

## Improving Postharvest Technology for Long-Distance Transportation of Banana

Rasnayaka R.M.A.M., Weerakkody W.A.P.\* and Wasala W.M.C.B.<sup>1</sup>

Department of Crop Science,  
Faculty of Agriculture, University of Peradeniya, Peradeniya, Sri Lanka

This research evaluates two new bulk banana packaging methods for long-distance transport in Sri Lanka. Packaging banana “hands” in plastic crates and banana bunches in two-story cabins (vertically) were the new bulk packaging methods. Two transports were done to test the new methods in a long distance transport (130 km) using a medium-size open truck, in comparison with the conventional horizontal packaging method as the control treatment. Data were collected at each step in the supply chain. Post-harvest quality was assessed based on visual quality rating (VQR), ripening index (RI), mechanical damage percentage, physiological weight loss (PWL), total soluble solids (TSS), fruit firmness and juice pH. Cost-benefit analysis and consumer preference (at retailer stage) were evaluated. Based on the VQR, which affects consumer preference, the shelf life was decided. The new bulk packaging methods showed a 2-day increment in shelf life. Packing in plastic crates and two-story cabins significantly reduced ( $p < 0.05$ ) the mechanical damages from 19.6% to 3.2% and 8.7%, respectively. During long-distance transportation and retailer sale, bulk packaging methods were not significantly different ( $p > 0.05$ ) with respect to PWL. The gradual changes found in fruit firmness, juice pH and TSS from the farmer to consumer level followed a similar pattern for all three packaging treatments. The plastic crates and two-story cabin increased the profit margins by 1227% and 74%, respectively, for *Embul* banana due to the reduction of postharvest losses. Consumer preference for banana transported under new packaging methods was mainly determined by their improved appearance. Hence packaging banana hands in plastic crates as well as bunches vertically in two storied cabins reduced the mechanical damage while increasing the shelf life, profit margin, and consumer preference, subjected to variety, *Embul*, long distance upto 130 km and good road conditions in a medium scale open truck.

**Keywords:** Banana, Bulk packaging methods, Long distance transportation, Postharvest losses, Shelf life

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<sup>1</sup>National Institute of Post-Harvest Management, Jayanthi Mawatha, Anuradhapura, Sri Lanka

\*wapweerakkody@agri.pdn.ac.lk