Rosinweed Management

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TAKE HOME MESSAGES

- Rosinweed is difficult to control due to its perennial nature, large, interconnected root system, and densely hairy leaves.
- Mixes containing glyphosate and 2,4-D ester provided best control which is the current best practice.
- There are limited options outside of what is currently viewed as best practice and as such this weed needs further investigation to identify alternative opportunities, particularly in sensitive spray areas.

BACKGROUND

Rosinweed (*Cressa australis*), an Australian native, is generally found on soils with high concentrations of salt, and as such is an environmental indicator species for high-saline environments (Lyons 2015; Sharma *et al.* 2017). Its location and areas of prevalence are widespread across Australia where suitable soil types are found. In Victoria, it is confined to the north-west; in swampy saline areas or beds of temporary lakes and floodplains and usually on heavy soils.

It can have a significant impact on crops, with growers suggesting up to 50% crop loss in infested areas. Growers with livestock regard this weed as a reasonable feed source for stock, however, balancing the management between summer, when the weed is prevalent, and winter, where it has the biggest impact on winter crops, is an area of ongoing concern.

This research was conducted in response to growers desiring alternative solutions to what is the current best practice. It is part of a GRDC National Grower Network project looking at the management of localised weed issues.

Always read the label and adhere to directions when using herbicides.

AIM

To determine the efficacy of a range of herbicide applications on rosinweed.

TRIAL DETAILS

Spray date: 17 March 2023

Treatments: refer to Table 3.

Replicates: Three

Crop Type: Summer Fallow

METHOD

Rosinweed

One replicated randomised complete block trial was established 1km east of Birchip. The site contained a healthy population of rosinweed at an advanced growth stage with plants flowering. The herbicide treatments were determined with researchers, local agronomists, growers, and technical specialists representing commercial stakeholders. Information on treatments investigated are listed in Table 2. Herbicide toxicity symptoms for each treatment were recorded according to the European Weed Research Council scale (EWRC) rating scale 1-9, (1 = 100% control, 9 = no effect, Figure 1) and were taken weekly up to 28 days after application, at which point final efficacy was noted. The site was inspected again in the summer of 2023/24 to determine if any treatments offered continued activity.

Table 2. Rosinweed Treatment List. Note: All treatments had Hasten oil added at 1% v/v.

#	Treatment	Active ingredient
1	Untreated Control	-
2	Glyphosate 450 2000ml/ha	Glyphosate 450g/L
3	Glyphosate 450 2000ml/ha Ester 680 1000ml/ha	Glyphosate 450g/L 2-4-D Ethylhexyl ester 680g/L
4	Glyphosate 450 2000ml/ha Priority® 25g/ha	Glyphosate 450g/L Florasulam 200g/kg
5	Glyphosate 450 2000ml/ha Ester 680 1000ml/ha Priority® 25g/ha	Glyphosate 450g/L 2-4-D Ethylhexyl ester 680g/L Florasulam 200g/kg
6	Glyphosate 450 2000ml/ha	Glyphosate 450g/L

	Starane Advanced 500ml/ha	Fluroxypyr 333g/L
7	Glyphosate 450 2000ml/ha Cadence® 120g/ha	Glyphosate 450g/L Dicamba 700g/kg
8	Glyphosate 450 2000ml/ha Pixxaro® 400ml/ha	Glyphosate 450g/L Fluroxypyr 250g/L + Halauxifen 16.25g/L
9	Glyphosate 450 2000ml/ha Ester 680 1000ml/ha Pixxaro® 400ml/ha	Glyphosate 450g/L 2-4-D Ethylhexyl ester 680g/L Fluroxypyr 250g/L + Halauxifen 16.25g/L

Figure 1. EWRC assessment guidelines for herbicides efficacy and/or crop effect.

EWRC Score	Weed control Efficacy (% weed Kill)	Crop tolerance
1	complete kill (100%)	no effect
2	excellent (98-99%)	very slight effects
3	very good (95-97%	slight effects; stunting and yellowing obvious; effects reversible
4	good-acceptable (90-94%)	substantial chlorosis and/or stunting; probably no yield effects; most effects reversible
5	moderate but not generally acceptable (83-89%)	strong chlorosis/stunting; thinning of crop; some yield loss expected
6	fair (70-82%)	increasing severity of damage
7	poor (56-69%)	increasing severity of damage
8	very poor (30-55%)	increasing severity of damage
9	none (0-30%)	total loss of crop

RESULTS AND INTERPRETATION

Rosinweed

Glyphosate on its own (treatment 2) was relatively ineffective at controlling rosinweed. When combined with other chemistries such as Cadence®, or Priority® efficacy was not improved compared to the control. Small improvements came from Pixxaro® and Starane® Advanced, however the level of control achieved was unsatisfactory.

