3.6.7 Prosaro® 420 SC compared to standard fungicides for various foliar diseases in Barley - Inverleigh, Vic

Location:
Inverleigh Research Site

Researcher:
Study director Jon Midwood

Author:
Alistair Crawford

Acknowledgements:
Trial sponsored by Bayer CropScience

Background/Aim:
Prosaro 420 SC was registered for a range of wheat and barley diseases in 2009. Prosaro 420 SC is a mix of two active ingredients 210 g/L prothioconazole + 210 g/L tebuconazole. The combination of prothioconazole with tebuconazole leads to an improved control over the straight products due to the supplementary effect of combining a systemic molecule with excellent residual activity (long lasting effect) and a fungicide that exhibits distinct curative properties (fast acting effect). Both molecules support and complement one another in their effects.
The aim of this trial is to compare Prosaro 420 SC to a local standard treatment and untreated treatment.

Paddock history:
2008: Canola, 2007: Wheat

Crop Information:

Crop:	Cultivar:
Barley (Hordeum vulgare)	Buloke
Disease Resistance:	
SFNB	MS-S
Leaf rust	MS-S
Scald	MR-MS

Take home messages:
Disease incidence
The 2009 season had moderate to high levels of scald pressure depending on location and spring rainfall. Generally, scald onset occurred in late September which was later than expected and environmental conditions allowed. The visual assessments for scald at 12 and 24 days after application found that the nil fungicide treatment plots had 4-5% scald throughout, where the Prosaro treatment plots had <1% scald.

Biomass ratings
There were no visual signs of biomass reduction, phytotoxicity or discolouration caused by the fungicide application in any treatment.

Yield & Quality
The mean yield of the trial for 2009 was 5.11 t/ha, no significant difference was observed between fungicide treatments. Grain quality was poor but this was due to the hot finish to the season.

Experimental Design:

Study Design:	Randomised Complete Block
Replications:	4
Plot Width:	1.45m
Plot Length:	12m

Sowing and Maintenance:

Sowing Details:

Sowing Date:	5th June
Harvest Date:	22nd December
Tillage Type:	No till sown knife points
Seed Bed:	Raised Beds
Soil Moisture:	Moist at sowing
Sowing Rate:	105 kg/ha
Sowing Depth:	25mm
Row Spacing:	18.125cm

Crop Nutrition:

Date	Product	Rate
5th June	MAP	100 kg/ha
17th September	Nitrogen (urea)	50 kg N/ha

Crop Protection:

Date:	Product	Rate
4th June	Spray Seed Trifluralin	0.8 L/ha 1.2 L/ha
5th June	Dual Gold Diuron	0.25 L/ha 0.5 L/ha
3rd August	Axial Precept Lontrel Adigor	0.35 L/ha 1.2 L/ha 0.1 L/ha 0.5%

Foliar Application:

Date:	Time of Application	Growth Stage
4th September	TOA 1	GS31

Results and discussion:

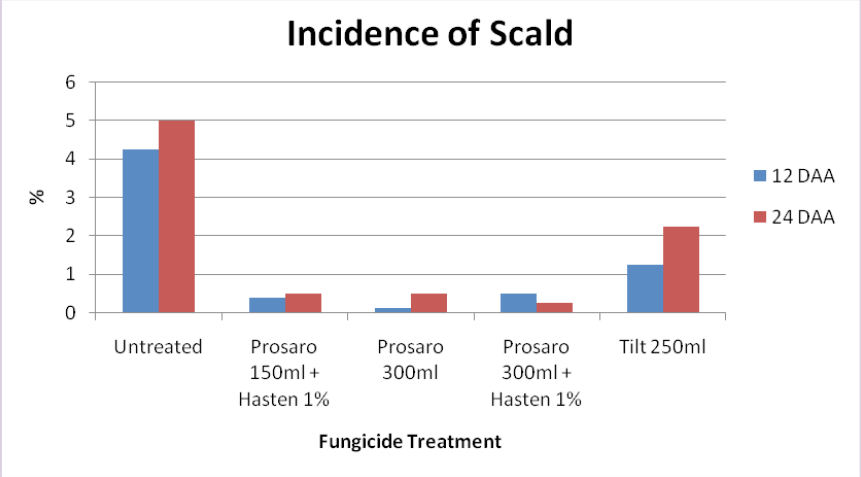
1) Disease Assessments at 12 DAA (30th September) and 24 DAA (12th October)

All plots were assessed for the incidence of disease at 12 and 24 days after the foliar fungicide application. Figure 1 demonstrates that the nil fungicide treatment had 4-5% scald within the crop canopy. This level was significantly more than the treated plots. The Tilt fungicide treatment was found to have a greater level of scald than any of the Prosaro treatments, irrespective of rate. There were no visual signs of biomass reduction, phytotoxicity or discolouration caused by the fungicide application in any treatment.

2) Yield and Quality analysis

The mean yield of the Bayer Prosaro trial at Inverleigh for 2009 was 5.11 t/ha. The highest yielding treatment was the Prosaro @ 300 mL + Hasten treatment with 5.25 t/ha, however this was not significantly different to any other treatment. In a commercial environment, all treatments would have been downgraded to Feed classification based upon the Test Weight, Retention and Screening results. These poor quality results were due to the unseasonably hot finish to the season, where the crop was unable to finish grain fill. This would have also contributed to a loss in yield potential.

Figure 1: Incidence of Scald assessed 12 and 24 days after foliar fungicide application.



Summary:
The mean yield of the trial for 2009 was 5.11 t/ha, no significant difference was observed between fungicide treatments, which is not surprising due to the relatively low level of disease. Grain quality was poor but this was due to the hot finish to the season. The scald visual assessments found that the no fungicide treatment plots had 4-5% scald throughout, where the Prosaro treatment plots had <1% scald.

Table 1: Table displaying the analysis of Yield and Quality Parameters including Protein, Test Weight, Retention and Screenings.

	Yield (t/ha)	Protein (%)	Test Weight (kg/hl)	Retention (%)	Screenings (%)
Untreated	5.11	12.5	62.1	45.8	11.7
Prosaro 150 mL + Hasten	5.17	12.5	62.0	58.8	10.0
Prosaro 300 mL	5.06	12.6	62.4	57.8	8.3
Prosaro 300 mL + Hasten	5.25	12.6	62.7	55.0	9.8
Tilt 500 mL	4.99	12.9	61.9	50.8	10.8
Mean	**5.11**	**12.6**	**62.2**	**53.6**	**10.1**
Prob (F)	**0.909**	**0.648**	**0.992**	**0.472**	**0.876**
	NS	**NS**	**NS**	**NS**	**NS**
LSD (0.05)	**0.63**	**0.7**	**4.1**	**17.1**	**7.3**