

Onion weed wick wiper demonstration

Craig James

Advanced Agricultural Services

DEMO

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Location
Minnipa - Warwick Hutchings

Rainfall
Av. Annual: 325 mm
Av. GSR: 241 mm
2016 Total: 390 mm
2016 GSR: 268 mm

Paddock History
2016: Pasture
2015: Wheat
2014: Pasture

Soil Type
Red brown calcareous loam

Plot Size
15 m x 1.8 m 1 rep

Why undertake this demonstration?

This paddock demonstration was undertaken to assess level if wick wiping had a place in the control of Onion weed (*Asphodelus fistulosus*) and if so, to identify areas that warrant further research. The demonstration was done to address a number of questions of growers on upper Eyre Peninsula:

- To observe the potential use of wick wiping for suppressing and/or controlling Onion weed in medic pastures to increase the quality of feed on offer.
- To reduce the need for tillage of fragile soil types often infested with Onion weed.

Onion weed prefers growing on calcareous soils, which are widespread on upper Eyre Peninsula. Onion weed lowers the feed on offer in medic pastures by up to 75% (James, pers. comm.). Current control methods involve the use of either non-selective Group L bipyridyls or Group B sulfonyleureas (SUs) herbicides and or mechanical disturbance. On these soils, SUs pose residual problems and mechanical disturbance can leave soils exposed to wind erosion.

Previous trials assessing the efficacy of an array herbicides in controlling Onion weed in medic pastures found that both Group L and K herbicides to be relatively effective, but equally damaging to accompanying medics (Dzoma and Bates, 2016, *Onion weed control in medic pastures - a herbicide evaluation*, Eyre Peninsula Farming Systems Summary 2015 p175). Wick wipers offer the opportunity

to apply SUs in a selective manner to Onion weed and other taller weed species in pasture, without contacting and damaging the shorter medic pastures.

How was it done?

Herbicide treatments were applied with a Smucker wick wiper, 1.8m wide, mounted on a quad bike and fed by a Delavan 12v 15 L/min pump on 8 September 2016, to a regenerated medic pasture paddock area with mostly even mature onion weed and infestation (Table 1).

What happened?

The site was initially monitored for visual damage on 15 October 2016. The number of Onion weed plants remaining and how many of these were setting seed was assessed on 16 March 2017, these results were compared to the control treatment (Figure 1).

All herbicides reduced the number of plants and also the number of plants setting seed at the time of monitoring in March 2017, compared to the control.

What does this mean?

This demonstration was for investigative reasons only and any observations noted here are therefore subjective.

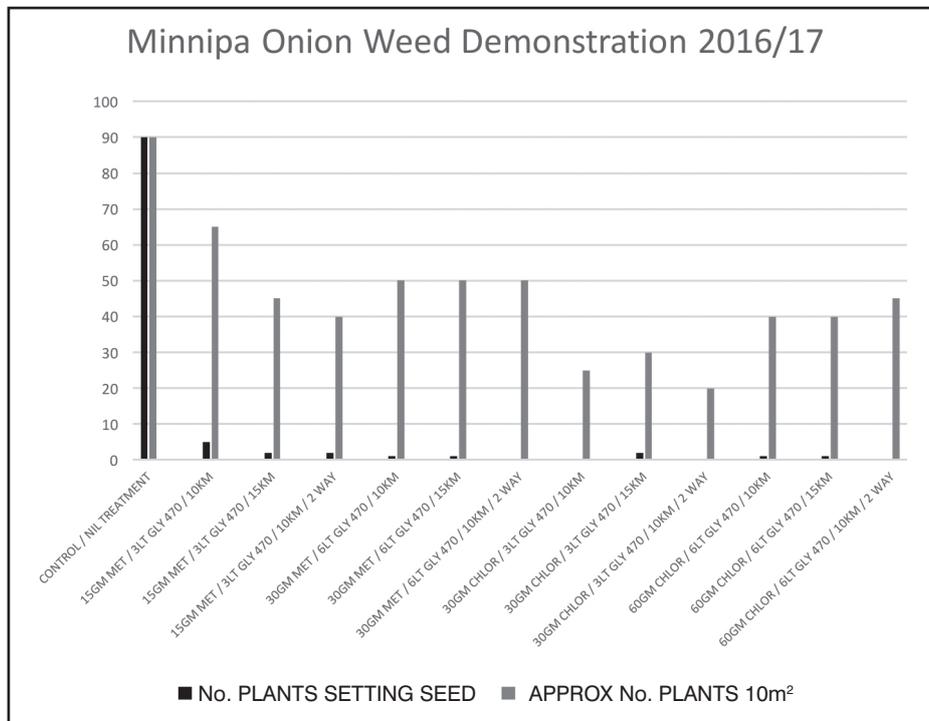
From the above observations it can be suggested that all the herbicide regimes applied selectively via a wick wiper can significantly lower the Onion weed numbers in medic pastures and lower the biomass of those that remain.

Key messages

- **Wick wiping has the potential to be used as a tool to reduce Onion weed biomass and delay its seed set until later than the medic pod set in pastures.**
- **The combination of wick wiping in pastures and successive management in cropping rotations has the potential to significantly reduce or eliminate onion weed in dryland farming systems.**
- **Two-way wick wipe applications had the greatest and longest effect on onion weed biomass.**
- **Mechanical control prior to the following season's plantings may still be required to prevent larger plants from regrowing.**

Table 1. Onion weed wick wiper demonstration herbicide and application regime in 2016 at Minnipa.

