Crop safety when using cereal pre-emergent herbicides with disc v tyne seeders

Trial co-operator: Ben Boughton 'Gilroy' Croppa Creek wheat -29.21652, 150.11275

barley -29.22842, 150.13906

Objectives of the trial

- Demonstration to highlight the importance of correct herbicide / seed separation when using pre-emergent herbicides in cereals
- Demonstration to show what happens with crop safety when separation is not achieved.

100L/ha Rainwater 110015 AIXR @ 2 Bar 6km/hr 4 Reps

Herbicide application	Date	Time	Temperature (C)	Humidity %	Delta T (C)
Barley	30/04/2025	11:00am	20	50	6
Wheat	6/05/2025	8:00am	15	65	4.2

Seeder	Date	Seed Depth	Wet Cover	Dry Cover
Barley Tyne (plot seeder)	1/05/2025	40mm	30mm	10mm
Barley Disc (NDF) Shallow	1/05/2025	20mm	10mm	10mm
Barley Disc (NDF) Ideal	1/05/2025	40mm	30mm	10mm
Wheat Tyne (plot seeder)	6/05/2025	45mm	25mm	20mm
Wheat Disc (NDF) Shallow	7/05/2025	20mm	10mm	10mm
Wheat Disc (NDF) Ideal	7/05/2025	50mm	30mm	20mm

A wheat and a barley demonstration were established in adjacent paddocks. Unreplicated strips of 11 different pre-emergent herbicides were applied across the intended planting direction.

Wheat or barley were subsequently sown at 90° to the herbicide application. The tyne planting system used was the AMPS plot seeder. The growers NDF disc seeder was used to apply the disc seeder treatments, with seeding depth adjusted between the 'shallow' and 'deep' disc seeder runs.

A field walk was held 44 days after the initial herbicide treatments at the wheat demonstration site.

NOTE: Herbicides used in this demonstration are registered to be used with knife point and press wheel planting systems. Use with disc seeders is not recommended on several of these herbicide labels as some disc seeders do not achieve adequate herbicide and seed separation. The intent of this demonstration is to try to show what can occur where adequate separation is not achieved by the seeder type, set up and/or planting depth.

Wheat trial layout and treatments

Tyne	*Disc shallow*	*Disc deep*
<<< ----------	Untreated	---------- >>>
<<< ----------	Overwatch® 1.25 L/ha	---------- >>>
<<< ----------	Sakura® 850WG 118 g/ha	---------- >>>
<<< ----------	Mateno® Complete 1 L/ha	---------- >>>
<<< ----------	Boxer Gold® 2.5 L/ha	---------- >>>
<<< ----------	Prosulfocarb 800 3 L/ha	---------- >>>
<<< ----------	Avadex® Xtra 3.2 L/ha	---------- >>>
<<< ----------	Trifluralin 480EC 2 L/ha	---------- >>>
<<< ----------	Terbyne® Xtreme® 1.2 kg/ha	---------- >>>
<<< ----------	Luximax® 0.5 L/ha	---------- >>>
<<< ----------	Voraxor® 200 mL/ha	---------- >>>
<<< ----------	Valor® 120 g/ha	---------- >>>
<<< ----------	Untreated	---------- >>>
Tyne	***Disc Shallow***	***Disc Deep***

Use of coloured marker to understand soil movement

At this site we utilised two different coloured markers (pink and yellow) to demonstrate the level of herbicide incorporation and removal from the seeding furrow.

Top two photos – AMPS small plot tyne planter used to apply the tyne treatments

Bottom two photos – grower's NDF disc planter operating in adjacent field (no herbicide requiring incorporation was used in this paddock at the time of this demonstration)

