

# NURSERY PAPERS

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## Expanding emergency measures for *Xylella fastidiosa*

### SUMMARY

The Commonwealth Department of Agriculture, Fisheries and Forestry (DAFF) has updated protocols to handle the threat of *Xylella fastidiosa*, a significant bacterial pathogen, in imported nursery stock.

Effective December 2023, regulatory measures are enforced for plants within the Simaroubaceae family to mitigate the risk of *Xylella*.

These measures are part of Australia's emergency precautions against *Xylella fastidiosa* and its sub-species, as well as *Xylella taiwanensis*, aimed at safeguarding the country from their entry, establishment and spread.

The department will inform trading partners of these changes via a Sanitary and Phytosanitary (SPS) notification.



Severe symptoms of Olive Quick Decline Syndrome caused by *Xylella fastidiosa* subsp. *pauca*. (Photo by Dr. Pragya Kant, Agriculture Victoria)

### BACKGROUND

*Xylella fastidiosa* (Pierce's disease), a bacterium transmitted by sap-sucking insects, is one of the most harmful plant pathogens worldwide.

*Xylella* is Australia's top priority plant pathogen as it has the potential to severely impact our agricultural and horticultural industries and the environment. In addition to having a large host range, *Xylella* is easily spread by sap-feeding insects and the propagation of infected plants.

Emergency measures for *Xylella* were implemented in November 2015, and expanded in August 2020, June 2021, November 2021, May 2022, and December 2023 to strengthen Australian biosecurity requirements that safeguard against its entry.

The department has commenced a pest risk analysis of *Xylella* to evaluate these emergency measures and consider ongoing risk management measures to ensure that they are technically justified.

The department will continue to monitor and assess evidence of new risks posed by *Xylella* poses, and may amend import conditions again in the future.

### How does *Xylella* spread?

Globally, over 650 plant species host *Xylella fastidiosa*.

The bacterium infects the water transport tissues (xylem) of the host plant and can block these tissues, which can lead to plant death.

It is transmitted by xylem sap-feeding insects such as spittlebugs or sharpshooters. These tiny insects use a proboscis to consume xylem contents from the plant, and once they pick up the bacterium from an infected plant, they can transmit it through the same process to a new plant.

*Xylella* can also be spread through movement of infected plants and vegetative cuttings.

Though not yet present in Australia and New Zealand, an incursion could cost Australia's horticultural industries over \$1.2 billion annually. *Xylella* poses significant disease risk to several domestic agricultural commodities, including:

- grapevines
- almonds
- citrus
- stone fruit
- blueberries
- cherries
- dried fruit
- macadamias
- lucerne
- olives
- numerous ornamental hosts such as oak, elm, maple, and oleander.



## What's changed?

The known host range of *Xylella* is expanding.

Under Australia's emergency measures for *Xylella*, changes in host status means that new measures are needed to reduce the likelihood of this pathogen entering Australia. An update from DAFF shows that *Xylella* infects because *Xylella* is infecting new hosts, the emergency measures will be applied to the plant family Simaroubaceae.

Portugal updated host information on November 20, 2023, revealing the presence of *Xylella* in nursery stock imports. This included the first case of infection in *Ailanthus altissima*, a species not allowed for import in Australia, marking the initial host report from the Simaroubaceae family (DGAV, 2023).

Australia's emergency protocols for *Xylella* control the entire plant family if any species within it is confirmed as a natural host of *Xylella*.

This change affects the following genera within BICON (Australian Biosecurity Import Conditions):

- *Eurycoma*
- *Quassia*.

You can find more information on the import conditions that must be met for host plant propagative material, on the DAFF website: **Notification of amended emergency quarantine measures for *Xylella* - DAFF** (<https://www.agriculture.gov.au/biosecurity-trade/import/goods/plant-products/how-to-import-plants/xylella/notification-amended-emergency-quarantine-measures>)

## What type of plant material will be affected by the new changes?

The revised regulations implemented in December 2023 impact all permitted *Eurycoma* and *Quassia* species brought in as nursery stock, comprising tissue cultures, rooted plants and cuttings.

However, these alterations don't affect imports of true botanical seeds of *Eurycoma* and *Quassia*.

