



Glyphosate and glufosinate in mixtures with Group 14 herbicides - Awnless barnyard grass

Trial co-operator Jeff Nixon, 'Merwood' Croppa Creek

Weed target: Awnless barnyard grass

100L/ha

Bore water (SOA added to all plots)

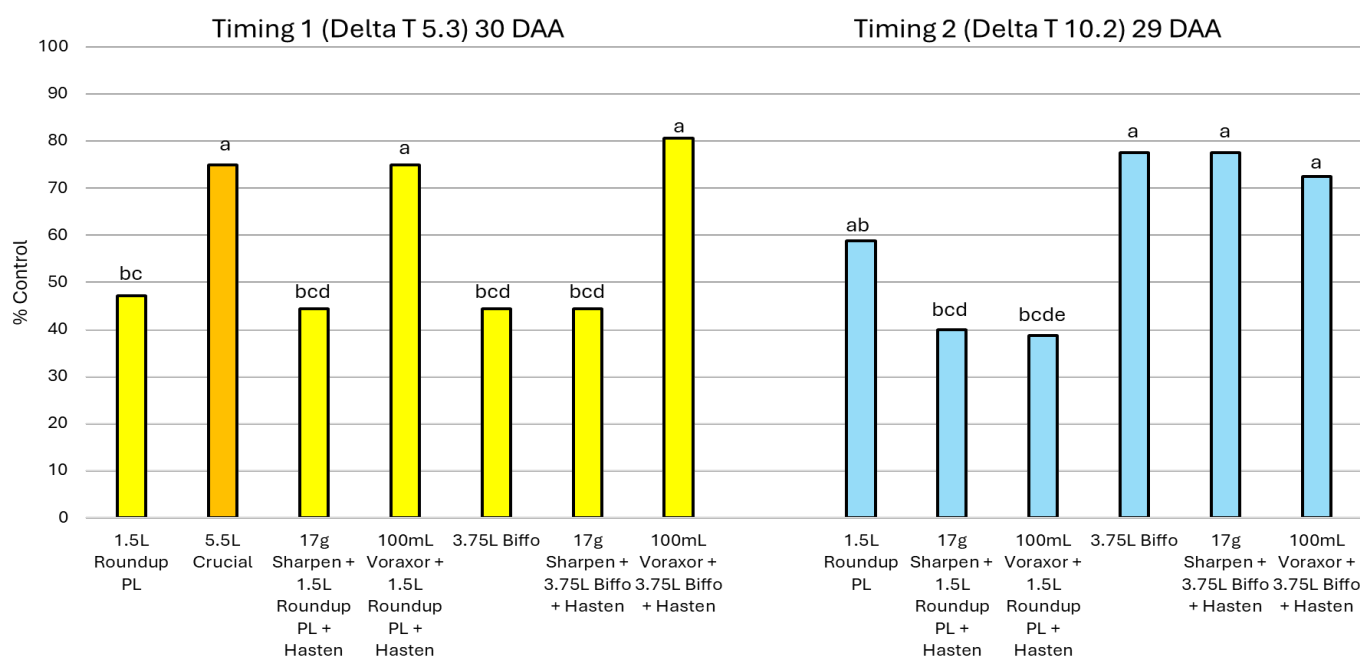
110015 AIXR @ 2 Bar 6km/hr (Coarse)

4 Reps

	Date	Weed size	Time	Temp	RH%	Delta T
Timing 1	4/12/2024	Tillering	11am	30°C	66%	5.3
Timing 2	16/12/2024	Tillering	12pm	34°C	44%	10.2

Key herbicide treatments		Timing 1	Timing 2
Roundup® PL (540K)	1.5 L/ha		
Crucial®	5.5 L/ha		Not applied
Sharpen® + Roundup PL + Hasten®	17 g/ha + 1.5 L/ha + 1% v/v		
Voraxor® + Roundup PL + Hasten	100 mL/ha + 1.5 L/ha + 1% v/v		
Biffo®	3.75 L/ha		
Sharpen + Biffo + Hasten	17 g/ha + 3.75 L/ha + 1% v/v		
Voraxor + Biffo + Hasten	100 mL/ha + 3.75 L/ha + 1% v/v		

The graph below shows control ratings from the two application timings. No treatments were able to provide high level of control of barnyard grass at this site. As this trial was designed to separate treatments based on application conditions, no treatments were doubled knocked. It is likely that a double knock would have resulted in acceptable levels of final control for several of these treatments.