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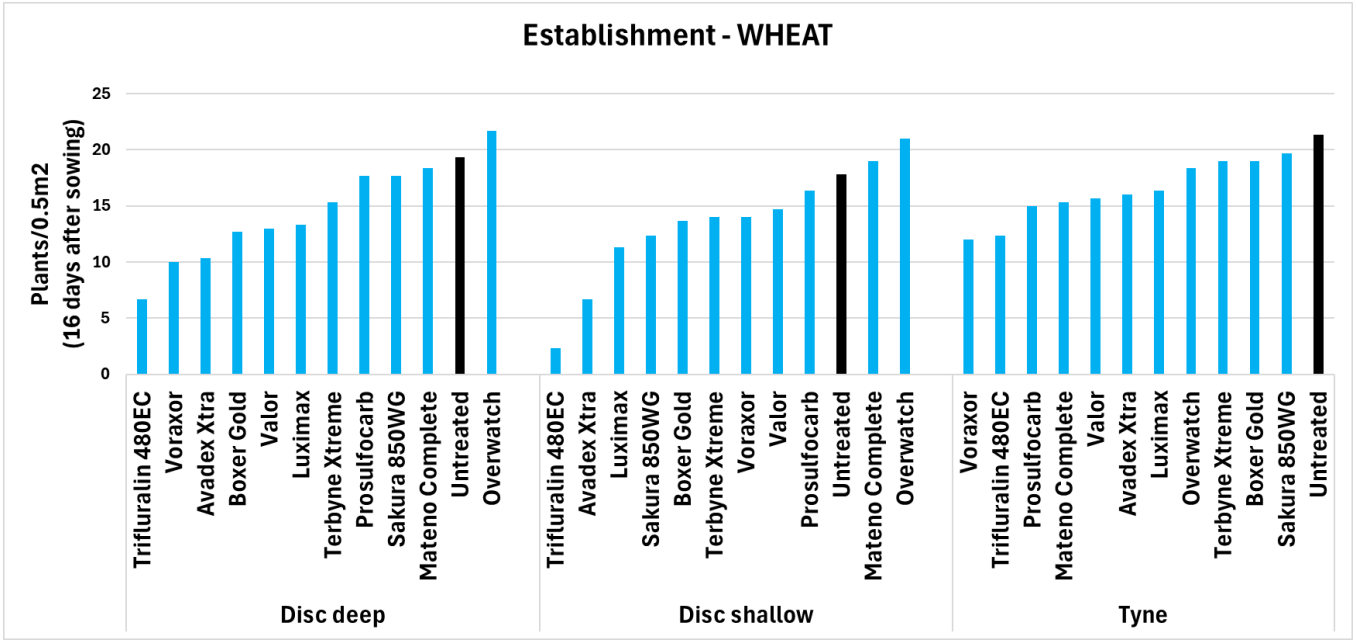
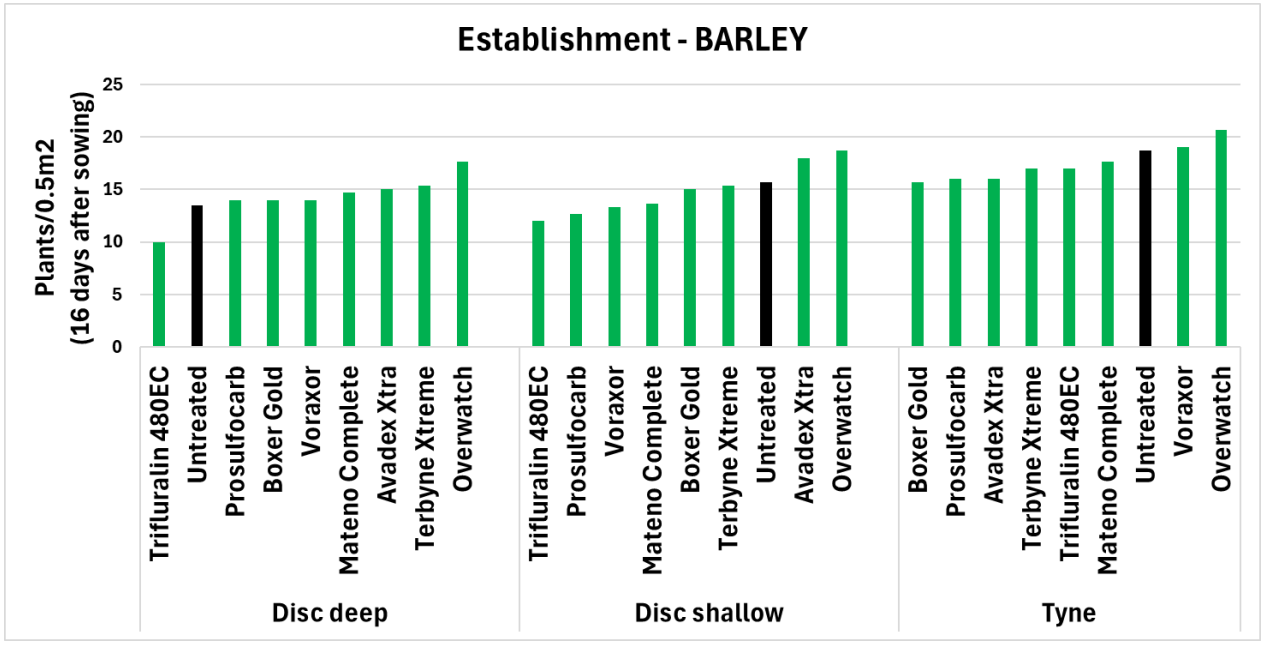
Establishment counts
Wheat emergence counts were collected 15 days after sowing. As these strip demonstration trials were not replicated, they have not been statistically analysed. However results presented are an average of 3 counts per treatment.

