

3.1.7 LEAF RUST CONTROL IN WHEAT - LANDMARK (LAKE BOLAC, VIC)

Abstract:

Wheat Leaf Rust can be controlled by use of a number of fungicides. The best results will be achieved when an early fungicide application is made. Most attention has been on Stripe Rust in recent times which can reduce yield by up to 50%, but Leaf Rust also has the potential to reduce yield by 20% in susceptible varieties.

Researchers: Steve Fischer – Landmark R&D and Cameron Conboy – Landmark Ararat.

Funding Organization: Landmark

Background/Objectives:

The objective of this trial was to evaluate a number of new and existing fungicides for the control of Wheat Leaf Rust (*Puccinia recondita*) in Kellalac Wheat.

Sowing Date: 22/06/04

Sowing Rate: 70kg/ha Variety: Kellalac

Fertilizer: 80 kg/ha MAP at sowing.

Growing Season Rainfall (April-Nov): 410 mm

Harvest date: 17/01/2005

Treatments:

Trt	Treatment for Leaf Rust in Wheat	Timing
1	Amistar Xtra and Amistar Xtra	GS30-32 & GS37-39
2	Triadimefon and Propiconazole	GS30-32 & GS37-39
3	Propiconazole and Propiconazole	GS30-32 & GS37-39
4	Propiconazole	GS37-39
5	Triadimefon	GS37-39
6	Epoxiconazole	GS37-39
7	Tilt Xtra and Tilt Xtra	GS30-32 & GS37-39
8	Epoxiconazole and Epoxiconazole	GS30-32 & GS37-39
9	Tebuconazole	GS37-39
10	Impact	GS37-39
11	Impact and Impact	GS30-32 & GS37-39
12	Untreated	

Results and Discussion:

Most attention has been directed at Stripe Rust infection of wheat in recent times. This trial was established to look at Leaf Rust in Kellalac Wheat to see what control we could achieve. Kellalac is late maturing spring wheat, well adapted to longer season environments. Kellalac has a Stripe Rust Rating of MR-MS which was confirmed in our trial with very little Stripe Rust detected. However Kellalac is susceptible to Leaf Rust and stem rust.

Wheat Leaf Rust infection this year occurred relatively late compared to other years but the level of infection that did occur was significant. Two timings of fungicide applications were made growth stage 30-32 and 37-39. All fungicides provided some reduction in Wheat Leaf Rust in comparison to the Untreated (Table 1). The best performing fungicide treatment was two applications of Amistar Xtra. This treatment provided the lowest leaf infection and the highest yield of 2.34 t/ha. Amistar Xtra was significantly higher yielding than all treatments except for two applications of Impact (Figure 1).

One of the most interesting results from the trial was the effect of the timing of sprays. Most treatments applied late at Z37-39 did not perform as well as any of the treatments with an early spray. All treatments with an early spray resulted in significantly higher yield than the untreated plots. Of the four treatments with only one late spray, two treatments (Epoxiconazole and Tebuconazole) were significantly higher yielding than the Untreated (Figure 1).

Along with the level of control and yield achieved, it is important to look at the economics of the treatments, the best treatment is not always the most cost effective. As the cost of fungicides can vary significantly, it is important to consider the cost and what yield benefit can be achieved. In this trial looking at Leaf Rust, the best treatments did not work out to be the most cost effective. Taking into consideration yield achieved and cost, the best treatment was Tebuconazole with a return of \$378.66, an extra \$36.06/ha more than the untreated.

The data reported in these trials is only from one season and previous experience would indicate that the responses of various products will change dramatically from season to season. Seek qualified advice on when the optimum response from various products can be expected.

Table of Results:

Table 1: Summary of All Assessments

Trt. No.	Treatment	% Leaf area assessment 29/10/04			% Leaf area assessment 19/11/04							
		Flag % leaf area	Flag-1 % leaf area	Flag-2 % leaf area	Flag % leaf area	Flag-1 % leaf area	Yield t/ha	% of Unt.	Test Wt.	Protein	Moist.	Screen.
1	Amistar Xtra (GS30-32) and (GS37-39)	0.17	2.57	3.20	1.13	0.87	2.34	125.8	73.8	13.4	10.9	7.1
2	Triadimefon (GS30-32) and Propiconazole (GS37-39)	0.23	3.20	6.13	4.07	9.07	2.08	112.0	73.4	12.6	10.9	7.9
3	Propiconazole (GS30-32) and Propiconazole (GS37-39)	0.23	3.93	6.80	3.57	6.73	2.17	116.6	73.2	12.8	11.0	7.7
4	Propiconazole (GS37-39)	0.57	7.47	17.90	5.27	17.17	1.96	105.4	71.8	13.1	10.8	6.7
5	Triadimefon (GS37-39)	0.60	11.17	25.37	13.73	37.80	1.95	104.8	71.2	12.9	11.0	7.0
6	Epoxiconazole (GS37-39)	0.37	6.97	15.80	3.97	8.03	2.05	109.9	73.4	12.7	11.0	8.2
7	Tilt Xtra (GS30-32) and (GS37-39)	0.23	3.60	7.40	1.80	3.00	2.12	113.7	72.8	13.8	10.9	5.7
8	Epoxiconazole (GS30-32), Epoxiconazole (GS37-39)	0.23	3.97	7.50	5.23	17.03	2.09	112.5	75.2	13.1	11.1	5.5
9	Tebuconazole (GS37-39)	0.50	5.77	12.17	2.53	4.67	2.13	114.1	75.4	14.1	10.7	6.3
10	Impact (GS30-32)	0.57	4.33	7.27	10.07	32.00	2.17	116.6	75	12.1	11.1	7.2
11	Impact (GS30-32) and Impact (GS37-39)	0.37	4.23	6.60	5.93	13.13	2.22	119.2	75.6	13.3	10.8	5.8
12	Untreated	0.57	7.13	18.47	20.23	52.67	1.86	100.0	71.4	12.7	10.7	6.1
LSD							0.16					
CV							4.35					

