

CITRUS GROWERS PREPARING TO BATTLE HLB



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PHOTO: Citrus trees in Bhutan dying of HLB. When trees become infected, the disease starts in the roots and it can take months or years for above ground symptoms to appear. Meanwhile, yields are decreasing and fruit is becoming smaller.

INSET: Asymmetric blotchy mottle on leaves from an HLB affected tree in Florida.

QUICK TAKE

- Huánglóngbìng (HLB) is an incurable bacterial disease that is killing citrus worldwide.
- HLB is not in Australia yet, but is found in neighbouring countries to our north.
- Report any concerning symptoms – a lab test is needed to confirm infection.
- Early detection gives us a greater chance of eradicating any new pest or disease threat.

Diseases can destroy an industry, and huánglóngbìng (HLB) is a devastating disease threatening citrus production worldwide.

THE disease has not been found in Australia yet, but the symptoms were first reported in Asia a hundred years ago. In the USA, HLB was first detected in Florida in 2005, and production subsequently declined more than 90% and costs doubled. In Brazil, the citrus industry has battled HLB since 2004, with an estimated 55.5 million trees removed in São Paulo between 2005 and 2019. Across South-East Asia, orchards have an average lifespan of 7–10 years due to HLB. This raises the question, could the Australian citrus industry survive HLB?

Also called citrus greening, HLB is a graft-transmissible bacterial disease spread from tree to tree and orchard to orchard by infected propagation material (budwood, rootstock seed, cuttings), on cutting tools and via psyllid vectors, most commonly the Asiatic citrus psyllid (ACP). Psyllids are small insects which feed on the sap of infected trees and spread the bacteria between trees when feeding.

When trees become infected the root systems decline first, and it can take months to years for symptoms to appear above ground. The bacterial infection reduces the movement of nutrients throughout the plant, therefore leaf symptoms can look like nutrient deficiency with complete yellowing or symmetrical leaf patterns; or leaves can have an asymmetrical blotchy mottle where the pattern is different on either side of the mid rib. Yields are reduced and fruit are smaller and may be lopsided, with a bitter flavour and aborted seeds. The bottom half of fruit may also stay green, the opposite to normal fruit ripening. There is no cure for this disease with infected trees declining and eventually dying.

Millions of dollars have been spent overseas learning about HLB, attempting to find a cure and ways to prolong the life of infected trees. While there are no effective, long-term management solutions, living with the disease involves planting disease-free trees, looking for and removing diseased trees, and managing psyllid populations.

Disease-tolerant varieties, where infection is delayed and trees can still produce a crop, are available commercially overseas but the industry needs palatable, commercially viable resistant varieties where the disease cannot take hold. International collaborations are attempting to develop resistant varieties with commercial potential, using Australian native limes as a source of resistance genes.

Other management strategies include high density plantings that can increase yields per hectare in the early years before the trees decline and die. Antibiotic injections are used in some countries, but regulations and public opinion may not support their use in other countries. Individual tree covers or screened orchards to exclude the psyllid vectors can favour other pests within the screened environment and may be cost prohibitive in Australia. Chemical and biological control can also be used to manage psyllid populations, but chemical resistance is a risk, and it only takes one psyllid to infect a tree.

Are we prepared for an outbreak of HLB or ACP?

Industry and government are proactive in preparing for exotic pest and disease outbreaks. The Australian quarantine system protects our borders, and we have an organised Plant Biosecurity Framework which has been tested during significant responses such as the successful eradication of citrus canker from Darwin and Katherine in 2018 and



A dying citrus orchard affected by huánglóngbìng (HLB) in Florida in 2010, 5 years after HLB was first found in the state.



Asiatic citrus psyllid feeding on a citrus leaf in Bhutan – note the body positioned at a 45° angle to feed.

Emerald in 2004. Eradication is more likely to be achieved the earlier the new pest or disease is found after entering the country.

As with any emergency response, maintaining the partnership between industry and government is crucial. Orange jasmine, a popular hedging plant in Australia, is the preferred host for ACP therefore both the citrus and nursery industries will be involved in a response. Government and industry funded surveillance programs look for the psyllid in urban areas as well as nurseries and orchards to increase the likelihood of early detection.

We already have an established domestic disease management system for preventing nursery and orchard infections of graft-transmissible diseases. Auscitrus is an industry organisation which supplies budwood and rootstock seed from true-to-type and health-tested trees to prevent spread of graft-transmissible diseases, many of which we already have in the country. This system will prove invaluable if new diseases like HLB are introduced to Australia.

