Nursery & Garden Industry

Australian Nursery Industry Myrtle Rust

(Uredo rangelii)

Management Plan 2013

Developed for the Australian Nursery Industry

Production
Wholesale
Retail
V3

Acknowledgements

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Various sources have contributed to the content of this plan including:

- Nursery Industry Accreditation Scheme Australia (NIASA)
- BioSecure *HACCP*
- Nursery Industry Guava Rust Plant Pest Contingency Plan
- DAFFQ Myrtle Rust Fact Sheets
- I&I NSW Myrtle Rust Fact Sheets and Updates
- Biosecurity Queensland Myrtle Rust Program

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1. Introduction – Myrtle Rust in the Australian Nursery Industry

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.

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. 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 on the 27th 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 first week of January 2012 with more than 28 sites around Melbourne infected by early February 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 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.

National Exotic Plant Pest Hotline: 1800 084 881

This **Myrtle Rust Management Plan** has been developed for use by production nurseries and retailers of greenlife including garden centres, greenlife markets (wholesalers), big box hardware, supermarkets, chain stores, etc. The plan provides a detailed framework for growers and retailers to apply on-site in the management of myrtle rust on plants of the Myrtaceae family. It is recommended that the industry apply this plan to **all** plants of the Myrtaceae family not only those that have been currently identified as hosts.

For further information on whole of property biosecurity in the nursery industry including on-farm programs such as BioSecure *HACCP* and the industry Biosecurity Manual contact your state industry peak body or go to www.ngia.com.au and follow the links.

Note: State/territory laws and requirements including interstate movement protocols over-ride this Industry Myrtle Rust Management Plan.

(Source: NGIQ – Myrtle rust on *Syzygium jambos*)

(Source: NGIQ – Myrtle rust on *Syzygium jambos*)

2. Myrtaceae Family – Genera currently found in Australia

It is possible that all genera listed may be susceptible to myrtle rust under optimum conditions in Australia. The list below may change in the future.

Myrtaceae - Genera	Myrtaceae - Genera	Myrtaceae - Genera
Acca spp.	*Eremaea* spp.	*Paragonis* spp.
Acmena spp.	*Eucalyptus* spp.	*Pericalymma* spp.
Acmenosperma spp.	*Eugenia* spp.	*Petraeomyrtus* spp.
Actinodium spp.	*Euryomyrtus* spp.	*Phymatocarpus* spp.
Agonis spp.	*Gossia* spp.	*Pileanthus* spp.
Allosyncarpia spp.	*Harmogia* spp.	*Pilidiostigma* spp.
Aluta spp.	*Homalocalyx* spp.	*Psidium* spp.
Anetholea anisata	*Homalospermum* spp.	*Regelia* spp.
Angasomyrtus spp.	*Homoranthus* spp.	*Rhodamnia* spp.
Angophora spp.	*Hypocalymma* spp.	*Rhodomyrtus* spp.
Archirhodomyrtus spp.	*Kardomia* spp.	*Rinzia* spp.
Astartea spp.	*Kunzea* spp.	*Ristantia* spp.
Asteromyrtus spp.	*Lamarchea* spp.	*Scholtzia* spp.
Astus spp.	*Lenwebbia* spp.	*Seorsus* spp.
Austromyrtus spp.	*Leptospermum* spp.	*Sphaerantia* spp.
Babingtonia spp.	*Lindsayomyrtus* spp.	*Stenostegia congesta*
Backhousia spp.	*Lithomyrtus* spp.	*Stockwellia* spp.
Baeckea spp.	*Lophomyrtus* spp.	*Syncarpia* spp.
Balaustion spp.	*Lophostemon* spp.	*Syzygium* spp.
Barongia spp.	*Lysicarpus* spp.	*Thaleropia* spp.
Beaufortia spp.	*Malleostemon* spp.	*Thryptomene* spp.
Callistemon spp.	*Melaleuca* spp.	*Triplarina* spp.
Calothamnus spp.	*Metrosideros* spp.	*Tristania* spp.
Calytrix spp.	*Micromyrtus* spp.	*Tristaniopsis* spp.
Chamelaucium spp.	*Mitrantia* spp.	*Ugni* spp.
Choricarpia spp.	*Myrciaria* spp.	*Uromyrtus* spp.
Conothamnus spp.	*Myrtus* spp.	*Verticordia* spp.
Corymbia spp.	*Neofabricia* spp.	*Waterhousea* spp.
Corynanthera spp.	*Ochrosperma* spp.	*Welchiodendron* spp.
Darwinia spp.	*Osbornia* spp.	*Xanthostemon* spp.
Decaspermum spp.		

(Source: DAFFQ/DERM February 2012)

Note: Genera highlighted in yellow have had species, within these genera, return positive infections in the field (natural infection) in New South Wales and Queensland between 2010 and January 2012.

3. 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 179 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:

Botanical name	Common name
Agonis flexuosa	**Willow myrtle**
Chamelaucium uncinatum	**Geraldton wax**
Decaspermum humile	**Silky myrtle**
Eugenia reinwardtiana	**Beach cherry**
Gossia inophloia **(syn.** ***Austromyrtus inophloia*****)**	**Thready barked myrtle**
Melaleuca quinquenervia	**Broad-leaved paperbark**
Rhodamnia angustifolia	**Narrow-leaved malletwood**
Rhodamnia maideniana	**Smooth scrub turpentine**
Rhodamnia rubescens	**Scrub turpentine**
Syzygium jambos	**Rose apple**

(Source: DAFFQ February 2012)

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^{o}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. The level of susceptibility of many potential and recognized hosts in Australia is unknown. As the plant drops dead leaves the pathogen will reinfect new growth limiting the plants ability to recover.

