



## Colombia: New tool to prevent lemon bruising during harvest

Tahiti lemon is one of the crops that is having a high demand in the international markets, just like pineapple and avocado. Europe and the United States demand this fruit for its flavor. A group of students of Mechanical, Chemical, Agricultural and Industrial Engineering of the National University of Colombia devised a tool so that the product does not suffer impacts during the harvest and can arrive in the best conditions at its destinations.

"The collectors remove the lemons from trees of up to 2 meters, deposit them in backpacks called catangas that have a capacity of 20 kg, and then store them in plastic baskets," stated Paula Andrea Avendaño, a student of Agricultural Engineering.

The goal of this tool is to reduce the impact of the fall and prevent the lemons from hitting each other once they are inside the bag. A strong impact causes the fruit to begin to secrete oils that burn its skin over time, generating brownish spots due to the rupture of some cells that protect the integrity of the product. This process is known as oleocellosis.

The proposed system consists of a retractable duct that can be stretched up to 5 meters, so that the operator can move quickly from one tree to another without stopping the process and taking advantage of the fact that there are usually 6 to 10 meters between lemon trees.

The duct leads to a small platform with four wheels, on which there is a basket where the lemons will fall; then, the lemons pass through a simple separation mechanism with three blades in a Y-shaped bifurcation system that reduces the height of the fall alternately and prevents the fruit from hitting each other.

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