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Cereal Rust Laboratory

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## Cereal Rust Report Season 2009

### Stripe Rust Emerging in NSW

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The first reports of stripe rust for 2009 were received from the New England region in NSW in May and were reported in Cereal Rust Report Volume 7 Issue 4 (June 2009). Current sample numbers indicate stripe rust is widespread at the end of July in northern NSW and southern Queensland, and increasing in central NSW. There has been only three samples from southern NSW and no samples received to date from Victoria, South Australia or Western Australia. The first pathotype data for the current season has confirmed the 'Jackie' pathotype from five locations across northern NSW.

#### Disease Onset

Stripe rust samples were initially received from an early sown crop of Jackie triticale sampled from Guyra in northern NSW on 12<sup>th</sup> June. The first samples for the season are typically hard to find and often produce few spores. In the case of the Guyra sample, we were delayed because of the need to re-cycle the spores twice before we had sufficient to test for pathotype.

A question that frequently arises with the arrival of the first stripe rust sample is the relative timing of the disease in comparison to previous seasons. The data in Table 1 suggests that epidemics beginning early will generally lead to a widespread and damaging outbreak, provided seasonal conditions remain favourable for both the crop and pathogen. There are exceptions, such as the relatively late onset in 2003 and 2004 that led to serious epidemics.

In comparison to the severe epidemic in NSW and Queensland in 2008, the current season stripe rust samples suggest that we have a similar period of

epidemic initiation. However a distinction between these two seasons is illustrated in Table 2. The 2008 epidemic began four weeks earlier than 2009, and the locations of disease onset were quite different. It was clear that the 2008 epidemic became more focused in the initial phases in southern NSW. In contrast, the current season samples are being recovered in greater frequency from northern NSW.

#### Disease Progress in 2009

Following the initial specimen on 12<sup>th</sup> June, there were no further stripe rust reports for three weeks, with samples beginning to arrive from the Moree area from the 3<sup>rd</sup> July. The map (Figure 1) shows the progressive receipt of samples from the initial report and then over a three week period in July. The map clearly indicates that stripe rust has survived and re-appeared at several independent locations. At present, stripe rust has been recorded on a broad front across northern NSW and southern Queensland, and this no doubt reflects widespread summer rain

that enhanced survival opportunities for the pathogen in 2008-09. In addition, the above average early season conditions in 2009 in this region have allowed growers to take advantage of timely opening rain on full soil profiles and consequently crop establishment has been excellent.

In general, crops sown on or before 1<sup>st</sup> May have been the source of initial rust samples. In the same period in 2008, grazing triticales were an important source of early stripe rust samples. However, the northerly location of the initial epidemic in 2009 and the relatively insignificant plantings of long season triticales in this region have meant that most stripe rust samples have originated from wheat. Varieties Gregory and Sunbrook have been the most frequent sources of stripe rust samples to date.

### Pathotype Determination and Variety Monitoring

Five samples have been identified as the 'Jackie' pathotype. These samples were from Jackie (Guyra), Gregory (Walgett), Lang (Moree), Sunvale (Quambone) and Sunco (Carinda).

Nineteen of the current set of 67 samples have been received from *Yr17* carrying wheats, viz Marombi, Crusader, EGA Eaglehawk, Gladius, Sunbri, Sunstate, Sunzell and Ventura. These samples have not been assessed for pathotype at the time of writing.

Although the source of these samples might suggest that the 'WA *Yr17*' pathotype could be present, it is also important to remember that pathotypes avirulent for *Yr17* (notably the 'Jackie' pt) can cause noticeable symptom development, ie the *Yr17* resistance may not give total protection, particularly in the early seedling stages under heavy inoculum pressure. However, given the potential significance of the 'WA *Yr17*' pt, it will be important to sample these crops for pathotype determination.

Similarly, crops known to carry the *Yr27* resistance will need to be monitored for the expected re-occurrence of the 'Jackie *Yr27*' pathotype that was first reported at low frequency late in 2008 (see Cereal Rust Report Volume 6, Issue 8, November 2008). Varieties carrying *Yr27* include GBA Hunter, GBA Ruby, Merinda, Mira, Waagan and Zebu. Livingston carries both *Yr17* and *Yr27* and so is not expected to be affected by any of the current stripe rust pathotypes.