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)

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

See images below and on pages 16, 17 and 18 of this Management Plan.
(Images sourced from I&I NSW, NGIQ and DAFFQ Queensland)

Note: Myrtle rust spores are believed to remain viable (under optimal conditions) for between 3 – 6 months.

(Source: NGIQ – Myrtle rust on *Syzygium jambos*)

4. Known hosts of myrtle rust in Australia - February 2012

The species listed below have had observable myrtle rust field infections (natural infection), at some point since December 2010 in Queensland. Experienced DAFFQ officers have applied the national myrtle rust susceptibility ranking to each record and given the "Ranking" as noted in Table 4.1.

Many of the species listed below have also been recorded as susceptible in New South Wales since April 2010. It can be assumed that susceptible species in Queensland or New South Wales will in all likelihood be susceptible to myrtle rust in every other like environment across Australia. NGIA recommends the industry combine tables 4.1 and 4.2 for a complete (as at February 2012) known myrtle rust susceptibility list.

4.1 Queensland host list and susceptibility rating table – February 2012.

(ES=Extremely Susceptible, HS=Highly Susceptible, MS=Moderately Susceptible, RT=Relatively Tolerant)

DAFFQ susceptibility ratings are based on current observational assessments and may change over time.

Rating	Botanical name (Species)	Common name
RT	*Acmena hemilampra* (syn. *Syzygium hemilamprum*)	Blush satinash
RT	*Acmena ingens*	Red apple
MS	*Acmenosperma claviflorum*	Grey satinash
ES	*Agonis flexuosa*	Willow myrtle
HS	*Anetholea anisata* (syn. *Backhousia anisata, Syzygium anisatum*)	Aniseed myrtle
RT	*Asteromyrtus brassii*	Brass's Asteromyrtus
HS	*Austromyrtus dulcis*	Midgen berry or midyim
RT	*Austromyrtus tenuifolia*	Narrow leaf myrtle
RT	*Backhousia angustifolia*	Curry myrtle or narrow-leaved myrtle
HS	*Backhousia citriodora*	Lemon-scented myrtle
MS	*Backhousia myrtifolia*	Grey myrtle, ironwood
RT	*Backhousia oligantha* (endangered)	No common name
RT	*Backhousia sciadophora*	Shatterwood
RT	*Backhousia* sp. 'Prince Regent'	No common name
ES	*Chamelaucium uncinatum*	Geraldton wax
HS	*Choricarpia leptopetala*	Brown myrtle, rusty turpentine
RT	*Choricarpia subargentea* (near threatened)	Giant ironwood
RT	*Corymbia henryi*	Large leaved spotted gum
RT	*Corymbia torelliana*	Cadagi
RT	*Corymbia citriodora subsp. variegata*	Spotted gum
ES	*Decaspermum humile*	Silky myrtle
RT	*Eucalyptus sp.*	Red gum
MS	*Eucalyptus carnea*	Broad-leaved white mahogany
RT	*Eucalyptus cloeziana*	Gympie messmate
MS	*Eucalyptus curtisii*	Plunkett mallee
MS	*Eucalyptus grandis*	Flooded gum, rose gum
RT	*Eucalyptus planchoniana*	Bastard tallow wood
RT	*Eucalyptus tereticornis*	Blue gum, forest red gum
MS	*Eucalyptus tindaliae*	Tindale's Stringybark

