

Myrtle Rust

Addressing the Challenge

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Myrtle Rust in the Australian Nursery Industry

In April 2010 Myrtle rust was detected in Australia on the Central Coast of New South Wales (NSW). A national response was agreed to under the Emergency Plant Pest Response Deed (EPPRD) and a comprehensive surveillance and management program was initiated within NSW.

Myrtle Rust (*Uredo rangelii*)

Myrtle rust (*Uredo rangelii*), a plant fungal disease native to South America, is a member of the fungal complex known as the guava rust (*Puccinia psidii*) group. Based on experiences in Australia between April 2010 and February 2012, information from New South Wales and Queensland, shows myrtle rust has an expanding host range currently infecting approximately 200 species from 41 genera or approximately 46% of known genera (Myrtaceae) in Australia. The pathogen infects young, actively growing, emerging leaves, buds, flowers, green stems, fruit and shoots of plants within the Myrtaceae family. In Queensland to date the most severe infections of the disease have been recorded on

By November 2010 more than 140 infected premises had been identified across NSW with the first detections outside horticultural industries being recorded in state forests and nature reserves.

The initial detections of the disease in Queensland occurred in December 2010 in the south east of the state with further detections noted in Cairns, Townsville, Rockhampton, Gladstone and Hervey Bay during 2011.

The most recent detections outside of NSW and Qld occurred in Victoria during the January 2012 with more than 60 sites around Melbourne infected by mid 2012.

On December 22nd 2010 the Myrtle Rust National Management Group agreed the disease was not technically feasible to eradicate in New South Wales and cancelled the Myrtle Rust Response Plan previously enacted under the EPPRD. Due to the impact the disease could have across Australia it was further agreed to implement a structured management plan to limit the establishment of the pathogen within industries and the natural environment. The federal government, through the Department of Agriculture Fisheries & Forestry (DAFF), established the Myrtle Rust Coordination Group to plan the investment of \$1.5 million of research funding across six key themes:

National Transition to Management Plan:

- Theme 1: Coordination and communication**
- Theme 2: Immediate disease management**
- Theme 3: Taxonomy and identity of the pathogen**
- Theme 4: Potential impact and distribution**
- Theme 5: Chemical control options**
- Theme 6: Resistance breeding options**

The development of this industry specific Myrtle Rust Management Plan, by the Australian Nursery Industry, is in direct response to the agreed national position in which the industry participated in developing. As a professional and responsible industry it is appropriate that all growers, wholesalers and retailers apply the relevant strategies to manage myrtle rust as described in this plan.

Myrtle rust (*Uredo rangelii*) has the potential to infect all myrtaceous plants in both our built (gardens & landscape) and natural environments plus a range of industries (nursery production, timber, cut flower, etc) more likely along the coastline of Australia due to suitable environmental conditions. Under threat from this disease, if it becomes widely established, are a number of identified threatened native plant species across Australia plus a number of endangered wildlife habitat(s) that could have a major impact on our natural biodiversity.

Myrtle rust may infect plants under a wide range of environmental conditions, however infection rates may be heightened when the following conditions are present:

- Soft new growth/tissue
- High humidity
- Free water on plant surfaces for 6 hours or more
- Night temperatures (optimal) within 15 - 25°C however as low as 10°C (CSIRO. 2012)
- Low light conditions including darkness (minimum of 8 hours) after spore contact can increase germination success
- Life cycle can be as short as 10 – 14 days (spore to spore)

Myrtle rust has the ability to complete its entire lifecycle on a single host plant. Myrtle rust initially causes light infection on young leaves and new shoots which can appear as yellow flecks. Lesions expand radially and can coalesce (join) with age and susceptible tissue shrivels and dies. Secondary infections within the plant can occur within days of the first pustules appearing. Repeat infection may result in plant death, although this is likely to vary from species to species.

It is possible that as this disease establishes in Australia the host range may grow to include many of the internationally recorded plant species infected by guava rust. The nursery industry must consider all myrtaceous species as potential hosts of myrtle rust.

Note: Guava rust (*Puccinia psidii*) is also known as **eucalyptus rust** and has caused heavy crop losses in the Brazilian hardwood industry through the decimation of planted Eucalyptus seedlings in the field.

For identification purposes myrtle rust and guava rust are visually and symptomatically identical therefore identification tools are interchangeable.

The general symptoms of myrtle rust/guava rust include:

(Myrtle rust generally attacks soft new growth including leaf surfaces, shoots, buds, flowers, young green stems and fruit)

- 1) Tiny, raised spots or pustules with possible yellow flecking
- 2) Small purple or red brown flecks with a faint chlorotic (yellow) halo on leaf surfaces
- 3) Large purple or red/brown lesions as a result of flecks coalescing
- 4) Purple or red/brown lesions and bright yellow rust pustules producing spores
- 5) Bright yellow rust pustules producing spores on underside of the leaf (young infection)
- 6) Bright yellow rust pustules producing spores on both sides of the leaf (mature infection)
- 7) Small and large necrotic lesions, with possible purple margins, and leaf distortion (twisting)
- 8) Older lesions can contain brown/grey rust pustules that no longer produce yellow spores on the lesions

Fungicide Treatment For the treatment of plants (Myrtaceae family) the industry has access to an Emergency Permit (**PER12156**) that allows a range of fungicides to be applied for the management of myrtle rust. Therefore if you intend to treat plants with a fungicide you must have a copy of this permit on-site and you must use the application rates as outlined in the permit.