Herbicide treatments included in this demonstration are labelled for use at planting when incorporated by sowing (IBS) with knife point and press wheel sowing systems. **Some of these herbicide labels recommend that disc seeders should not be used (see individual labels for details of seeder systems that are supported)**. Herbicide labels that do not support the use of disc seeders have generally performed towards the lower end of establishment counts when applied via disc seeders in this demonstration.



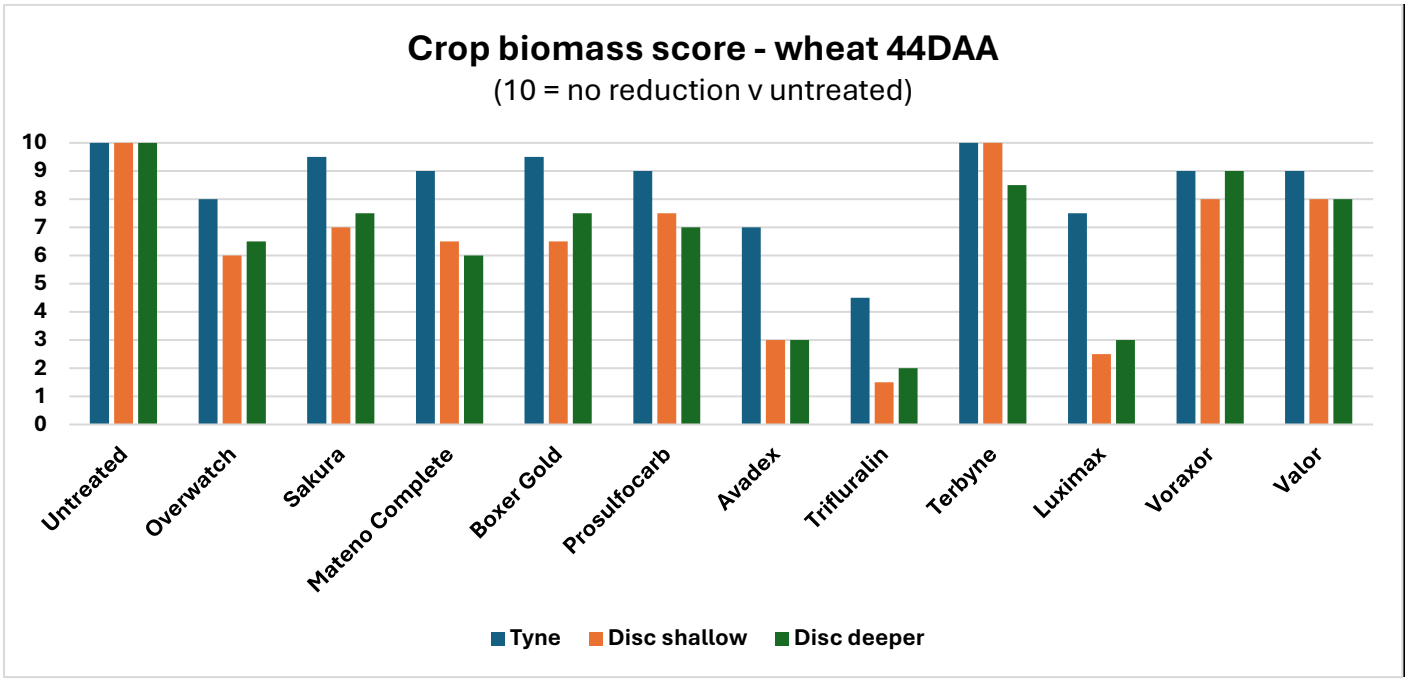
A similar demonstration was established in an adjacent paddock in barley. Establishment counts are reported below, using the same methodology as per the wheat demonstration.