ES	*Eugenia reinwardtiana*	Beach cherry
MS	*Eugenia zeyheri*	No common name
HS	*Gossia acmenoides*	Scrub ironwood
RT	*Gossia bidwillii* (syn. *Austromyrtus bidwillii*)	Scrub python tree
RT	*Gossia floribunda*	Cape ironwood
MS	*Gossia fragrantissima* (endangered)	Sweet myrtle
HS	*Gossia gonoclada* (endangered)</< TD>	Angle-stemmed myrtle
HS	*Gossia hillii*	Scaly myrtle
ES	*Gossia inophloia* (syn. *Austromyrtus inophloia*) (near threatened)	Thready barked myrtle
MS	*Gossia macilwraithensis* (near threatened)	No common name
RT	*Gossia myrsinocarpa*	Malanada ironwood, small flowered lignum
MS	*Gossia punctata*	Dotted myrtle
RT	*Lenwebbia lasioclada*	Velvet myrtle
HS	*Lenwebbia prominens* (near threatened)	Southern velvet myrtle
RT	*Lenwebbia* sp. 'Blackall Range' (endangered)	Blackall Range myrtle
MS	*Leptospermum liversidgei*	Lemon-scented tea tree, olive tea tree
RT	*Leptospermum luehmannii*	Bronze-barked tea tree
RT	*Leptospermum petersonii*	Lemon-scented tea tree
RT	*Leptospermum semibaccatum*	No common name
RT	*Lindsayomyrtus racemoides*	Daintree Penda
RT	*Lophostemon suaveolens*	Swamp box, swamp mahogany
HS	*Melaleuca fluviatilis*	Weeping tea tree
RT	*Melaleuca formosa (syn. Callistemon formosus)*	Kingaroy Bottlebrush, cliff bottlebrush
HS	*Melalecua leucadendra*	Broad-leaved paperbark
RT	*Melaleuca linariifolia*	Snow in summer
RT	*Melaleuca nesophila*	Showy honey myrtle
HS	*Melaleuca nodosa*	Prickly-leaved paperbark
RT	*Melaleuca pachyphylla*	Wallum bottlebrush
HS	*Melaleuca polandii*	No common name
ES	*Melaleuca quinquenervia*	Broad-leaved paperbark
MS	*Melaleuca saligna*	Willow bottlebrush, white bottlebrush
HS	*Melaleuca viridiflora*	Broad-leaved paperbark
MS	*Melaleuca viminalis (syn. Callistemon viminalis)*	Willow bottlebrush
RT	*Metrosideros collina*	Fiji Christmas bush
RT	*Metrosideros collina x villosa*	Fiji Christmas bush
RT	*Metrosideros kermadecensis*	Kermadec pohutukawa
RT	*Metrosideros thomasii*	New Zealand Christmas bush
RT	*Myrciaria cauliflora*	No common name
RT	*Myrtus communis*	Common myrtle
RT	*Pilidiostigma glabrum*	Plum myrtle
RT	*Rhodamnia acuminata*	Cooloola ironwood
ES	*Rhodamnia angustifolia* (endangered)	Narrow-leaved malletwood
MS	*Rhodamnia arenaria*	Cape York malletwood
MS	*Rhodamnia argentea*	Silver myrtle or malletwood
HS	*Rhodamnia costata*	Malletwood
HS	*Rhodamnia dumicola*	Rib-fruited malletwood
MS	*Rhodamnia glabrescens* (near threatened)	Smooth malletwood
ES	*Rhodamnia maideniana*	Smooth scrub turpentine

MS	*Rhodamnia pauciovulata* (near threatened)	Small-leaved malletwood
ES	*Rhodamnia rubescens*	Scrub turpentine
HS	*Rhodamnia sessiliflora*	Iron malletwood
MS	*Rhodamnia spongiosa* (syn. *R. glauca*)	Northern malletwood
MS	*Rhodomyrtus canescens*	Crater ironwood
MS	*Rhodomyrtus pervagata*	Rusty rhodomyrtus, rusty ironwood
HS	*Rhodomyrtus psidioides*	Native guava
MS	*Rhodomyrtus sericea*	Grey rhodomyrtus
HS	*Rhodomyrtus tomentosa*	Downy rose myrtle, Ceylon hill gooseberry
MS	*Rhodomyrtus trineura* subsp. *capensis*	No common name
RT	*Ristantia waterhousei* (vulnerable)	No common name
MS	*Sphaerantia discolor*	Tully Penda
MS	*Syzygium angophoroides*	Yarrabah satinash
RT	*Syzygium argyropedicum*	Silver satinash
RT	*Syzygium armstrongii*	White bush apple
RT	*Syzygium australe*	Scrub cherry
RT	*Syzygium canicortex*	Yellow satinash
RT	*Syzygium corynanthum*	Sour cherry
MS	*Syzygium cumini*	Java Plum
MS	*Syzygium eucalyptoides* subsp. *eucalyptoides*	White apple
RT	*Syzygium forte subsp. forte*	Watergum, brown satinash
RT	*Syzygium forte subsp. potamophilum*	Flaky barked satinash, white apple
ES	*Syzygium jambos*	Rose apple
RT	*Syzygium luehmannii*	Small-leaved lillypilly, riberry
RT	*Syzygium moorei*	Rose apple
RT	*Syzygium nervosum*	No comon name
HS	*Syzygium oleosum*	Blue lillypilly
RT	*Syzygium paniculatum*	Magenta cherry
RT	*Syzygium rubrimolle*	Laura apple
RT	*Syzygium tierneyanum*	River Cherry, Bamaga satinash
RT	*Syzygium wilsonii*	Powder puff lilly pilly
RT	*Syzygium wilsonii x luehmanii*	Cascade lilly pilly
MS	*Syzygium xerampelinum*	Mulgrave satinash
HS	*Tristania neriifolia*	Water gum
RT	*Tristaniopsis laurina*	Water gum, kanooka
RT	*Uromyrtus tenella*	No common name
RT	*Waterhousea floribunda* (syn. *Syzygium floribundum*)	Weeping lillypilly
RT	*Waterhousea hedraiophylla* (syn. *Syzygium hedraiophyllum*)	Gully satinash
RT	*Waterhousea mulgraveana*	No common name
MS	*Waterhousea unipunctata*	Rolypoly satinash
RT	*Xanthostemon chrysanthus*	Golden penda
HS	*Xanthostemon oppositifolius* (vulnerable)	Southern penda
MS	*Xanthostemon youngii*	Crimson penda

(Source: DAFFQ February 2012)

NOTE: The absence of a plant species in the above list means that no data is available not that the species is unaffected.

4.2 New South Wales additional myrtle rust host list not recorded in Queensland to date (June 2013):

Many of the species above have been recorded as susceptible in New South Wales. The list below records those species identified as susceptible in NSW and to date not observed infected in Qld.

Note: At the writing of this Management Plan there is no myrtle rust susceptibility ranking available for NSW listed species.

