



Latest version of Pic Rig, driven by inventor, Tom Visser, and its companion, the CitSweep, with Visser's son in the driver's seat.

Visser expands mechanical harvesting system

Text and photos by Jane T. Adams

Immediately after showing the citrus industry that he could produce a mechanical harvesting machine — the Pic Rig — Tom Visser proceeded to invent an additional component for his MECHAR (mechanical harvesting) System.

Visser's concern was that the Pic Rig by itself did not offer the grower much financial incentive to switch to mechanical harvesting. Using it alone required hand labor to follow the machine, picking up oranges from the ground and placing them in the tubs.

To solve this problem, he invented the CitSweep, which completes the MECHAR System.

"It is a mechanical picker-upper," says Visser. "I opted to solve the problem using pure mechanical mechanisms."

As the CitSweep proceeds down the grove middles, an extension reaches underneath tree canopies where fruit picked by the Pic Rig have accumulated. A rotating brush moves the fruit with ease onto a cross feed chain. The brushes are suspended by springs and follow the contour of the land. Even if an orange is in a ground pocket, it can be reached.

The fruit rides on top of the chain's crossbars. As the CitSweep proceeds, fruit is separated from debris such as leaves, trash, weeds and sand. Then the fruit progresses along a scraper conveyor which has paddles about a foot apart.

After leaving the conveyor belt, a final separation takes place when the oranges emerge from a high angled chute. Upon coming into contact with a brush, fruit is sent into a picking tub and any remaining grasses, leaves, etc., are guided in the opposite direction.

The Pic Rig and the CitSweep each weigh approximately 1,700 pounds. The trailer carrying them weighs 680 pounds. The entire unit fits compactly behind a pick-up truck.

Visser projects most growers will use three to four machines — two or three Pic Rigs with one CitSweep. The ratio will vary, dependent upon tree size and other variables. Based on field tests, he anticipates picking at the rate of 75 to 100 boxes an hour.

In addition to revealing the CitSweep, Visser has continued further refinements on the Pic Rig. The latest version features:

- a four-wheel drive with a skid steer operation, which enables the machine to be repositioned closer to the tree. Visser claims it is much easier to maneuver and has excellent traction.
- flexible, spring-loaded collapsible fingers. Maxijet has worked with Visser making and modifying the molds for these fingers. If the penetrating rods meet any resistance, the flexible fingers move and eliminate tree scarring. Once past the obstacle, the fingers extend again and are ready for picking.
- a rotating brush controlled by the operator via an electric button. This device prevents fruit from going under the machine's wheels.
- a lowered picking unit which will remove fruit as low as 12 inches off the ground. With an extension, fruit as high as 12 feet can be reached.

Visser was invited by the Department of Citrus to a "Think Tank" session dealing with reduction of overall costs of harvesting and roadsiding. At this March meeting in Lake Alfred, issues included: (1) Implementation of ideas from

research, (2) Time involvement before an idea will have cost impact, (3) Potential for cost saving, and (4) Success measurement.

In this setting, Visser had the opportunity to share his developments and show a video of the MECHAR System at work. More recently, he has been conducting demonstrations on the east coast at the Bud Adams Ranch.

As for price, Visser comments, "I don't have a price at the moment because I am not trying to sell any systems now. My main thrust is to prove the system works. I plan to lease the units or get them placed on a sub-contracting basis for citrus harvesting until they are extremely refined. My goal is to have the best product on the market."

The MECHAR System takes the place of the laborer, sack and ladder. After harvesting, the procedure for transporting the fruit to the processing plant is the same.

"This system was designed for economy and to blend in with existing practices," he advises.

For the grower, Visser suggests the following management practices that will accommodate mechanical harvesting:

- In a bedded situation, strive for smooth centers with no accentuated furrows.
- Keep weeds under control. This machine does a very good job when the canopy area of the grove is clean. Long grass slows the harvesting process.
- Topping and hedging, and maybe some skirting, will be advantageous.
- Develop a mind set that a small percentage of fruit will be left in the trees and perhaps a small percentage will be damaged in the picking process.

Visser says, "In any agricultural crop that is mechanized, the owner and grower must accept the fact that there will be a certain percentage of loss. They must decide how much time they want to spend harvesting the fruit and whether the price of citrus will make it feasible to use hand labor to remove any remaining oranges."

Visser believes his system is ready for the industry, but warns against the attitude of a forester who is so busy chopping wood, he doesn't have time to sharpen his ax.

"The industry has acknowledged that there is a problem. Many people are in the comfortable zone at the moment making money. They have a very short memory about what has happened in the past and are not looking into the future to see what is waiting on them — many problems with such things as governmental regulations, labor availability and illegal immigration."