

## LANTANA LEAF RUST

*Prospodium tuberculatum*

### History of lantana leaf rust

Lantana leaf rust is native to Brazil and affects mainly the common pink-flowering lantana variety. It was the first lantana biocontrol agent to be released in Australia in 2001 and it has been successfully established in Queensland and New South Wales. The rust prefers moist sites where there is dew or light rain, and temperatures are mild. Permission to release the lantana leaf rust in New Zealand was granted by the EPA in 2012. The rust was imported from Australia in March 2013, and releases are expected to begin soon.

Lantana leaf rust will be released in conjunction with lantana blister rust (*Puccinia lantanae*). The temperature and moisture requirements of these two rust species are different so they are expected to operate in slightly different climate zones or micro-climates in the field. But in both cases the climate requirements the rusts need are typical of those prevailing in lantana habitats here.

### How would I find lantana leaf rust?

Pustules should appear three weeks after successful inoculation and are easiest to find on the 3<sup>rd</sup> leaf pair from the tip and at the edge of the underside of the leaf. The rust pustules will be slightly raised brown dots, much like coffee granules. The topside of the leaf may show some yellowing around the rust pustule. With lighter or establishing infestations, the rust pustules may only be seen by close inspection of the underside of the leaf. When pustules are very small and low in numbers their presence can only be confirmed using a microscope (or possibly a hand lens). Although infection can occur all year, symptoms may not always be visible. Pustules will be easier to find in the wetter seasons of spring and autumn.

The only fungus you might confuse with the lantana leaf rust is the lantana blister rust which has much larger pustules.



Lantana leaf rust

See *Lantana blister rust*.

In its native range the rust mostly forms urediniospores and can persist through this type of spore alone. Teliospores are only found in high-altitude areas in their native range and in areas with low temperatures in Australia. In such adverse conditions this type of “resting spore” may improve the ability of the rust to survive. The rust can survive dry winters once it has completed an entire life cycle.

When urediniospores land on lantana leaves they germinate and grow into the plant. Infected areas turn yellow after 2 weeks and after 3 weeks pustules of new urediniospores erupt through the plant’s epidermis, damaging the leaves. New urediniospores continue to be formed in these pustules for at least 48 days. The wind disperses these spores spreading the disease around.

### How does lantana leaf rust damage lantana?

Lantana leaf rust is predominantly a leaf pathogen. Pustules produced on the underside







Lantana leaf rust (small pustules) compared with lantana blister rust (large pustules).

of the leaves damage the leaves eventually causing leaf death and defoliation.

### **Will lantana leaf rust attack other plants?**

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The lantana leaf rust is unlikely to damage plants other than *Lantana camara*.

### **How effective is lantana leaf rust?**

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It is too early to know how effective lantana leaf rust will be in Zealand. The aim of our biocontrol programme is to reduce the ability of lantana to grow, shade out desirable plants, produce seeds that can be spread by birds, and invade new sites. In Australia, where the rust is now well established, damage is commonly seen, especially in summer when rainfall is higher, and the growth rate of lantana and fruit production are being reduced. Conditions in New Zealand are likely to be more favourable for the rust (in terms of rainfall) than in Australia.

### **How can I get the most out of lantana leaf rust?**

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Lantana leaf rust relies on moisture to germinate and commence its life cycle so some steps should be taken to maximise the chances

of successful establishment. If possible, the leaves should be regularly wet from dew, fog or rain. The rust spores need a wet leaf surface for a minimum of 8 hours (usually 8-12 hours) to germinate. Therefore the best conditions for release would be during light rain sustained over a few days, with likely follow-up rain. Ideally, time applications for late afternoon when rain is expected or dew occurs overnight to stimulate spore germination. Alternatively, enclosing inoculated branches with plastic, or spraying plants with water may help with initial establishment in dry conditions.

Once a plant is infected the rust can reproduce relatively quickly and disperse by wind, but some subsequent redistribution efforts may be required if natural infection does not occur in all areas where the rust is needed.

### **How do I choose a release site?**

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Read *Guidelines for selecting release sites for biocontrol agents*.

As with the blister rust, the leaf rust requires a period of moisture to germinate and infect so release sites need to be protected from drying out. Sites in gullies and under canopy will retain moisture for longer. Extreme temperatures are undesirable for rust survival so avoid full sun. Sites should also be as safe as possible from frost, fire, flood and human interference such as spraying and slashing. The lantana plants at the site must be susceptible (i.e. pink or orange-flowering varieties), not wilting, and actively growing. If possible the release site should be part of, or close to, a large infestation of lantana to facilitate subsequent rust spread.

### **How do I manage release sites?**

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Avoid any activities that will interfere with the rust, such as herbicide or fungicide application. If you need to undertake control measures then avoid the release site.

### **For further information contact:**

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