Botanical name	Botanical name	Botanical name
Angophora floribunda	*Lithomyrtus obtusa*	*Syzygium cormiflorum*
Angophora subvelutina	*Lophomyrtus bullata*	*Syzygium dansiei*
Backhousia bancroftii	*Lophomyrtus x ralphii*	*Syzygium erythrocalyx*
Backhousia enata	*Melaleuca alternifolia*	*Syzygium erythrodoxum*
Backhousia hughesii	*Melaleuca argentea*	*Syzygium glenum*
Barongia lophandra	*Melaleuca armillaris*	*Syzygium graveolens*
Callistemon rigidus	*Melaleuca biconvexa*	*Syzygium hodgkinsoniae*
Callistemon salignus (not = *Melaeuca saligna*)	*Melaleuca decora*	*Syzygium kuranda*
Eucalyptus agglomerata	*Melaleuca sieberi*	*Syzygium maraca*
Eucalyptus deanei	*Melaleuca styphelioides*	*Syzygium megacarpum*
Eucalyptus elata	*Melaleuca viridiflora* (purple flowered form)	*Syzygium minutuliflorum*
Eucalyptus olida	*Metrosideros excelsa*	*Syzygium polyanthum*
Eucalyptus pilularis	*Mitrantia bilocularis*	*Syzygium pseudofastigiatum*
Eucalyptus robusta	*Pilidiostigma rhytispermum*	*Syzygium resa* (Syn. *Acmena resa*)
Eucalyptus siderophloia	*Pilidiostigma tropicum*	*Syzygium sayeri*
Gossia pubiflora	*Rhodomyrtus macrocarpa*	*Syzygium smithii* (Syn. *Acmena smithii*)
Homoranthus prolixus	*Ristantia pachysperma*	*Syzygium trachyphloium*
Homoranthus virgatus	*Ristantia waterhousei*	*Syzygium velarum*
Hypocalymma angustifolium	*Stockwellia quadrifida*	*Tristaniopsis collina*
Leptospermum brachyandrum	*Syncarpia glomulifera*	*Ugni molinae*
Leptospermum continentale	*Syzygium alliligneum*	*Uromyrtus australis*
Leptospermum juniperinum		*Uromyrtus lamingtonensis*
Leptospermum rotundifolium	*Syzygium bamagense*	*Uromyrtus metrosideros*
Leptospermum spectabile	*Syzygium boonjee*	Verticordia plumose x Chamelaucium ?
Leptospermum trinervium	*Syzygium buettnerianum*	*Xanthostemon formosus*
Leptospermum whitei	*Syzygium bungadinnia*	*Xanthostemon graniticus*

(Source: NSW DPI June 2013)

4.3 Victorian myrtle rust host list (February 2012)

Species identified in yellow have not been recorded as susceptible in NSW or Qld to date.

Botanical name	Common name
Acmena smithii (Syn. *Syzygium smithii*)	Lilly pilly
Agonis flexuosa	Willow myrtle
Backhousia citriodora	Lemon-scented myrtle
Lophomyrtus x ralphii	Black Stallion
Metrosideros carminea - (new species)	Red rata
Metrosideros collina	Fiji Christmas bush
Metrosideros excelsa	New Zealand Christmas bush
Myrtus communis	Common myrtle
Syzygium australe	Lilly pilly/scrub cherry
Syzygium paniculatum	Dwarf magenta cherry

5. 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. You can download the permit by going to the APVMA website (www.apvma.gov.au) and click on 'Permits' and follow the prompts.

The **permit is a legal document** and all directions/rates/intervals must be followed as described in the document. Furthermore all relevant directions as detailed on each individual product label must also be followed by those handling and applying the fungicide(s). NGIA recommends only appropriately trained staff in pesticide handling, use and application should be applying the myrtle rust fungicide program

The table below (Table 5.1) identify's the various fungicides on the permit plus others with existing registrations and lists the **'Fungicide activity'** that will assist in selecting the appropriate product. The **'Chemical group'** is to ensure that an effective rotation program (see Table 5.2 & 5.3 with examples below) can be applied on-farm if a business intends to have a standard fungicide strategy for the management of myrtle rust. **Note**: Table 5.3 is based on medium to low risk seasonal disease pressures moving the rotation interval to 4 weeks (1 month).

5.1 Fungicide Table:

Fungicide trade name	Active constituent	Fungicide activity	Chemical group (Mode of Action)	Minimum re-treatment interval between consecutive applications
BAYFIDAN 250 EC FUNGICIDE (PER12156)	TRIADIMENOL	Systemic, curative and protectant	3	14-21 days
SAPROL FUNGICIDE (PER12156)	TRIFORINE	Systemic, slightly curative and protectant	3	7 days
IMTRADE MANCOZEB 750 DF FUNGICIDE (PER12156)	MANCOZEB	Non-systemic protectant	M3	7 days
AMISTAR 250 SC FUNGICIDE (PER12156)	AZOXYSTROBIN	Systemic, slightly curative and protectant	11	14-21 days
COPPER OXYCHLORIDE (PER12156)	COPPER OXYCHLORIDE	Non-systemic protectant	M1	7-14 days
PLANTVAX 750 WP FUNGICIDE (PER12156)	OXYCARBOXIN	Systemic, curative and protectant	7	14 days
TILT 250 EC FUNGICIDE (PER12156)	PROPICONAZOLE	Systemic, curative and protectant	3	7 days
BRAVO (Registered)	CHLOROTHALONIL	Non-systemic, slightly curative and protectant	M5	7 – 14 days
SCORPIO FUNGICIDE (Registered)	TEBUCONAZOLE & TRIFLOXYSTROBIN	Systemic, curative and protectant	3/11	14 days