We are also making sure that we know how to recognise the symptoms, how to detect the bacteria using the best methods available and how to manage the disease and vector to reduce their impact.

What can you do?

Until we have a cure for HLB, the key is prevention. The use of healthy propagation material is not mandatory in Australia. Nor was it mandatory in California and Brazil but it quickly became so after dealing with major graft-transmissible disease outbreaks. When buying trees, it is important for growers to ask where budwood was sourced.

There is limited scope for production improvements in Australian orchards, due to the already high cost of local production, but overseas experience tells us that in the event of an outbreak, nurseries may need to produce trees in biosecure, screened structures to prevent disease transmission by insects.

Nursery and orchard workers should also become familiar with the symptoms of exotic pests and diseases and report any concerns by phoning the Biosecurity Hotline on 1800 680 244, filling out the online form [Report a pest or disease | Department of Primary Industries](#) or emailing quarantine@dpi.nsw.gov.au. There is information on the NSW DPIRD website about [exotic pest and disease threats](#). A lab test is needed to confirm infection, given the symptoms may be confused with other diseases or disorders.

Huánglóngbīng (HLB) is devastating citrus orchards worldwide. To avoid the same fate in Australia, we need to increase our preparedness, maintain our ability to detect the disease and keep up to date on ways to manage the disease and vector to reduce their impact if they ever reach our shores. 🌤️

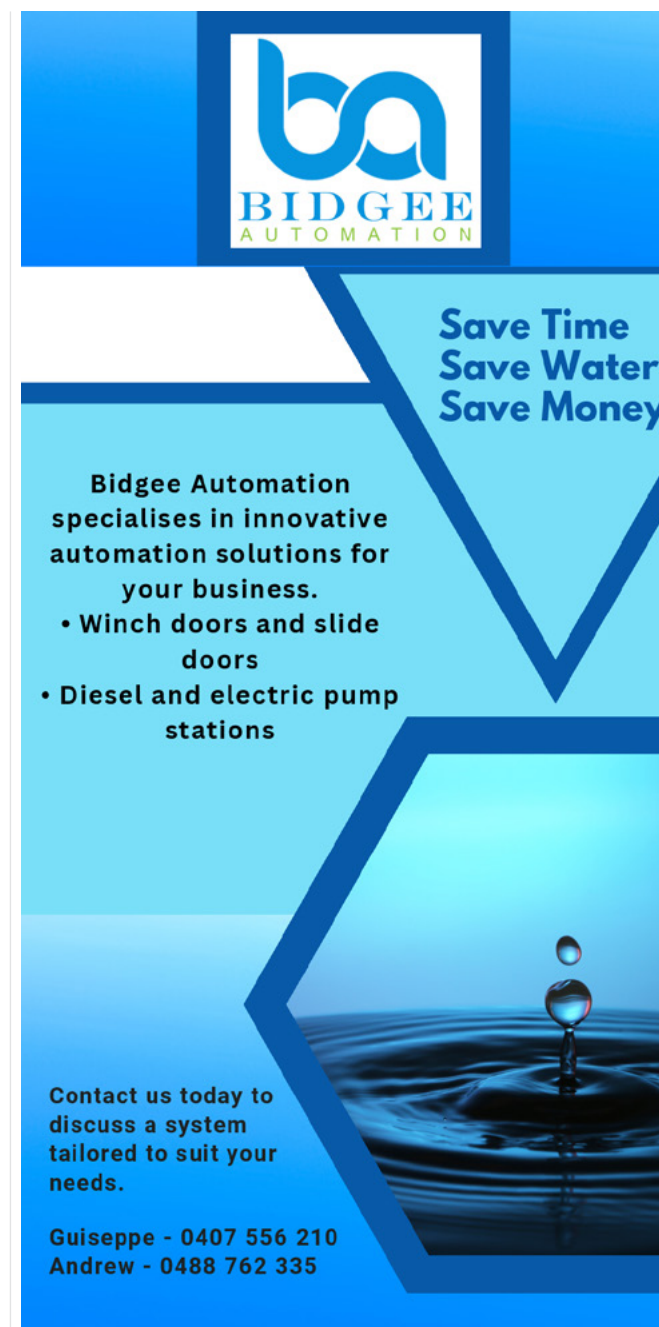
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[BACK TO CONTENTS PAGE](#)



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