

GOA trial site report

Is canola fungicide investment justified in low and medium rainfall environments of NSW?

Grain Orana Alliance

Trial code:	GBDI015
Season/year:	Winter 2023
Property name:	Keenans
Location:	Wongarbon
Co-operator:	Maurie Street

Keywords

GBDI015, fungicides, sclerotinia, blackleg, alternaria, powdery mildew, rotations, Wongarbon

Take home messages

- In dry seasons an economic response to fungicide application is less likely mainly due to the lack of disease presence.
- Application of fungicide with no response in yields represents an unavoidable reduction in crop gross margins.
- To make good fungicide decisions, consideration of paddock history, in-crop observations combined with recent and predicted weather conditions is essential
- The SclerotiniaCM app is a good tool to examine the potential return for fungicide use

Background

Trials have been conducted by Grain Orana Alliance (GOA) and Brill Ag across southern and central NSW low and medium rainfall zones since 2020 to determine canola's response to fungicide application during flowering.

Multiple diseases are generally present in these growing areas, including sclerotinia stem rot, upper canopy blackleg, powdery mildew, and alternaria. For these diseases to develop, generally wetter and humid conditions need to be present for a significant period of time for incubation. For example, research suggests that sclerotinia

GOA trial site report

requires a minimum of 48 hours of leaf wetness in the canopy¹ while historical weather data in the low and medium rainfall zones suggest that these conditions do not often occur.

Various fungicide products and timings are available and commonly used to reduce the level of these diseases; but very little is understood regarding the return on investment (ROI) compared to not spraying, particularly in the low and medium rainfall zones.

Aims

- Compare a range of fungicide management options (product and timing) on disease development, yields and economic returns.

Methodology

Trials were established in farmer sown, commercial crops of canola. Specific sites were chosen as they represented a crop worthy of consideration for fungicide application- that is- sown on time, good establishment, and good yield potential. Trial sites were selected before the initiation of flowering.

The trial layout was a randomized complete block design with 4 replicates. Treatment products, rate applied and timing are listed in the table below were applied by hand boom applying 100 lt/ ha of spray mixture. The crop canopy was left as undisturbed as possible to avoid any potential influence on disease behavior in the crop canopy.

Only one application timing, 50% bloom, was investigated in this trial.

Table 1. Products, timings and rates and active ingredients.

TIMING	Product	Rate (mL)	Description
50% bloom	Aviator Xpro	800	Aviator Xpro
50% bloom	Prosaro	450	Prosaro
50% bloom	Veritas Opti	540	Veritas Opti
50% bloom	MIRAVIS Star	1000	MIRAVIS Star
50% bloom	Nil		Nil

Rainfall

The 2023 season was drier than 2022. The in-crop rainfall was ~196.6 mm (Table 2).

Table 2. Monthly rainfall² (mm) and long-term average (LTA) at trial site.

¹ Managing sclerotinia stem rot of canola in 2023 - GRDC

² Gridded data for the trial site from: Access Gridded Data | LongPaddock | Queensland Government

GOA trial site report

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
2022	100	20	99	156	70	14	71	117	93	172	68	10	990
2023	64	30	22	38	6	44	34	14	5	34	90	50	431
LTA	60	51	52	42	42	45	45	42	41	55	55	51	581

The weather conditions at flowering (August-September) were much drier than average. There were several events in July where rain fell for more than 3 consecutive days (Figure 1), however it was still only about half of the average monthly rainfall with flowering commencing early August. There were no rainfall events >10 mm during August and September, and only one occasion where there was rain on 3 consecutive days.