5.2 Myrtle Rust Fungicide Treatment Rotation Program (Production/Propagation)

High risk season (External environmental conditions suitable for spore production)

Crop Situation	Fungicide (Fortnight 1)	Fungicide (Fortnight 2)	Fungicide (Fortnight 3)	Fungicide (Fortnight 4)
Stock receival	Bayfidan	Plantvax	Scorpio	Plantvax
Propagation	Bayfidan/Tilt	Mancozeb	Plantvax or Scorpio	Amistar
Growing on (Low level risk)	Bayfidan/Tilt /Plantvax	Mancozeb or Bravo	Copper or Scorpio	Bravo or Amistar
Growing on (Medium level risk)	Bayfidan/Tilt/Saprol	Mancozeb/Scorpio	Plantvax/ Copper	Bravo/Amistar
Growing on (High level risk)	Bayfidan + mancozeb	Scorpio + mancozeb	Plantvax + mancozeb	Amistar + mancozeb

5.3 Myrtle Rust Fungicide Treatment Rotation Program (Production/Propagation)

Medium/low risk season (External environmental conditions not suitable for spore production)

Crop Situation	Fungicide (Month 1)	Fungicide (Month 2)	Fungicide (Month 3)	Fungicide (Month 4)
Stock receival	Bayfidan	Plantvax	Scorpio	Amistar
Propagation	Bayfidan or Tilt	Mancozeb or Copper	Plantvax or Scorpio	Amistar or Bravo
Growing on (Low level risk)	Bayfidan/Tilt or Plantvax	Mancozeb/Bravo	Bravo/Amistar (use Bravo only if not used in preceding month)	Copper or Scorpio
Growing on (Medium level risk)	Bayfidan/Tilt/Saprol	Mancozeb/ Scorpio	Plantvax/ Copper	Bravo/Amistar
Growing on (High level risk)	Bayfidan + mancozeb	Scorpio + mancozeb	Plantvax + mancozeb	Amistar + mancozeb

Note: Test fungicide(s) on a sample of the crop to ensure the product is not phytotoxic to your plant species before initial batch treatment.

Note: Other APVMA Permits are available for:

- Native plant food crops – PER12746
- Home Gardener – PER12828

Fungicide rotation based on the "Chemical Group (Mode of Action)" is designed to prevent the pathogen (myrtle rust) from developing genetic resistance to a particular fungicide active ingredient due to the over use of that one product. The above (Table 5.2) gives recommendations of five product combinations (rotations) based on the degree of "risk" of infection a "process" has within a cropping system. Alternative fungicide rotations are acceptable depending on the risk profile the business faces and the results of crop inspections.

As an example from the above table (Table 5.2) **"Stock Receival"** is live host plant material grown off site and imported into the production nursery. This material has the opportunity to be mixed with other plant stock at transport depots, in vehicles, etc as it is transported to the production nursery. Therefore this plant material is a **high risk** of being infected and should be treated with a fungicide that is a systemic curative to give a high degree of confidence that any potential infections are dealt with before moving plant stock into the cropping system. The rotation plan (Table 5.2) advises producers to rotate the fungicides every two weeks from Bayfidan to Plantvax at the receival point to protect from pathogen resistance.

Defining each individual business's risk level will also be based on key aspects such as crop nutrition programs, irrigation scheduling, plant spacing, host material on the property (e.g. gardens, hedging or windbreaks), susceptibility of crops, the amount of host material across the landscape outside of business boundaries and general environmental conditions (seasonal) that are conductive to increasing spore loads such as high humidity, rainfall, prevailing winds, etc.

The three "Growing on" risk ratings can be explained in the following **example**:

Growing on - Risk	Risk explanation
Low level	Low relative humidity (<50%), outside of wet season, small number of host plants surrounding property plus not in new growth flush phase and relatively tolerant (RT) crop susceptibility
Medium level	Increased relative humidity (50% – 65%), approaching wet season, small number of host plants surrounding property in new growth flush phase and moderately susceptible (MS) crop
High level	High relative humidity (>65%), wet season, moderate to large number of host plants surrounding property in new growth flush phase and crops are either highly susceptible (HS) or extremely susceptible (ES)

5.3 Fungicide Application

Applying fungicides to manage myrtle rust will require the appropriate application equipment is available to ensure the chemical is delivered to the target crop within the acceptable parameters as defined by industry best management practice. The aim of using fungicides to manage myrtle rust is to ensure the necessary coverage is achieved that allows the fungicide to do its job.

Generally a systemic curative fungicide has some room for applicator error due to the ability of the plant to take the fungicide up in plant tissue and translocate it throughout the vegetative material. Non-systemic protectants such as Bravo, copper and mancozeb provide a "protective" film covering the plant surface which requires greater precision in the delivery technique particularly in achieving contact with the underside of vegetative material e.g. leaves.

