

Huanglongbing

What is huanglongbing?

Huanglongbing (HLB), also known as citrus greening is a devastating disease of citrus and other Rutaceae species that leads to tree decline and death. There are three strains of bacteria that cause the disease, *Candidatus Liberibacter asiaticus*, *Ca. L. africanus* and *Ca. L. americanus*. HLB is transmitted by the Asiatic citrus psyllid (*Diaphorina citri*) and African citrus psyllid (*Trioza erytreae*). All commercial citrus are affected as well as Australian native citrus and some ornamentals in the Rutaceae family including orange jasmine (*Murraya*). The disease affects all plant parts and growth stages of citrus and there is currently no cure.

What should I look for?

Symptoms vary with season and between citrus species and varieties. Common symptoms include complete yellowing of leaves and growing shoots or chlorosis and mottling of leaves that crosses leaf veins and is asymmetrical on the leaf blade. Branch dieback and thickening of midribs and veins may also be observed.

Other symptoms include unseasonal and heavy flowering on diseased branches and out of phase flushing. Chronically infected trees are sparsely foliated with extensive twig and limb dieback and small, upright leaves with compressed internodes. Eventually the tree may go into complete decline and die. Fruit may be small, lopsided, hard and bitter-tasting with dark, aborted seeds. Fruit may also remain partially green or ripen backwards and excessive fruit drop may also be observed.

What can it be confused with?

HLB can be confused with mineral deficiencies, particularly zinc, however, mottling of leaves crosses veins in HLB and is asymmetrical, whereas in zinc deficiency, mottling occurs symmetrically between or along leaf veins. In addition, in mineral deficiency yellowing is distributed uniformly throughout the



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Mottled leaves and partially green fruit



Hilala Gomez, USDA

Chlorotic leaves with green islands



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Small lopsided fruit



canopy, whereas in HLB it appears randomly arranged in the canopy. HLB may also be confused with other diseases such as Australian citrus dieback, citrus tristeza virus, Phytophthora root rot and citrus blight.

How does it spread?

Short distance spread occurs via the Asian and African citrus psyllid vectors. Movement of these vectors on wind currents can also lead to long distance spread of HLB. Other routes of spread are through the movement of HLB-infected citrus plants or plant material (budwood, cuttings, rootstock) and also plants and plant material (e.g. leaves) infested with Asian or African citrus psyllid eggs or nymphs that are infected with HLB. This includes host plants such as orange jasmine (*Murraya*) and curry leaf (*Bergera koenigii*).

Where is it now?

The Asiatic strain of HLB (*Ca. L. asiaticus*) is present throughout Asia, in the Middle East, South America, Central America, the Caribbean and some southern states of the USA. Regions close to Australia where it is present include Indonesia, East Timor and Papua New Guinea. The African strain (*Ca. L. africanus*) is found in Africa and the Middle East and the American strain (*Ca. L. americanus*) is found in Brazil.

How can I protect my orchard from Huanglongbing?

Ensure propagation material is purchased from suppliers that source their budwood from Auscitrus. Check your orchard frequently for the presence of new pests and investigate any sick plants for unusual symptoms. Keep records of anything unusual and ensure that all staff and visitors adhere to orchard biosecurity and hygiene practices.

If you see anything unusual, call the Exotic Plant Pest Hotline

**EXOTIC PLANT PEST HOTLINE
1800 084 881**



Pomelo tree showing dieback

Hilda Gomez, USDA



Leaves showing blotchy mottling

DPI NSW

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