Columns are the average control (4 reps)

Figure 1. Control of tillering barnyard grass (approximately 30 days after application).

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At the final rating time, plots were also assessed for surviving plants that were regrowing (lower percentage regrowth = less regrowth = better result).

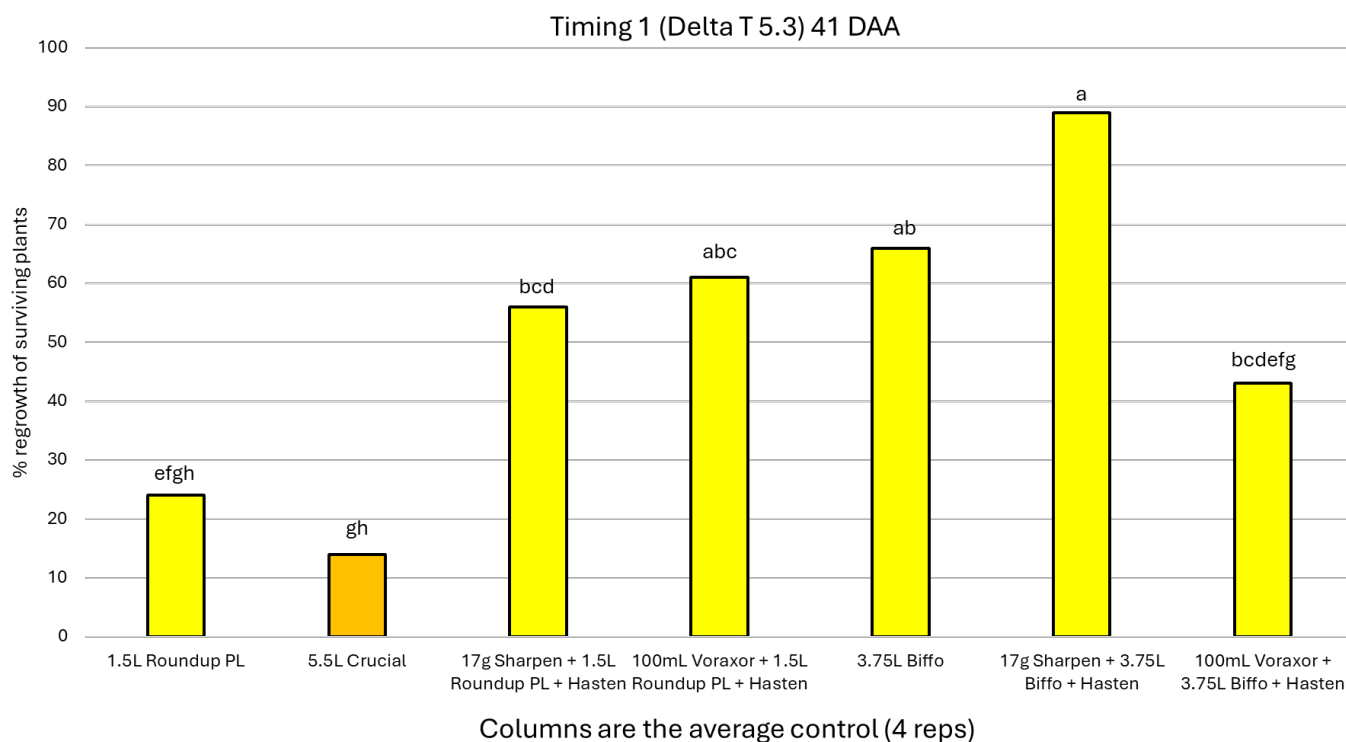


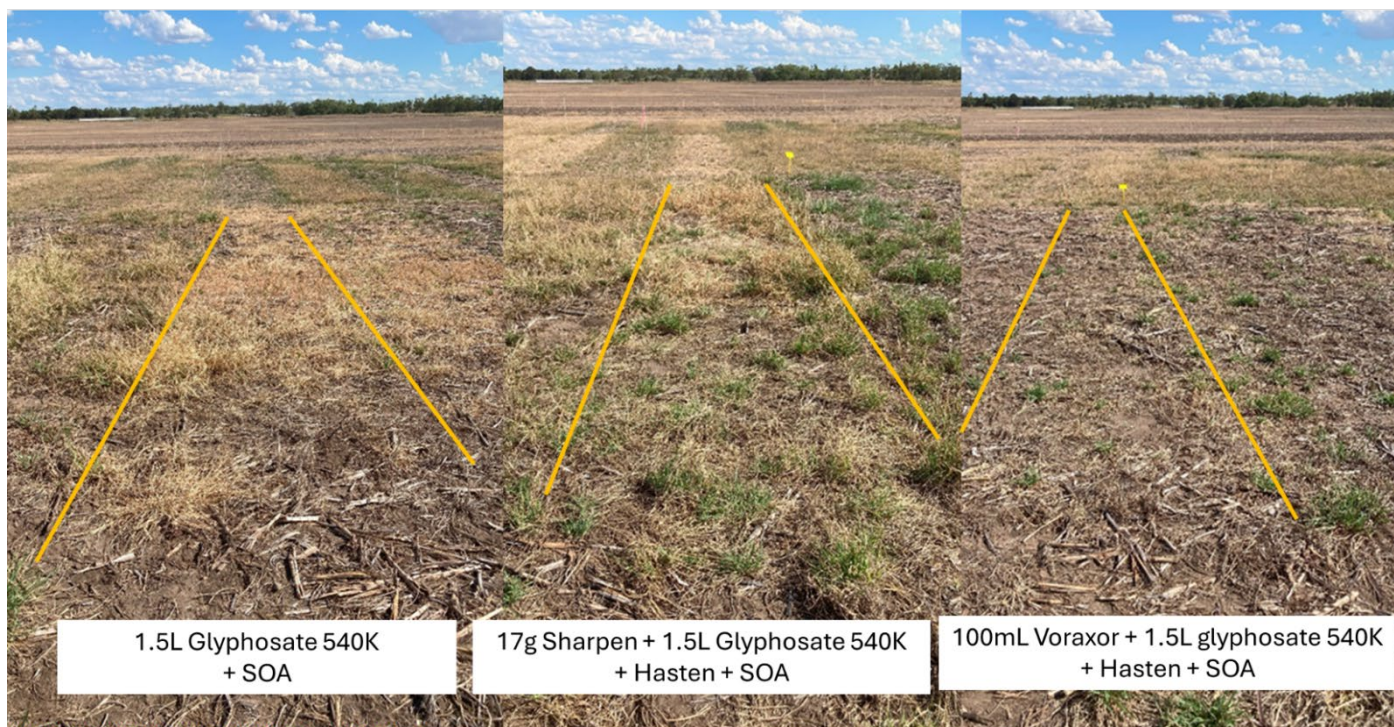
Figure 2 Regrowth of tillering barnyard grass after the final rating (41 days after application).

As can be seen from the graph above, the glyphosate treatments had the least regrowth at 41 days after the initial application timing. The addition of the Group 14 herbicides to glyphosate has generally not improved initial control of barnyard grass and has typically resulted in higher regrowth scores, indicating biological incompatibility within the plant (most likely reduced translocation of glyphosate). Compare the regrowth from Roundup PL alone (first column) with regrowth from the Sharpen or Voraxor mixtures with Roundup PL at the same application rate and timing.