The following list identifies the key aspects that are critical for successful fungicide treatment:

- Personnel applying fungicides appropriately trained (e.g. ChemCert/AusChem Certified)
- APVMA Permit (**PER12156**) available on-site (defines fungicide rate)

- Fungicide(s) to be applied within “best before” or “use by date”
- Applicable fungicide rotation program selected
- Appropriate Personal Protective Equipment available
- Signage advising staff not to re-enter treated areas before designated re-entry period
- Re-entry period guidelines (if not on Label) are: minimum 24hr’s, if possible 48 hr’s
- Ensure overhead irrigation is withheld for approximately 6 - 12 hours after treatment
- Application equipment is appropriate for the development of droplets that are within 150 – 250 microns such as:
    - Powered hydraulic handguns/booms fitted with either solid or hollow cone nozzles
    - Powered hydraulic application equipment rated at 600kpa or higher
    - Three point linkage/backpack powered **misters** are operated at correct speeds
    - All equipment regularly calibrated
- Use a chemical surfactant (wetter/sticker) if recommended on the product label
- Test fungicide(s) on a sample of the crop to ensure the product is not phytotoxic to your plant species before batch treatment.

Note: Knapsack sprayers powered by batteries or hand pumps are generally **not** appropriate equipment for delivering the droplet spectrum required for fungicide applications on crops.

6. On-site Biosecurity Actions

Currently (February 2012) myrtle rust is confirmed in New South Wales, Queensland and Victoria and as such it is important that 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 infections 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)**

The following simple strategies should be applied (where possible) across all businesses growing/selling myrtle rust host material (myrtaceous species). It is further recommended to consider this program for all plants within the Myrtaceae family:

6.1 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 **all** suppliers of myrtaceous plant material provide evidence that they are adhering to this **Myrtle Rust Management Plan (see attached declaration page 23)**
- 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 recommend this be applied irrespective of the source **(see Sampling Protocol below)**
- **Inspect all myrtaceous species prior to despatch (see Sampling Protocol below)**
- 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) **(see Monitoring Protocol below)**
- Ensure growing areas remain free of all waste vegetative material
- Increase plant spacings where appropriate to reduce humidity levels within crops
- Periodically (monthly) survey myrtaceous species growing on-site or along property boundaries/roads/etc. Pay particular attention to plants located upwind based on the most common prevailing wind direction of the season
- **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.

6.2 Propagation (specifics)

As above plus:

- Maintain high health practices in propagation (surface/implements/equipment disinfestation, staff hygiene, etc)
- Staff to wash hands before commencing work in propagation area (start of day/after breaks/etc) using a recognised hand sanitation product

- Propagation staff to undertake any field activities at end of day and not to re-enter propagation area.
- If possible provide staff with clothing or coveralls (e.g. disposable overalls) for moving outside propagation into production areas if required
- Avoid using adsorbent surfaces such as timber, cement board, fibro, etc as propagation work surfaces unless covered with 200 micron thick black plastic (replace when cut/punctured/damaged)
- Regularly disinfest propagation surfaces throughout the day at various points such as upon returning from a break, a change of species or batch
- Disinfest all items including surfaces using a recognised industry disinfectant such as:
    - Quaternary ammonium (e.g. PathX, Sporekil, etc)
    - Combination of 70% Methylated Spirits and 30% water
- **Avoid sourcing vegetative propagation material from myrtaceous plant species off-site**
- Ensure **off-site** motherstock for **non-myrtaceous** plant species are inspected and not located within 10m of myrtaceous plants
- Prior to taking vegetative propagation material from **off-site** motherstock survey the area and inspect all myrtaceous plants for signs of Myrtle rust
- Motherstock must be monitored and inspected at weekly intervals
- **Implement a fortnightly fungicide treatment program across all myrtaceous motherstock (see recommended program(s) Section 5.2)**
- All myrtaceous vegetative cuttings should be dipped in a bath containing a recognised disinfectant prior to sticking such as diluted chlorine, a specific quaternary ammonium (PathX/Sporekil/etc) that has low phytotoxicity or an approved fungicide. **Note:** Test on a sample to ensure the product is not phytotoxic to your plant species
- Consolidate all myrtaceous plant species within propagation houses (dedicated house) and hardening off/growing areas
- Monitor and inspect struck cuttings on a weekly cycle (see Monitoring Process below)
- **Implement a fortnightly fungicide treatment program across all myrtaceous plant species in propagation houses and hardening off/growing areas (see recommended program(s) Section 5.2)**
- Treat with a fungicide (e.g. copper) the growing area upon the completion of the crop growing cycle before placing a new crop down on the propagation bed/bench and production bed

6.3 Greenlife Markets/Retailers

- 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
- 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)
- Restrict all non-business vehicles from entry to greenlife stocking areas
- If possible remove/prune myrtaceous plant species from carparks, driveways, etc that could come into contact with staff and customers or could overhang greenlife stock
- If possible allocate specific staff to manage all myrtaceous species
- Request all suppliers of myrtaceous plant species to certify the plant material is grown under this industry **Myrtle Rust Management Plan (see declaration template page 23)**
- **Inspect <u>all</u> plant material at receival point with a close inspection of all myrtaceous plant species (see Sampling Protocol below)**

- 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
- Keep all areas stocking myrtaceous plant species free of waste vegetative material such as leaves/flowers/fruit etc dropped by plants
- Periodically, if possible, apply a recognised disinfectant treatment at monthly intervals over holding area(s) where myrtaceous plant species are stocked/placed/held
- Conduct weekly monitoring inspections of all myrtaceous plant species **(see Monitoring Protocol below)**
- Periodically (monthly) survey myrtaceous species growing on-site or along property boundaries/roads/driveways, etc. Pay particular attention to plants located upwind based on the most common prevailing wind direction of the season
- 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
- Have staff inspect all myrtaceous plant species at paypoint(s)
- Assess irrigation system and timing to ensure leaf surfaces are dry within short period 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

Note: For home garden treatment see APVMA Permit – PER12828

6.4 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. The treatments identified below are in addition to the activities and fungicide treatments being employed by the business under this plan (Sections 6.1, 6.2 & 6.3). After the below strategy is applied immediately reinstate the fungicide rotation program under the Myrtle Rust Management Plan.

