

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

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.



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

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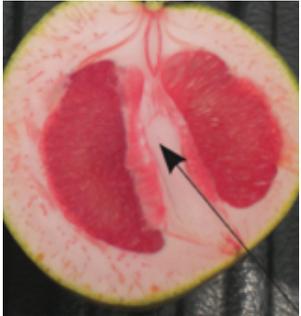
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Citrus Greening (Huanglongbing)

A field guide to identification of Citrus Greening in Guam.



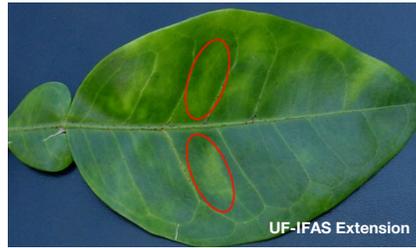
Common Symptoms



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.



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



LEAF SYMPTOMS:
Blotchy, mottled leaves. Notice that mottling is not uniform on either side of the mid-rib.



Green islands and corky raised veins.



Yellowing of veins.

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.

Difference Between HLB and Other Problems

CITRUS GUMMOSIS



Tree and leaf symptoms similar to HLB. Look for amber colored sap oozing from the stem.

This disease is caused by *Phytophthora* spp.

NUTRITIONAL DEFICIENCY

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.