

# Marketability of Value-added Pumpkin (*Cucurbita moschata* Duch.) Fruit in a Representative Peri-urban Kenyan Market

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**Abstract:** Pumpkin (*C. moschata* Duch.) fruit is a highly nutritious horticultural crop with great potential for commercialization. However, in Kenya many households do not buy and utilize pumpkins regularly, leading to low demand. These scenarios increase post-harvest losses and provide no incentive for farmers to increase production in Kenya, which has an abundance of pumpkin landraces that unfortunately remain under-exploited and under-utilized. Their distribution and marketing is a great challenge due to easy perishability. Horticultural crops experience losses in quality and quantity in between harvest and consumption. The magnitude of post-harvest losses in fresh fruits and vegetables is estimated to range from 20% to 50% in developing countries. The present study determined marketability of fresh fruit, and the spoilage rate of fresh fruit in the various presentation formats (eighth, quarter and half slices and a control of whole fruit either wrapped or not with cling film). Selling was facilitated by four market women in Nyeri County of Kenya. Statistical analysis showed significant differences ( $P < 0.05$ ) in number of spoilt pieces over time, and between number of days to spoilage of whole fruit, compared to slice fruit. More quarter and half slices got spoiled after a few days of presentation to buyers. Nonetheless, quarter slices had the highest (54.5%) pieces sold, while half slices had the fewest (9.8%) pieces sold. However, no significant differences occurred in average number of pieces sold, or in amount of money from sale of fruit pieces of different presentation formats. Most consumers preferred buying smaller slices. Therefore, adoption and promotion of pumpkin presentation formats that effectively increase shelf-life is recommended to enhance production and utilization in Kenya.

**Keywords:** Pumpkin, Sale, Fruit, Post-harvest, Spoilage, Presentation Format

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## 1. Introduction

Africa has an abundance of indigenous and traditional crops which unfortunately remain under-exploited and under-utilized due to various constraints, including lack of effective processing, distribution and marketing arrangements, as well as nutrition information [1-8]. The rapid perishability of fresh produce poses major challenges in distribution and marketing. Perishability of horticultural produce is one of the central problems facing developing countries, since it results in massive spoilage of needed fresh food. As time goes on, these problems are aggravated by the growing dietary needs of populations in these countries [9]. In Africa and Kenya in particular, this problem confronts many fruit and vegetable crops, since it results in wastage during the in-season and

limited supply during the off-season. Fresh fruits cannot be marketed fast enough when they are in-season owing to their short shelf-life. Appropriate preservation and storage methods should be devised to facilitate consumption of nutrient-rich fruits all year round [10].

Post-harvest loss (PHL) is the measurable quantitative and qualitative food loss in the post-harvest system which comprises interconnected activities from the time of harvest through crop processing, marketing and food preparation, to the final decision by the consumer to eat or discard the food [11-12]. Post-harvest handling refers to subsequent processes performed immediately after removing a plant or plant part from its growth environment until the removed plant or plant part reaches the final consumer in the desired form of packaging, quantity, quality and price. Conventionally, the