6.4.1 Entire crop infected:

- Entire batch – spray with a registered fungicide (mancozeb or copper) and destroy infected crop(s) by composting on-site and treating adjacent host material with a registered fungicide (e.g. Bayfidan or Tilt or Plantvax) ; or

- Entire batch – spray with a registered fungicide (mancozeb or copper) and destroy infected plants by disposing to landfill and treating adjacent host material with a registered fungicide (e.g. Bayfidan or Tilt or Plantvax)
    - Consign plants to landfill in an enclosed vessel (bulk bin/plastic bags/etc); or

- Entire batch – spraying with a registered fungicide (Bayfidan, Tilt or Plantvax), pruning infected material and disposing of infected material as above. Remaining crop is placed in a high risk fungicide management plan for 3 consecutive fortnightly spray rotations (total of 6 weeks) using Bayfidan/Plantvax/Bayfidan in the rotation (see Table 5.2) before despatch

6.4.2 Part crop infected:

- Part batch – spray infected plants with a registered fungicide (mancozeb or copper) and treat remaining batch and adjacent host material with a registered curative fungicide (e.g. Bayfidan or Tilt or Plantvax). Destroy infected plants by composting on-site; or

- Part batch – spray infected plants with a registered fungicide (mancozeb or copper) and treat remaining batch and adjacent host material with a registered curative fungicide (e.g. Bayfidan or Tilt or Plantvax). Destroy infected plants by disposing to landfill
    - Consign plants to landfill in an enclosed vessel (bulk bin/plastic bags/etc)
    - Untreated infected plant material can be solarised in black plastic bags for three weeks before disposal; or
- Part batch – spray entire batch and adjacent host material with a registered fungicide (Bayfidan, Tilt or Plantvax), prune infected material and dispose of infected material as above. Remaining crop is placed in a high risk fungicide management plan for 3 consecutive fortnightly spray rotations (total of 6 weeks) using Bayfidan + mancozeb/Plantvax + mancozeb/Amistar + mancozeb in the rotation before despatching off-site.
- If re-using containers from infected plants disinfest by soaking in an approved sanitiser or heat treating (steam) at 60°C for 30 minutes.

Note: Follow all appropriate instructions for applying and handling plant material treated with a fungicide. Avoid handling fungicide treated plant material for a minimum 48 hours unless otherwise directed (label/APVMA permit).

7. Monitoring and Inspection Sampling Protocol

7.1 Monitoring Process

The following table provides growers with the number of plants required to complete an appropriate weekly crop monitoring plan (in-field). All aerial parts of the selected plant must be inspected including upper and lower surfaces of leaves with a keen focus on young growth, buds, flowers, shoots, green stems, etc.

Crop Monitoring Process - Myrtle rust weekly monitoring program

Enter each block or bench of plant material looking for abnormal plant symptoms
Walk at random through the area in a zigzag pattern (pay particular attention to plants lacking vigor or with obvious foliage lesions, or disease symptoms, etc)
Take at least 15 minutes to inspect 20 to 30 plants in containers or 10 – 15 tube/plug trays per 100m^2 of production area
Inspect the tops and bottoms of leaves/stems/buds/fruit looking for any direct evidence of the disease
Inspect the entire above ground area of the plant(s)
With larger plants, select leaves from all parts of the plant (upper, middle, lower) and examine them individually
Inspect the length of all stems and branches for insects, mites, and disease symptoms
Using an identification guide (images), identify any symptoms observed
Myrtle rust free state/territory - if a suspect infection is identified either leave it in-situ or place the plant in a plastic bag (if at dispatch/retail) and contact the relevant state/territory biosecurity agency

Myrtle rust infested state/territory – if a suspect infection is identified either leave it in-situ for complete batch fungicide treatment in-field or if at dispatch/retail place the plant in a plastic bag and move to a fungicide treatment area (See Section 6.4 for information on infected crop management)
Record on the 'Crop Monitoring Record' sheet (see BioSecure *HACCP*) relevant monitoring information
Observe any situational problems such as malfunctioning sprinkler heads
Routinely inspect growing areas and remove alternate hosts and reservoirs of disease and insect vectors, including weeds, crop residue, and old plants that will not be marketed.

7.2 Despatch Sampling Process

The following tables provide growers with the number of plants required to complete an appropriate sample size for consignment inspections (dispatch). All aerial parts of the selected plant must be inspected including upper and lower surfaces of leaves with a keen focus on young growth.

Despatch sampling methodology

The plants, cartons, trays or containers forming a consignment should be inspected as close as practicable and not more than 48 hours prior to the time of dispatch
Before undertaking the inspection the Nursery Manager will determine the sampling to be applied to the consignment as per below method
Depending on the size of the consignment one of the two sampling methods (below) may be used
The number of plants/ cartons/trays/containers (package) selected for inspection must be chosen at random.

