

# Value addition of the neglected and underutilized guava fruit

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# **Introduction and Objective**

- Neglected crops are rich in micronutrients, vitamins and phytochemicals and can easily alleviate malnutrition. However, their consumption and industrial processing remains extremely low resulting to underutilization (1).
- The local guava value chain in Kenya remains highly underexploited despite the fruits' nutritional and economic potential as the fruits are neglected.
- The annual guava fruit losses in the country are estimated to be in excess of



10,000 tonnes worth an estimate of \$ 1.1 million. This loss is equivalent to approximately 80% of the annual production (Fig 1).

- Although the country's climatic conditions are favorable for guava farming, commercialized production and industrial processing of the locally produced fruits are non –existent and only 3% of households process the fruits (2).
- The aim of this work was to assess the development of affordable processing techniques for commercialization of processed local guava.

## Methodology

 Standardized nectar processing techniques using guava fruits sourced from Taita Taveta and Kitui Counties were developed. Processed nectars were market-tested to assess their commercial feasibility. The by-products were evaluated for utilization as poultry feeds (Fig 2).

### Results

 Fruits with varying morphological and genetic characteristics were used for this research as the guavas grow from randomly dispersed seeds. This is disadvantageous as it affects the quality of pulp significantly.

### Fig 1. Locally growing guava trees and rotting fruits, which is common during guava seasons



- Sales from raw guava fruits were extremely poor with prices ranging from 0.02 –
  0.1 \$ per Kg.
- Processed guavas have high consumer acceptability. Using standard pricing for similar products in the markets, the developed products fetched 2-2.5 \$ per liter translating to an average profit of 1.2-1.6 \$ per kg of processed fruit.
- The by-products from guava processing can alternatively be used as poultry feeds with the broiler chicken performance showing promising results.

### Discussions

- Value addition for the local guava fruits provides a potential to generate valuable income and alternative forms of utilization given that severe marketing difficulties and lack of local guava processing and preservation techniques are major barriers (2).
- Just like other neglected crops, the limited research programs to improve guava processing varieties, poor knowledge on postharvest handling and lack of optimized processing conditions constraints guava productivity and economic value in Kenya (3).





#### Fig 2: Procurement and processing of guavas fruits

# **Conclusions and recommendations**

- Adoption of affordable processing techniques could improve the sustainability of the local guava fruit's value chain.
- Processing guavas and their by-products into commercial products will enhance the utilization of the fruits after they are out of season, minimize the high annual losses and consequently reduce malnutrition and contribute towards poverty alleviation among guava farmers' households.

### References

- 1. Baldermann, S. *et al.* (2016) 'Are Neglected Plants the Food for the Future?', *Critical Reviews in Plant Sciences*. Taylor & Francis, 35(2), pp. 106–119. doi: 10.1080/07352689.2016.1201399.
- 2. Omayio, D. et al. (2020) 'Trends and Constraints in Guava (Psidium guajava L.) production, utilization, processing and preservation in Kenya', International Journal of Fruit Science
- Guavas are seasonal and highly perishable and therefore processing into shelf stable products could increase their availability and enhance the daily fruit consumption requirements, increase consumption and therefore fight malnutrition, besides improving the resource-poor households status in the rural areas.
- 3. Chivenge, P. *et al.* (2015) 'The potential role of neglected and underutilised crop species as future crops under water scarce conditions in Sub-Saharan Africa', *International Journal of Environmental Research and Public Health*, 12(6), pp. 5685–5711

