

PERMANENT REFERENCE

DESIGN AND DEVELOPMENT OF AN EFFECTIVE MANGO HARVESTING DEVICE.



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ABSTRACT

Mango (*Mangifera indica*) is known as the king of fruits and it is one of the oldest fruits cultivated by man. Where possible, mangoes can be harvested by hand from the ground and by snapping the mangoes from the stem. Fully mature fruit will detach easily, whereas half-mature fruit will not. Where ever, harvesting by hand from the ground is not possible, harvesting tools are used. The mostly used tool has a long pole with a iron ring and a small bag under the iron ring to catch the fruit. This existing design is time consuming method and producing high damage to mango.

In order to overcome the difficulties in existing and hand picking mango harvesting technique, an improved mango harvester was developed.

Cutting edges, holding poach; nylon chute, galvanized pipe and cable operating mechanism were the main compound in the improved mango harvester. Holding poach was made into two halves and which was operated using cable operating mechanism. Cutting edges were made on the top of the holding poach. When pulling the cable outward holding poaches are open, one it is released the holding poaches are closed. Cable was extended up to end of the galvanized pipe. Harvested mangoes could be collected and directed towards the ground through nylon chute.

Harvesting was done in one hour in each trees and harvested mango were counted separately from each mango trees. Sharpness of the cutting edge, capacity of the holding poaches and efficiency of the operating mechanism was evaluated in this time.

During the harvesting of mango using improved mango harvester, mango was cut with a piece of pedicle (2.5 to 5 cm) with minimum bruising effect, therefore, the latex staining was reduced in mango fruits. Therefore, post harvest losses were minimized.

Mangoes were harvested continuously in the improved mango harvester because; it contained nylon chute pathway directed towards the ground. Therefore, harvested mangoes were directed to the ground; therefore, continuous harvesting was possible. And also mangoes were fallen on the ground without damage. Harvesting rate was higher in improved mango harvester (212/h) than that of traditional method (183/h) and hand picking (143/h). Harvesting rate was high in lower height of the tree in all method of harvesting, once the height increase, the harvesting rate was reduced.

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