## How will import permits and new permit applications be affected?

The department will contact permit holders affected by these changes to modify existing permits accordingly.

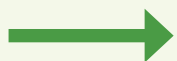
Importantly, because the department will initiate these adjustments, permit holders won't incur additional costs.

# What are the top tips for growers to protect themselves?



### Establish strict hygiene protocols

Implement rigorous hygiene practices, regularly disinfect tools and educate staff to prevent the spread of *Xylella fastidiosa*.



### Monitor, detect, and report

Conduct regular plant inspections for symptoms, collaborate with authorities and report any suspected cases promptly for immediate action.



### Control systems and diversify plant species

Manage insect vectors, diversify plant varieties, and avoid monoculture planting to reduce vulnerability and limit the impact of potential outbreaks.



### Comply with import regulations and collaborate

Adhere to import regulations, inspect incoming plants, and collaborate with other nurseries, institutions and authorities to share information and best practices.



### Invest in research, training, and preparedness

Support research initiatives, provide staff training and develop contingency plans to proactively handle potential outbreaks.



# Case study on *Xylella fastidiosa* with Dr Fiona Constable

***Xylella fastidiosa* is the number one exotic national priority pest for Australia, which could have severe impacts on a broad range of horticultural industries.**

That's according to Dr Fiona Constable, Research Leader – Microbiology, Agriculture Victoria, at the Victorian Department of Energy, Environment and Climate Action.

Dr Constable helped lead the recently completed project: Improving preparedness of the Australian horticultural sector to the threat potentially posed by *Xylella fastidiosa* (a severe biosecurity risk) (MT17006). The project looked at improving diagnostic capability to shore up Australia's defenses against a potential *Xylella fastidiosa* incursion.

This collaborative project was undertaken by Agriculture Victoria, New South Wales Department of Primary Industries, Western Australian Department of Primary Industries and Regional Development, Queensland Department of Agriculture and Fisheries, and New Zealand Ministry for Primary Industries. The project team broadened previous levy-funded project findings on the primary detection, diagnosis, and surveillance of all *Xylella* species, subspecies and sequence types across a broad range of hosts.

As part of the project, the Australian national diagnostic protocol was updated to include new information and state-of-the-art diagnostic assays, ensuring industry has the best and most accurate tools available if an incursion were to occur.

Dr Constable said the project is integral in developing a nationwide approach and a nationally harmonized diagnostic capability to support a biosecurity response if an incursion was to occur.

"*Xylella* has a broad host range and has the potential to significantly impact the productivity and sustainability of many horticultural crops," Dr Constable said.

In Puglia, Southern Italy, in 2013, a subspecies of *Xylella* caused a serious outbreak in olives, with some regions losing 100% of their historic olive groves.

After *Xylella* was introduced into the United States, swathes of vineyards died across the country. In 2014, management activities were estimated to cost the Californian grape industry (US)\$104 million each year.

"We are trying to prevent these extensive productivity and profitability impacts here if we were to have an outbreak," Dr Constable said.

Across the course of this three-year project, the team travelled to Europe and North and South America to get first-hand knowledge and experience in *Xylella* diagnosis, and to assess the impact the disease could have on Australia.

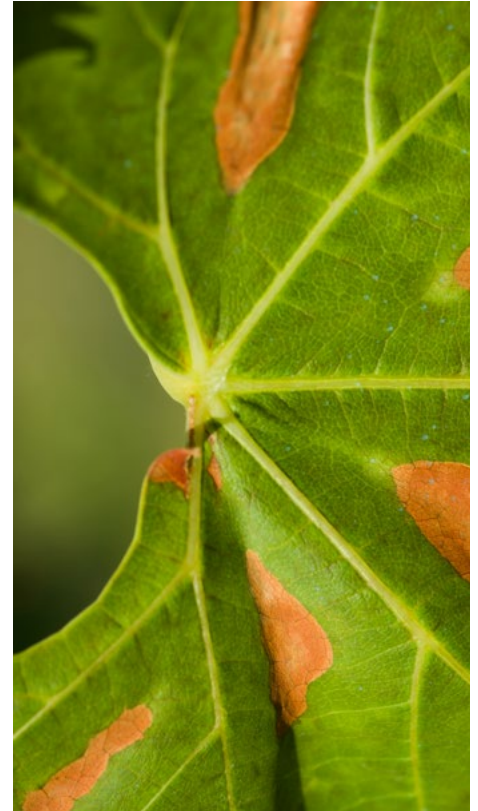
"This global information-sharing from our international counterparts influenced the outputs of the project as we incorporated relevant testing procedures, including plant sampling, from overseas," Dr Constable said.

