Abscission agent, new rigs may boost citrus mechanical harvesting

12/05/2011 07:51:00 PM
By Tom Burfield

Mechanical harvesting has been used in a handful of Florida's citrus groves for decades. But a couple of innovations on the horizon could significantly improve the system at a time when production costs are skyrocketing and labor supplies are uncertain. The optimism stems from the Environmental Protection Agency being close to registering an abscission agent after years of industry testing.

In addition, a University of Florida researcher says he thinks he's found a compact harvester that will allow mechanical harvesting in high-density dwarf trees, which an increasing number of citrus growers are planting to help address citrus greening.

Important piece of the puzzle
Spraying an abscission agent on a tree is a key component of the mechanical harvesting system because it loosens fruit so that it will fall off more readily.

Jackie Burns, center director and professor at the University of Florida's Institute of Food and Agricultural Sciences' Citrus Research and Education Center at Lake Alfred, says a product she has worked with for 15 years finally is nearing registration.

A full registration package was submitted to the Environmental Protection Agency in January. The compound, CMNP, is a chemical that originally was tested in the 1970s by the Florida Department of Citrus. But because of freezes in the 1980s, reduced acreage and an abundance of labor, pursuing an abscission agent became a low priority.

The program was revived in the mid-1990s, and researchers screened more than 500 compounds submitted by several manufacturers. Burns says she was fortunate to acquire some of the compound that previously was tested and include it in more recent tests.

"This one rose to top," she says. "There was nothing as effective or selective as this compound."

Spraying the abscission agent on Valencia orange trees three to five days before harvest loosens only the mature fruit. The agent is citrus-specific and has no effect on other fruits or vegetables.

It helped remove fruit less aggressively and more quickly than anything else tested.

Only mature fruit targeted
The most significant aspect of the abscission agent is that it provides some selectivity, says Paul Meador, chairman of the Florida Citrus Commission's Citrus Harvesting Research Advisory Council and president of Everglades Harvesting & Hauling Inc. in LaBelle.

When late-season Valencias are ready for picking in May and June, there actually are two crops on the tree—the ripe, current crop and the quarter-size green fruit for the following season. The abscission agent loosens only the mature fruit so it can be gently removed without affecting next year's crop, he says.

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