

## Asian Citrus Psyllid and Huanglongbing Disease Information

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Huanglongbing disease is a devastating disease of citrus that is spread either by grafting infected plant tissue or by citrus psyllids. We currently do not have either the Asian citrus psyllid or the disease in California and must do everything we can to prevent them from establishing. The enclosed information is designed to train you to recognize the psyllid and the symptoms of the disease so that you can be an early warning system and help prevent their establishment.

The Asian citrus psyllid (ACP) is a pest of citrus and close relatives of citrus (for example plants in the *Murraya* genus such as the ornamental orange jasmine or the *Berberis* genus, such as Indian curry leaf used in cooking. Psyllids are plant sucking insects, similar in size to an aphid. ACP lays its almond-shaped, bright yellow-orange colored eggs on the newest, most tender leaves. The eggs hatch into tiny yellowish-orange nymphs that feed exclusively on soft new leaves. A unique characteristic of this psyllid is that the nymph produces a waxy tubule at its rear end that directs the honeydew that it excretes away from its body. Adult psyllids are brownish in color and feed with their heads touching the surface of the leaf so that the rear end of their bodies are lifted up at a 45° angle.

The ACP damages citrus by sucking out large quantities of plant sap and producing copious amounts of honeydew that later is covered by sooty mold. In addition, ACP injects a toxin that causes the malformation of leaves and shoots. However, the most serious damage caused by ACP, is due to its ability to efficiently vector the bacterium *Candidatus Liberibacter* that causes the citrus disease Huanglongbing (HLB), formerly known as citrus greening. Adult psyllids can live for 1-2 months and once they have acquired the HLB bacterium they carry it for life, transmitting it to additional citrus trees as they feed and inject saliva.

Huanglongbing (HLB), Chinese for “yellow shoot disease,” most likely originated in China. In South Africa, this disease was known as citrus greening because fruit from infected trees did not color up but instead remained green. Although greening is much easier to say and remember for non-Chinese speakers, huanglongbing is the internationally accepted name of this disease. HLB infected trees are difficult to diagnose because the disease can take more than a year to cause symptoms in a tree and resembles other diseases (such as stubborn disease) and nutritional deficiencies (such as zinc). Early symptoms of HLB include a yellowing of only one limb or sector of the tree canopy. The most characteristic symptom is an asymmetrical blotchy mottling of leaves. Nutritional mottling occurs symmetrically along leaf veins. Chronically infected trees display extensive twig and limb dieback, tend to drop fruit prematurely, and are sparsely foliated with small leaves that point upward. The fruit produced by infected trees is small, green, underdeveloped, and misshapen, with aborted seeds and bitter in taste. Thus, the fruit can't even be marketed as juice. Worldwide, HLB is the most devastating of all citrus diseases. There is no cure for the infected trees, which decline and die within a few years.

In the United States, ACP was first found in Palm Beach County, Florida, in June 1998 in backyard plantings of *Murraya paniculata* (orange jasmine). By 2001, it had spread to 31 counties in Florida with much of the spread due to movement of infested nursery plants. In the spring of 2001, ACP was accidentally introduced into the Rio Grande Valley of Texas on potted orange jasmine from Florida. The ACP could invade California at any time, with most likely sources of infestation being Florida, Mexico, Hawaii or Asia. There were 170 interceptions of ACP at USA ports on plant material (primarily *Murraya* and citrus) from Asia during 1985-2003. HLB is not known to occur in California at this time, but since its discovery in Florida in September 2005, the potential for its introduction has greatly increased. Texas and Mexico have not yet reported positive HLB findings but historically when an area is infested with ACP the HLB bacteria are discovered a few years later, as in the case of Florida.

You can take the following steps to help keep both HLB and ACP out of California.

1. When propagating citrus, use only budwood from a registered and tested source tree that is known to be free of disease.
2. Purchase new rutaceous plants only from a reputable nursery.

3. Do not bring the following into California: citrus or other rutaceous plants (especially *Murraya* and *Berbera* species) from Florida, Texas, Hawaii, Mexico or wherever the ACP and/or HLB are present.
4. Monitor citrus and rutaceous plants for ACP: look for adults, eggs, nymphs, and the white tubules that the nymphs produce.
5. Monitor citrus for HLB symptoms: look for asymmetrical yellowing of leaves and small misshapen fruit.

If you think that you have a plant with HLB symptoms or that you have an infestation of Asian citrus psyllid, please contact your local county agricultural commissioner's office (see [http://www.cdfa.ca.gov/exec/county/county\\_contacts.html](http://www.cdfa.ca.gov/exec/county/county_contacts.html)) or call the California Department of Food and Agriculture number 1-800-491-1899 immediately.

For additional information:

- Grafton-Cardwell, E. E., K. E. Godfrey, M. E. Michaels, C. C. Childers, and P. A. Stansly. 2006. Asian citrus psyllid. Oakland: University of California Division of Agriculture and Natural Resources, Publication 8205. (<http://anrcatalog.ucdavis.edu/pdf/8205.pdf>)
- M. Polek, G. Vidalakis, and K. Godfrey. 2006. Citrus Bacterial Canker Disease and Huanglongbing (Citrus Greening). UC ANR Publication 8218, 12 pages. <http://anrcatalog.ucdavis.edu/pdf/8218.pdf>