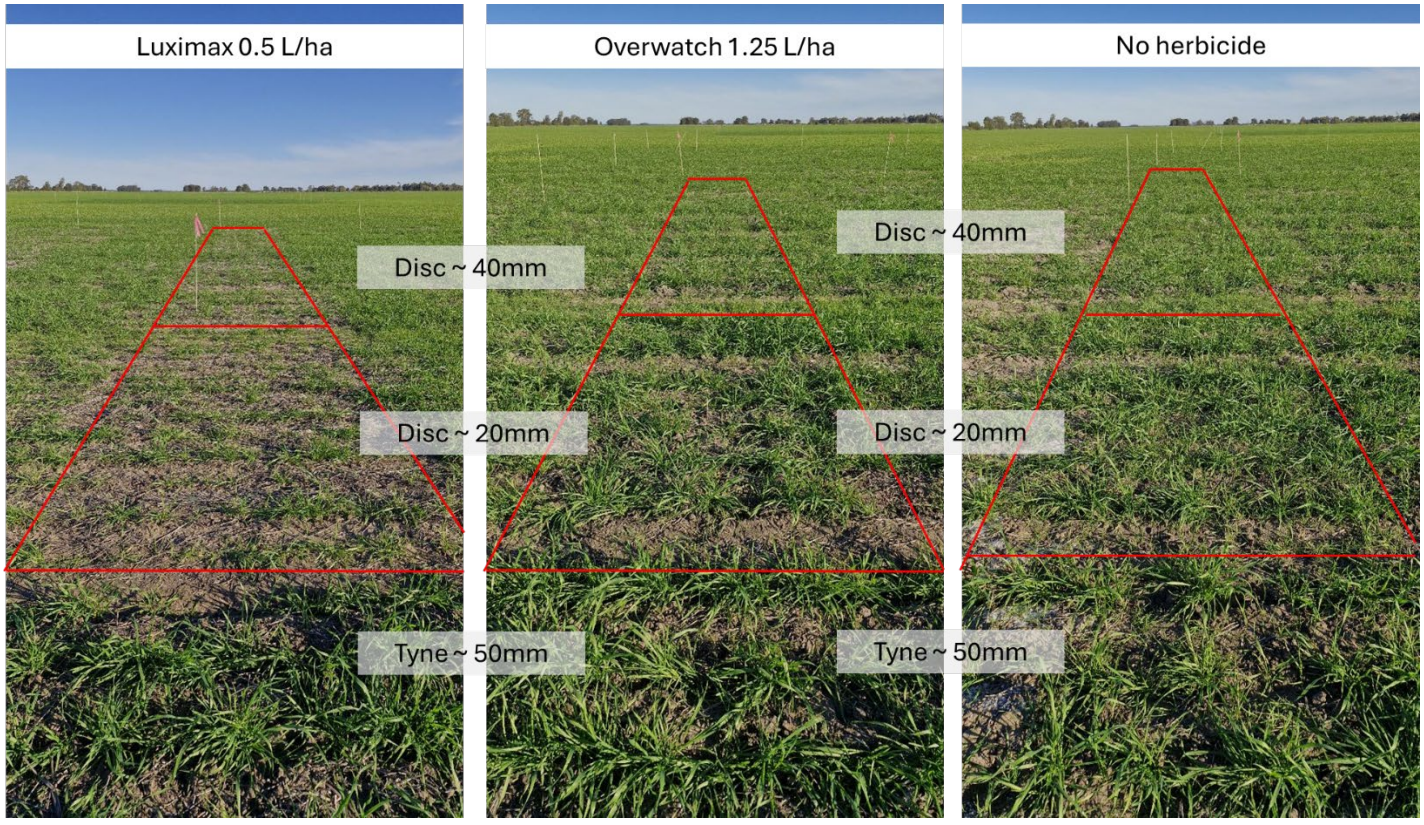


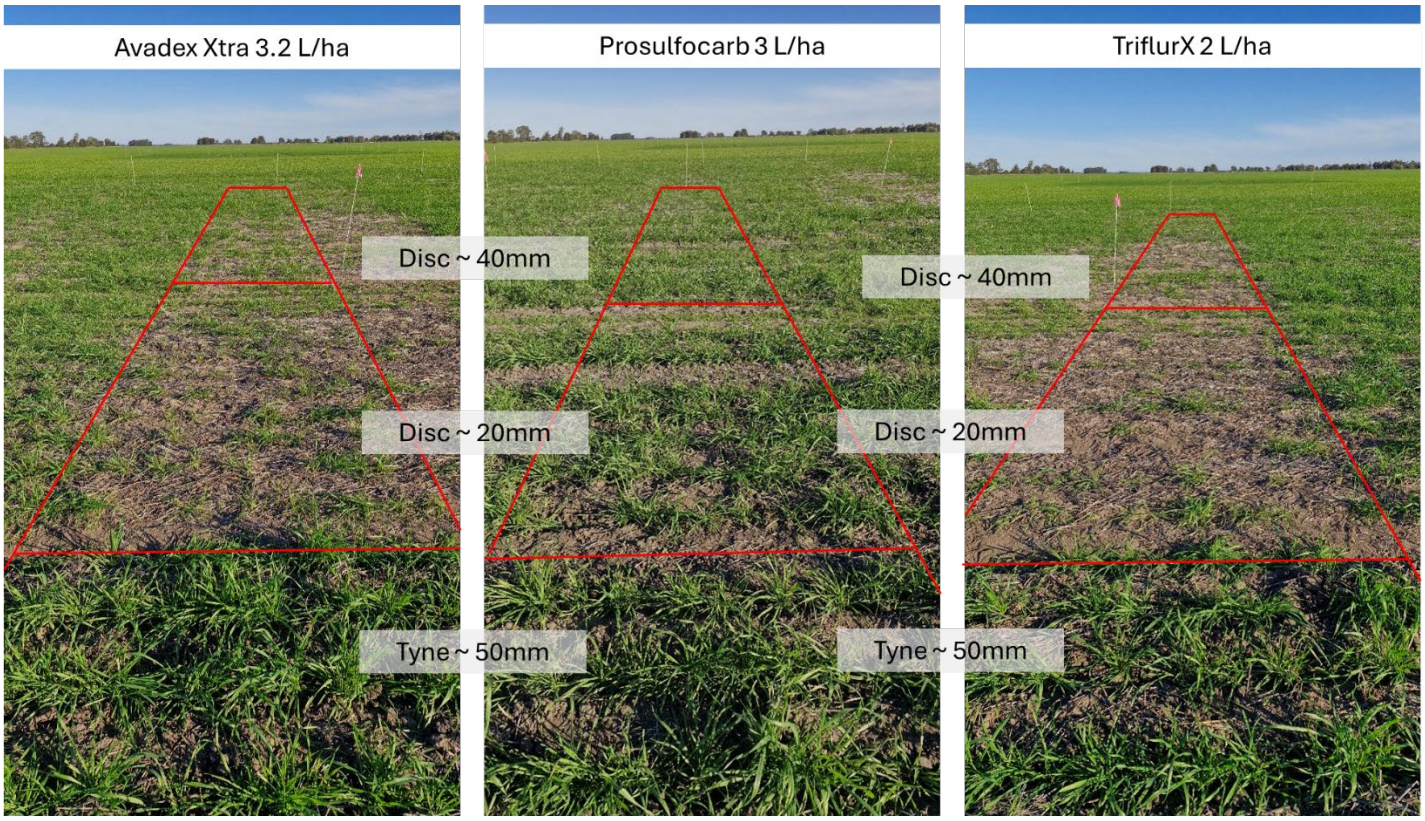
While Overwatch recorded the numerically highest plant counts in barley, there was obvious bleaching of some barley plants, which was more noticeable in the disc seeder treatments.

