Huanglongbing (HLB) bacterium—*Candidatus* Liberibacter asiaticus

CALIFORNIA DEPARTMENT OF FOOD & AGRICULTURE

Pest Fact Sheet

Introduction: *Candidatus* Liberibacter asiaticus (*C*Las) is a phloem-limited bacterium that causes the fatal citrus disease, Huanglongbing (HLB), also known as citrus greening. The bacterium is vectored by the Asian citrus psyllid (ACP) *Diaphorina citri* Kuwayama. The first ACP detection in California was in San Diego in 2008, triggering ongoing statewide risk-based surveys and testing for the bacterium. Four years later, the first *C*Las infected tree was detected in Los Angeles County. ACP has since been confirmed in 30 counties and nearly 12,000 *C*Las infected trees have been removed from seven counties in southern California: Orange, Los Angeles, Riverside, San Bernardino, San Diego, Ventura, and Imperial, with most infected trees coming from residential areas in Orange and Los Angeles. The HLB quarantine zone in CA currently encompasses 3,416 sq miles. Genotyping data on 175 *C*Las isolates show distinct groupings, suggesting multiple origins of introduction into California.



Pomelo (top) and lemon leaves infected with *C*Las in Los Angeles, CA. Adult ACP and nymphs producing waxy tubules containing honeydew.

Distribution: HLB was first described in southern China in 1919. The disease is associated with three *Candidatus* Liberibacter (*Ca* L.) species: *C*Las, *Ca* L. africanus (*C*Laf) and *Ca* L. americanus (*C*Lam). *C*Las is the most widespread species in Asia, South and North America, and it has almost completely replaced *C*Lam in Brazil. In Africa, *C*Laf is the predominant species but *C*Las has now been reported in Ethiopia and Kenya. Currently, the only citrus growing regions remaining free from HLB are Europe, Australia, and New Zealand. In the United States, only *C*Las has been reported in Florida (2005), Louisiana (2008), Georgia (2009), South Carolina (2009), Texas (2012), California (2012), Alabama (2017), Mississippi (2025), and Arizona (2025).

Description: *C*Las can infect all citrus and their close relatives. Twig dieback and premature fruit drop may be observed and fruit can be smaller, lopsided, and show greening. Symptoms vary depending on citrus species. They range from classic asymmetric blotchy mottling and yellowing of the leaves, as seen in most hosts, to reduced leaf size and absence of fibrous roots such as in Kumquat and corky leaf veins in grapefruit. Some hosts such as finger lime, trifoliate orange and kumquat show no remarkable leaf symptoms even when the bacterial titer is high.

Biology: There is no cure for HLB. *C*Las is transmitted when ACP feeds on the leaves and flush of the tree. It can be mechanically spread by grafting with infected budwood. The bacteria accumulates in phloem rich tissues of the petioles, midribs, peduncles, stem, and roots, cutting off food supply and leading to systemic decline and death of the tree.

Economic importance: The Florida citrus industry lost over $7.8 bill from 2011-2015 due to HLB. During 2024-25, production in Florida was down to $0.27 bill, accounting for only 13% of total US citrus production. California is now the top citrus-producing state in the US accounting for 84%, worth close to $3 bill (2024-25). California spends $33 mill annually on surveys, treatment, biocontrol, diagnostics, trapping and various regulatory activities to protect the California citrus commercial groves from HLB.



First infected tree in Los Angeles, CA

References:

CDFA - Citrus - Huanglongbing Pest Profile / CPDPD CHRP Reports

Citrus Greening and Asian Citrus Psyllid | APHIS

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Prepared by L. Kumagai, S. Albu, and C. Blomquist (August 2026); Plant Pest Diagnostic Laboratory (https://www.cdfa.ca.gov/plant/PPD/).