Myrtle rust – information for the wildflower industry

Introduction:
In 2010 an exotic plant disease called Myrtle rust was identified on a range of genera belonging to the Myrtaceae family of plants – the plants were growing in nurseries, wildflower plantations, bushland, amenity plantings and residential properties. Efforts to eradicate this disease from Australia were abandoned in December 2010 when it became clear that Myrtle rust had become established in bushland and over a wide area of coastal NSW. By late December 2010, Myrtle rust had been detected in Queensland and Victoria.

So Myrtle rust is something we will have to learn to live with, as it can’t be eradicated and will continue to spread because it produces thousands of spores that are easily spread by wind, human activity and animals. However, we can limit its spread, manage its impact and conduct research to define its full host range and develop long-term solutions.

It is also still unclear where in Australia this disease could become prevalent, but conditions favouring Myrtle rust (in terms of climate and presence of susceptible Myrtaceae host plants) occur in coastal regions from the top of WA across to Cape York and down the east coast of Australia.

Understanding this disease and its impacts in Australia will take time, as will the development of best management approaches for growers. Already, Myrtle rust has had an economic impact on the following industries: nursery, forestry, bush regeneration, landscaping, arboriculture, cut flowers and foliage, bee/honey, and essential oil/fruit. Experts also fear that this disease may cause species and biodiversity loss within the Myrtaceae in natural ecosystems.

What is it?
Myrtle rust (Puccinia psidii s.l.) is a newly described fungus that is closely related to the Eucalyptus/Guava rusts. These rusts are serious pathogens affecting plants belonging to the family Myrtaceae including Australian natives like bottle brush (Callistemon spp.), tea tree (Melaleuca spp.) and eucalypts (Eucalyptus spp.). Eucalyptus/Guava rusts are native to South America and have been detected in Central America, the Caribbean, Mexico, parts of the USA (Florida, California, Hawaii), Japan and China.

Myrtle rust affects leaves, shoot tips and fruits of susceptible plants. For more information, see 1. Know what Myrtle rust looks like below.

Restrictions on plant movements:
To limit/slow down the spread of Myrtle rust, state quarantine restrictions are in place to reduce the chance of the disease spreading on plant material moved across state borders. These apply to all myrtaceous plant material including:

Myrtle rust symptoms on waxflower (Chamelaucium) in Queensland. Photo by Geoff Pegg, Biosecurity Qld. Approval for the use of this image has been provided by the Department of Employment, Economic Development and Innovation and the copyright lies with the State of Queensland. Please note that other organisations or groups may not use this photo without first obtaining permission from the copyright holder.
* nursery stock
* fruit
* cut flowers and foliage
* seeds
* mulch
* machinery and equipment associated with their production.

For information relevant to commercial trade, contact the Department of Agriculture/Primary Industries in the state to which you are sending consignments. For more information on sending plants or plant material from NSW, Queensland or Victoria to an interstate market, contact the destination state quarantine authority:

* South Australia - 1300 666 010
* Tasmania - (03) 6233 3352
* Western Australia - (08) 9334 1800
* Northern Territory - (08) 8999 2118

Information relevant to domestic travellers is available at Quarantine Domestic.

In addition, States and territories currently free of Myrtle rust have survey programs in place to monitor susceptible plants and enable early detection should it have spread further afield.

**Host list:**
Because it was introduced to Australia relatively recently, it is not clear which genera in the plant family Myrtaceae will be susceptible. However, since its presence in Australia was first confirmed, the list of susceptible hosts has expanded greatly.

Host lists for Myrtle rust can be found on the websites listed under Resources available.

Possible implications for wildflower growers
Many genera in the family Myrtaceae are important wildflower and foliage crops – e.g. *Chamelaucium*, *Verticordia*, *Leptospermum*, *Eucalyptus*, *Agonis*, *Corymbia*, *Backhousia*, *Baekea*, *Thryptomene*, *Regelia*, *Scholtzia*, *Corynanthera*. Some are ranked as extremely susceptible to Myrtle rust.

**What can you do?**
1. **Know what Myrtle rust looks like**
Wildflower growers and marketers need to become familiar with symptoms of Myrtle rust. Inspect plants and cut flowers and foliage from species in the Myrtaceae regularly.

   Look for these symptoms (they will vary depending on the host species and the stage of infection)
   - Purple spots or lesions and bright yellow rust pustules (spore masses)
   - Bright yellow rust pustules (spore masses) on the lower leaf surface (new infection)
   - Bright yellow rust pustules (spore masses) on both leaf surfaces (well established infection)
   - Small purple flecks with a faint yellow halo on leaf surfaces
   - Large purple lesions formed when flecks coalesce
   - Small and large purple lesions and leaf distortion (twisting)
   - Older lesions will have brown/grey rust pustules (older spore masses) on the lesions

2. **Know what conditions favour infection**
An understanding of rust diseases is helpful to minimise the spread of Myrtle rust:
   - Rusts move around via the spores produced by the pustules
   - Spores are carried by wind, rain/water splash, on plants, equipment, people, insects and animals
   - Soft new growth (leaves, shoot tips and flower buds) is most susceptible to infection, especially if the plant surfaces have free water on
them for more than 6 hours and night temperatures are in the range 15-25 deg. C

- Be aware that a plant with ‘no symptoms’ can progress to ‘severely infected’ in just 2 weeks - the rust life cycle can be as short as 10-14 days and can be completed on the one host plant
- Fungicides specifically targeting rust diseases must be used – some are protectants (forming a film on the plant surfaces), while others are curative/systemic (moving within the plant). Fungicides need to be rotated to avoid resistance and plants need to be sprayed to run off. More details can be found in the Australian Nursery Industry Myrtle Rust Management Plan 2012 – see https://www.ngia.com.au/Folder?Action=View%20File&Folder_id=135&File=Myrtle%20Rust%20Management%20Plan%202012%20Final%20V2.pdf

3. **Be aware of restrictions on movement of plants or plant parts (cut flowers and foliage).**
To limit spread, restrictions have been imposed on movement of plants and plant parts from the Myrtaceae between States and Territories.