### Sample Reporting

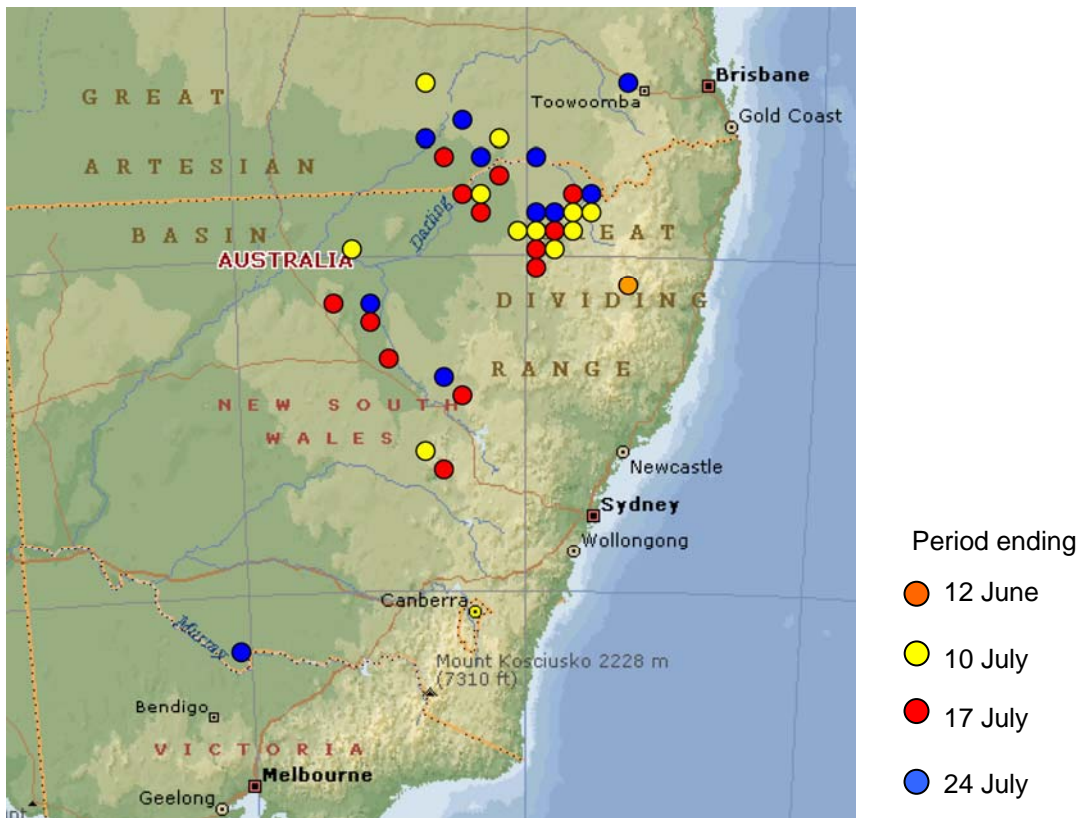
Sample receipt and pathotype result will be reported to each co-operator as soon as the sample is accessioned and then when the data becomes available. Samples can be dispatched according to the instructions indicated at the bottom of this page.

**Table 1.** Stripe rust samples received from commercial fields in eastern Australia, 2003-2009.

Year	Stripe Rust Samples Received at PBI Rust Lab		
	June	July	Total
2003	-	-	431
2004	-	-	475
2005	3	25	393
2006	-	-	149
2007	-	2	338
2008	14	60	833
2009	1	67	??

**Table 2.** Samples received at PBI Rust Lab in the period to the end of July in 2008 and 2009.

Year	End of July Sample Number and Date of First Stripe Rust Report				
	Queensland	Nth NSW	Sth NSW	Victoria	South Australia
2008	2 (21 July)	12 (16 May)	48 (16 May)	5 (17 July)	1 (21 July)
2009	13 (3 July)	51 (12 June)	3 (15 July)	-	-



**Figure 1.** Distribution of stripe rust samples received at the PBI Rust Lab from the first report (12 June 2009) and then at weekly intervals in July

**General enquiries:**

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**Rusted plant samples** can be mailed in paper envelopes; do not use plastic wrapping or plastic lined packages. Direct samples to:

Australian Cereal Rust Survey  
 Plant Breeding Institute  
 Private Bag 4011, Narellan NSW 2567

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