

Posted on Sun, Sep. 09, 2007

## Florida orange harvests look bleak with greening

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CLEWISTON, Fla. --

Dozens of dead orange trees lay stacked here among vast green rows of grove.

Farmers felled them still bearing fruit, but these trees were really killed some time ago. All it took was a tiny insect's bite to deliver a fatal crop disease called citrus greening, a bacteria harmless to humans but deadly for the thousands of trees infected since its recent arrival in Florida.

The disease has set off a fervor among researchers and growers, already weary after weathering the hurricanes of 2004 and 2005 and two decades battling a less-severe bacteria called canker.

Florida's \$9 billion, nation-leading citrus industry has been suffering some of its worst harvests even before greening showed up, sending juice prices skyrocketing. The disease's further spread makes them seem unlikely to recede any time soon.

Greening has bedeviled other areas of the world for decades and is believed to have arrived in Florida on infected Asian plant material. The disease gradually kills a plant's vascular system and sours fruit, making it unusable.

There are no natural enemies here to the foreign insect that spreads greening - the Asian citrus psyllid - and predators can't easily be introduced. Pesticides that kill the psyllid also kill beneficial insects that trim other bugs.

Genetic solutions are in the works, but for now farmers can do little but watch groves closely and clip infected trees.

That requires a lot of work and money. The early signs of greening are subtle - yellowing, or mottled leaves - and easily confused for other problems.

Southern Gardens Citrus, a Hendry County company owned by U.S. Sugar Corp. and among the state's top producers, is paying \$300 to \$400 more an acre to fight greening, a one-third increase in production costs.

In October 2005, the Clewiston-based company became one of the first commercial producers to test positive for greening.

"We were hoping it was limited to a couple hundred acres. We realized there were thousands of acres," said Tim Gast, citrus horticulturist for Southern Gardens.

Gast said so far the company has cut down nearly 100,000 trees - enough to affect production, but still a fraction of its estimated 2.3 million total.

Southern Gardens previously relied on oils and copper sprays, but greening has forced them to use stronger pesticides, Gast said.

The application only happens five times a year. The rest of the time, teams of scouts inspect each tree in the grove. The workers are specially trained, walking into the groves or driving small vehicles that resemble golf carts and standing on platforms to catch symptoms high in adult trees.

They flag suspect branches with bright plastic ties for further inspection. Confirmed cases are logged into a GPS unit onsite, their leaves and trunks spray painted to earmark them for incineration.

The inspection takes patience and delicate care to comb through each fold of a leaf. Young trees are more susceptible because they produce new foliage (or "flush") several times a year, sprouting tender leaves psyllids love to nibble, Gast said.

"Younger trees take three to six months to develop symptoms after the infection," Gast said, adding that it can take a year or more in older trees.

So far greening has tested positive in 26 Florida counties, including most major commercial citrus areas. Michael E. Rogers, an assistant University of Florida professor of entomology, said it has probably spread almost statewide, it just isn't yet confirmed.

"There's a learning curve for us as far as figuring out the best way to manage this disease system," Rogers said. "It's going to take awhile for us. We will be able to maintain the viability of citrus industry in Florida, we just have to change the way we do things."

Models conducted by Florida economists in March 2006 suggested the same thing. They ran three scenarios of greening spread, each varying in intensity.

Even the lowest-level advance affected production heavily, but the resulting high prices would keep farmers in business. The same was true of severe greening, which would cut pre-hurricane production levels nearly 50 percent.

Harvest at the worst level would be 123 million boxes, each of which weighs 90 pounds. That's only slightly worse than the 129 million boxes Florida brought in this year. Before the hurricanes, harvests in excess of 200 million boxes were common - the harvest that ended in early 2004 was 240 million boxes.

"It's not had the big effect on tree numbers and production that I'm projecting it could have in the future," said Tom Spreen, head of Florida's Food and Resource Economics Department and a member of the research team.

"The truth of the matter is that we still don't know what this thing's going do. I can sit here and run scenarios 'til I'm blue in the face, but as far as saying 'This is what it's going to affect,' we're just going to have to live with it and see."