 32% of respondents of the survey thinks that losses could be minimize by using cold storage, 30%, 14%, 14%, 10%, thinks losses could be minimize by avoiding oversupply of products, grading of commodities before supply by producers and careful handling & transportation facility respectively of produce to reduce losses of produce during marketing (Devkota et al., 2014).

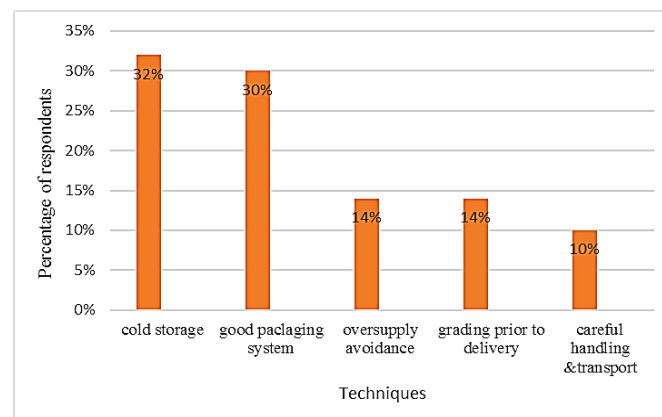


Figure 2: Suggestions to remove postharvest losses (Devkota et al., 2014)

3. CONCLUSION

Fruits and vegetables can be major source of income for all involved in handling and marketing but for the better market, losses need to be improved. Large quantity of fruits and vegetables is wasted every day due to lack of proper market infrastructure and other poor post-harvest handling practices at the markets. Similarly, longer the chain of intermediaries, more will be the losses. Due to lack of proper market structure and channel, there is also high rise and fall of prices. For these, there should be proper availability of storage facilities including cold chain, proper transport facilities, proper grading, packaging, and handling of the products. Unless there is availability of infrastructure and handling practices, market losses cannot be minimize and removed completely.

REFERENCES

- ADB. 2018. Dysfunctional-Horticulture-Value-Chains-Nepal. Pp. 5–8.
- Adeoye, I.B., Odeleye, O.M.O., Babalola, S.O., Afolayan, S.O., 2009. Economic Analysis of Tomato Losses in Ibadan Metropolis, Oyo State, Nigeria. *African Journal of Basic & Applied Sciences*, 1 (5–6), Pp. 87–92.
- Bhattarai, D.R., 2018. Postharvest horticulture in Nepal. *Horticulture International Journal*, 2 (6), Pp. 458–460. <https://doi.org/10.15406/hij.2018.02.00096>
- Buyukbay, E.O., Uzuno, M., and Gulse Bal, H.S., 2011. Post-harvest losses in tomato and fresh bean production in Tokat province of Turkey. *Scientific Research and Essays*, 6 (7), Pp. 1656–1666. <https://doi.org/10.5897/SRE11.186>
- Castro, L.R., Vigneault, C., Charles, M., and Cortez, L., 2005. Effect of cooling delay and cold-chain breakage on “Santa Clara” tomato. *J. Food Agric. Environ.*, 3, Pp. 49–54.
- Debela, A., Daba, G., Bane, D., and Tolessa, K., 2011. Research Article Identification of Major Causes Of Postharvest Losses Among Selected Fruits In Jimma Zone For Proffering Veritable Solutions. *International Journal of Current Research*, 3 (11), Pp. 40–43.
- Devkota, A.R., Dhakal, D.D., Gautam, D.M., and Dutta, J.P., 2014. Assessment of Fruit and Vegetable Losses at Major Wholesale Markets in Nepal. *International Journal of Applied Sciences and Biotechnology*, 2 (4), Pp. 559–562. <https://doi.org/10.3126/ijasbt.v2i4.11551>
- Dhakal, D., Tripathi, K., and Bhattarai, S., 2005. Marketing Survey of Acid Lime and Hill Lemon in Nepal. *Journal of the Institute of Agriculture and Animal Science*, 26, Pp. 107–116. <https://doi.org/10.3126/jiaas.v26i0.663>
- FAO. 1989. Prevention of post-harvest food losses: fruits, vegetables, and root crops: a training manual. Food and Agriculture Organization of the United Nations. <https://www.fao.org/3/t0073e/t0073e00.htm>
- Lakshmi, K., 2010. Low patronage for cold storage facility - The Hindu. *The Hindu*. <https://www.thehindu.com/news/cities/chennai/Low-patronage-for-cold-storage-facility/article12079677.ece>
- Raj, N., Chittora, A., Bisht, V., and Johar, V., 2017. Marketing and Production of Fruits and Vegetables in India. *International Journal of Current Microbiology and Applied Sciences*, 6 (8), Pp. 2896–2907. <https://doi.org/10.20546/ijcmas.2017.609.356>
- Saltveit, M.E., 2019. Respiratory Metabolism. In *Postharvest Physiology and Biochemistry of Fruits and Vegetables*, pp. 73–91. Elsevier. <https://doi.org/10.1016/B978-0-12-813278-4.00004-X>
- SM, Y., 2019. Review of Post-Harvest Losses of Fruits and Vegetables. *Biomedical Journal of Scientific & Technical Research*, Pp. 13. <https://doi.org/10.26717/BJSTR.2019.13.002448>

