

Laurel wilt on avocado radar screen

By Cary Blake, Western Farm Press

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The California commercial avocado industry is bracing for Laurel wilt disease, *Raffaelea lauricola*. The disease, not yet found in California, causes trees to initially wilt and die within a year.

It preys on the Laurel family of trees including avocado, bay laurel, redbay, and sassafras. Laurel wilt is currently killing trees in South Carolina, Georgia, and Florida. It is moving south, currently about 100 miles from the Sunshine State's commercial avocado groves.

"I think we'll see the appearance of Laurel wilt disease in California," said Guy Witney, director, industry affairs, California Avocado Commission (CAC), Irvine, Calif. "I'm hopeful that we'll be able to eradicate it quickly."

Laurel wilt is a disease complex spread by the Asian ambrosia beetle, *Xyleborus glabratus*. The 1/16 inch-long beetle is reddish-brown. Males are smaller, cannot fly, and have a hunchback appearance. The beetle carries a virile fungus in its mouthparts.

"When the beetle feeds on tree wood, the fungus is released which causes the tree's xylem to plug up," Witney said. "A part of the tree wilts first, followed by the entire tree, and then tree death."

There is no cure for Laurel wilt disease. Insecticides and fungicides provide no control. Beneficial insects have little success fighting the ambrosia beetle. The insect is aggressive; it flies to a healthy tree, bores into the bark, and deposits the fungus.

The beetle may have entered the U.S. at a Savannah, Ga., shipping terminal in 2002 in wooden packing boxes imported from East Asia.

USDA and forestry officials estimate the disease moves about 20 miles per year. Witney believes people will bring the disease to California in redbay firewood packed inside a recreational vehicle.

"People driving a RV or similar vehicle will pick up some firewood in the infestation zone (Eastern seaboard states); forget it's inside the vehicle, cross the California border, burn the wood, and the beetle will be released," Witney predicts.

Redbay is a favorite wood source for barbeque enthusiasts in Eastern states. Many redbay trees have succumbed to Laurel wilt disease so the dead wood has become an abundant source for firewood. Despite signs on roads and freeways urging motorists not to transport the wood, people have moved wood and pest about 100 miles over the last two years.

California's avocado industry is a \$327 million business. Avocados are grown on about 65,000 acres in 10 counties including San Diego, Riverside, Orange, Ventura, Santa Barbara, San Luis Obispo, San Joaquin, Los Angeles, San Bernardino, and Monterey. More than half of the avocados are grown in San Diego County.

Many avocado growers are battling other crop threats including severe drought, damage from past wildfires, and excessively hot temperatures this spring during bloom that reduced fruit load.

The average yield for the 2008-2009 crop is forecast at 3,030 pounds per acre; the smallest crop in about 30 years. The 2007-2008 crop averaged 5,020 pounds per acre.

A single beetle invading a tree might cause the disease, says Gary Bender, farm advisor with the University of California Cooperative Extension, San Diego County. Bender and Witney attended a Laurel wilt disease conference and tour in Florida and Georgia earlier this year. "It is thought that the fungus can spread to neighboring trees through root grafts," Bender said. "In a number of the dead trees we saw numerous entry and exit holes indicating that more than one beetle had attacked the trees."

Scientists are working to develop early-warning systems including pheromone traps for the beetle. Witney says developing disease-resistant germplasm is the long-term solution to the disease. Collections of avocado germplasm are located at the University of California's South Coast Field Station in Irvine and the USDA-ARS National Germplasm Repository in Miami, Fla.

"If Laurel wilt disease becomes somewhat of a pandemic of the avocado, genetics is where we'll find a solution," Witney said.

The Hass variety, which accounts for 98 percent of the California avocado market, appears to be more tolerant to the disease; Hass has succumbed more slowly in initial tests. Witney says Laurel wilt disease spreads faster than Huanglongbing disease (citrus greening), an ominous threat to California and Arizona's citrus industries. The disease has not been found in the two states, however, the disease's primary vector, the Asian citrus psyllid, has been found in California's San Diego and Imperial counties.

"It's quite hard to see the initial symptoms from citrus greening since it can take several years for the symptoms to manifest in the trees," Witney said. "Laurel wilt symptoms manifest rapidly."

Scientists from UC Riverside (UCR) and the University of Florida have applied for a USDA specialty crops grant to fund multi-faceted research to keep Laurel wilt disease from spreading. UCR's Mark Hoddle and Jocelyn Millar are among the scientists working on pheromones, attractants and genetics.

"Laurel wilt disease is a possible pandemic for California's avocado industry," Witney said. "Avocado trees are under tremendous stress right now. The ambrosia beetle moves first to trees under stress and then moves to healthy trees and then returns when the tree is declining."

Witney said, "Our fear is that the disease will find conditions so appealing and conducive to reproduction that we will have an explosion of the pest should it arrive in Southern California avocado orchards from the Simi Valley-Moorpark areas and then south."