Be **first** to receive

Alerts and Updates

by receiving

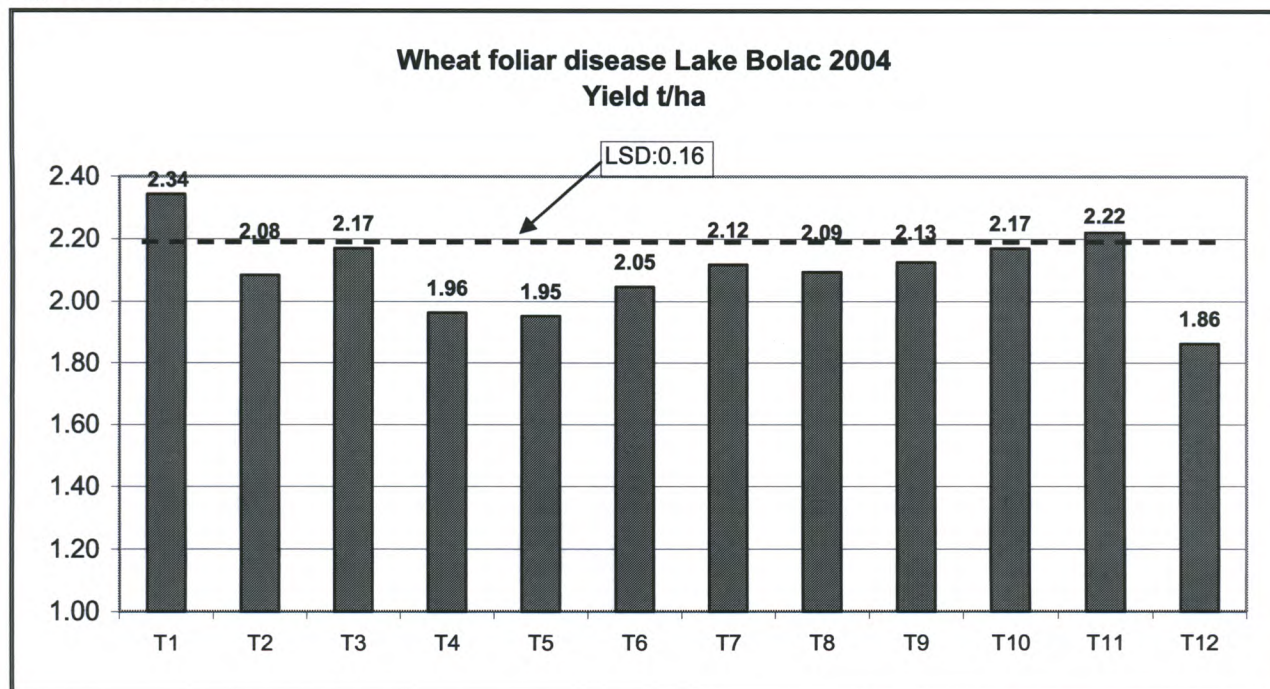
“SFS Email Updates”

If you are not currently receiving “SFS Email Updates” please email gschumacher@sfs.org.au and request to be added to the list. (A free service for SFS members & sponsors only)

Table 2: Economic Return for Spray

Treatment	Cost of Fungicide \$/ha	Yield t/ha	Return ²	Net benefit over Untreated
Amistar Xtra @ 400ml/ha (GS30-32) and 400ml/ha (GS37-39)	\$80.00	2.34	\$351.03	\$8.43
Triadimefon @ 750ml/ha (GS30-32) and Propiconazole @ 250 ml/ha (GS37-39)	\$18.02	2.08	\$365.53	\$22.93
Propiconazole @ 250ml/ha (GS30-32) and Propiconazole @ 250ml/ha (GS37-39)	\$23.10	2.17	\$376.22	\$33.62
Propiconazole @ 250ml/ha (GS37-39)	\$11.55	1.96	\$349.70	\$7.10
Triadimefon @ 750ml/ha (GS37-39)	\$6.47	1.95	\$352.73	\$10.13
Epoxiconazole @ 375 ml/ha (GS37-39)	\$20.00	2.05	\$356.46	\$13.86
Tilt Xtra @ 250 ml/ha (GS30-32) and 250 ml/ha (GS37-39)	\$39.88	2.12	\$349.82	\$7.22
Epoxiconazole @ 375 ml/ha (GS30-32), Epoxiconazole @ 375 ml/ha (GS37-39)	\$40.00	2.09	\$345.43	\$2.83
Tebuconazole @ 145 ml/ha (GS37-39)	\$12.41	2.13	\$378.66	\$36.06
Impact @ 500ml/ha (GS30-32)	\$26.43	2.17	\$372.89	\$30.29
Impact @ 500 ml/ha (GS30-32) and Impact @ 500 ml/ha (GS37-39)	\$52.85	2.22	\$355.66	\$13.06
Untreated	\$0.00	1.86	\$342.60	\$0.00

² Assuming \$184/t (APW Geelong) for wheat.

Figure 1: Yield t/ha**Key Outcomes:**

Key points to be taken from this trial are, ensure early sprays are applied when Wheat Leaf Rust is detected. All fungicide treatment with an early treatment resulted in a significant yield benefit. It is important to take into consideration the cost of any particular fungicide treatment and the potential yield response.