

23 April 2010

### Barley rust razing crops on four continents

Australia's coastal borders may be no match for barley stripe rust, which is already found on four continents and has the potential to cause serious crop losses in barley.

Dr Rohan Rainbow, Grains Research and Development Corporation (GRDC) crop protection manager says barley stripe rust (*Puccinia striiformis* f. sp. *hordei*) would have a serious economic impact if it established in Australia.



"It is estimated that more than 80 per cent of the barley varieties grown here are very susceptible to the fungus," Dr Rainbow says.

"Damage to barley plants varies depending on the stage of growth, but crop losses due to barley stripe rust can be up to 70%."

He says growers should consider themselves the frontline defence and be diligent about farm biosecurity, which includes ensuring farm hygiene and monitoring vehicles and visitors.

To provide information on farm biosecurity measures, a Grain Farm Biosecurity Manual has been developed through the Grain Farm Biosecurity Program, run by Plant Health Australia.

Dr Rainbow advises growers to treat seriously the development of stripe rust symptoms on any barley plants or 'hot spots' of disease within a crop.

He says barley stripe rust occurs in Asia, Europe, Central Africa and North, Central and South America and could easily spread to Australian farms via international travellers.

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For more information on Farm Biosecurity visit [www.farmbiosecurity.com.au](http://www.farmbiosecurity.com.au)

He says farm biosecurity is also important for farmers travelling overseas, particularly if they are visiting cropping regions and farms. He advises thoroughly washing or even discarding clothing before returning home.

“Rust spores are small, light and may survive for several days,” he says.

“They can be spread over large distances by wind, and they can move around the world and between farms and regions by attaching to clothing, machinery and tools.”

The fungus produces stripes of rust pustules between the veins of leaves, and can also form on barley heads. In barley, the pustules may be more yellow than orange, and hence the disease is sometimes referred to as yellow rust.

Barley stripe rust can build up rapidly if conditions are cool and wet, and infection is often first noticed as ‘hot spots’ within the crop.

Dr Rainbow says the disease could be confused with barley grass stripe rust, which is present in the eastern states of Australia, and occasionally wheat stripe rust, which can infect barley to a limited extent.

However, any barley plants showing stripe rust symptoms should be sent for further testing as identification of Barley stripe rust requires laboratory testing, he says.

Dr Colin Wellings, University of Sydney, Plant Breeding Institute (seconded from Industry & Investment NSW) says researchers are working towards resistant varieties but prevention of barley stripe rust via farm biosecurity and surveillance remains easier than a ‘cure’.

“Barley stripe rust has been a damaging disease in the Americas since it spread there from Europe in 1975,” Dr Wellings says.

The barley breeding program at the International Maize and Wheat Improvement Center (CIMMYT) in Mexico has taken a lead role in the testing and breeding of stripe rust-resistant commercial varieties.

Dr Wellings says the occurrence and significance of barley stripe rust in the Americas led to a plan to test Australian barleys at CIMMYT.

“The initial data was concerning: more than 80pc of current varieties were very susceptible,” he says.

*If you see anything unusual on your property call the Exotic Plant Pest Hotline on 1800 084 881 or the Emergency Animal Disease Watch Hotline on 1800 675 888.*

*For more information on biosecurity risks visit [www.grdc.com.au/biosecuritylinks](http://www.grdc.com.au/biosecuritylinks)*

*or [www.farmbiosecurity.com.au](http://www.farmbiosecurity.com.au). To download a copy of the Grains Farm Biosecurity Manual or to contact a Grains Biosecurity Officer, visit [www.planthealthaustralia.com.au/biosecurity/grains](http://www.planthealthaustralia.com.au/biosecurity/grains). For more information on rust management visit [www.grdc.com.au/rustlinks](http://www.grdc.com.au/rustlinks)*

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