NURSERY PAPERS
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# KNOW THE PEST, STOP THE SPREAD

For nursery operators, pests like tomato potato psyllid aren't just a technical issue – they're a business risk. An undetected infestation can quickly lead to plant losses, disrupted trade, and difficult conversations with customers and regulators. Understanding how TPP behaves, spreads and is managed is critical to protecting both plant health and reputation.

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## PEST THREATENING TO SUCK NURSERY PRODUCTION DRY

Pest infestations can quickly undermine even the most experienced nursery operator's hard work, reducing the quality and saleability of plants, and creating the reputational risk of unintentionally spreading infested stock and plant material.

Since its first Australian detection on the west coast in 2017, tomato potato psyllid (TPP) (*Bactericera cockerelli*) has continued to expand its range, with the most recent detection occurring in Victoria in October 2025.

The presence of TPP in Australia presents ongoing biosecurity, production and market-access challenges, particularly for nurseries producing solanaceous host plants or moving stock interstate.

For many nurseries, the challenge is not just recognising TPP but also managing risk across mixed production systems – where host and non-host plants are grown side by side, and stock moves frequently between sites or states.

Long-term, sustainable management requires the adoption of integrated pest management (IPM) strategies.

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# Impact of TPP on nurseries and horticulturalists

Once detected, TPP management typically involves rapid assessment of affected and at-risk stock, alongside immediate review of hygiene, monitoring and movement practices.

TPP is a small (2-3mm), winged, sap sucking insect. They feed on plant phloem tissue extracting sap, and at the same time injecting toxic saliva into plant tissue.

### Common symptoms associated with TPP feeding include:

| Visible feeding damage | Invisible damage |
|---|---|
| • Leaf yellowing (chlorosis)<br>• Cupping and deformation of foliage<br>• Shortened internodes<br>• General plant stunting | TPP is considered the primary vector of the bacterium *Candidatus Liberibacter solanacearum* (CLso), the causal agent of zebra chip disease in potatoes and other disorders in solanaceous crops.<br><br>CLso's association with TPP significantly elevates the pest's risk profile and requires strict regulatory and management responses. |

Cultivated and wild plant species, including potato, capsicum, chili, and eggplant, are particularly susceptible to TPP. Feeding damage can cultivate differently in various species, examples include:

| Species | Impact |
|---|---|
| **Tomatoes and capsicum** | New growth can appear twisted or brittle, while severe infestations can lead to premature leaf drop and reduced flowering. |
| **Potatoes** | TPP feeding can result in poor stem and foliage development and reduced tuber yield. |
| **Honeydew** | Growth of sooty mould, which reduces photosynthesis and plant presentation. |
| **Seedlings and young plants** | Even low psyllid populations may result in disproportionate damage, reducing plant growth and increasing discard rates. |

# **HOST V. CARRIER PLANTS:** WHAT'S SUSCEPTIBLE

**Understanding the difference between host and carrier plants is critical for nurseries managing mixed production systems, particularly where stock is moved interstate.**

Host plants support feeding and reproduction of TPP. Carrier plants do not support development but may transport adult psyllids on foliage, stems or packaging.

Nursery stock grown under protected cropping systems are not immune to TPP infestation.

Adults are highly mobile and capable of entering structures through vents and other openings, and once inside populations can establish rapidly if not detected early.

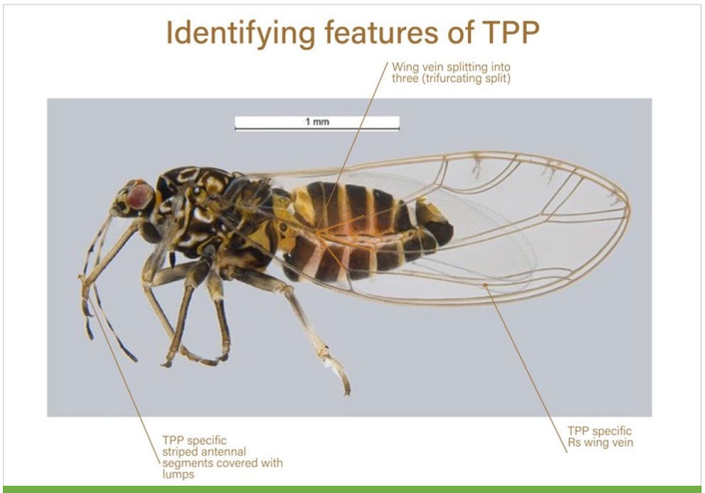
Nurseries producing mixed stock for interstate sales, including solanaceous crops alongside carrier species, must apply whole-site monitoring and hygiene protocols to reduce the risk of pest spread.

