

# Fungicides at Seeding to Control Stripe Rust

## Summary

Delaying the onset of a stripe rust outbreak can be achieved using fungicide seed dressings or fertiliser treatments. In situations where this is beneficial such as in the Wimmera where conditions may be too wet for fungicide application late in the season, this could be a good strategy.

If using a fungicide at seeding, in crop monitoring still needs to occur and a follow up foliar fungicide may have to be applied no later than full flag leaf emergence (GS39)

## Background

Fungicides used at sowing, either as a fertiliser dressing or seed treatment, delay the onset of stripe rust infection. The length of protection varies with product and there is debate over whether money is better spent at the start of the season, when seasonal conditions and disease pressure are unknown, or if it is better to take the 'wait and see' approach and apply foliar fungicides in-crop as required.

In 2005 many growers elected to use an early season treatment to delay the onset of stripe rust and make management of the disease easier. Early season treatments vary in their length of protection depending on product choice and rate.

This trial compares the efficacy of early season treatments with foliar fungicide management in-crop for a 'one touch management' approach. Either a seed or fertiliser treatment was applied at sowing or the crop was treated with a single foliar fungicide.

## Methods

This trial was conducted using a fully replicated (x4) randomised block design at the Marnoo site.

Replicates:	4
Plot Size:	3m x 25m
Variety:	Mitre Wheat
Sowing Date:	June 3 2005
Sowing Rate:	175pl/m <sup>2</sup>
Fertiliser:	80kg/ha Urea predrilled; 50kg/ha Granulock10Z at seeding

**Table 1:** Treatments, rates, timings and brief product description.

Treatment	Chemical & Rate	Diseases controlled	Timing
Raxil® (control)	0.1L/100kg	Smuts & bunt only	seed
Baytan®	0.1L/100kg	Smuts, bunt & stripe rust suppn – 6wks.	seed
Real®	0.075L/100kg	Smuts, bunt & stripe rust suppn – 6wks when used at 0.15L/100kg	seed
Jockey®	0.3L/100kg	Smuts, bunt, stripe rust.	seed
Jockey®	0.45L/100kg	Smuts, bunt, take all & stripe rust.	seed
Impact®	0.2L/ha	Stripe rust	fertiliser
Impact®	0.4L/ha	Take all, stripe rust	fertiliser
Bumper®	0.25L/ha	Propiconazole – stripe rust approx 14-21 days	October 4, GS 45
AmistarXtra®	0.4L/ha	Azoxystrobin/cyproconazole – stripe rust approx 6weeks	October 4, GS 45
Triad®	1L/ha	Triademefon – stripe rust approx 14-18 days	October 4, GS 45
Opus®	0.25L/ha	Epoxiconazole – stripe rust approx 21-30days	October 4, GS 45
Folicur®	0.145L/ha	Tebuconazole – stripe rust approx 21 days	October 4, GS 45

Plots with no seed treatment were treated with Raxil (0.1L/100kg) to control smuts and bunt.

Disease was monitored throughout the season with a full assessment conducted at the end of flowering, October 27.

## Results

Stripe rust affected this trial at GS32 (2<sup>nd</sup> node stage).

Assessments were conducted at GS68 (late flowering).

### Yield

The lowest yielding treatment had no stripe rust control – base Raxil seed treatment for smuts & bunt only.

There were few yield differences where stripe rust was managed with either a single early season treatment or an in crop foliar fungicide. The full rate of Impact and a single application of AmistarXtra yielded higher than Jockey (both 2/3 and full rate) and a single application of Triad or Folicur (Table 2). The difference in product cost can also be seen in Table 2.

**Table 2:** Yield differences between early season and in-crop stripe rust management.

Treatment	Yield (t/ha)	Cost \$/ha
0.1 L/100kg Raxil	3.18	2.00
1 L/ha Triad	3.47	2.50
0.145 L/ha Folicur	3.50	3.00
0.45 L/100kg Jockey	3.56	16.00
0.3 L/100kg Jockey	3.64	24.00
0.075 L/100kg Real	3.65	9.00
0.25 L/ha Bumper	3.70	18.00
0.1 L/100kg Baytan	3.71	5.00
0.2 L/ha Impact	3.76	8.50
0.25 L/ha Opus	3.82	10.50
0.4 L/ha Impact	3.99	13.50
0.4 L/ha AmistarXtra	4.01	60.00
<b>Probability LSD</b>	<b>P&lt;0.05 0.39</b>	

### Quality

The trial produced an average 10.0% protein and 3.8% screenings. There were no significant differences between the treatments for either protein or screenings.

### Interpretation

Despite the high inoculum pressure at this site which infected the early season treated plots from approx GS33 onwards, there were few significant differences where stripe rust was managed in crop with a single foliar fungicide. The timing for the foliar fungicides was too late – these were applied at GS45 (mid booting) and at this stage the stripe rust had already established.

The unknown in this trial is the effect of following an early season treatment with a single in-crop foliar fungicide. These two control measures in combination should delay the initial onset of stripe rust in the crop and then a well timed in-crop fungicide should keep the disease out of the crop.

### Commercial Practice

Stripe rust can be managed using an early season fungicide such as a seed dressing or fertiliser treatment. These products take a lot of the worry out of stripe rust management as they protect crops from early infection. Products vary in cost and their length of protection but in 2005 all seed/fertiliser treatments provided adequate suppression of stripe rust.

If using a seed or fertiliser treatment in 2006, product selection should be based on: ease of application, cost \$/ha and length of protection. Investment in early season control measures is best spent in the Wimmera and Southern growing regions. There is unlikely to be a response to early season fungicides in the Mallee.

Delaying stripe rust management such that control of the disease is all completed in-crop is a wise decision where inoculum pressure is low and the growing season is shorter, as you have the

ability to monitor all crops and spray as required. In-crop stripe rust management provides a 'wait and see' approach, where money can be invested in fungicides if and when stripe rust becomes a problem. However, it will only be successful if all crops requiring control can be sprayed on time.

If the decision is made to leave all stripe rust management to in-crop fungicides in the Wimmera and Southern districts there is the possibility of wet weather delaying spraying. As this trial has shown, a delay of eight – nine days past the planned spray timing was enough for the crop to mature from GS38 (flag leaf) to GS45 (mid-booting) and it appears this delay meant the fungicide went on too late to allow a full response as the disease had already established. If there is no guarantee of being able to spray a susceptible variety on time, use a seed or fertiliser treatment.