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Responses of Australian Triticales to Stripe Rust

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The detection of a new pathotype of the wheat stripe rust pathogen, *Puccinia striiformis* f.sp. *tritici*, was reported in October (see Cereal Rust Report 2007, Volume 5 Number 3). This pathotype, designated 134 E16 A+ J+ and referred to as the Jackie pathotype, has caused increased stripe rust damage on several triticale varieties. This report presents the best available information on the expected responses of a range of commercial triticales to stripe rust pathotypes likely to be encountered in 2008.

Although the 2007 rust survey is currently incomplete, the available data indicates that the Jackie pathotype has been detected over most regions of eastern Australia. It has been recovered principally from triticales but also from several wheat fields. With the expectation that the Jackie pathotype will survive the summer period, it is important to consider the stripe rust response among commercial triticales to the range of pathotypes that now comprise the pathogen population.

The data presented in Table 1 indicates the expected response of a range of triticale varieties to several pathotypes. This summary is based on data provided by Grant Hollaway (DPI Victoria), Jason Reinheimer (EGA South Australia) and Jeremy Roake (The University of Sydney, PBI Cobbitty). The following points emerge from the table:

1. Prior to the occurrence of the WA pathotype in eastern Australia in 2003, triticale varieties were generally highly resistant to stripe rust. This can be seen from the resistant responses to the H45 pathotype; this pathotype was dominant in the period up to 2002.
2. The occurrence of the WA pathotype resulted in a noticeable shift in disease reaction with increased rusting noted on most varieties. The basis for this was virulence in the WA pathotype for *Yr9* which is a common resistance gene in triticales. Details were reported in Cereal Rust Report 2003, Volume 1, Number 3.
3. The occurrence of the Jackie pathotype in 2007 has caused another shift to increased stripe rust damage for most varieties. This suggests that a single resistance gene in Jackie and other related varieties has been overcome by the Jackie pathotype in a similar manner to the demise of the *Yr9* resistance. Further research is underway to confirm this possibility.
4. There remains a suite of varieties that are protected by effective resistance.

Stripe rust control options for triticale in 2008 will need to consider the following:

1. Select resistant varieties where ever possible, and avoid the more extreme susceptible types such as Jackie, Kosciuszko, Muir, Speedee.
2. Take great care in managing early sown dual purpose varieties. The possibility for disease build up on vulnerable early sown varieties is a real and constant danger. Experience informs us that when disease occurs early, pathogen inoculum will increase and represent a major threat to main season wheat and triticale varieties.
3. Consider fungicide strategies during planning for the 2008 season. Early sown triticales can be protected with seed and fertilizer applied fungicide. Foliar sprays may also be required and these can in certain circumstances be tank mixed with broad leaf herbicide applications after stock are removed from grazed fields.
   However, there are two important issues:
   (i) be careful to observe product registration labels. Currently there are no fungicides registered for control of stripe rust in triticale. However, permit applications, and eventually label extensions, are expected to be made for the 2008 season. Consult local advice before application.
   (ii) when applying fungicide to fields where grazing is intended, take careful note of withholding periods.
4. Grazing can be an option to reduce canopy density and so minimise the infection opportunities for the pathogen. However, susceptible varieties such as Jackie can be expected to remain vulnerable, even in situations where the canopy has been significantly reduced.

For access to earlier Cereal Rust Reports referred to in this article, use the following options:

- http://www.agric.usyd.edu.au:8888/pbi/cereal_rust_reports_crr.htm, or
- request via email from Ms Beate Wildner: beate.wildner@usyd.edu.au

Table 1 Field responses of Australian triticale varieties to three pathotypes of the wheat stripe rust pathogen *Puccinia striiformis* f.sp. *tritici*

	110 E143 A+ H45 pathotype	134 E16 A+ WA pathotype	134 E16 A+ J+ Jackie pathotype
Dual Purpose			
Breakwell	R	R-MR	MS-S
Crackerjack	R	R-MR	-
Endeavour	R	R	R
Jackie	R	MR	S
Tobruk	R	R	R
Grain only			
Abacus	R	MR	MS
Credit	R	MR-MS	MS
Everest	R	MR-MS	MR-MS
Hawkeye	R	R	R
Jaywick	R	R	R
Kosciuszko	R	MS	S
Muir	R	MR	S
Prime 322	R	MR	MS
Rufus	R	R	R
Speedee	R	MS	S
Tahara	R	R	MR
Tickit	R	MR	MR
Treat	R	MR	MR

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Cereal rust samples may be collected and posted in paper envelopes to the following address:

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Private Bag 11, Camden NSW 2570

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