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Wheat Stripe Rust Developments: Winter 2009

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The stripe rust epidemic in eastern Australia in 2009 is similar in intensity to 2008 although the location of major activity has been distinctly different. This report covers recent pathotype identifications, and provides preliminary stripe rust responses for wheats carrying *Yr17* when challenged with the 'Jackie *Yr27*' pathotype.

Epidemic Development

Sample numbers received from the states and regions during the winter of 2009 are presented in Table 1. The majority of samples have been sourced from northern NSW, whereas the major focus during late winter in 2008 was southern NSW. These figures suggest that stripe rust inoculum is widespread at the end of winter and has potential to develop further across all wheat growing regions of eastern Australia during spring. Rainfall events and temperature patterns will largely determine the intensity and severity of stripe rust over the next six weeks.

Pathotype Distribution

Current results from the 2009 wheat stripe rust survey are presented in Table 2. Among the 190 samples received by the end of August, only 25% have been identified and so it is very early to make predictions on the relative distribution of the various pathotypes. However, some observations can be made:

- The 'Jackie' pt continues to dominate, and this has been the case over the past two seasons. In

the presence of this pathotype, wheats carrying *Yr17* and/or *Yr27* will remain resistant.

- The data indicates that the 'WA *Yr17*' pt has been recovered more frequently this season (23% to date) compared to an average 10-15% in the past. Although it is too early to predict final distribution, it seems that this pathotype has the potential to cause more problems for the *Yr17* wheats in 2009 than in previous years. Varieties known to be vulnerable to the 'WA *Yr17*' pathotype should therefore be carefully monitored and action taken early to achieve control. Clearly a pathotype result cannot be achieved before a decision to spray needs to be taken, and so observations of hot spot activity in vulnerable varieties (MS and worse) with good yield potential should be the trigger for action.

Preliminary Stripe Rust Response for Yr27 Wheats

The occurrence of a new stripe rust pathotype capable of causing disease on varieties carrying Yr27 was reported for the first time in Australia in November 2008 (Cereal Rust Report Volume 7, Issue 8). At the time of writing this report, there have been no confirmed identifications of this pathotype from wheat growing regions in 2009, despite favourable climatic conditions and widespread pathogen inoculum in eastern Australia. While the absence of this pathotype will ensure the Yr27 varieties will perform well, it can be anticipated that a re-emergence of this pathotype will cause concern for growers with these wheats.

Recent observations from plots at the Plant Breeding Institute Cobbitty have given some preliminary

readings on the expected responses of these wheats to the 'Jackie Yr27' pathotype; see Table 3. These preliminary observations suggest that the wheats most likely to be vulnerable to the 'Jackie Yr27' pathotype are GBA Ruby, Mira and Waagan. Varieties rated at MR-MS (Merinda, GBA Hunter, Zebu) may be at risk where this pathotype begins early in the crop growth cycle. Livingston remains resistant to all pathotypes.

Please note that these responses are based on preliminary observations, and these will be reviewed as more data becomes available during the season. However, it is considered important that this information be circulated in order that the industry is aware of the varieties likely to be at risk to this pathotype.

Table 1. Wheat stripe rust samples received at the PBI Rust Laboratory during the winter period of 2009.

Region	June	July	August	Total
Queensland	-	13	19	32
Northern NSW	1	45	54	100
Southern NSW	-	4	33	37
Victoria	-	-	6	6
South Australia	-	-	15	15
Western Australia	-	-	-	190

Table 2. Samples received and pathotypes identified in the 2009 wheat stripe rust survey (current at 31 August 2009).

Pathotype	QLD	n NSW	Region s NSW	VIC	SA	WA	Total
'WA' pt 134 E16 A+	1	3	-	-	-	-	3
'WA Yr17' pt 134 E16 A+ Yr17+	1	8	1	-	2	-	12
'Jackie' pt 134 E16 A+ J+	6	21	6	2	-	-	35
Total identifications	8	32	7	2	2	-	51
Total samples	32	100	37	6	15	-	190

Table 3. Preliminary stripe rust disease response for varieties carrying Yr27 and therefore likely to be affected by the 'Jackie Yr27' pathotype.

Variety	Response to the 'WA'/'WA Yr17'/'Jackie' Pathotypes	Preliminary Response to the 'Jackie Yr27' Pathotype
GBA Hunter	R-MR	MR-MS
GBA Ruby	R-MR	S
Livingston	R-MR	R
Merinda	R-MR	MR-MS
Mira	MR	MS-S
Waagan	MR	MS-S
Zebu	R-MR	MR-MS

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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:

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