On-site Biosecurity Actions

Businesses in all states and territories, production, wholesale and retail, maintain the highest plant health standards to ensure this disease is either suppressed and managed or not introduced. Any business purchasing, or has sourced, myrtle rust host plant material from an outside source must survey their stock to ensure freedom from the disease. Other businesses with host plants are advised to maintain a structured monitoring program (weekly) to ensure they remain free of the disease or detect infects early and apply a suitable management strategy.

Myrtle rust can move across the landscape and within a production system by:

- Vegetative material (alive or dead)
- Contaminated plant containers (pots, trays, etc)
- Air movement of spores (dry spores can move great distances – many kilometres)
- Human assisted movement (spores on clothing/vehicles/containers/etc)
- Water splash from rain and irrigation (wet spores are difficult to move by air)
- Animals both native and domestic (possums, cats, birds, insects, etc)

Production Nursery (including propagation)

- Ensure a high standard of awareness of the disease at all staff levels
- Advise staff to avoid any plant contact prior to arriving at work & wear clean clothes
- Have on-site disease (myrtle rust/guava rust) identification information for all staff
- Train staff on disease identification & good hygiene practices (see State biosecurity websites and Nursery Paper December 2004 Issue No: 11 at www.ngia.com.au)
- Disinfest all equipment/vehicles that move off-site and return to operate within the production area
- Limit the access of people (visitors & staff) to your production areas
- Implement a hygiene protocol for essential visitors (contractors, etc) to production areas including awareness of previous work sites, inspection of clothing/tools, etc and if required provide disposable overalls while on-site
- Restrict all non-business vehicles from entry to production areas, disinfest if required on-site – APVMA Permit: PER10535
- Remove myrtaceous plants from driveways and carparks or prune to avoid possible visitor contact
- Consolidate all myrtaceous plant species within a defined area on-site away from native or landscape planted myrtaceous plant species and avoid direct exposure (buffer) to the prevailing winds of the season
- Allocate specific staff to manage all myrtaceous species
- Source myrtaceous plant material from known professional growers (e.g. NIASA Accredited)
- Request suppliers of myrtaceous plant material provide evidence that they are adhering to the Myrtle Rust Management Plan
- Maintain a quarantine area for imported nursery stock
- Inspect (at quarantine area) and treat (curative fungicide) imported myrtaceous species prior to incorporating into growing areas (7 days and re-inspect). It is recommended this be applied irrespective of the source
- Monitor all myrtaceous plant species weekly across growing areas for disease symptoms (particularly inspect areas of crop that have high humidity e.g. centre of batch and on the side exposed to prevailing winds)
- Ensure growing areas remain free of all waste vegetative material
- Increase plant spacing where appropriate to reduce humidity levels within crops

Implement a fortnightly fungicide treatment program across all myrtaceous plants (see recommended program(s) Section 5.2)

- Treat with a disinfectant (e.g. copper) the growing area upon the completion of the crop growing cycle before placing a new crop down on the production bed
- Dispose of all extraneous vegetative plant material from crop management such as pruning, detailing or from natural desiccation via bulk waste, composting or deep burial
- Assess irrigation system and timing to ensure plant surfaces are dry within a short period (less than 6 hours) after irrigation.
- Avoid irrigating late afternoon which allows water to sit on surfaces for periods of 6 hours or more during the night. Consider installing drip/capillary or other under canopy irrigation system to myrtaceous plant species
- Access industry guidelines such as NIASA and BioSecure HACCP for guidance in developing monitoring/surveillance/inspection programs and recording templates.

Propagation

- Maintain high health practices in propagation (surface/implements/equipment disinfection, staff hygiene, etc)

Infected Crop Management

Crops found to be infected with myrtle rust can be managed by a range of options depending on part or entire batch infections and preferred treatment method.

Despatch Sampling Process

Interstate Movement Controls

Since early May 2010 there have been various movement controls put in place by a number of state and territory plant health agencies to manage the risks associated with the movement of host plant material.

Interstate Certification Assurance (ICA) Arrangement

Biosecurity Queensland (BQ) has developed the Interstate Certification Assurance arrangement for myrtle rust (**ICA 42 Nursery Freedom, Treatment And Inspection For Myrtle Rust**) and is available to Queensland and New South Wales and Victorian production nurseries for access to South Australia and Northern Territory markets.

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Myrtle rust is a notifiable pathogen in all Australian jurisdictions, where currently no positive detections have been recorded, requiring any detection of the disease be reported to the relevant state or territory biosecurity agency within 24 – 48 hours.

The challenges are many and ultimately all of Australia will have to live with Myrtle Rust to what ever degree a locations climatic conditions and vegetation are.

We as an entire Industry have to manage and learn to control the problem from both a business and flora point of view! Research is vital as is the entire industry taking responsibility for their actions regarding propagation, growing, planting, sales and movement of Myrtaceae plants. If we don't then arguably Australia's most important genera will face enormous difficulty in surviving in its current known form.

Thankyou for your attention

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ref: Nursery & Garden Industry Australia
Myrtle Rust Management Plan 2012
(*Uredo rangelii*)

[www.ngia.com.au/Section?Action=View&Section_id=527&Highlight1=myrtle rust&Highlight2=myrtle rust](http://www.ngia.com.au/Section?Action=View&Section_id=527&Highlight1=myrtle%20rust&Highlight2=myrtle%20rust)