LANTANA BLISTER RUST

Puccinia lantanae

The history of lantana blister rust

Puccinia lantanae is a common leaf pathogen which has been recorded from around 60 plant species including 24 species of lantana in the Neotropics. When it infects lantana this rust generally causes a low level of defoliation. However, this rust has distinct races and isolates with much narrower host-ranges. Permission to release in New Zealand an isolate of *P. lantanae* from Peru, that is much more damaging and largely restricted to *Lantana camara*, was granted by the EPA in 2012. This isolate is henceforth referred to as lantana blister rust. Lantana blister rust was imported from the UK in March 2013, and releases are expected to begin soon. This rust has never been used as a biocontrol agent anywhere before.

Lantana blister rust will be released in conjunction with lantana leaf rust (*Prospodium tuberculatum*). 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 climatic requirements the rusts need are typical of those prevailing in lantana habitats here.

How would I find lantana blister rust?

Leaf and stem chlorosis should be visible 7-10 days after successful inoculation followed by the appearance of large dark pustules on the stems and underside of the leaves. Once infection is established in the plant you should see stunted shoots and branch die-back. The rust is likely to persist throughout the year, at times without visible symptoms, and be more prevalent when conditions (i.e. temperature and humidity) are most optimal. We expect it will be easiest to see in autumn and spring.

Lantana blister rust is microcyclic which means it only needs two spore types (basidiospores and teliospores) to complete its life cycle. It is autoecious meaning it has one main host. Basidiospores infect leaves, petioles and/or

Lantana blister rust

stems of actively growing lantana and the affected tissues become chlorotic (yellow). Teliospores then form under the epidermis which eventually ruptures allowing the teliospores to emerge. These teliospores germinate and under conditions of high humidity a fine layer of basidiospores forms on their surface. The rust spreads to new host plants via these basidiospores, mostly by air currents and gravity, and the cycle repeats. As the disease progresses, leaves drop off the plant and stems die back and accumulate areas of dead tissue (cankers).

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

See *Lantana leaf rust.*

How does lantana blister rust damage lantana?

Lantana blister rust is able to infect leaves, petioles and stems, causing branch die-back. In addition, systemic infections are often formed, within the vascular tissue, resulting in stunting of the shoot, and ultimate death of the whole apex. Symptoms such as these are particularly detrimental to the growth of an infected plant.

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Landcare Research Manaaki Whenua

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LANTANA

Systemic infection

Will lantana blister rust attack other plants?

Lantana blister rust is largely restricted to *Lantana camara* (pink and orange flowered forms). In tests under ideal conditions some spores formed on *Verbena officinalis*, which is occasionally grown here as an ornamental, but research has shown that the rust cannot persist on this species. We therefore expect some minor spill-over damage might occur on *V. officinalis* where it is growing very close to infected lantana. From the test results we expect that damage to other ornamental *Verbena* hybrids will be minor, if it occurs at all.

How effective is lantana blister rust?

It is too early to know how effective lantana blister rust will be in Zealand. Field observations in South America suggest that the blister rust will prefer, and may be restricted to, warmer wet areas in the far north. 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. At the very least defoliation by the lantana rusts is expected to reduce the growth rate of the weed and reduce fruit production. In addition, lantana blister rust is expected to cause dieback and possibly whole plant deaths.

How can I get the most out of lantana blister rust?

Lantana blister rust is able to infect lantana plants most effectively at temperatures between 17 and 22°C. It also requires at least 5 hours of leaf wetness from rain or dew to infect plant tissues, but greater exposure increases the level of infection. Therefore releasing the pathogen in early autumn or late spring, when temperatures are most favourable and rainfall is higher, will be more conducive to its establishment.

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?

Lantana blister rust is likely to prefer warm and humid sites and may be best suited to more northern sites in New Zealand. Since this rust requires 5 hours of leaf wetness to germinate and infect, release sites should be protected from drying out. Sites in gullies and under canopy will retain moisture for longer. 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.

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

How do I manage release sites?

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

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