

# Stripe rust management in MR rated varieties

## Background

With the recent emergence of a number of new pathotypes, stripe rust management has become a regular part of northern wheat production. Research work since 2005 has helped identify the most efficient and cost effective approaches for disease management in susceptible (S rated) or moderately susceptible (MS rated) varieties, with widespread and successful commercial adoption of these practices. However in recent years stripe rust is also being found in our moderately resistant (MR rated) varieties. Growers and their advisers have been wondering whether stripe rust is having a significant impact on yield in these varieties and if so what management strategies should be employed?

## Project aims

1. Evaluate the level of development and impact of stripe rust on yield and grain quality on a range of MR rated wheat varieties
2. Compare the impact of stripe rust on these MR rated varieties to the reaction of an MS rated variety under the same conditions



## ***Results in a nutshell***

### **Stripe rust management:**

- Stripe rust developed naturally at all sites
- Stripe rust was found in all four MR rated varieties but at levels between 75-98% lower than those found in unsprayed EGA Wylie (MS rated variety)
- **The unsprayed MR rated varieties had similar stripe rust levels to EGA Wylie which had received two fungicide sprays**
- Sunvale and Caparoi trended to increased rust levels than those found in EGA Bellaroi and EGA Gregory
- Fungicide application reduced the stripe rust level in all the MR varieties, although still did not achieve complete control

### **Yield impact:**

- EGA Wylie was the only variety to record higher yield at all sites from fungicide application with mean levels of benefit similar to or higher than in average seasons (single spray - 7% mean benefit, two sprays - 17% mean benefit)
- There was an overall trend to a small mean benefit from a single fungicide application in all the MR varieties but only at levels from 1 to 3%
- The most consistent fungicide benefit in an MR rated variety was seen in EGA Gregory at Moree and Tullooona. The yield benefits at these two sites ranged from 4-7% with both stripe rust and moderate yellow spot pressure.

### **Grain quality:**

- There was little impact on grain quality from fungicide application in any of the MR rated varieties
- EGA Wylie with two sprays did however result in significantly reduced screenings overall (~1% lower than unsprayed) and a trend to improved test weight (~1 kg/hL higher than unsprayed)

### **Economics:**

- Mean net benefit from a single spray on EGA Wylie<sup>(b)</sup> was \$29/ha and \$81/ha from two sprays, assuming a grain price of \$200/t
- Mean net benefit in three of the four MR rated varieties was less than \$1/ha with EGA Bellaroi<sup>(b)</sup> resulting in \$19/ha overall. However this benefit was heavily influenced by a strong result at Spring Ridge where stripe rust did not appear to be the cause

### **Overall:**

1. ***All four MR rated varieties developed low levels of stripe rust with Caparoi<sup>(b)</sup> and Sunvale appearing slightly more susceptible than EGA Bellaroi<sup>(b)</sup> and EGA Gregory<sup>(b)</sup>***
2. ***Levels of stripe rust in the MR rated varieties were ~75-98% lower than in unsprayed EGA Wylie<sup>(b)</sup> and similar to EGA Wylie<sup>(b)</sup> with two sprays***
3. ***Use of a single, low rate, fungicide at early disease detection in the MR rated varieties was not warranted in these trials on the basis of disease management, yield, grain quality or economic benefit***
4. ***Fungicide use however may be required in these varieties for diseases other than stripe rust***
5. ***Fungicide benefits in the MS rated variety EGA Wylie<sup>(b)</sup> were similar to long term means***

<sup>(b)</sup> Varieties displaying this symbol are protected under the Plant Breeders Rights Act 1994”

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