In practice, this means monitoring and hygiene can't be limited to one crop or area – whole-site awareness is essential, even when only a small portion of production is considered high risk.

Adult TPP. *Credit: (L) Charles Olsen – USDA Aphis PPQ, (R) Whitney Cranshaw – Colorado State University.*

***Table 1.*** *Host and carrier plant species associated with tomato potato psyllid*

| Category | Plant Groups/Examples | Relevance to Nursery Production |
|---|---|---|
| **Primary Host Plants** | Tomato (*Solanum lycopersicum*), Potato (*Solanum tuberosum*), Capsicum & chilli (*Capsicum* spp.), Eggplant (*Solanum melongena*), Tobacco (*Nicotiana* spp.) | Support full TPP life cycle; highest biosecurity risk; subject to strict interstate movement controls. |
| **Secondary/Alternative Hosts** | Sweet potato (*Ipomoea batatas*), Petunia spp., *Physalis* spp. (cape gooseberry, Chinese lantern), some *Lycium* spp. | Can sustain psyllid populations; important in mixed production nurseries. |
| **Weed/non-crop Hosts** | e.g. Nightshade (*Solanum nigrum* complex), volunteer solanaceous weeds; Native Solanum spp. | Act as reservoirs near production areas; require active weed management. |
| **Carrier Plants (Non-Hosts)** | Non-solanaceous ornamentals, shrubs, trees and herbaceous plants; i.e. all other crops | Do not support feeding or reproduction but may carry adults; regulated as “carrier plants” under state biosecurity arrangements. |




Identifying features of TPP. *Credit: Pia Scanlon – WA DPIRD.*

Adult TPP. *Credit: (L) Pia Scanlon – DAFWA Entomology, (R) Ashley De Vries.*

## HOW TPP SPREADS

The lifecycle of TPP progresses through egg, nymph and adult stages. Females lay small, oval, yellow-orange eggs on leaf margins, petioles and stems, often near growing points.

TPP can overwinter as adults on host plants or alternative weed hosts, enabling populations to persist year-round in favourable environments, including protected cropping and nursery settings.

The primary pathways for long-distance spread are the movement of nursery stock or infested plant material, and accidental transport of adults on equipment, packaging, or vehicles.

For nurseries in all states, affected or not, effective risk management relies on:

- complying with state-based movement controls
- Implementing robust hygiene practices
- participating in surveillance and monitoring programs

## MANAGEMENT & IPM

For growers, effective IPM is about balance – protecting high-value stock and market access while managing costs, resistance risk and operational workload.

Low-input IPM programs that combine monitoring thresholds, selective chemistry and cultural controls have been shown to effectively manage TPP effectively while reducing costs and minimising environmental impacts.

In times of TPP infestation, the biggest risk to a nursery is compliance, particularly in the movement and management of stock.

Maintaining a documented IMP demonstrates a nursery's compliance with continued market assurance and accreditation schemes.