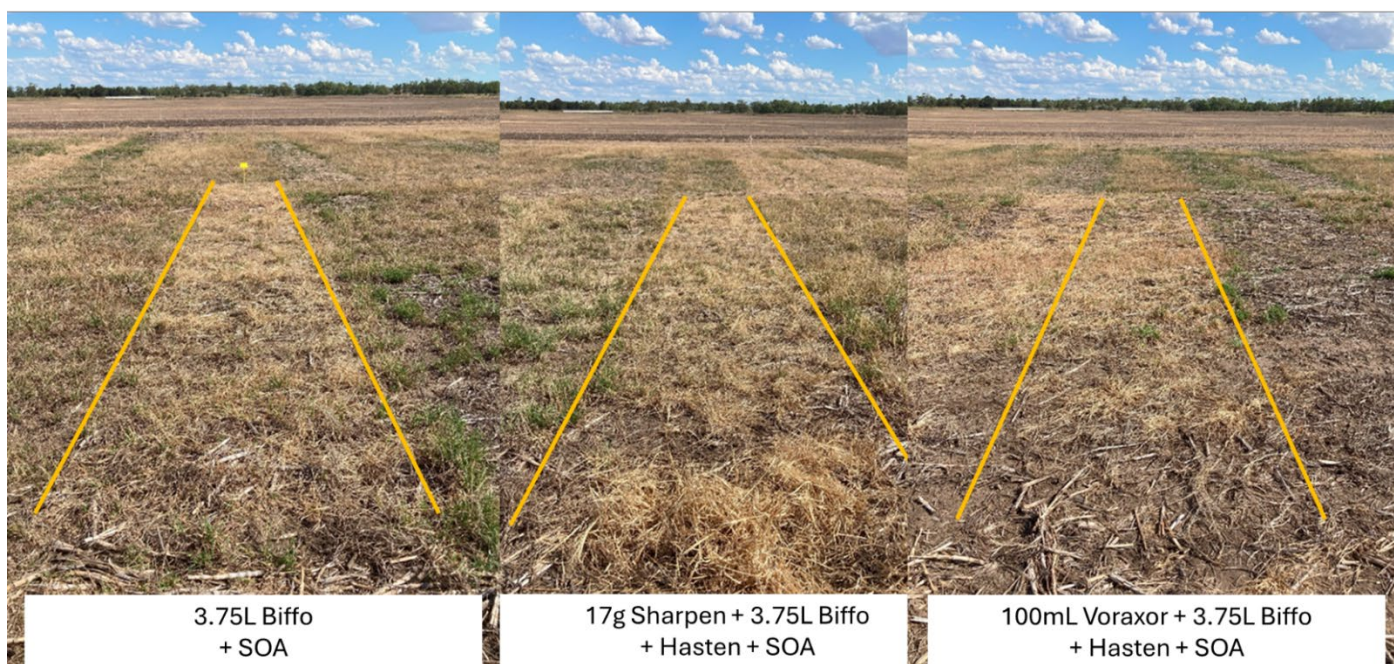
On these large barnyard grass plants, the Biffo (glufosinate) treatments either alone or in mixture with Group 14 herbicides, provided initial control similar to, or in excess of, the control achieved by glyphosate up to the 30-day assessments. However there was significant regrowth occurring on the majority of glufosinate-treated barnyard grass plants by the final assessment at 41 days after application. This highlights that glufosinate based treatments should not be targeted at advanced (tillering) barnyard grass and reinforces the label advice that limits application to 'pre-tillering' grass weeds at this application rate.



Timing 2 (Photos 29DAA) – Group 14s antagonising glyphosate under challenging conditions



Timing 2 (Photos 29DAA) – Glufosinate treatments still holding in at 29DAA (Although had broken at the 41DAA timing)



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Timing 1 (Photos 41DAA) – Glufosinate and glufosinate + saflufenacil treatments have broken



Timing 1 (Photos 41DAA) – Very high rates of glyphosate; Voraxor + glyphosate; and Voraxor + glufosinate (not shown) still providing the strongest control.



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Appendix - Active ingredients of treatments

Name	Active ingredient	Concentration
Roundup Plantshield	Glyphosate as potassium salt	540 g/L
Crucial	Glyphosate as potassium, monomethylamine & ammonium salt	600 g/L
Biffo	Glufosinate-ammonium	200 g/L
Sharpen	Saflufenacil	700 g/kg
Hasten	Ethyl and methyl esters of fatty acids with non-ionic surfactants	704 g/L + 196 g/L
Voraxor	Saflufenacil + trifludimoxazin	250 g/L + 125 g/L

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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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