Florida Researchers Deliver Warning to California Growers

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Daniel Carrillo inspects an avocado tree for potentially harmful insects.
Photo credit: Jeff Wasielewski

Earlier this year, a group of scientists and extension professionals from the University of Florida (UF) visited three avocado growing regions in California to deliver a dire warning: beware of the deadly disease laurel wilt. Laurel wilt has killed more than 120,000 avocado trees in South Florida and more than 500 million native trees in the southeastern United States.

The disease is a fungus called *Raffaelea lauricola* and it is vectored by tiny ambrosia beetles. The ambrosia beetles carry and farm the fungus to feed their young. Once they find a suitable tree, they hollow out galleries to grow the fungus and raise their young. Trees in the Lauraceae family, such as avocados, are hypersensitive to the presence of the fungus and try to wall off the disease, which is found in the xylem portion of the tree. Because the xylem is responsible for transporting water to the tree's leaves, if it is blocked, the trees will wilt and die. The presence of the disease sets off a chain reaction where the tree blocks the xylem so aggressively and effectively that the tree can no longer get water to its leaves, resulting in wilt and rapid death.

Once the disease is in an orchard, it can move by beetle activity or through root grafts. If trees in the orchard are old enough, their roots are most likely grafted together. Root grafting allows the disease to easily move from one tree to its neighbor and you will often see trees die one by one right down a row. There seems to be no resistance found within different cultivars or races of avocado as every cultivar of avocado that has been exposed to the disease has died.

At this point, there is no cure for the disease and there are no measures that will effectively prevent the disease from attacking individual trees or orchards. There has been some work done with injecting trees with a prophylactic fungicide before the disease arrives. This has been met with mixed results, although some growers continue to use the fungicide and have had good results. Growers are advised to frequently scout their groves and to immediately rogue trees that show symptoms of wilt and beetle activity. Trees that are removed should be immediately destroyed through chipping or burning. Some work also has been done to show that ambrosia beetles prefer shade, so well-pruned orchards have less of a

chance of being attacked by beetles.

The University of Florida scientists and Extension professionals visited the growing regions of Fallbrook, Ventura and San Luis Obispo. Tropical fruit Extension agent Jeff Wasielewski (the author of this report) began each presentation by explaining a little about the disease and how it has affected the commercial avocado growing region in South Florida. Tropical fruit entomologist Dr. Daniel Carrillo talked about the different ambrosia beetles that are spreading the disease, as well as how his team has shown that the ambrosia beetles attacking the avocado trees were different from the species that was attacking the native Lauraceae trees. Dr. Bruce Schaefer, plant physiologist, spoke about his studies regarding using different rootstocks and scions to try to find some resistance to the disease. Unfortunately, no pairing has been found that shows any resistance. Dr. Romina Gazis, plant pathologist, spoke about the disease itself and that one positive is that because the disease was introduced to the United States as a single introduction, it is easier to study because there is only one form of the disease. Fredy Balean, economist, spoke about the economics of battling the disease. Finally, Dr. Jonathan Crane, tropical fruit specialist, talked about techniques used to battle the disease including rogueing, pruning, and keeping your trees healthy.

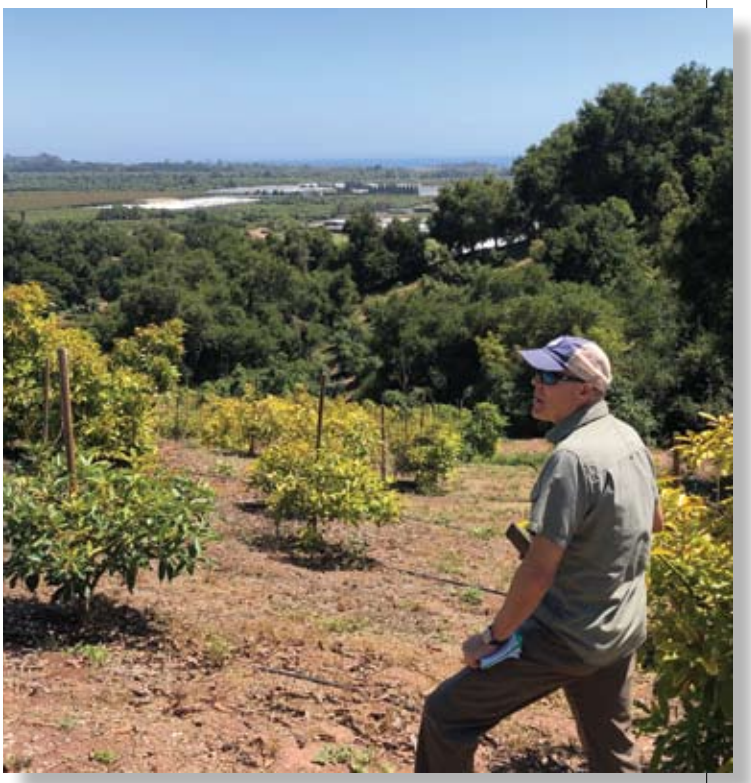
The UF scientists and Extension professionals rounded out each of their three days of presentations with visits to avocado orchards in all three growing areas. They noted that avocado orchards in California are generally well pruned, so that would be something that would help deter beetles from entering the orchards in the first place. One other positive for California growers is that because their orchards are typically on terraces, the likelihood of trees being root grafted are less.

It has been shown that California has an ambrosia beetle that is capable of spreading the disease, as well as a native tree, the California bay laurel, *Umbellularia californica*, that would be susceptible to the disease. These two factors will make it easier for laurel wilt to spread to avocado orchards in California.

At the present time, the disease has only spread as far west as eastern Texas. It is possible the disease could present itself in California at any time if someone brings contaminated wood from Texas to the west, or it could show up over a longer period of time through natural beetle movement. It's thought that laurel wilt could dip south into Mexico and then come back northwest to the avocado groves of California.

In any case, it is imperative that growers and regulatory agencies in California are ready for the disease and that they have a plan to quickly remove and destroy trees infected with laurel wilt. Having a plan in place now will greatly lessen the impact of the disease on the California commercial avocado industry.

Romina Gazis speaks to avocado growers about laurel wilt. Photo credit: Jeff Wasielewski



Jonathan Crane surveys a commercial avocado orchard. Photo credit: Jeff Wasielewski