## Effective TPP management includes:

| | |
|---|---|
| **Monitoring and early detection** | Regular crop inspection is critical, with particular attention paid to new growth where eggs and nymphs are most likely to occur. Yellow sticky traps are useful for detecting adult psyllids and identifying population trends over time. Early detection enables targeted intervention before populations reach damaging levels. |
| **Cultural Controls** | Exclusion measures such as insect-proof netting, screened vents and controlled entry points reduce the risk of psyllid ingress into protected structures. Weed management in and around nursery sites is essential, as many solanaceous and related weed species can act as alternative hosts.<br><br>Sanitation practices, including removal of infested plants and prompt disposal of plant waste, help limit population build-up. Movement of plant material within and between nursery sites should follow clean-down protocols to minimise spread. |
| **Biological Control** | Several natural enemies, including predatory bugs, lacewings and parasitoid wasps, are known to attack TPP overseas. While biological control options in Australia are still developing, conservation of beneficial insects through selective pesticide use forms an important component of IPM. |
| **Chemical Control and Resistance Management** | Chemical control remains an important component of TPP management in Australian nurseries, particularly for protecting high-value planting material and meeting market access requirements. However, no insecticides are currently registered exclusively for TPP, and control relies on products registered for other sucking pests or used under APVMA permits. |

Eggs on leaves. *Credit: Ashley De Vries.*

## INSECTICIDE AND CHEMICAL CONTROL CONSIDERATIONS

Selection of insecticides should always be guided by efficacy data, compatibility with IPM programs, and resistance-management principles, including rotation of modes of action. For interstate transport of host and carrier species, chemical treatment may be a requirement under state regulations.

**Check with your local GrowConnex officer or with the Department of Agriculture in the destination state for specifics.**

***Table 2.*** *Insecticides approved by APVMA for tomato potato psyllid control in Australia*

| Active Ingredient (Example Product) | IRAC Group/Mode of Action | Use Considerations for Nurseries |
|---|---|---|
| Abamectin (e.g. *Stealth*®) | Group 6 – Avermectins | Effective against nymphs; Used against sucking pests including TPP; registered for general use on many crops including ornamentals, vegetables and nursery stock; check label directions. |
| Bifenthrin | Group 3 – Pyrethroids | Available under off-label permit for carrier stock treatment; follow APVMA permit/label conditions; rapid knockdown of adults but resistance risk with repeated use. |

General infestation with nymphs and adults. *Credit: Pia Scanlon – WA DPIRD.*

# ADVICE FOR GROWERS:

- Always confirm current APVMA registration and permit conditions before application
- Rotate insecticides between different IRAC groups to minimise resistance development
- Integrate chemical treatments with monitoring, sanitation and exclusion strategies

## WHERE TO GET HELP

**Australian nurseries have access to a range of support resources through the levy, including:**

- **GrowConnex Extension Officers** – levy-funded support available to help with risk mapping, training and audit preparation.
- **State Agriculture Departments** – available to provide state-specific resources/
- **Pest ID Tool** – online diagnostic resource for identifying pest and disease symptoms.
- **BioSecure HACCP** – a step-by-step plant protection program supporting on-farm biosecurity.

Growers are encouraged to report suspected TPP detections promptly to the **exotic plant pest hotline: 1800 084 881** and to engage with GrowConnex Extension Officers to ensure best management practice.

Early detection, good hygiene and informed decision-making remain the most effective tools for managing TPP risk. GrowConnex Extension Officers can help you assess your specific risk profile and tailor management approaches that fit your production systems and market needs.

Visit ***greenlifeindustry.org.au/services***

### STATE SPECIFIC RESOURCES

- **VIC:** ***www.agriculture.vic.gov.au/biosecurity/pest-insects-and-mites/priority-pest-insects-and-mites/tomato-potato-psyllid***
- **QLD:** ***www.business.qld.gov.au/industries/farms-fishing-forestry/agriculture/biosecurity/plants/priority-pest-disease/tomato-potato-psyllid***
- **SA:** ***www.pir.sa.gov.au/crops-and-plants/weeds-and-pests/emergency-and-significant-plant-pests/pests_and_diseases_of_significant_concern/tomato_potato_psyllid***
- **NSW:** ***www.dpi.nsw.gov.au/dpi/biosecurity/plant-biosecurity/insect-pests-plant-diseases/tomato-potato-psyllid-tpp***
- **TAS:** ***www.nre.tas.gov.au/biosecurity-tasmania/plant-biosecurity/pests-and-diseases/tomato-potato-psyllid***



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