

6. FUNGICIDE TRIALS

6.1 WHEAT FUNGICIDE TRIAL (HAMILTON VIC)

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Location: Kruegers, Tabor Victoria

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Rainfall (2005): 535 mm

GSR: (Apr – Nov) 379 mm

Summary:

Fungicide strategies are an important component in the fight against stripe rust. Determining the most profitable strategy is paramount for farmers in a year of high input costs. Applying fungicide at critical development stages in this trial showed no significant yield or quality benefits. These findings are not consistent with other SFS research using a rust susceptible wheat variety such as Chara.

Background:

With many new cultivars entering the market, along with a rapidly changing rust epidemic, it is critical to know if current susceptible varieties can still offer favourable profits in the local environment. Can susceptible varieties with a careful management package (fungicide) be used, or is the risk too great?

Objectives:

The aim of the trial is to verify the performance of the currently susceptible cultivar Chara, in higher rainfall conditions and to assess various application timings of fungicide to minimise the impact of the WA pathotype of stripe rust, that seems to have maintained virulence throughout eastern Australia.

Methodology:

A replicated trial was established consisting of 8 treatments with various fungicide treatments (Table 5-1), including the use of Jockey® seed treatment at the label rate, as well as applications of Tilt Xtra® (foliar fungicide) at both GS32 &/or GS39. A randomized block design was implemented. Plot lengths were 10m, with each variety being grown on a 1.7 metre wide raised bed.

Table 6-1: Fungicide Trial Treatment List

Trt	Seed Treatment	Foliar Fungicide
1	Nil	Nil
2	Nil	GS32
3	Nil	Gs39
4	Nil	GS32 + GS39
5	Jockey seed treatment	Nil
6	Jockey seed treatment	GS32
7	Jockey seed treatment	GS39
8	Jockey seed treatment	GS32 + GS39

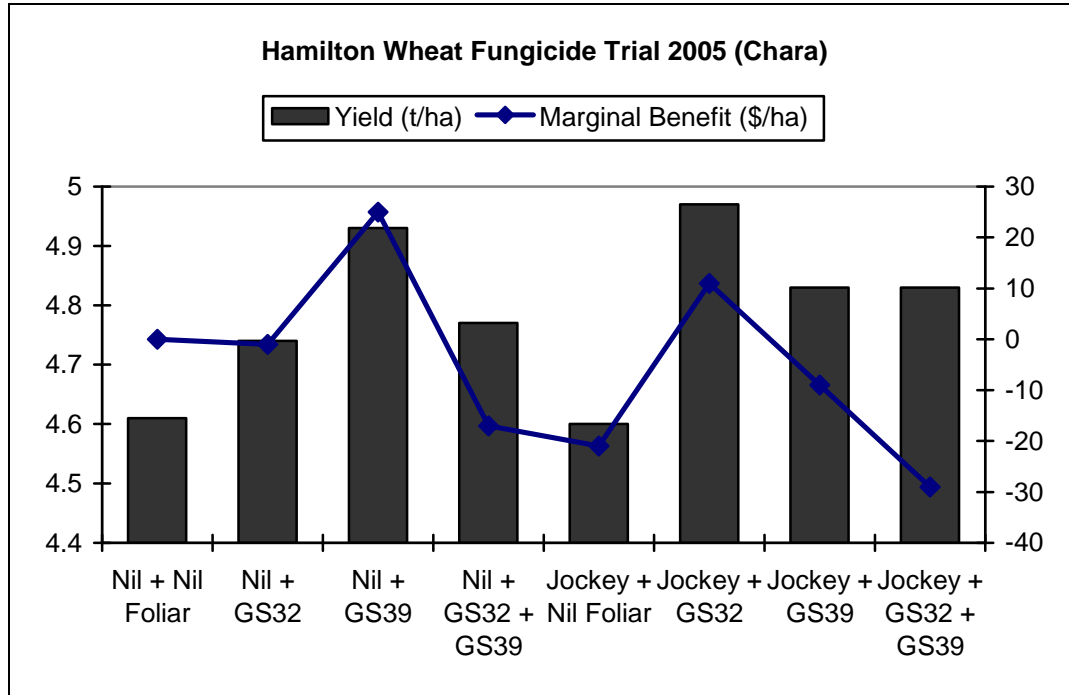
Treatments:

- The trial was sown on the 24th May 2005. The variety sown was the highly susceptible cultivar Chara.
- Seed treatment was Raxil at recommended label rates when Jockey was not the plot treatment.
- Sowing rate was adjusted for seed weight, with the aim of establishing 200 plants/square metre.
- 100 kg/ha DAP was applied at sowing, with 174 kg Urea (80kg/ha N) applied at GS31 on 1st September.
- Dual Gold at 230mls/ha + Talstar @ 100mls/ha was applied immediately after sowing, with Tigrex at 500ml/ha applied on the 6th July and Amicide 500 at 1.4l/ha on the 1st September 2005.
- The foliar fungicide Tilt Xtra® was applied at 250 ml/ha on 2 separate occasions, namely 1st September (GS32) and 4th October (GS39) to the required replicates of the trial. The aim was to allow foliar disease to infect the control plots while allowing for comparison against all fungicide treatments.
- The trial was harvested 5th January 2006.

Results and Discussion

With no significant difference in yield across the treatments (Figure 6-1), it appears that application efficacy may have been insufficient to repeat previous years results. Findings from this trial should be treated with caution as a highly susceptible variety to the rusts, such as Chara, needs a strategic fungicide plan to ensure maximum economic yields.

Figure 6-1: Wheat Yield (T/ha) With Fungicide Applied vs Control



Grain valued at \$140/Tonne and cost of spraying including application of \$20/application per hectare. Impact of grain quality on price not included.

Table 6-2 also indicates that stripe & leaf rust had no significant impact on yield, protein or test weight across all 8 treatments. This again needs to be treated with caution, as the variety is a 'sucker' for rust with results not reflected elsewhere in SFS research.

Table 6-2: Yield And Grain Quality Data

Trt	Yield kg/ha	Protein %	Retention %	Screenings %	Test Wt kg/hl
1	4.61	12.67	97.92	1.87	72.1
2	4.74	12.68	98.33	1.44	71.77
3	4.93	12.53	98.16	1.67	73.51
4	4.77	12.70	98.4	1.41	73.14
5	4.60	12.43	97.99	1.85	72.11
6	4.97	12.45	97.94	1.86	72.60
7	4.83	12.47	98.19	1.65	72.47
8	4.83	12.9	98.6	1.22	72.38
Average	4.78	12.6	98.19	1.62	1.96
LSD 5%	0.56	0.54	0.74	0.75	2.03
CV	11.12	2.92	0.49	30.4	72.51
Sig. Diff.	No	No	No	No	No

Cultivar resistance now forms the basis of any future fungicide planning, with highly susceptible varieties requiring a mandatory upfront seed/fertiliser treatment or, a foliar fungicide application by early stem extension (GS31/32). It is almost recommended that varieties with any form of susceptibility to disease be treated with a GS39 (full flag leaf emergence) foliar fungicide to ensure maximum green leaf retention and protection from any unknown rust pathotype. The alternative is to grow a reasonable yielding, lesser quality, lower risk variety.