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Wheat leaf rust status in eastern Australia, August 2021

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Leaf rust of wheat has been reported from southern Queensland and three sites (Tamworth, Mittagong and Kabinga) in NSW, at low frequencies. Two well separated detections of virulence for *Lr24* from the six samples of leaf rust received and processed to date are of concern, we ask that crops with this resistance gene be monitored for leaf rust and that samples of this and any other rusts found be sent to the address shown below for pathotype analysis.

To date, we have received eight samples of leaf rust infected wheat for pathotype analyses. The first of these was collected in late April from Tamworth, and since then we have received samples from across NSW and from southern Queensland, see **Figure 1,** this map is regularly updated and can be viewed at:

https://www.sydney.edu.au/science/our-research/research-areas/life-and-environmental-sciences/cereal-rust-research.html

Two pathotypes have been identified from the six samples processed so far: four isolates of pt. 104-1,3,4,5,7,9,10,12 +Lr37; two of pt. 76-3,5,7,9,10,12,13 +Lr37. The two isolates of the latter pathotype came from widely separated locations, one in southern Queensland (Kioma) and the other from southern NSW (Kabinga). The recurrence of this *Lr24*-virulent pathotype is of concern for wheat varieties carrying gene *Lr24*.

The leaf rust resistance gene *Lr24* has been used extensively in Australia. It was first deployed in 1983 in the cultivar Torres, and since then more than 60 wheat cultivars have been released with this gene (e.g. Bremer(b), Chief CL Plus(b), Cutlass(b), Elmore CL Plus(b), Impress CL Plus(b), LRPB Gazelle(b), LRPB Lancer(b), LRPB Oryx(b), LRPB Parakeet(b), Sunchaser(b), Naparoo(b), Sunguard(b), and Supreme(b)).

The first detection of virulence for *Lr24* was in 2000, 17 years after it was first deployed. A second pathotype with virulence for this gene was detected in 2013 (viz. pt. 76-3,5,7,9,10,12,13 +Lr37). Virulence for *Lr24* only occurs in eastern Australia. However, unlike virulence for the stripe rust resistance gene *Yr17*, virulence for *Lr24* has not become dominant in eastern Australia (**Figure 2**). It was nonetheless detected in nine samples of leaf rust collected from wheat crops in NSW from Forbes, Grafton, Narrabri, and Wongarbon in 2020 (**Figure 3**).

Varieties with the resistance gene *Lr24* should remain resistant to leaf rust unless one or both pathotypes virulent for this gene increase in frequency and for this reason we ask that growers of varieties carrying this

resistance gene keep a watching brief and forward samples of leaf rust if the disease is found. Knowing how common *Lr24*-virulent pathotypes are, and where they occur, is important to ensure growers of varieties with this gene minimise their risk of losses due to leaf rust.

Rust responses of wheat varieties can be found in our Cereal Rust Report **17**(3).

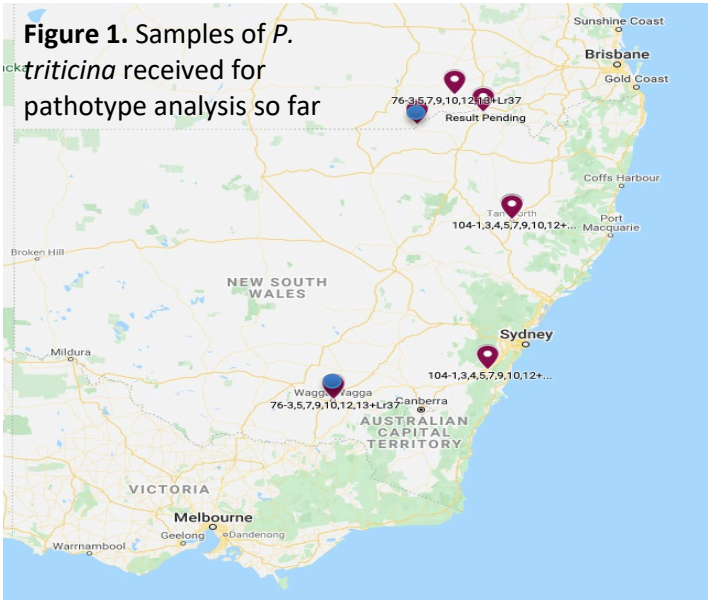


Figure 1. Samples of *P. triticina* received for pathotype analysis so far

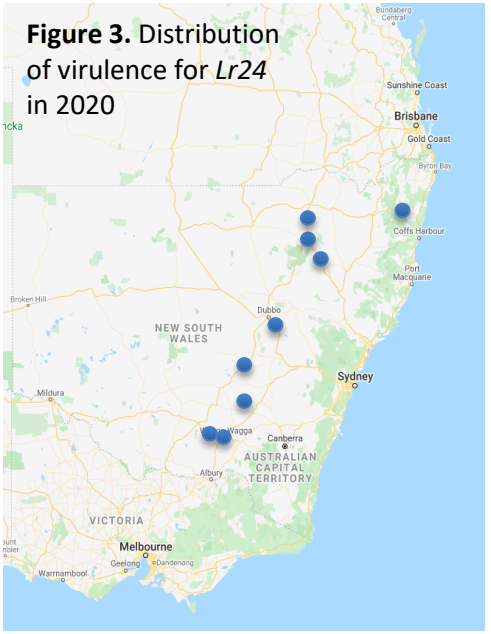
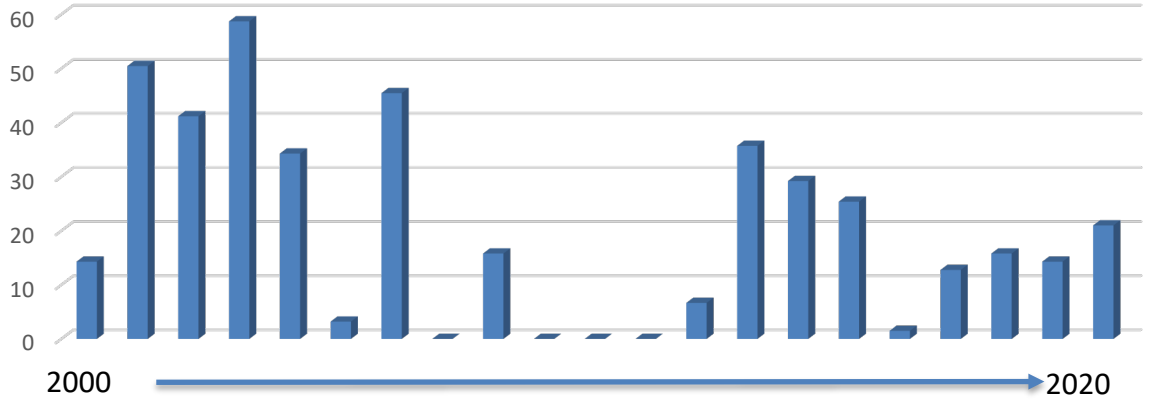


Figure 3. Distribution of virulence for *Lr24* in 2020

Figure 2. Annual frequency of virulence for *Lr24* (%) from 2000 through 2020



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Rusted Plant Samples

Can be mailed in paper envelopes; **do not use plastic wrapping or plastic lined packages**. The sample submission guide and submission form can be downloaded from our website: Australian Cereal Rust Survey

Fill in the submission form and direct rust samples to:

University of Sydney
Australian Rust Survey
Reply Paid 88076
Narellan NSW 2567

Or contact us for some of our free reply- paid sample envelopes

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