

Residual herbicide options for fallow control of Windmill grass (*Chloris truncata*)

Trial Code: GOWE03916-2
Year: Summer 2015/16
Location: 'Waterloo' Narromine
Collaborators: Gill Family

Keywords

GOWE039, Windmill grass, residual herbicide, pre-emergent herbicide, fallow control, Narromine

Take home message

Residual herbicides can play an important role in WMG control – however, results from this trial are not sufficient to make recommendations on products or rates.

Background

Windmill Grass (WMG) is emerging as a major problem in zero till conservation (stubble retention) farming systems. Its growth habits are suited to zero till with small seed that readily establishes with minimum soil disturbance, and it has relatively high tolerance to most common herbicides, including emerging instances of glyphosate resistance¹.

A number of trials have been undertaken investigating various aspects of knock down herbicide control. While valuable this research has shown that controlling large near mature WMG populations with herbicides varies in its success. Many growers have returned to cultivation to control of mature plants of WMG. Aspects like incomplete seed burial (via cultivation) often results in subsequent WMG germination allowing for a rapid re-establishment.

This trial is designed to investigate the likely value of a range of pre-emergent or residual herbicides might play following cultivation to reduce or limit reestablishment of WMG.

DISCLAIMER

Following is a report on a scientific experiment. It may contain some herbicide treatments that are not registered for the situation, manner or rate at which they are used in this trial. This document or anything else resulting from, construed or taken from this or by GOA or its representatives should not be taken as a suggestion, recommendation or endorsement of any unregistered herbicide uses.

Aims

- Compare different pre-emergent or residual herbicides for controlling seedling emergences of WMG

¹ http://www.glyphosateresistance.org.au/register_summary.html

- Observe any effects on other weed species present

Trial design

A small split plot trial was established in summer 2015/16 where a known population of WMG was observed prior to cultivation. Treatments were applied on 17/12/2015, approximately 25 mm rain fell 5 days after application (22-23/12/2015). In total 118 mm fell between initial treatment and assessment conducted 105 days later. All treatments were applied with 100 L/ha water through AITT015 (coarse) nozzles at 3 bar.

Results

All treatments showed improved levels of control compared to untreated (UTC) (Figure 1). Four treatments were assessed as providing 100% control; trifluralin + Dual Gold®, Dual Gold® + atrazine, Flame and Flame + diuron. A range of treatments provided 90% or better control. Trifluralin + Targa™ (1000 mL/ha) and atrazine provided 74% and 85% control respectively. Targa™ (500 mL/ha) provided only 32% control.

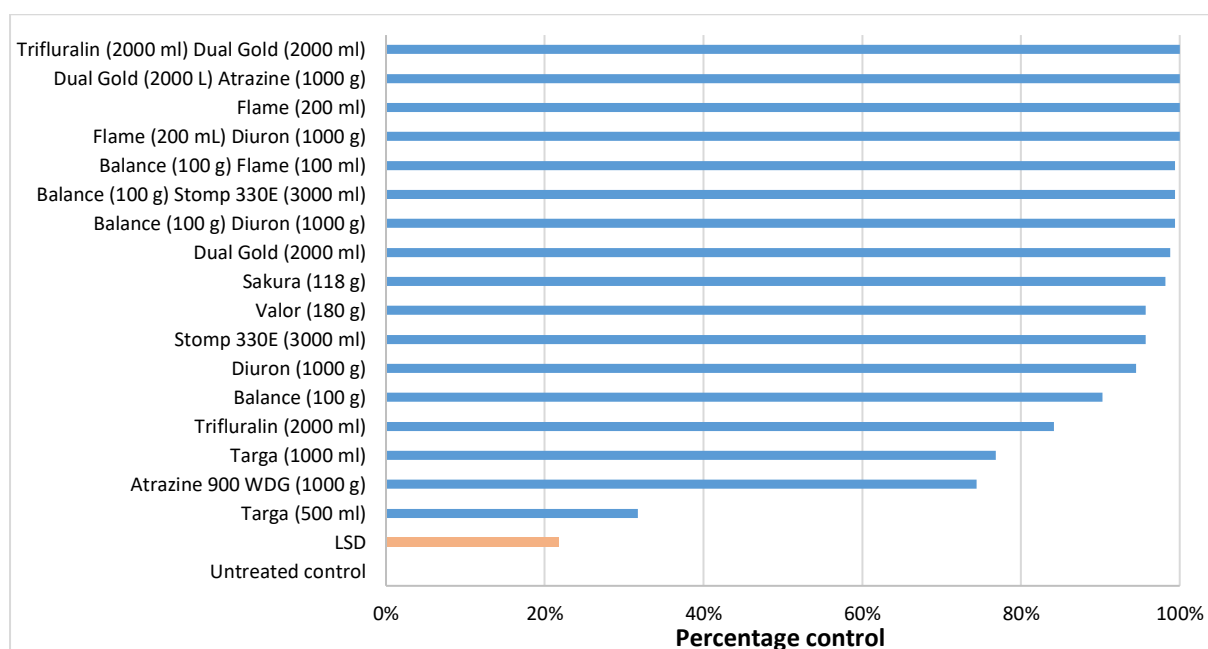


Figure 1. Reduction in establishment of WMG achieved by various herbicides (rate/ha) compared to weed population in untreated control (UTC) 105 days after treatment (DAT).

Discussion

Emergence of WMG was low, in the UTC was an average of about 2 plants/m² was observed, most likely because of hot and dry conditions, even a heavy rainfall event in January did not trigger substantial germinations. It is possible that the cultivation was effective at burying WMG seed and/or that seed has specific dormancy and germination requirements that were not met.

Most residual herbicides suppressed reestablishment of WMG compared to no herbicides control. Targa™ (at both rates), while not resulting in commercially acceptable levels of control, is interesting

as it is considered a knockdown herbicide only and not documented as having any useful residual capacity. This result warrants further investigation.

Products such as Stomp® and trifluralin performed well considering they were not incorporated mechanically and were subject to high levels of photo degradation before incorporating rains occurred.

Conclusion

The trial provides encouragement that residual herbicides can provide effective control over re-establishment of WMG populations. However a better understanding of germination triggers is needed to assist with better target application timings. Further testing is required to confirm these promising results.

Acknowledgements

The research undertaken as part of this project is made possible by the significant contributions of growers through both trial cooperation and the support of GRDC. The authors would like to thank them for their continued support. Special thanks to the Gill family at Narromine who hosted this trial.