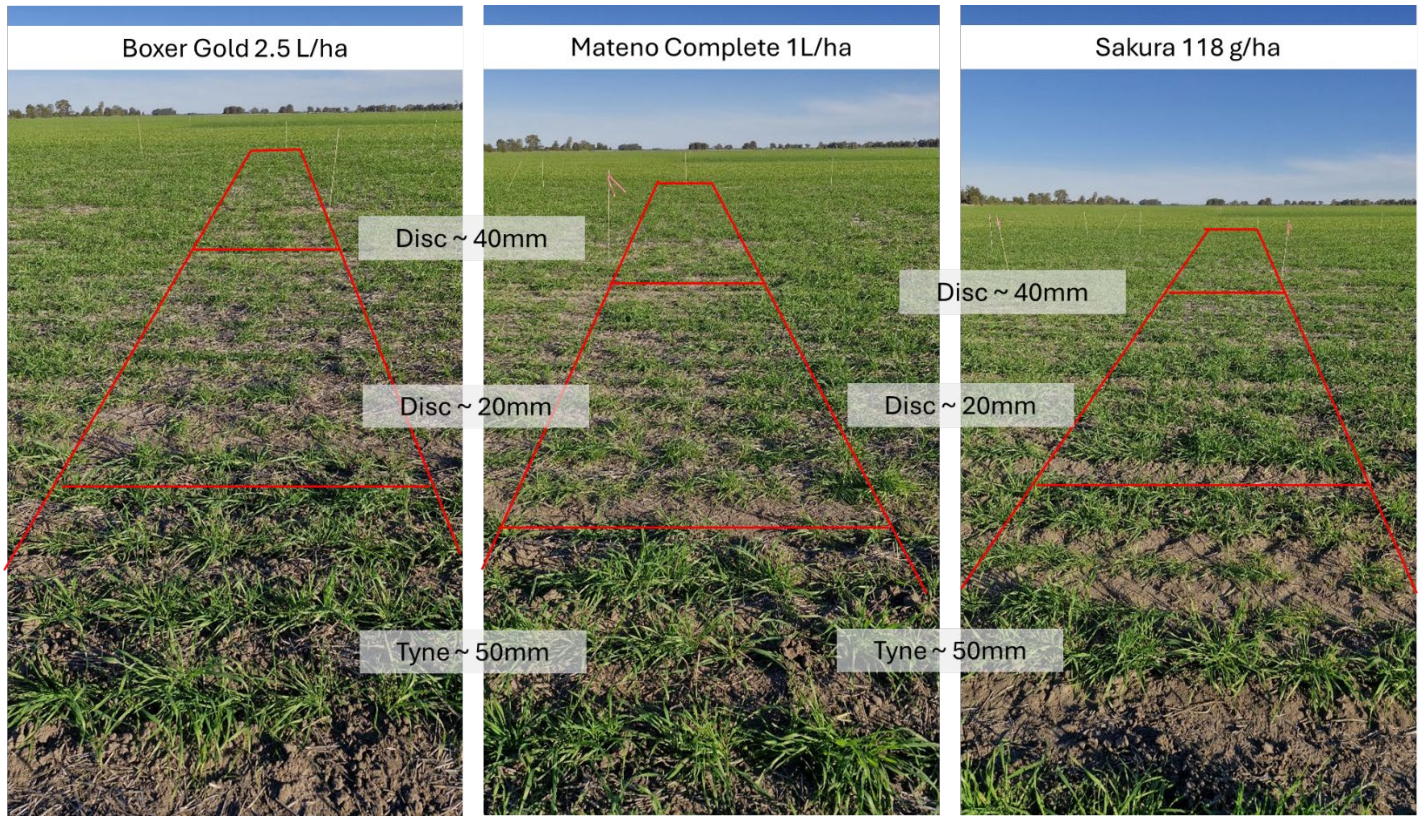
Crop biomass

Following the field walk (44 days after planting), crops were visually rated for biomass, with pictures taken in the wheat demonstration.