Movement conditions for plants in the Myrtaceae family between states of Australia are updated from time to time, so individuals and businesses should always contact the destination state before moving consignments.

4. **Focus on hygiene**
Review your biosecurity management to ensure you do not introduce this disease to your plantation. The following simple practises will minimise the risk of introducing Myrtle rust to your area, or spreading it further, should you detect it on your property:
- Be more careful about ‘quarantine’ on your farm, for example consider the risks of introducing new plants or cutflower material to the farm, and decide whether or not to let visitors to walk through your production areas.
- Check any plants belonging to the Myrtaceae family, at least weekly, looking at the soft tip growth for the rust symptoms described above.
- Get to know which genera belong to the Myrtaceae family and avoid moving plants from these genera around, unless they are from a certified clean source.
- Carefully check any new plants (Myrtaceae only) before planting them in your plantation.
- Early symptoms of Myrtle rust may be hard to see – and may only become obvious when the leaf spots develop into bright yellow rust pustules.
- Contact your local Dept. of Agriculture/Primary Industries if you see something suspicious in your crops.
- Only take cuttings from ‘clean’ stock plants.
- Water your plants carefully – time your watering to avoid leaves and stems remaining wet for a long time or use drip irrigation.
- Shower and change into clean clothes (including your hat, gloves and shoes), if you have been in contact with plants you suspect are infected with Myrtle rust. Wash or clean these items before you use them again.
- Clean your secateurs or tools if you have used them in an area where there is Myrtle rust (use 70% methylated spirits).
- Wash down your car (and clean the inside) if you have been to an area where Myrtle rust is known to occur.

5. **If you see plants infected with Myrtle rust, make sure you don’t spread the disease further**
- Don’t touch, move or collect samples of the suspect plant material – take a photo
- Don’t go to another site where there are susceptible host materials (Myrtaceae).
6. **Report your find:**
   - If you are located in a region not known to be infected with Myrtle rust, contact your local State Department of Agriculture/Primary Industries office and proceed as advised, or
   - if you have found Myrtle rust on a plant that is not a recorded host, call the Exotic Plant Pest Hotline on 1800 084 881.

7. **Treat any infected plants appropriately**
   If you find infections in your plantation, consider appropriate treatment of infected plants – this includes spraying with an approved fungicide, or removing and disposing of infected plants (seal in a plastic bag and place in the rubbish bin or leave it out in the sun for 3-4 weeks).

**Fungicides available:**
There are several permits to allow use of a range of fungicides to manage Myrtle rust. They are:

- **APVMA Permit - PER12156 (www.apvma.gov.au)**
  This is for the treatment of nursery stock (non-food), ornamentals, non-bearing fruit trees and cut flowers/foliage for Myrtle Rust.

- **APVMA Permit - PER12319 (www.apvma.gov.au)**
  For decontamination of Myrtle Rust host plant material at infected premises.


There is also a system for collecting information if an adverse experience occurs as a result of using the permit. An adverse experience is an unintended or unexpected effect on plants, plant products, animals, human beings or the environment, including injury, sensitivity reactions or lack of efficacy associated with the use of an agricultural chemical product(s) when used according to label (or permit) directions. Given that many people will be applying these fungicides for the first time, to a broad range of ornamental host plants for the first time, it’s important to record any issues. If you find a problem, please contact WFA at management@wildflowersaustralia.com.au

**Securing the future:**
Myrtle Rust has been identified as a significant threat to the viability and sustainability of a number of new and emerging industries supported by the Rural Industries Research and Development Corporation (RIRDC). RIRDC has coordinated an R&D response to Myrtle rust and is working closely with the native foods industry, the tea tree oil industry, the wildflowers industry and the essential oils and plant extracts industries.

A program of research to be undertaken over the next several years will focus on the following key areas, changing in emphasis as needed:
- Understanding the impacts of Myrtle rust on the various industries
- Effective chemical control strategies
- Breeding/Selection for Resistance
- Biosecurity planning and training needs
- Market access issues, for example establishing the safety of moving plant material between states, which may also prove useful also in the export context down the track.
- Communication and networking to encourage a national response to this issue and to seek opportunities to collaborate.

**Resources available:**
These websites include lists of known hosts of Myrtle rust and clear photos of symptoms on infected plants, as well as control and management information. Information posted there is updated as knowledge grows.

**NSW:**

Qld:

Vic:

WA:

The Australian Nursery Industry Myrtle Rust Management Plan 2012 – includes a lot of information useful to wildflower growers. See

Author: Bettina Gollnow
Version 3 September 2014