PBI
Plant Breeding Institute
Cereal Rust Laboratory

Cereal Rust Report
Season 2003

Expected Responses of
NSW Wheats to Stripe Rust in 2004

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The severe stripe rust epidemic in 2003 has resulted in many wheat varieties showing less than expected resistance to the disease. With harvest well underway in many districts, growers are asking questions concerning variety responses to stripe rust in order to consider seed retention options for 2004 sowings.

Stripe Rust Response to the WA Pathotype

A significant development in 2003 has been the first occurrence of the Western Australian stripe rust pathotype in the eastern wheat growing region. Recent experiments at PBI Cobbitty have evaluated Australian wheat varieties for response to the WA pathotype. Although the data is preliminary and will require further tests for confirmation, it is being released now in order to provide a basis for expected disease responses in 2004. However, disease response will depend on many factors, including the pathotype occurring at a particular location. The following table provides expected disease responses of NSW varieties to two pathotypes of the stripe rust pathogen. The scale is the same as that used in the NSW Winter Cereal Sowing Guide, where 9 is considered highly resistant and 1 as very susceptible to the disease.

Conclusions

Some comments based on the data:
1. Varieties with the VPM resistance ($Yr17$) will not be expected to change from a highly resistant response to both pathotypes. However, there is a pathotype with virulence for $Yr17$, and this has caused problems in the past for certain $Yr17$ varieties such as QAL 2000.
2. Some varieties are expected to show noticeably greater levels of disease when challenged with the WA pathotype. These include Baxter, Bowerbird, Cunningham, Diamondbird, Hybrid Mercury, Janz, Lang, Leichardt, Whistler.
3. H45 appeared to be more affected by the WA pathotype, even though it is moderately susceptible to pathotype 110 E143 A+ (H45 pathotype).
4. While it is difficult to predict yield losses, it would be reasonable to expect that varieties with rankings of 5 or less will sustain loss when stripe rust is severe. Where these varieties are in high yield potential situations, careful crop monitoring and early spray decisions will be important.
5. Over-summer growth of wheats ranking 6 or less will assist the survival of the pathogen.

	Disease Response Ranking	
Variety	**H45 Pathotype (code: 110 E143 A+)**	**WA Pathotype (code: 134 E16 A+)**
Annuello	7	6
Babbler	7	5
Baxter	8	5
Bowerbird	6	4
Bowie *	7	8
Braewood *	7	8
Brennan	7	8
Chara	7	6
Cunningham	7	5
Currawong	7	7
Diamondbird	7	5
Drysdale	6	6
EGA Wedgetail	7	6
Giles	7	6
Goldmark	6	6
H45	4	2
Hybrid Mercury	7	5
Janz	8	6
Kennedy	7	6
Lang	7	5
Leichardt	7	5
Lorikeet	5	4
Mackellar	7	-
Marombi *	8	8
Mitre	-	5
Mulgara	7	7
Pardalote	7	5
Petrel	6	5
Petrie	7	5
QAL Bis	8	8
Rosella	7	7
Rudd *	8	8
Snipe	6	6
Strzelecki	7	7
Sunbri *	7	8
Sunbrook *	8	7
Sunco	7	6
Sunlin *	8	8
Sunsoft 98	7	7
Sunstate *	8	8
Sunvale *	8	8
Tennant	7	7
Thornbill	6	6
Whistler	6	4
Wollaroi	8	6
Wylah	7	6
Yallaroi	8	7,5 **

*   These wheats have the *Yr17* resistance.

**   Mixed responses.

Flag leaf infection in field plots at PBI Cobbitty. These plots were infected with the WA pathotype 134 E16 A+.

Chara

Janz

Baxter

Lorikeet

Hybrid Mercury

Diamondbird

Bowerbird

H45