



## FACTSHEET

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For more information on weeds, including use of biocontrol agents contact:

Your local NRM Board  
[www.nrm.sa.gov.au](http://www.nrm.sa.gov.au)

Visit the Biosecurity SA web page:  
[www.pir.sa.gov.au/biosecurity/nrm\\_biosecurity/weeds](http://www.pir.sa.gov.au/biosecurity/nrm_biosecurity/weeds)

Ph 08 8303 9620

Or Weeds Australia:  
[www.weeds.org.au](http://www.weeds.org.au)

## BIOLOGICAL CONTROL OF

# Blackberry

(*Rubus fruticosus aggregate*)

**Biocontrol agent: Leaf rust fungus**  
(*Phragmidium violaceum*)

## BACKGROUND

Blackberry comprises a number of closely related plants within the *Rubus fruticosus* aggregate. There are currently 16 known species established in Australia, with the effectiveness of blackberry control varying amongst the species.

Blackberry is a Weed of National Significance and a declared plant in South Australia. Landowners have a legal responsibility to control it under the South Australian *Natural Resources Management Act 2004*. Regional NRM Boards coordinate and enforce local and regional control programs for declared plants.

Blackberry is a prickly scrambler that can invade large areas quickly, grow vigorously and is able to propagate vegetatively from cane tips. It forms impenetrable thickets up to 7 m high. It can also reproduce from seed with a single plant producing 170,000 – 400,000 seeds per year and thickets producing 7,000 – 13,000 seeds per square metre. Blackberry seeds are spread by fruit-eating birds and mammals, including foxes. The plant can quickly smother other vegetation and is relatively unpalatable to most livestock.

The biocontrol agent, leaf rust fungus, was found in Australia in 1984 after an unauthorised introduction. However, the rust strain (F15) was officially released after it was found to be more effective than

the unauthorised strain, in the early 1990s and again in 2004 as part of a large-scale release program. In the late 1990s research confirmed the presence of blackberries that were resistant to available rust strains.

New strains are being identified and tested to broaden the genetic diversity of the rust, and to slightly broaden the host range to include previously resistant weedy blackberry species.

The rust is harmless to native *Rubus* species and varieties of commercial raspberry and brambleberry such as loganberry, boysenberry and youngberry.

## HOW THIS BIOCONTROL WORKS

The leaf rust fungus defoliates plants over summer. The rust infects blackberry leaves and occasionally green stems, petioles, the green tissues of the flowers and unripe fruits.

Leaf rust fungus infection rarely results in more than 40% of leaves on a blackberry shoot being severely diseased; yet nutrient drain from infection and defoliation over multiple growing seasons can slow vegetative spread and reduce its competitiveness as an understory species. Repeated defoliation may reduce the plant's ability to produce daughter canes and impact on its ability to spread vegetatively.

The rust's wind-dispersed spores enable it to spread throughout the blackberry growing season. Rust spores overwinter on infected plants and in leaf litter.



Blackberry rust  
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Blackberry rust lesions  
Image courtesy of G Johnson

## Blackberry infestations across SA NRM Boards

- > Eyre Peninsula: dense infestations in wetter areas
- > South East: scarce in north, widespread in forests in south
- > Adelaide & Mt Lofty Ranges: scattered dense infestations
- > Kangaroo Island: small, isolated infestations
- > SA Murray Darling Basin: isolated plants
- > Northern & Yorke: small, isolated infestations

The leaf rust fungus requires humidity to germinate and is more effective in higher rainfall areas. It will not have a major impact in areas with high temperatures and summer drought.

### RELEASE OF AGENT IN SOUTH AUSTRALIA

The leaf rust fungus is localised around release sites in the South East NRM Region. It has not spread beyond release sites in the SA Murray Darling Basin Region and less than 10 m from release sites in the Adelaide and Mt Lofty Ranges Region. Monitoring is required on the Eyre Peninsula to confirm establishment at Tumby Bay, where it was released in the early 1990s.

In spring 2009 five of the eight new strains of rust were released in South Australia. Initial uptake appears promising but it is still too early to confirm establishment.

Drought conditions are thought to be the dominant factor for the lack of new strains establishing in previous years.

It is considered that the leaf rust fungus may not be suited to South Australia's dry summers, but may be promising along watercourses where summer moisture is present.

### INTEGRATED CONTROL

Integrated weed management aims to maintain or reduce weed densities to manageable levels by utilising a variety of

control practices, including biocontrol where appropriate.

Integrated blackberry control can utilise herbicides, grubbing, mowing, cultivation, grazing management, or fire, in addition to biocontrol.

In inaccessible locations, or where there is a risk of damage to sensitive native vegetation, conventional control methods may be difficult or impossible to implement. In such cases biocontrol may be the only feasible management option, although alone, it will not eradicate the weed. The likely effect is to reduce the growth and rate of spread of the weed, allowing more time for control by other means.

### REFERENCES / LINKS

Morin L and Evans K J 'European blackberry – *Rubus fruticosus* agg.' in *Biological control of weeds in Australia 1960 to 2010*. Eds: Mic Julien, Rachel McFadyen and Jim Cullen. In press.

[Blackberry Strategic Plan Review 2008–09](#)

[Blackberry Newsletter 2005](#)

[Blackberry Weed Management Guide](#)

[Blackberry Weed Identification Notes](#)

[Blackberry Management](#)

[Declared Plants of South Australia](#)

[Integrated Weed Management](#)

[Blackberry Best Practice Guide](#)

[Blackberry Control Manual](#)



Blackberry infestation  
Image courtesy of S Ivory



Blackberry flowers  
Image courtesy of S Ivory

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