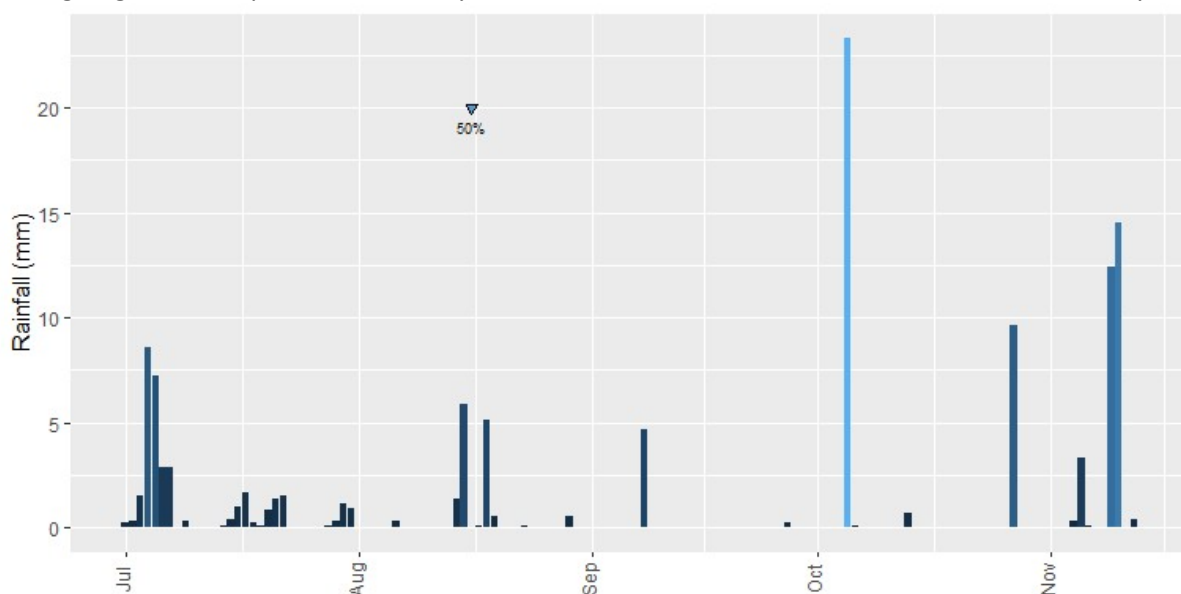


Figure 1. Daily rainfall received (vertical lines) and spray timings (inverted triangle). Timings are bloom stage timing, e.g. 10% is 10% bloom stage.

Results

Diseases

- Sclerotinia, upper canopy blackleg (UCB), alternaria and powdery mildew were not observed at this site.

Grain yield

- There was no statistical difference the Nil and any other treatment tested.

GOA trial site report

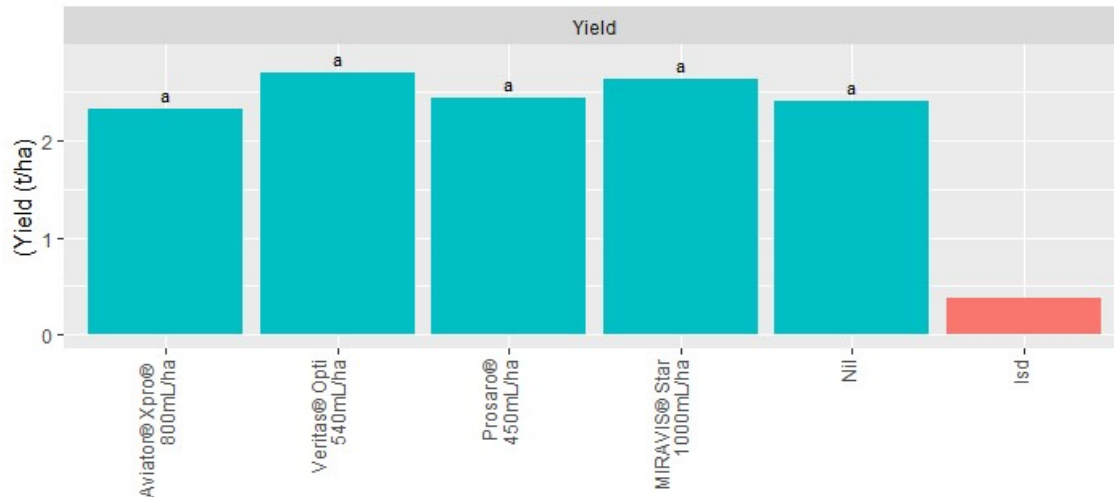


Figure 2. Canola yields (t/ha). Treatments with the same letter are not significantly different.

Grain quality

There were no significant differences in oil content between the treatments (Figure 3).

