

Stripe Rust Crop Protection Evaluation – West Dalwallinu

Aim: To evaluate the efficacy and economic return of crop protection strategies to control Stripe Rust within the grain testing area Agzone 2.

Research Officer: Chris Poole
Company: Landmark - AWB



Farmer: Rob Harris
Location: Dalwallinu West Rd, Dalwallinu

Background: With the majority of the most commonly grown wheats shown to be moderately to highly susceptible to Stripe Rust during the 2002 growing season, many risk by cost crop protection strategies have evolved to suppress and or control the disease. These strategies are largely untested against this disease and are based on data sets with a limited comparative product range.

In 2003 Landmark – AWB undertook 10 replicated small plot trials throughout the WA grain belt. These trials looked to evaluate seed dressing, in furrow fertiliser applied and foliar fungicide options.

To the benefit of the industry, despite favourable conditions for leaf disease development experienced in many parts of the state, the incidence of Stripe Rust detection during the 2003 growing season was low. Despite this, the strategies tried have shed more light on methods of control for the more commonly encountered leaf diseases.

Disease infestation at the Landmark – AWB Dalwallinu site was limited to a late (booting to head emergence) medium to low level of Septoria. The Dalwallinu trial was a triple replicated randomised block design with seven base seed dressing and in-furrow treatments. The base treatments were sown with a small plot seeder as 70m by 1.5m strips. Later in the season the base treatments were divided into four banks, one untreated and 3 foliar fungicide spray swaths, of ~15m to total 28 treatments per replicate.

Trial Details:

Plot size and replication	15m x 1.4m, blocked 3 replicates
Soil type	Brown sandy loam
Sowing date	22 nd May 2003
Conditions at sowing	Moisture surface to depth
Machinery	Landmark –AWB R&D cone seeder, 7 inch spacing knifepoint and press wheel
Seeding rate	80 kg/ha Carnamah
Fertiliser	CSBP Agstar CZM 85 kg/ha mid rib banded & Urea 80 kg/ha top-dressed and incorporated by sowing
Herbicides, Insecticides & Fungicides	Pre- sow 22 nd May 2003: Spray seed 1.2 L/ha, Triflur X (480) 1.2 L/ha & Logran B Power 50 g/ha Post-sow 2 nd July 2003: Broadside 750 mL/ha
Paddock History	2002 = Pasture, 2001 = Wheat, 2000 = Wheat

Results: Grain protein and test weight analysis were not available at the time these results were tabled and therefore only the yield comparison can be evaluated.

There was no disease evident at the time of fungicide application however a late low to medium level of Septoria infestation was observed.

The negligible differences between the foliar applied treatments would suggest that the treatments were applied after the optimum application window of Z37 to Z39 (flag leaf emergence).