Despatch sampling method

Nationally agreed sampling regime, as per **ICA 42 Nursery Freedom, Treatment and Inspection for Myrtle Rust**, can be undertaken at one of the following two points in the despatch process:

1. End-point inspection; or
2. In-line inspection.

The inspection rate (plants/packages) applied by a business for both end-point and in-line inspections is either:

- 600 units; **or**
- 2% of the number of packages.

A minimum of three (3) packages will be drawn when undertaking an inspection using the 2% sampling rate. If when applying the rate of 600 units for inspection and the total number of units is less than 600 then all units in the consignment shall be inspected.

Package means the complete outer covering or container used to transport and market the produce.

A unit means one or more plants in a growing container/unit.

An In-line inspection shall involve the selection and inspection of plants drawn from a lot and inspected during the processing and packing of the product.

The business shall sample packed product at the predetermined inspection rate from the packing line and move the packed product to the inspection area for examination.

Packed product means for in-line inspection plants within a growing container or a plant(s) that is bare rooted.

End-point inspections are only carried out on consignments that have been finalised.

The business shall sample packages at the predetermined inspection rate from the consignment and move the packages to the inspection facility ready for examination.

Packed product means for end-point inspection plants that have been packed into its final package.

Note: The Australian Nursery Industry has a complete guide for on-farm biosecurity protocols and procedures (BioSecure *HACCP*) available from state associations. Information on sterilisation, disinfestation, sanitation, quarantine, monitoring and inspecting, etc is available in this concise manual.

8. 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. The following table summarises the status of current myrtle rust movement controls by jurisdiction as at February 2012:

The below table is a guide only. Prior to interstate movement of greenlife please contact your state/territory biosecurity agency (see contact details below) to receive the most up to date movement controls of the receiving jurisdiction.

Movement Controls February 2012

Jurisdiction	Myrtle Rust Movement Controls
Queensland	Must be free of myrtle rust – illegal to sell an infected plant
New South Wales	Must be free of myrtle rust – illegal to sell an infected plant
Australian Capital Territory	Must be free of myrtle rust
Victoria	Restrictions on myrtaceous plants from an infected jurisdiction
South Australia	Restrictions on myrtaceous plants from an infected jurisdiction
Northern Territory	Restrictions on myrtaceous plants from an infected jurisdiction
Western Australia	Restrictions on myrtaceous plants from **all Australian** jurisdictions
Tasmania	Restrictions on myrtaceous plants from **all Australian** jurisdictions

Note: WA will **not** accept plants of the Myrtaceae family irrespective of treatment from any jurisdiction except TAS. All species in the Family Myrtaceae are currently prohibited entry to Tasmania unless prospective importers have sought and been granted written approval to import by means of a Section 67 exemption under the *Plant Quarantine Act 1997* via the DPIPWE.

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, New South Wales and Victorian production nurseries for access to South Australia and Northern Territory markets. To arrange an ICA 42 application contact Biosecurity Queensland on 13 25 23 or I&I NSW on (02) 6938 1976 or Victoria on 136 186.

State/Territory Biosecurity Agency Contact Numbers:

Queensland – 13 25 23

South Australia - 1300 666 010

Tasmania - (03) 6233 3352

New South Wales - (02) 6938 1976

Western Australia - (08) 9334 1800

Victoria - 13 61 86

Northern Territory - (08) 8999 2118

National Exotic Plant Pest Hotline: 1800 084 881

Note: Individual jurisdiction entry conditions must be followed at all times

Myrtle Rust Management Plan Declaration

Nursery & Garden Industry

Business Name:……..

Address:……

Telephone:…… **Email**:……

Invoice Number:……**Date:**……..

I the undersigned declare that …….. has implemented the Australian Nursery Industry **Myrtle Rust Management Plan** (the plan) and are applying all relevant aspects of the plan to all myrtaceous plant species grown on-site. All myrtaceous plants in this consignment (as per Invoice) have been treated under the plan.

…… has applied the following protocols of the plan to ensure the risk of receiving/introducing and/or distributing myrtle rust is reduced and managed to the best of our ability. **Date of last fungicide application: ……../……../…….**

Note: (Insert business name in the above blank fields)

PROTOCOL IMPLEMENTED	N/A	Y/N	PROTOCOL IMPLEMENTED	N/A	Y/N
Myrtaceous plant material is imported onto this site(s)			Myrtaceous plant material propagated is sourced on-site		
All myrtaceous plant material is propagated and grown on-site(s) (no imported material)			Myrtaceous plant material propagated is sourced off-site		
All myrtaceous plant material imported is accompanied by this Declaration from suppliers			All myrtaceous plant material propagated comes from motherstock inspected and treated as per the plan		
All myrtaceous plant material imported is inspected upon receival by trained personnel			A sound hygiene system has been implemented across all aspects of myrtaceous plant production		
All myrtaceous plant material imported is treated with a curative fungicide upon receival			A sound waste disposal system for greenlife residue is in place		
All myrtaceous plant material grown is monitored & inspected at weekly intervals			Visitor vehicles are denied access to production area		
All myrtaceous plant material grown is treated at appropriate intervals as recommended under the fungicide program in the plan (see Tables 5.2 & 5.3)			A hygiene system is in place for essential visitors to the production area		

…… ……

Name **Signature**

Photographs sourced from I&I NSW and Qld DAFFQ