

Update on Asian Citrus Psyllid[®]

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I'm sure you are all aware the Asian citrus psyllid (ACP) is an insect vector for Huanglongbing disease (HLB), also known as citrus greening disease. The bacterium has been affecting the phloem of citrus trees in Asia for over a century and still the best control is to remove infected trees. The insect and disease have spread across the globe devastating the citrus industry and costing billions of dollars.

Asian citrus psyllid was first detected in the United States in Florida in 1998 and later HLB was identified in 2005. In addition to the Florida finds, the insect and disease have been found in Louisiana, Georgia, South Carolina, Texas, and California. Alabama and Mississippi have detected the pest but as of now no disease is present.

The Psyllid Quarantine Area now covers most of southern California up to and including parts of Santa Barbara County. On 5 April 2012 there was a psyllid trapped and identified to be carrying HLB in the Hacienda Heights area of Los Angeles County. This prompted an immediate 93 square mile quarantine area where no citrus plants or fruit could be moved. The suspected source tree was removed and citrus trees within an 800-m area were treated. There have been no other psyllids found carrying HLB as of today.

When a psyllid is found in a retail location the entire crop of trees is placed in quarantine and the suspect insect is sent to the state lab for identification. If the insect is a psyllid the retailer has the option to treat the material and retest before selling it or destroy the trees.

Citrus producing nurseries have addressed the potentially devastating disease in several ways. In conjunction with the U.S.D.A., C.D.F.A., and a panel of citrus growers there have been regulations enacted to help prevent the spread of HLB. All mother stock and increase blocks must be grown inside a 50-mesh-screened house with positive airflow entrances. As you can imagine these houses are costly to build. Testing within the houses is an ongoing practice and procedures are in place if any psyllids and or HLB are detected.

At this point no citrus produced outside the protection of a screen house within the ACP quarantined areas can be shipped out of the ACP quarantine area and only moved within the area under close supervision of the U.S.D.A. Trees must be treated with an approved systemic as well as a foliar pesticide prior to shipping. Each tree is individually labeled and, if necessary, can be traced back to the grower. Material produced and grown entirely within the approved screen house will be certified to move throughout the state.

As you can imagine there is a considerable amount of time and effort being spent on trying to control and hopefully eliminate Huanglongbing from California and all other citrus producing areas.

One of the approaches is using *Tamarixia radiata*, a parasitizing wasp imported from Pakistan by Mark and Christina Hoddle at the University of California, Riverside. These wasps have been released in several areas of Los Angeles, Riverside, and San Bernardino counties. Not only does *Tamarixia* lay eggs in the Asian psyllid, but the females have also been observed feeding on them. With these results UC Riverside is now ramping up the production of *Tamarixia*.

Another approach is looking into maximum summer temperatures for controlling the spread of Citrus greening. Summer temperatures above 104°F seem to slow the disease from entering and spreading throughout the tree. These temperatures also seem to have an effect on the psyllid's ability to transmit the disease. This could explain the slower spread of Huanglongbing in California as opposed to the more even temperatures in Florida. Heat-treating of scion wood is being tested and is showing a reduction of the bacterium and in some cases actually eliminating it all together. These are preliminary laboratory results and will need to be further studied.

As you can see the situation continues to evolve. Although the insect has not been detected

north of the quarantine area, most people involved in the project, at the very least believe the insect will continue to move north through California's citrus growing areas. Many producers of citrus trees north of the ACP quarantine area have already made preparations by screening mother and increase blocks and have joined the southern producers in offering certified clean trees to the public and citrus growers.

Questions and Answers

Tom Spellman: Thank you very much for that excellent presentation. I think there's one thing worth mentioning. The find of the single, infected tree in Hacienda Heights, California, is known to have come from illegally imported budwood from China. So we know the one infected psyllid did not transmit the disease to the tree, but actually the tree transmitted the disease to the psyllid. To this date, there is no evidence the HLB bacteria or infected psyllids could actually survive in southern California. Considering the kind of extreme temperatures we can have, there's a good chance that it cannot survive in southern California.

Richard Criley: Are there any ornamental plants that are either susceptible and/or a carrier for the disease?

Dan Nelson: Yes, there are other closely related *Citrus* species that are affected.

Charles Brun: How many individual wasps are needed to establish a stable population for control in a county or district?

Dan Nelson: Those numbers haven't been determined yet. Work in Pakistan showed that the wasp only feeds on this psyllid so when the psyllids are gone the wasp population drops rapidly.