Treatment (mixed with water to a total of 12 L)	Speed (km/h)	Application
Nil - control		
15 g metsulfuron methyl 600ac and 3 L glyphosate 470ac	10	One direction
15 g metsulfuron methyl 600ac and 3 L glyphosate 470ac	15	One direction
15 g metsulfuron methyl 600ac and 3 L glyphosate 470ac	10	Back and forth
30 g metsulfuron methyl 600ac and 6 L glyphosate 470ac	10	One direction
30 g metsulfuron methyl 600ac and 6 L glyphosate 470ac	15	One direction
30 g metsulfuron methyl 600ac and 6 L glyphosate 470ac	10	Back and forth
30 g chlorsulfuron 750ac and 3 L glyphosate 470ac	10	One direction
30 g chlorsulfuron 750ac and 3 L glyphosate 470ac	15	One direction
30 g chlorsulfuron 750ac and 3 L glyphosate 470ac	10	Back and forth
60 g chlorsulfuron 750ac and 6 L glyphosate 470ac	10	One direction
60 g chlorsulfuron 750ac and 6 L glyphosate 470ac	15	One direction
60 g chlorsulfuron 750ac and 6 L glyphosate 470ac	10	Back and forth

**Figure 1. Approximate number of Onion weed plants/m² and number of plants setting seed on 16 March 2017, following treatments on 8 September 2016.**

More interestingly, seed set of Onion weeds that did survive the treatments was delayed well past February, which affords the opportunity to treat the remaining weeds with a non-selective herbicide such as paraquat. A summer treatment of paraquat following an in-pasture wick wipe should result in minimal Onion weed seed set during the pasture phase of the rotation.

Not shown in the data is the observation of the persisting impact on Onion weed provided by two-way wipes, suggesting

application efficacy is critical as seen in Figure 2.

Other observations made during the demonstration include:

- Rough and uneven paddocks will make wick wiping difficult, as will sticks and rocks.
- Standing stubbles result in herbicide being randomly flicked off the wick onto non-target plants.
- The amount of non-target damage could be minimised by heavily grazing the pasture to be treated.

- Wick wiping may provide an opportunity to prevent Onion weed from setting seed in pastures whilst increasing the desirable levels of feed on offer. Considering that onion weed can be controlled in the other phases of the rotation this innovative approach should go a long way to reducing this unwanted plant.

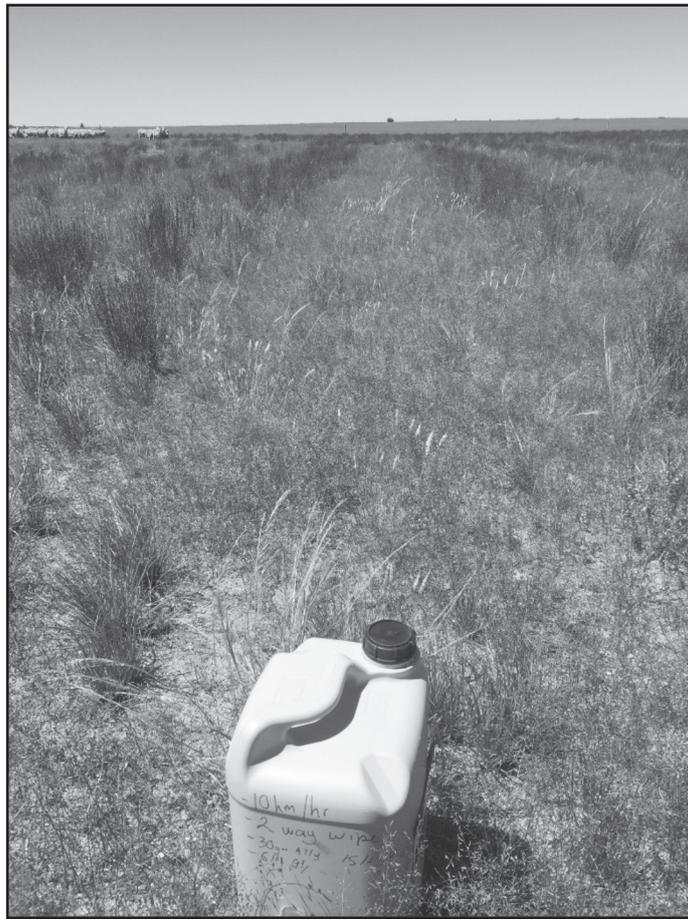


Figure 2. Two-way wipe of 30g metsulfuron methyl and 6 L glyphosate in 12 L of water at Cowell demonstration site.

- Wick wiping in pastures should also have the overall benefit of suppressing/controlling other undesirable weeds that are taller than pasture species, such as Horehound, silver-leaved nightshade, thistles etc.

Replicated trials are required to:

- Investigate differing application methods.
- Measure biomass counts
- of medic between various treatments.
- Confirm the most effective herbicides and adjuvant mixtures.
- Test to ensure SU residues don't accumulate in the soil through treated plant root systems, dead or alive.
- Further quantify seed set prevention to ensure it was not a one off seasonal effect.

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