

Cereal Rust Report

Season 2010

VOLUME 8 ISSUE 6
7 September 2010



Stripe Rust Situation at Early Spring

COLIN WELLINGS

The University of Sydney, Plant Breeding Institute,
Email: colin.wellings@sydney.edu.au, Phone: 02-9351 8826, (on secondment from Industry & Investment NSW)

Ideal moisture levels across most of eastern Australia are expected to provide favourable conditions for cereal production in spring while also enhancing foliar disease problems including the rusts. The stripe rust situation in early spring in eastern Australia indicates that the pathogen population is at sufficient levels to cause problems if timely action is not taken in varieties known to be vulnerable. Recent pathotype identifications indicate the presence of the 'Jackie' and 'WA Yr17' pathotypes at approximately equal frequency. The 'Jackie Yr27' pathotype is reported for the first time since October 2008. Stripe rust has not been reported from Western Australia.

Epidemic development

The frequency of stripe rust samples arriving for pathotype analysis at the PBI Rust Lab for the period to the end of August is presented in Table 1. For comparison, the sample numbers for the same time period in 2009 are also indicated. The contrast between the seasons is particularly evident in the sample frequency from the northern (Queensland and northern NSW) and southern (South Australia, Victoria, southern NSW) regions in July. This clearly reflects what must have been significant over-summer survival in southern NSW, in contrast to survival and early epidemic development in northern NSW in 2009.

Stripe rust in South Australia has only recently been detected, and has possibly been influenced by the population developing in the Riverina (NSW) and Wimmera (Victoria). Stripe rust has not been reported from Western Australia in 2010.

Pathotype detections

Recent results from samples received to the end of August are presented in Table 2. Just over 30% of isolates have been identified, and already it appears that the 'Jackie' pathotype is dominating (52%)

followed by the 'WA Yr17' pathotype (35%). An important result is the detection of the 'Jackie Yr27' pathotype from a trial site in Victoria. This is the first occurrence of this pathotype since the initial detection in October 2008, and will mean that varieties carrying Yr27 (GBA Hunter, GBA Ruby, Livingston, Merinda, Mira, Waagan) will need to be monitored. The expected adult plant resistance of these varieties will be reviewed and information communicated as soon as it comes to hand. Note however that of these varieties, Livingston (Yr17, Yr27) is expected to remain resistant due the presence of Yr17 that remains avirulent in the 'Jackie Yr27' pathotype.

Points of interest

Although survey samples do not necessarily reflect the true nature of the dimensions of the stripe rust population in wheat growing regions, some important points are worthy of attention:

1. The high frequency of the 'WA Yr17' pathotype indicates that varieties likely to be vulnerable (Barham, Bowie, Camm, Derrimut, Endure, Fang, Hornet, Mace, Marombi, Pugsley, QAL 2000, Sunstate, Ventura, Yenda, Young) will require careful monitoring and timely fungicide response.

2. There is significant stripe rust pressure across most of southern NSW (eastern high rainfall zone, slopes, Riverina) and Victoria (north east, Mallee, Wimmera, southern high rainfall zone). Variety responses need to be carefully assessed and action to protect flag leaves needs to be taken where appropriate and as resources allow.
 - where resources might be limiting (availability of chemical/ contractor/paddock access), prioritize varieties at risk and in high yield situations.
 - vulnerable varieties treated at seeding will need to be monitored for emerging infection and sprayed in a timely manner, hopefully with the flag leaf emerged and intact.
 - several varieties in the MR-MS category have responded well to early fungicide protection in 2010. Some of these varieties may also require follow-up protection (eg Crusader under high disease pressure) while others (eg Sunvale) are expected to have resistance at booting that should provide adequate protection, especially where the early infection was adequately contained.
1. the variety has been misidentified. Records should be checked and any remaining seed should be sent for variety identification.
2. the resistance has been overcome by a change in the pathogen. It is important to get a sample dispatched to the Cereal Rust Lab as quickly as possible to confirm this possibility. However a result will not be known in time for fungicide decisions, and hence wider consultation with local advisors will be important.
3. the variety has a mixed response with some plants showing susceptible reactions. This is not uncommon. Varieties such as EGA Gregory and Lincoln have a low percentage of plants that are susceptible whereas the overall response of the variety is MR and R, respectively. Decisions on fungicide intervention in these cases are problematic. Under high disease pressure and in high potential crops, a fungicide application may be a reasonable option. Again, it will be of value to send a sample of the rust before spraying so that any pathotype variability can be assessed.

Variety responses to stripe rust

In general, varieties have responded as expected to the stripe rust population in 2010. The annual revision of variety responses will be conducted later in the season as 2010 data becomes available. In the current season, careful monitoring of all varieties will continue to be important including those that are rated as resistant. In the latter case, the appearance of stripe rust will be of some concern and could be the result of one or more of the following scenarios:

Rust samples for pathotype analysis

Rust samples are now arriving in high numbers for stripe rust, barley leaf rust, oat rusts and to a lesser extent wheat leaf rust and wheat stem rust. The wet spring conditions will mean that leaves are often sampled in moist conditions. This will normally be of no problem, provided the rusted leaves are sent in paper envelopes. Avoid plastic wrapping and select a paper based (not plastic) Express Post Envelope if you need to arrange quick delivery. However, the normal post system delivers samples in good time. The address for posted material is indicated below.

Table 1. Stripe rust samples received at the PBI Rust Laboratory to the end of August 2010, in comparison to sample numbers for the same time periods in 2009.

Region	June		July		August		Total	
	2009	2010	2009	2010	2009	2010	2009	2010
Queensland	-	-	13	-	19	13	32	13
Northern NSW	1	-	45	10	54	26	100	36
Southern NSW	-	5	4	18	33	49	37	72
Victoria	-	-	-	4	6	9	6	13
South Australia	-	-	-	-	15	-	15	-
Western Australia	-	-	-	-	-	-	-	-
Total	1	5	62	32	127	97	190	134

Table 2. Stripe rust pathotypes identified across Australian wheat growing regions. Current to the end of August 2010.

Pathotype	Region						Total
	QLD	n NSW	s NSW	VIC	SA	WA	
'WA' pt 134 E16 A+	-	1	3	-	-	-	4
'WA Yr17' pt 134 E16 A+ Yr17+	-	5	10	-	-	-	15
'Jackie' pt 134 E16 A+ J+	-	2	17	3	-	-	22
'Jackie Yr27' pt 134 E16 A+J+Yr27+	-	-	-	1	-	-	1
Total identifications	-	8	30	4	-	-	42
Total samples	13	36	72	13	-	-	134

GENERAL ENQUIRIES

Plant Breeding Institute
Private Bag 4011,
Narellan NSW 2567

107 Cobbitty Road
Cobbitty NSW 2570
T 02-9351 8800 (Reception)
F 02-9351 8875

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

The Australian Cereal Rust Control Program is supported by growers through the Grains Research & Development Corporation.



**Industry &
Investment**