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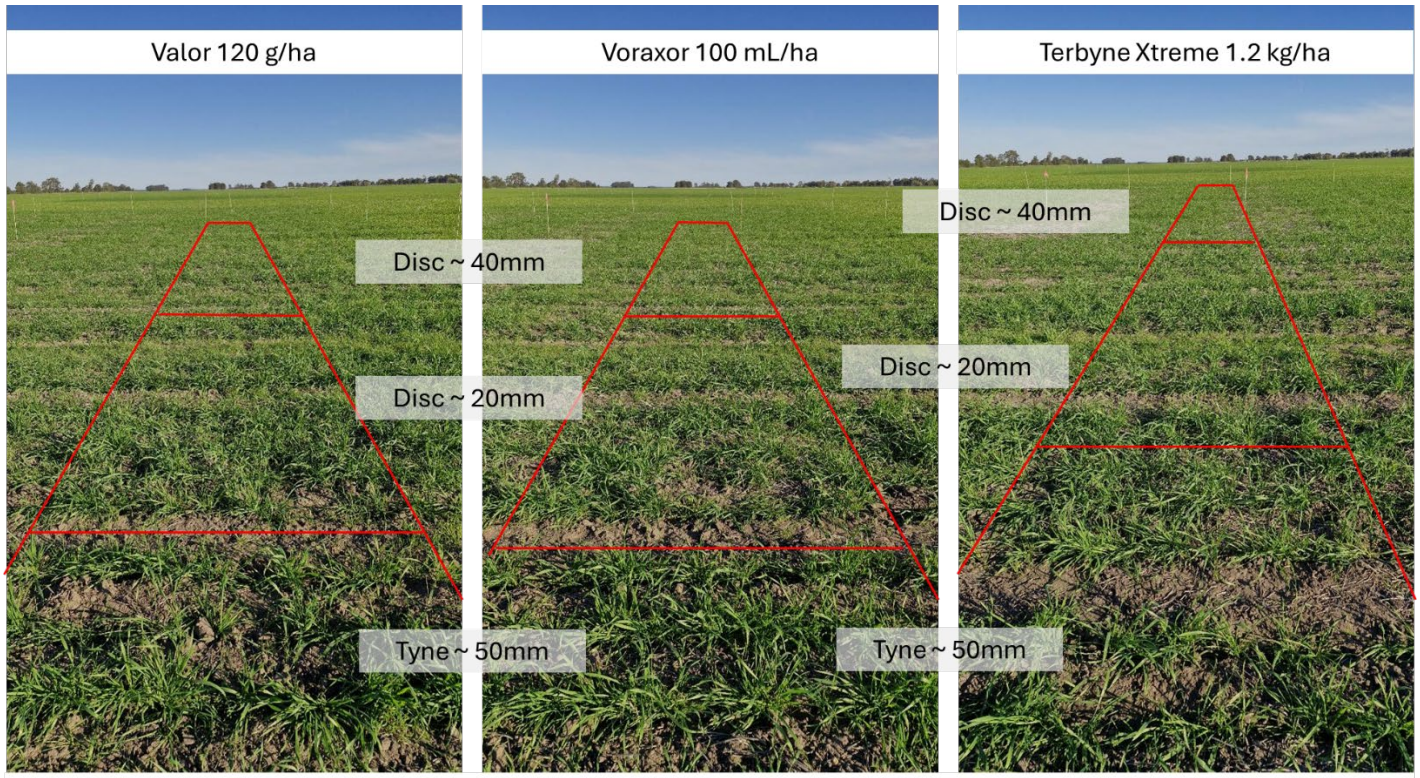
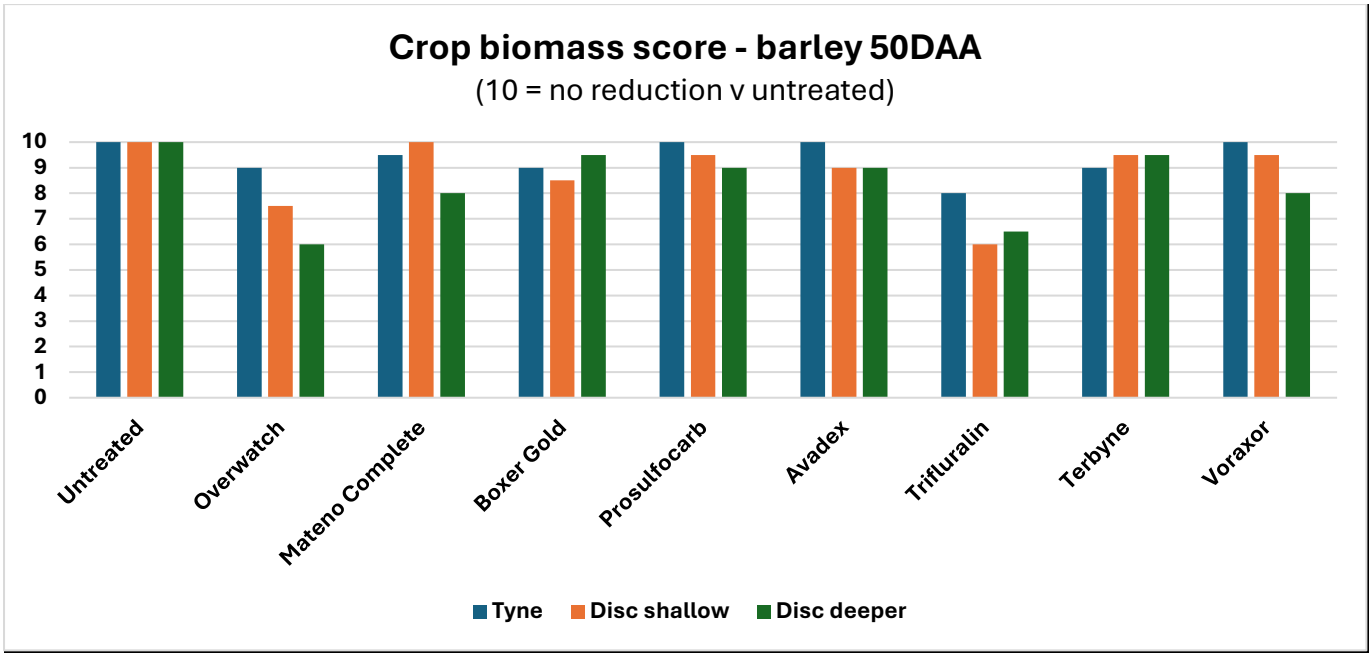