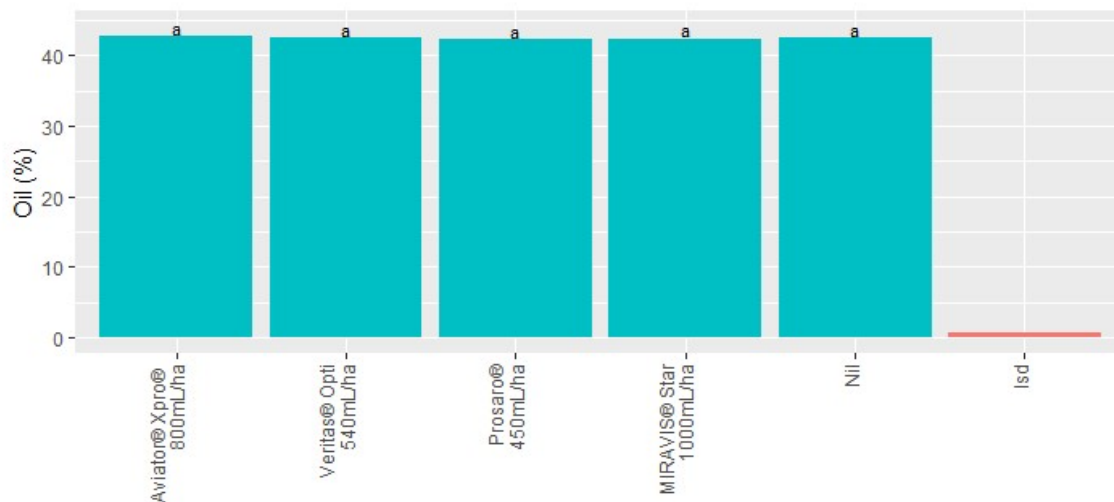


Figure 3. Canola oil (%). Treatments with the same letter are not significantly different.

GOA trial site report

Net return on fungicide investment:

As there was no benefit of any treatment over the Nil, all treatments incurred the costs of product and application with no yield improvement to compensate for this cost. This ranged from a cost of \$24 up to \$81/ha depending on the product used.

Discussion

The 2023 season had below average rainfall which may have limited canola yields; however, the trial still managed an average of ~2.5 t/ha, oil was ~42.3%. The dry conditions were not what would be considered conducive to disease development which was confirmed with little or no foliar disease observed. Unsurprisingly, there was no yield or oil response to fungicide treatments.

But there was cost of buying and applying the fungicide treatments with no yield response in return for their use. All treatments represented a reduction on crop profitability between \$24- \$81/ha.

The retrospective use of the SclerotiniaCM³ app (as displayed in the Annex) suggested a similar prediction in returns for use of fungicides in this crop. This would help validate the accuracy of the App.

Conclusions

In a dryer season where the conditions were not conducive for the development of diseases such as sclerotinia, the application of fungicides were not needed and all would have represented a reduction on the crop gross margin if used.

Use of the SclerotiniaCM⁴ app may have been useful if considering an application in this crop. The app accurately predicted a low chance of profit arising from their use..

Acknowledgements

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³ Sclerotinia CM – Sclerotinia management app | Department of Primary Industries and Regional Development
<https://www.dpir.wa.gov.au/online-tools/sclerotinia-cm--sclerotinia-management-app/>

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GOA trial site report

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ANNEX

Table 3. Results - in crop and harvest observations

Treatment	Yield (t/ha)		Oil (%)	
Aviator Xpro 800 mL/ha	2.32	a	42.6	a
Veritas Opti 540 mL/ha	2.69	a	42.4	a
Prosaro 450 mL/ha	2.43	a	42.2	a
MIRAVIS Star 1000 mL/ha	2.63	a	42.3	a
Nil	2.40	a	42.4	a
Isd	0.38		0.6	

GOA trial site report

SclerotiniaCM report Street

Version No: 2.3
26/11/2025, 10:48:37 am

User input

Spray decision First spray

Crop circumstance

Target yield (t/ha)	2.5	Yield range (t/ha)	1.5 to 3
Grain price (\$/t)	500	Grain price range (\$/t)	475 to 525
Production cost (\$/t)	490	Surface soil texture	Fine texture

History

Frequency of broadleaf crops (Years in 10)	2	Frequency of sclerotinia yield loss (Years in 10)	2
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Current conditions

Bloom stage (%)	50	Bloom stage at previous spray (%)	N/A
Wet days in the last 3 weeks (Days in 21)	5	Forecast wet days next week (Days in 7)	2
Forecast wet days in week after next (Days in 7)	2		
Mitigation by spray (%)	50	Spray cost (\$/ha)	25

Summary table

	No spray	Spray	Difference
<i>Net return (\$/ha)</i>			
Minimum	494	485	-16
Mean	681	675	-6
Maximum	856	851	5
<i>Expected yield (t/ha)</i>			
Minimum	2	2	0
Mean	2.3	2.4	0
Maximum	2.7	2.7	0.1
<i>Loss to sclerotinia (t/ha)</i>			
Minimum	0.04	0.02	-0.06
Mean	0.08	0.04	-0.04
Maximum	0.12	0.07	-0.02