

Abscission compound still "promising"

By Ernie Neff

An abscission compound touted as "promising" for the last few years remains just that – promising – following 18 field tests by researchers in the 1996-97 season.

Some researchers working with the compound think it offers the most potential for loosening citrus so it can be easily removed from trees by various mechanical harvesting methods. They say a good abscission chemical can allow more fruit to be harvested with less shaking of the tree. Less shaking means less stress on both the tree and the harvesting machinery.

Although the researchers think the compound is the most promising product available right now, they discovered some apparent shortcomings last season. They'll research the product, and some others, more thoroughly this season to see if there are ways to use them effectively. In the meantime, harvesters probably remain at least several seasons away from having access to an effective abscission agent.

In tests during the previous seasons, researchers who initiated use of the compound for abscission said it had done an excellent job of loosening early, midseason and Valencia oranges for harvesting. Late last fall, a team of University of Florida/Institute of Food and Agricultural Sciences (UF/IFAS) researchers began more intensive studies.

UF/IFAS horticulturist Walt Kender said the new abscission chemical "showed excellent loosening effect" when applied to early season Hamlin oranges. "Then we moved into Valencias (late season oranges) and it was a whole different situation," said Kender, who works at the Lake Alfred Citrus Research and Education Center. "The response was very erratic."

When the compound was first applied on April 7, only seven percent of mature Valencias were loosened substantially after three weeks. Immature fruit also dropped, however, according to a report authored by Kender and others. That immature fruit, of course, had come on after the spring bloom and was the next season's crop. "The drop of immature fruit in April as a result of treatment makes the use of this material for commercial harvesting of Valencia oranges questionable," the

report said.

More applications were made to Valencias in April and May. "Of the four dates of application to Valencia trees, only one successfully loosened mature fruit," the report said. Even then, only 31 percent of the mature fruit abscised after three weeks. Kender said the compound's inventors blame its erratic response on Valencias to the effects of a freeze that hit the citrus belt in January.

In addition to the excessive drop of immature Valencias and the period of non-responsiveness by mature Valencias, researchers noted that the product also makes flowers abscise. "Don't even consider putting it on during the bloom period," Kender said.

On the plus side, the researchers found that the compound had no adverse effect on leaves and did not cause significant leaf drop on any variety.

STILL OPTIMISTIC

"We're still optimistic we can do some things to improve that situation (on Valencias)," Kender said. He and other researchers believe the method of application and the rate of coverage may be the keys to its effective use. "We think we need very high gallonage when we spray" to ensure the chemical makes good contact with the stem's abscission zone.

"It's the most promising thing

right now," added plant physiologist Ulrich Hartmond, one of Kender's co-researchers. He said the researchers want to experiment this season with different compounds in this class, as well as with two older abscission materials that were never registered – Release and Pickoff. They may even combine some of the compounds to see if they get a better response.

Kender said the researchers have "a long list of things we want to follow up on" in the 1997-98 season. They want to do additional work on varietal response, adding abscission research on grapefruit and specialty fruit. They also want to test the effectiveness of some adjuvants, try different application methods, and test the compound's effectiveness at different temperatures.

Other IFAS researchers working with Kender and Hartmond on the abscission project are plant physiologist Jacqueline Burns and agricultural engineers Masoud Salyani and Jodie Whitney.

Although most of the funding for the research is provided by IFAS, it is also supported by the Florida Department of Citrus, which also plans to hold a fruit abscission symposium early next year, possibly in February. The department hopes that a gathering of world authorities on fruit abscission might accelerate Florida's search for an effective abscission material for citrus.

Firm to test another compound

Fruit Harvesters International (FHI), which has acquired the rights to the abscission compound mentioned in the accompanying article, recently announced it will "pursue the potential" of yet another abscission material.

"Compounded by the disappointing results during the Valencia season, a decision was made to pursue a new chemical designated WTX-901 at this time," FHI Vice President William H. Rollins Jr. said. "With the usual 20/20 hindsight, we're happy to report that the new material is more cost effective and has already demonstrated far better abscissive qualities" than the previously tested compound, he said. Rollins added that field tests that he and FHI President Matti Laserson conducted "show promising results at lower application rates than the previous compound." Rollins said FHI expects the new compound to be registered for use in Florida within two seasons. He said patents are pending and that FHI will soon tell IFAS abscission researchers what the active ingredients in the compound are.