"This has ensured the updated national diagnostic protocol has included best practice around sampling and testing, which is integral to achieve accurate results.

"The project also developed a collection of *Xylella* strains which is held by New Zealand Ministry for Primary Industries. DNA of the strains was shared amongst the project partners to support further research and development into strengthening diagnostic and surveillance capabilities in Australia and New Zealand.

"After genome sequencing different strains of *Xylella* in our labs, we used the data to develop new and improved diagnostic tests for Australia, so that in the future, if there was an incursion, we would have the most accurate tests to inform the best course of action.

"Determining what strain of *Xylella* you have is critical for management, as each strain can have different hosts, which then informs specific outbreak responses and pest management procedures."



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***Xylella* has a broad host range and has the potential to significantly impact the productivity and sustainability of many horticultural crops**





## LOOKING TO THE FUTURE

**With the project now complete, the team is looking towards the next steps to shoring up Australia's defenses against *Xylella*.**

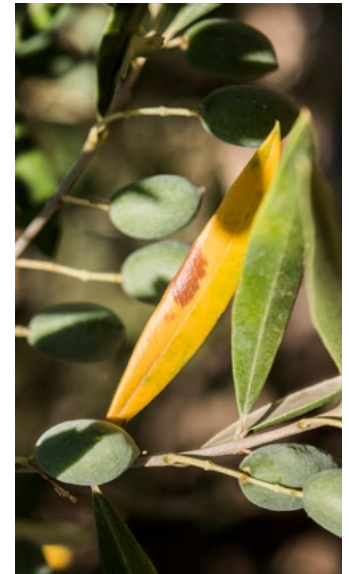
"It's important that the research doesn't stop here. Continually reviewing our national diagnostic protocol as new information becomes available will ensure the efficiencies and effectiveness of diagnosis and treatment should we have an incursion," Dr Constable said.

"Further research into local Australian vectors is needed, such as which native insects might be transmitters of the bacterium, alongside identifying the susceptibility of native plant species to different strains of *Xylella*."

Dr Constable said knowledge-sharing across industry and nations is important to keep Australia ahead of the curve in preventing outbreaks of *Xylella*.

"Have a chat with your local extension officer about *Xylella* and stay on top of managing diseases that may already be present in your business."

"We are incredibly lucky to not have a local, known outbreak of *Xylella* but the risk of introducing the bacterium is high, so we need to start preparing now," Dr Constable said.



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## Further information

For detailed information on *Xylella* in nursery production visit:

- <https://nurseryproductionfms.com.au/pests-diseases-weeds> for a factsheet
- <https://pestid.com.au> for pest identification information.

Read the *Improving preparedness of the Australian horticultural sector to the threat potentially posed by Xylella fastidiosa (a severe biosecurity risk)* (MT17006) report at:

- <https://www.horticulture.com.au/growers/help-your-business-grow/research-reports-publications-fact-sheets-and-more/mt17006b/>

To organise a call from a GIA Extension Officer:

- find your local Extension Office at <http://nurseryproductionfms.com.au/technical-service-providers>

To contact DAFF about *Xylella*:

- call **1800 900 090**
- email [imports@aff.gov.au](mailto:imports@aff.gov.au) with the subject line 'Plant T2 - *Xylella* emergency measures'.

## REFERENCES

DGAV (2023) DESPACHO N.º 65/G/2023 Assunto: Atualização da Zona Demarcada para *Xylella fastidiosa* na Covilhã. [https://www.dgav.pt/wp-content/uploads/2023/11/Despacho-65\\_G\\_2023\\_ZDXf\\_Covilha\\_nov2023.pdf](https://www.dgav.pt/wp-content/uploads/2023/11/Despacho-65_G_2023_ZDXf_Covilha_nov2023.pdf)

Past Nursery Papers: <https://www.greenlifeindustry.com.au/communications-centre>