

Citrus Greening is a destructive disease of all commercial citrus species and there is no known cure.



TREE SYMPTOMS:
Bright yellow shoots among green canopy, leaf drop.



Key Facts

- ❖ **Citrus Greening, often called HLB** for its original name Huanglongbing, is caused by a bacterium, *Candidatus Liberibacter asiaticus*.
- ❖ HLB is spread through graft-transmission and an insect vector, the **Asian citrus psyllid (ACP)**.
- ❖ Visible symptoms of the disease may not appear for more than one year after initial infection. In this time, all of the neighboring citrus trees may become infected too.
- ❖ HLB disease was first identified in Guam in December 2014 but the ACP insect vector has been present for many years in Guam and all the Mariana Islands.

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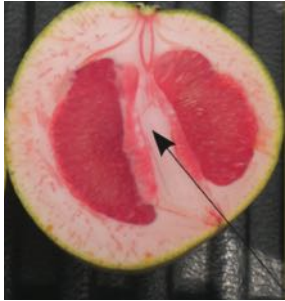
Images from USDA-ARS, USDA-APHIS or
FAO unless otherwise noted.

Citrus Greening (Huanglongbing)

A field guide to identification of Citrus Greening in Guam.

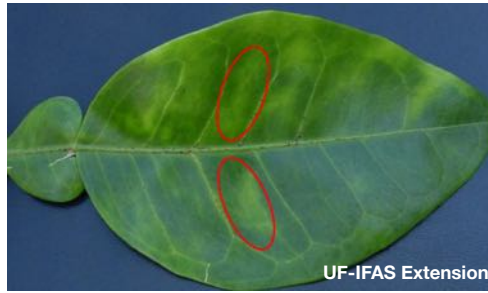


Common Symptoms



FRUIT SYMPTOMS:

Fruit often are reduced in size or drop early. Other common symptoms are: (above) lopsided fruit with curved columella (arrow); (above right) poorly colored fruit; or (right) fruit with color inversion.



LEAF SYMPTOMS:

Top right: Blotchy, mottled leaves. Notice that mottling is not uniform on either side of the mid-rib. *Right:* Green Islands and corky raised veins. *Bottom right:* yellowing of veins.



PRESENCE OF ACP

Top left: adult. *Top right:* nymphs with distinctive waxy tubule. *Left:* size comparison for ACP adults.



Management Recommendations

- ❖ Provide adequate nutrition for citrus plants.
- ❖ Practice good field sanitation. Dispose of HLB-infected debris away from other citrus plantings and sanitize all cutting equipment.
- ❖ Monitor for ACP insect vectors regularly. ACP are especially active when a new flush of leaves emerge.
- ❖ Follow label recommendations for insecticides, synthetic or organic. Avoid spraying any insecticide when bees are active.

Differences between HLB and other problems

CITRUS GUMMOSIS: Tree and leaf symptoms similar to HLB. Look for amber colored sap oozing from the stem (right). This disease is caused by *Phytophthora* spp.



NUTRITIONAL DEFICIENCY SYMPTOMS: Nutritional deficiencies show the same pattern on both sides of the leaf.



Nitrogen deficiency: light yellow or green leaves. Appears first on older, mature leaves.

Iron deficiency: pale to yellowish leaves with intense green veins. Appears first on young leaves.

