

primefacts

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Myrtle rust - *Uredo rangelii*

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This Primefact summarises current knowledge regarding Myrtle rust, a fungal plant pathogen detected for the first time in Australia. It aims to better inform affected industries in New South Wales of:

- What is Myrtle rust
- Symptoms to look out for
- Conditions favouring this disease
- Who to contact if you think you have Myrtle rust on your plants
- Farm biosecurity and hygiene advice

Growers and marketers, and their workers, need to be aware of the symptoms of Myrtle rust, so they can take action if they see signs of this disease.

What is it?

Myrtle rust is a plant disease caused by the fungus *Uredo rangelii*. The rust was first detected on the Central Coast of New South Wales in April 2010. How the rust fungus entered Australia is unknown.

Myrtle rust belongs to a fungal complex collectively known as the guava rust group. This complex includes the fungus *Puccinia psidii* which is a significant pathogen of the plant family Myrtaceae outside Australia. Guava rust is identified as a disease of significance in the Nursery Industry

Biosecurity Plan and the National Plantation Timber Industry Biosecurity Plan, and a Contingency Plan has been developed by the Australian Government.

Myrtle rust was detected in NSW on the foliage plant *Agonis flexuosa*, cultivar 'Afterdark' (commonly known as willow myrtle). This plant cultivar is used as an ornamental plant in gardens and landscaping, and as a source of cut foliage for floristry in Australia.

The host list of this pathogen is largely unknown with two known hosts recorded in the literature and three susceptible hosts documented in NSW. However, whether it will affect a range of plant genera and species in Myrtaceae is not known.

What to look for if you suspect Myrtle rust

Myrtle rust attacks young, soft, actively growing leaves and shoot tips and young stems. It is only known to infect plants in the family Myrtaceae.

In Australia it has been observed on *A. flexuosa* cv 'Afterdark' and cv 'Burgundy', *Syncarpia glomulifera*



Figure 1. Myrtle rust attacks young, soft actively growing leaves and shoot tips and young stems. This photo shows the mature bright yellow uredinial pustules clearly visible on the dark purple leaves of *A. flexuosa* cv 'Afterdark'.

(turpentine), *Callistemon viminalis* (bottle brush), *Tristanis neriifolia* (water gum), *Leptospermum rotundifolium* (tea tree), *Syzygium leumannii* x *Syzygium wilsonii* (lilly pilly), *Metrosideros collina* cv. 'Dwarf' and *Austromyrtus inophloia* cv. Aurora and Blushing Beauty.

On the dark purple leaves of *A. flexuosa* cv 'Afterdark', early symptoms of infection are not obvious, but mature bright yellow uredinial pustules are readily seen on both leaf surfaces, as well as on young stems and growing shoots (Figure 1). Heavy infection results in shoot death (Figure 2). Pustules turn pale yellow then grey with age (Figure 2).

On *S. glomulifera*, initial symptoms appear as small purple flecks and leaf spots on young leaves, often with a faint chlorotic halo (Figure 3a). These later develop the characteristic bright yellow pustules, mostly on the lower surface (Figure 3b). In severe infections, spots enlarge and coalesce (Fig 4), often causing leaf distortion (Figures 5a and b). Infection also occurs on young stems. On *C. viminalis*, small purple lesions with bright yellow pustules are visible on young leaves.

Field observations indicate that *A. flexuosa* cv 'Afterdark' is highly susceptible to *U. rangelii*, *S. glomulifera* is moderately susceptible, especially when adjacent to a high inoculum source, with *C. viminalis* only slightly susceptible.

Who to contact if you think you have found Myrtle rust on your plants

Myrtle rust could have devastating effects on Australian industries and ecosystems where susceptible species occur. Myrtle rust is an emergency plant pest and should be reported.

If you find plants with symptoms resembling those of Myrtle rust it is essential that you contact the Exotic Plant Pest Hotline on 1800 084 881.



Figure 2. Heavily infected shoot tips of *A. flexuosa* cv 'Afterdark' showing leaf twisting and shoot death.



Figure 3a. Upper surface of turpentine leaf infected with Myrtle rust. Early symptoms appear as purple flecks and leaf spots on leaves.



Figure 3b. Lower surface of turpentine leaf infected with Myrtle rust, showing bright yellow pustules.



Figure 4. Turpentine leaf with more severe infection, where rust spots have coalesced.

What species and crops are currently affected?

