



tia
TASMANIAN
INSTITUTE OF
AGRICULTURE

utas.edu.au/tia



Blueberry Fact Sheet

Key Points

- **Blueberry rust is spread** by wind, carried on people, plants and equipment.
- **Prepare a farm biosecurity plan** to manage the movement of people, plants and equipment both onto and within your orchard.
- Become familiar with blueberry rust symptoms and **monitor your crop regularly**.
- Blueberry rust **spore production and infection** is favoured by **humid conditions**, temperatures between **19 and 25°C** and may be triggered by rain.
- **Reduce humidity** within the orchard by pruning to create an open canopy, good alleyway and edge management.
- **Apply crop protectants** using a suitable product, timing and application technique to prevent infection.
- **Protect young leaves** as these are most susceptible to blueberry rust.

Managing blueberry rust in a cool climate

Blueberry rust in Tasmania is caused by the fungus *Thekopsora minima*. The disease is currently limited to 3 sites in Tasmania (September, 2017). Preventing blueberry rust infection is a key to limiting the spread of this disease. The key steps in preventing blueberry rust infection include good farm biosecurity and applying crop management practices that reduce the risk of infection.

Where does blueberry rust come from?

Blueberry rust can exist exclusively on blueberries from season to season, especially if blueberries retain their leaves over winter. Alternative hosts include members of the rhododendron family and *Gaylussacia* spp. (Huckleberry). Blueberry rust can also complete its lifecycle on the alternate host (*Tsuga* sp.) particularly in cool climates. *Tsuga* are a group of conifers common in the Northern United States and Canada, but less common in Australia. Infected *Tsuga* needles can go on to re infect blueberries in the spring. It is not known whether the rust occurs on any alternate or alternative hosts in Tasmania so crop management is based around prevention of infection from spores produced on blueberry plants.

How is blueberry rust spread?

The disease is spread with spores carried by wind from infected plants, directly by people wearing contaminated clothing, equipment that has been in contact with infected blueberries or by introducing infected plants to the orchard.



Blueberry rust symptoms

- Blueberry rust first appears as small yellow leaf spots on the upper surface of young leaves. As the disease progresses these areas turn rust brown coloured and can be surrounded by a yellow halo. (Figure 1)
- Yellow-orange powdery rust pustules develop on the underside of leaves (Figure 2)
- The telial stage (not yet observed in Tasmania) may occur at the end of the growing season and appears as dark coloured crusts on underside of leaves



Fig 1: Top side of leaf with blueberry rust



Fig 2: Underside of leaf with blueberry rust pustules

Images courtesy Tasmanian DPI/PWE & NSW DPI

How can I prevent blueberry rust infection?

The first step to prevention is to have a good **farm biosecurity plan**. Resources: [Farm biosecurity](#) and [National blueberry biosecurity plan](#). Blueberry Orchard Hygiene Guidelines published by the Tasmanian Department of Primary Industries (DPIPWE) provides a good starting point. Crop management practices that help prevent blueberry rust infection can include cultural, chemical and biological practices.

Cultural management

High humidity and leaf wetness favour blueberry rust infection. **Pruning to create an open canopy can help leaves dry faster and reduce the humidity** within the bush. Whilst good shelter is beneficial for blueberry productivity, some airflow through the canopy can help prevent disease. Keeping the inter-row alleyways mown and free of tall weeds is good practice for reducing humidity in the blueberry canopy. High density plantings may favour disease development.

Prevention is better than cure

Preventing rust with crop protectants relies on good **timing**, using an **effective product** and thorough **coverage** by good application **technique**. Once blueberry rust symptoms are obvious, management is more difficult due to the rapid production of large numbers of spores.

Timing is everything

Young leaves are most vulnerable to rust infection. (Daniel, 2017). Rain events appear to trigger the release of spores and also favour infection by increasing the humidity. Mild temperatures favour blueberry rust spore production and infection with temperatures in the range 19 to 25°C being highly favourable.

Time the application of protection measures, such as fungicides, to protect young leaf material when the forecast is for conditions that favour infection. If conditions are very dry or cold then the risk is lower than if conditions are humid, wet and mild.

Choose the best product

Fungicides

Fungicides permitted for use on blueberries are registered with [Australian Pesticides and Veterinary Medicines Authority](#) (APVMA). Contact the Australian Blueberry Growers' Association (ABGA) [Industry Development Officer](#) for an up to date list of these fungicides.

Fungicides permitted for blueberry rust control in Tasmania in 2017 include:

- [PER13958](#) Mancozeb (Mancozeb)
- [PER14309](#) Bravo (Chlorothalonil)
- [PER14740](#) Tilt (Propiconazole)
- [PER82601](#) Delan (Dithianon)
- [PER82986](#) Pristine (Boscalid / Pyraclostrobin)

suppression only

All products listed belong to different chemical groups. Rotating fungicides with different chemical groupings helps prevent the development of fungicide resistance.

Biological defence activators

The NSW Department of Primary Industries continue to research alternatives to chemical fungicides for reducing blueberry susceptibility to rust infection. Trials underway include the use of fish hydrolysate, fish emulsion, seaweed extract, chitosan, copper hydroxide and sulphur. The ABGA currently have an application with APVMA to allow the use of copper fungicides on blueberries due to promising results from these trials. *Bacillus* spp have also been trialled overseas but was not effective in NSW trials..

Good coverage for good control

Crop protectants can only be effective when they are applied at the right rate, in the right conditions, with suitable equipment to get good coverage. Contact your local TAFE for courses on horticultural spray application ([ChemCert courses](#)).

Michele Buntain

Tasmanian Institute of Agriculture
michele.buntain@utas.edu.au | +61 3 6226 6353