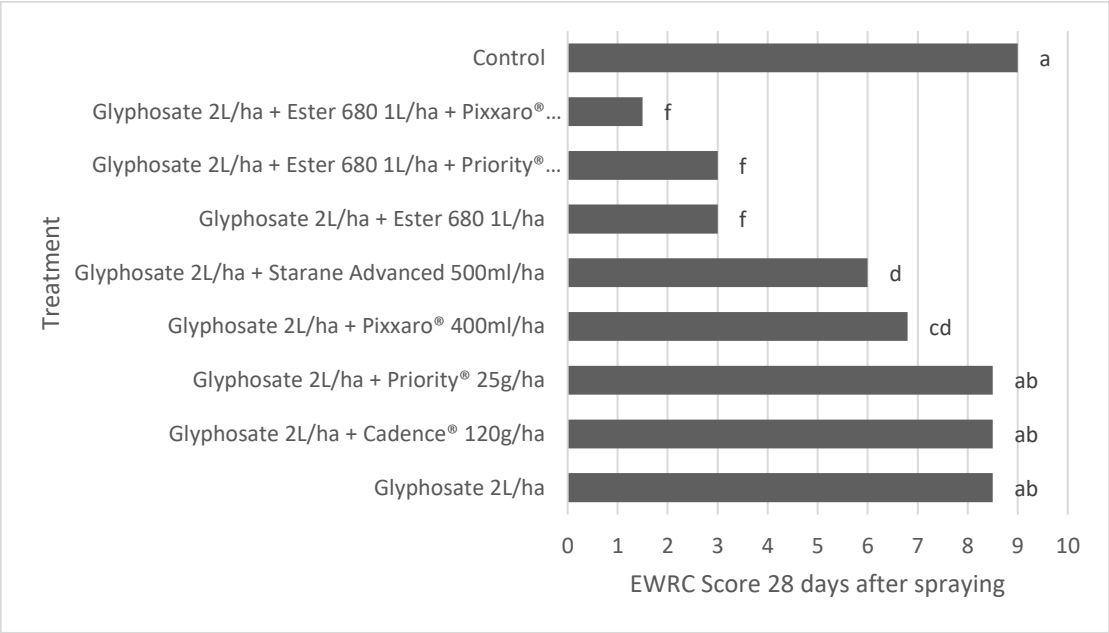
The most effective treatments in this trial were treatments that contained 2,4-D ester 680 as a part of their mix. Given that other mixing partners in addition to glyphosate + 2,4-D ester 680 did not improve rosinweed control at this late stage, their use is unnecessary unless there are other weeds demanding a different active ingredient for control, which may help with lowering costs.

Some advisors have suggested that controlling rosinweed at a more mature stage with glyphosate/ester mixes provides effective results. However, this needs to be treated with

caution as it could just be an artifact of the plant winding down its growth and putting more resources into below ground growth and energy storage, than above ground plant growth.

Inspection of the site in January 2024 found that there was no evidence of ongoing benefits from the treatments applied suggesting this plant is difficult to control on a long-term basis.

Figure 2. Birchip rosinweed control 28 days after spraying. EWRC scores are represented as 1=100% control to 9=no control. Treatment differences are indicated by differences in letters. P value = <0.001, LSD = 1.503, CV = 24.2.



COMMERCIAL PRACTICE AND ON-FARM PROFITABILITY

On local farms where it is present, rosinweed continues to be a difficult weed to control. An Australian native, rosinweed is well adapted to the dry harsh conditions of the northern Wimmera and Mallee environment. With an extensive rhizome like tap root system, it can store significant energy reserves and should be considered a perennial weed species. Cultivation can contribute to spreading this weed in the paddock as it can grow from plant and/or root fragments. It prefers to inhabit saline, swampy regions where it is likely to have a competitive advantage over other species. Rosinweed has densely hairy leaves, which is likely to reduce herbicide absorption into the plant. These attributes mean that rosinweed requires persistent spraying, as it takes significant time to draw down the energy reserves within its root system.

This research has shown that there are no new effective options for managing this weed from this series of products screened. The current best practice remains glyphosate in combination with 2,4-D ester. However, there are challenges in areas where restrictions apply for 2,4-D ester use during the summer months. Efficacy of 2,4-D amine was not assessed in this trial and may be worthy of future research.

Given that addition of various spikes to glyphosate did not improve weed control, growers are encouraged to use the most cost-effective options for managing this weed. Herbicide choice will also be influenced by other problem weeds present in the paddock. Growers also need to be aware that there is potential for some herbicide mixes to have antagonistic effects on overall control.

REFERENCES

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