

Improving our preparedness for *Xylella fastidiosa*

Angela Atkinson, Industry Development Officer, Strawberries

Xylella fastidiosa is an invasive bacterial plant pathogen that causes significant environmental and economic impacts. It is No. 1 on Australia's Top 40 list of exotic and unwanted plant pests and has the potential to kill more than 350 commercial, ornamental and native plant species.

Depending on the host plant species, the disease is known by a range of common names, including **leaf scorch** in a number of species (almond, blueberry, coffee, elm, oak, oleander, maple, mulberry and plane trees), **Pierce's disease** in grapevines and **variegated chlorosis** in citrus, amongst others.

The bacteria infect the xylem vessels of host plants, reducing the uptake of water and nutrients and leading to reduced plant or fruit growth, leaf scorch and plant death in many cases. *Xylella* can be spread by sap sucking insects, such as leaf hoppers and spittle bugs. Once established, there is no evidence that it can be successfully eradicated.



Leaf scorch on blueberry

Xylella is now found across much of southern Europe from Italy to Portugal as well as in North and South America, Taiwan and parts of the Middle East.

In Italy, *Xylella* is killing groves of olive trees over 1000 years old, and causing significant economic losses in many crops, such as fruit and nut trees (including blueberry), vegetable crops and some field crops around the world.

As the diseases caused by the plant bacteria *Xylella* continue to plague horticultural sectors overseas, work is underway in Australia to prepare for what many fear could be its inevitable arrival in this country.

Hort Innovation and Wine Australia are jointly funding a project to improve the preparedness of the Australian horticultural sector for the threat posed by *Xylella* (MT17006). Part of this strategy has been the appointment of a *Xylella* coordinator, Craig Elliott, earlier this year, under the Plant Biosecurity Research Initiative. His previous roles have included Operations Director for Biosecurity Tasmania and Incident Controller for the National Biosecurity Response Team, ensuring he is well placed to understand the risks and challenges faced by industry from this threat.

"In taking on this role my first thought was what day one of a response would look like and the questions we'd have," Mr Elliott said. "In simple terms, we need to know how we can detect it, contain it and eradicate it as quickly, effectively and cost efficiently as possible".

Since commencing, Mr Elliott has criss-crossed the country speaking with representatives of the sectors at risk from *Xylella* and government biosecurity managers to raise awareness of the issue and identify how to address existing gaps.

"There is a good reason why this is Australia's number one plant biosecurity threat. For winemakers and grape growers alone, the potential impact has been estimated at between \$2 billion and just under \$8 billion dollars in production losses and management costs over a fifty-year period. Add in the costs to other sectors and you begin to understand the potential impact on our horticultural sectors and individual growers," Mr Elliott said.

However, it is not all 'doom and gloom'. Through this new project, good relationships are being built with industries overseas that are managing this disease. Mr Elliott is encouraged by how the viticulture industry in California is managing *Xylella*, focussing on restricting the spread of their key insect vector, the Glassy Winged Sharp Shooter, while searching for resistant or tolerant varieties to sustain the industry into the future.

The key is prevention, and growers are encouraged to review their biosecurity measures across their business and supply chain with a particular emphasis on:

- Only sourcing plant and other material from reliable nurseries who demonstrate good biosecurity hygiene practices,
- Restricting access to their property and having a quarantined area that only 'clean' staff, contractors and equipment can enter,
- Monitoring for signs of pests and disease to detect incursions early,
- Having a plan to respond to a pest or disease outbreak to contain the problem as quickly as possible, and
- Talking to their neighbours and government staff to share information and having a network ready to support each other.

"If you aren't in front of these types of risks then you are setting yourself up to fail", Mr Elliott said. "Growers need to make sure that they are focused on their own border at the farm gate as an extra layer of protection. Having a biosecurity plan to manage access and suppliers backed up by all staff being trained in what to look for, plus a plan of how you'd respond to an incursion, has to be a core part of your business.

If you don't keep this front of mind and emphasise it to everyone involved in your property, you're putting the future of your business at risk."



Infected blueberry plants with yellow stems & 'skeletal' appearance

Hort Innovation is also funding work to update Australia's diagnostic protocols for *Xylella*, including trialling field diagnostics kits that may enable identification of potential *Xylella* infections earlier and reduce the workload on laboratories during an outbreak. Other international research includes the potential use of multispectral images that may enable detection of *Xylella* before visual symptoms become apparent, and a cross-sectoral research project is under development to better understand the insect vectors present in Australia."

"There is significant investment by a number of sectors overseas, in infected areas, to identify ways to minimise transmission and develop more resilient plant species. We are tapping into that work to learn from their experiences and effort," Mr Elliott said.

The National Xylella Preparedness Program is jointly funded by Hort Innovation and Wine Australia.

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