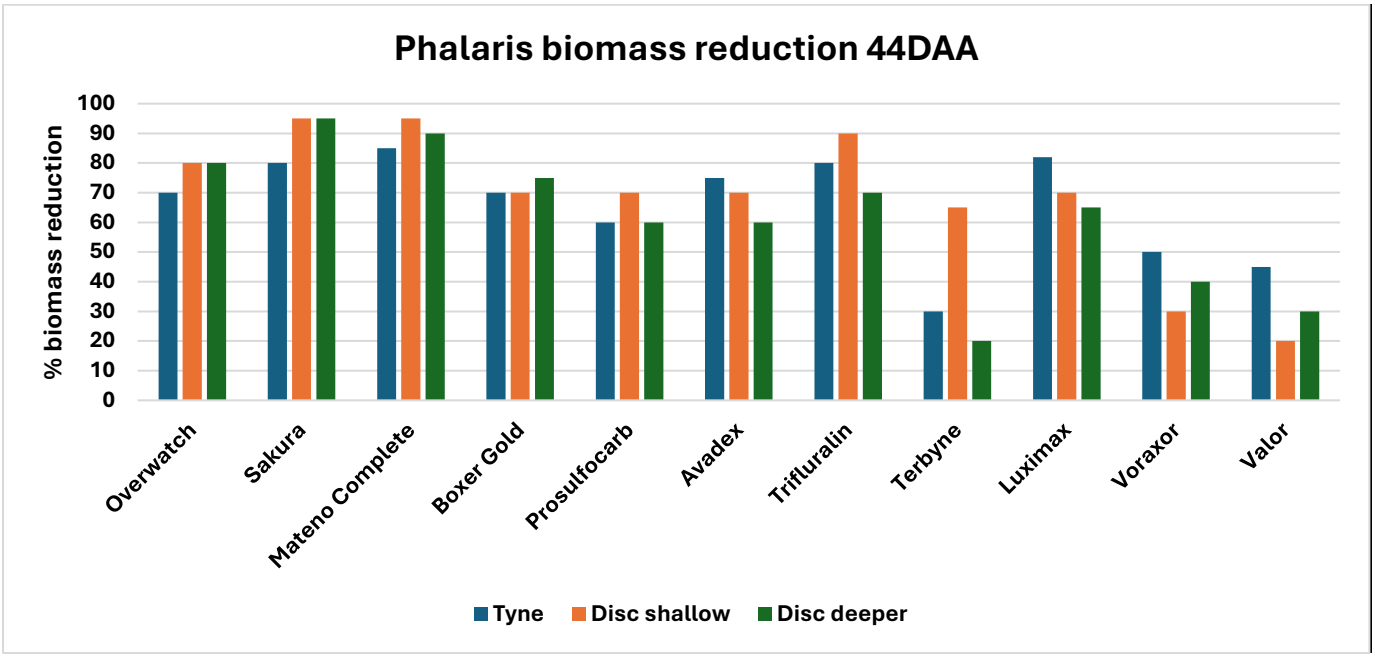
These 3 herbicides are broadleaf herbicides. As a result, there is significant phalaris contributing to overall greenness.

The barley demonstration was also rated for visual biomass, although pictures were not taken.



Phalaris efficacy

Weeds present at application had been controlled prior to planting by a glyphosate followed by paraquat double knock, so weed control was not a planned outcome of this demonstration. However, in the wheat field, a heavy germination of phalaris emerged with the crop which provided the opportunity to rate the wheat herbicide treatments for biomass reduction of phalaris.



Note: Terbyne, Voraxor and Valor are predominantly broadleaf herbicides, with limited grass weed control expected.

Appendix - Active ingredients of treatments

Name	Active ingredient	Concentration
Overwatch	Bixlozone	400 g/L
Sakura 850 WG	Pyroxasulfone	850 g/kg
Mateno Complete	Aclonifen + pyroxasulfone + diflufenican	400 g/L + 100 g/L + 66 g/L
Boxer Gold	Prosulfocarb + s-metolachlor	800 g/L + 120 g/L
Prosulfocarb 800	Prosulfocarb	800 g/L
Avadex Xtra	Tri-allate	500 g/L
Trifluralin 480 EC	Trifluralin	480 g/L
Terbyne Xtreme	Terbuthylazine	875 g/kg
Luximax	Cinmethylin	750 g/L
Voraxor	Saflufenacil + Trifludimoxazin	250 g/L + 125 g/L
Valor	Flumioxazin	500 g/kg

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Disclaimer: This document is based on the results from individual trials. Variability in product performance is expected across trials and environments. Different outcomes are possible under different trial situations; brand of herbicide applied; environmental conditions before, at and following application; sprayer setup; adjuvant choice; water quality and spray volume; weed size and weed stress; and herbicide resistance status of the population. Trials seek to build on current knowledge – therefore this summary may contain experimental use patterns that are currently not specifically labelled for all of the weed(s) targeted in the trial, or treatments applied at a weed growth stage or application timing that may differ to the product label. In some circumstances, inclusion of a particular treatment is included to demonstrate why this product should not be used in that particular situation. Any research with unregistered agricultural chemicals or of unregistered products, rates or use patterns reported in this document does not constitute a recommendation for that particular use by the authors or the authors' organisations. All agricultural chemical applications must accord with the currently registered label for that particular agricultural chemical, crop and region.

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