Plants cultivated in Australia that are known to be susceptible to this disease include willow myrtle (*Agonis*), turpentine (*Syncarpia*) and bottlebrush



Figure 5a. Young turpentine leaves infected with Myrtle rust showing leaf distortion.



Figure 5b. Infected turpentine leaves showing mature pustules that have turned grey with age.

(*Callistemon*), water gum (*Tristanis*), tea tree (*Leptospermum*) and Lilly pilly (*Syzygium*), *Metrosideros* and *Austromyrtus* cv. Aurora and Blushing Beauty.

Outside Australia Myrtle rust has been reported on the genera *Myrtus* (common myrtle) and *Syzygium* (Rose Apple).

What are the potential hosts?

It is currently unknown which Myrtaceae may be susceptible to Myrtle rust under Australian conditions. Because Australian Myrtaceae have not been exposed to this disease before, it is unclear how severe its impact will be. Exactly which climatic regions are most likely to host the disease, are also unknown at this time. However, Australian rust experts have predicted that areas most likely to favour this rust include the east coast of Australia from Sydney to the tip of Cape York.

How does Myrtle rust spread?

Like other rust species, Myrtle rust produces a multitude of spores in the pustules. These may be carried to new host plants by wind, water splash, by insects such as bees (which may work on the spores on infected leaves), on equipment, or on

clothing. The rust spores can be carried long distances by wind.

Rust diseases can also spread through cuttings, plants and cut stems from infected plants.

The fungus can also survive on stock plants. Spores can survive for up to 3 months in the environment and on crop trash, if conditions are favourable.

What conditions are likely to favour this disease?

Rust spores will germinate on a susceptible host plant only under certain conditions. Overseas, rusts in the guava rust group need high humidity or leaf wetness (for more than 6 hours), and temperatures of 15-25°C. Low light (darkness) for some hours after the spore has landed increases the likelihood of successful infection. It is quite likely that Myrtle rust will need similar environmental conditions. The rust pustules can mature and release infective spores in as little as 10-12 days.

Trade implications – intrastate and interstate import restrictions

As part of the control and eradication efforts, a quarantine area encompassing the Gosford and Wyong Local Government Areas was declared by the Minister and [gazetted](#) on 23 July 2010. The movement of plants or plant material of the family Myrtaceae (excluding logs, timber and timber products without leaf), and any covering, packaging or machinery used in the culture, harvesting or packing of host plant material out of the quarantine area is restricted, subject to certain conditions being met.

At the time of writing, Victoria, Tasmania, Western Australia and South Australia have applied restrictions on the importation of products from the family Myrtaceae from whole of NSW, no just the quarantine area. As market access requirements may be subject to change, the requirements for all States and Territories should be checked prior to export.

Please contact the Plant Biosecurity Unit on 02 6391 3412 for more information regarding domestic market access. Alternatively, visit www.dpi.nsw.gov.au/biosecurity/plant/myrtle-rust.

More on the rust

Uredo rangelii was recognised as a new species in the guava rust group and distinct from *Puccinia psidii* in 2006. Since then there has been limited research on this rust. It is therefore possible that some earlier identifications and lists of susceptible hosts of this rust will need to be reviewed.

It is expected that there will be research trials to determine the susceptible host range and effective management options.

The rust fungus is known as an obligate biotroph – in simple language this means the fungus requires a living host in order to survive and reproduce.

Biosecurity measures to reduce the risk of introducing Myrtle rust onto your property

The following advice applies to all rust diseases and is expected to apply to Myrtle rust.

Hygiene – check plants often, at least weekly. Remember to look at leaves in the middle of a row or crop where it is most humid. Most farms, nurseries and plantations are located in areas adjoined by bush, where plants of the Myrtaceae may be growing naturally. In some areas, such species are used as windbreaks, e.g. turpentine (*Syncarpia*). This means growers should check soft tip growth of adjoining natural vegetation for rust disease symptoms as well.

Advise all visitors and workers of biosecurity measures in place on-farm.

Machinery and equipment may harbour infected plant material or be a 'carrier' for rust spores. Do not import unclean machinery or used equipment that may have been used on an infected property.

After visiting other properties, clean down your car and change your clothing before you return to your own property. This helps to remove rust spores that may be adhering to your clothing or equipment.

Take care when introducing new plants or cuttings from other growers. Plant only healthy plants bought from a reliable source. Preferably keep them separate from your existing plants until you have treated them with an appropriate fungicide.

Only take cuttings from 'clean' stock plants. You may have to implement a protective spray regime to ensure mother plants are free of rust.

Acknowledgement

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