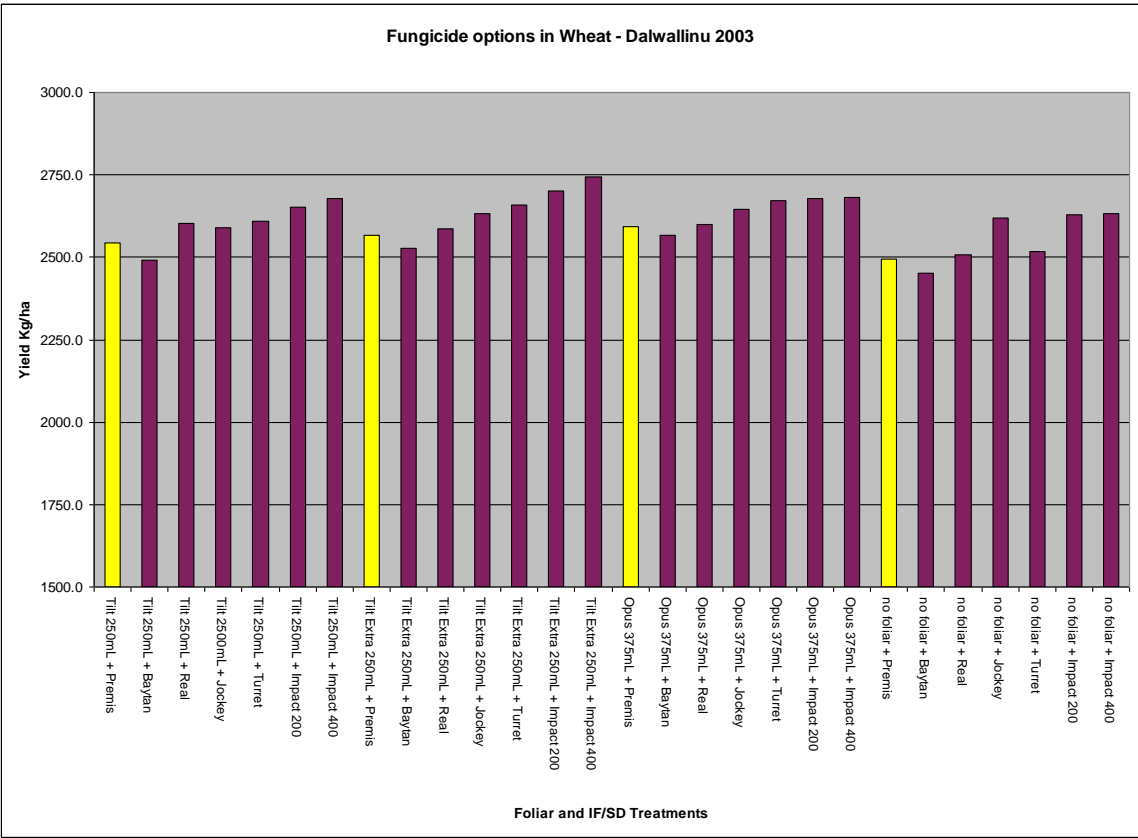
The response trends measured within the pre-sowing treatments would reflect the presence of an early fungal leaf or root disease that would have been controlled or suppressed to varying degrees. The Septoria, at the end of the season, evident during late booting/ early ear emergence, may have been active during the warmer late autumn early winter period which may explain the response to the pre-sow treatments.

The low yield measured for treatment 26, Turret (triadimefon 125EC) in-furrow by no foliar, is most likely to be attributed to a site anomaly given the response patterns expressed with the other 3 foliar treatments.

Table 1 Grain yield and % of control = Premis no foliar

Treatment number	Variety and foliar application	% of control	Yield kg/ha
1	Tilt 250 mL + Premis	102%	2543.59
2	Tilt 250 mL + Baytan	100%	2490.08
3	Tilt 250 mL + Real	104%	2602.45
4	Tilt 2500 mL + Jockey	104%	2588.18
5	Tilt 250 mL + Turret	105%	2607.80
6	Tilt 250 mL + Impact 200	106%	2652.40
7	Tilt 250 mL + Impact 400	107%	2677.37
8	Tilt Extra 250 mL + Premis	103%	2565.33
9	Tilt Extra 250 mL + Baytan	101%	2526.22
10	Tilt Extra 250 mL + Real	104%	2584.89
11	Tilt Extra 250 mL + Jockey	106%	2632.89
12	Tilt Extra 250 mL + Turret	107%	2657.78
13	Tilt Extra 250 mL + Impact 200	108%	2702.22
14	Tilt Extra 250 mL + Impact 400	110%	2744.89
15	Opus 375 mL + Premis	104%	2591.85
16	Opus 375 mL + Baytan	103%	2566.91
17	Opus 375 mL + Real	104%	2598.98
18	Opus 375 mL + Jockey	106%	2645.29
19	Opus 375 mL + Turret	107%	2672.01
20	Opus 375 mL + Impact 200	107%	2679.14
21	Opus 375 mL + Impact 400	107%	2680.92
22	no foliar + Premis (Control)	100%	2494.22
23	no foliar + Baytan	98%	2451.56
24	no foliar + Real	101%	2508.44
25	no foliar + Jockey	105%	2618.67
26	no foliar + Turret	101%	2517.33
27	no foliar + Impact 200	105%	2627.56
28	no foliar + Impact 400	106%	2632.89
LSD 0.01		0.08	210.67
LSD 0.05		0.06	157.46
Coefficient of variation 5.11			

Figure 1: Grain yield comparison kg/ha. (Premis seed dressing base treatments are highlighted in light grey.



Summary:

- These results suggest that the broader spectrum in-furrow and seed dressing treatments will return a significant return in yield over the narrower spectrum products even under low disease pressure situations.
- The late application timing, $\frac{3}{4}$ ear emergence (Z57), of the foliar applied fungicides did not provide opportunity for the 3 products being evaluated to protect the flag minus 1 and flag minus 2 leaves, which would have given an enhanced comparison of the protective attributes.