

Reviton and Vida with Tank Mixtures for Fallow Weed Control

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Summary

Reviton (tiafenacil) and Vida (pyraflufen) are two novel herbicides that are being investigated to control herbicide-resistant weeds in fallow. Reviton was generally more effective at controlling glyphosate-resistant kochia than Vida. Kochia control with Vida improved with the addition of 2,4-D. However, no treatment evaluated provided more than 90% kochia control during this study.

Introduction

Glyphosate-resistant kochia has become a major weed infesting fallow and crops in the Great Plains. Consequently, evaluation of new and existing herbicides for control of this species is needed. The objective of this research was to evaluate Reviton and Vida alone and in tank mixtures for kochia control in fallow.

Experimental Procedures

An experiment compared Reviton and Vida, each tank mixed with glyphosate and/or 2,4-D, for kochia control in fallow. All herbicides were applied using a tractor-mounted, compressed CO₂ sprayer delivering 19.4 gpa at 4.1 mph and 30 psi (Table 1). Soil at Garden City was a Beeler silt loam with 2.2% organic matter and pH of 7.9. Plots were 10 by 30 feet and arranged in a randomized complete block replicated four times. Visual weed control was determined on May 5, May 12, May 20, and May 26, 2022. These dates were 7, 14, 22, and 28 days after treatment (DAT), respectively.

Results and Discussion

Glyphosate alone provided no kochia control at any rating date (Table 2). The addition of Vida increased kochia control 38 to 58% compared to glyphosate alone, whereas Reviton increased control 54 to 89%. The addition of 2,4-D increased kochia control with Vida but not with Reviton. Generally, Reviton was more effective on kochia than Vida regardless of tank mix partner. However, no treatment provided as much as 90% kochia control, and control began to decline after 22 DAT.

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Table 1. Application, environmental, and plant information for the fallow experiment

Application timing	Early postemergence
Application date	April 28, 2022
Air temperature, °F	72
Relative humidity, %	65
Soil temperature, °F	60
Wind speed, mph	7 to 10
Wind direction	Southwest
Soil moisture	Dry
Kochia	
Height, inches	0.5 to 1.5
Density, plants/ft ²	10

Table 2. Kochia control with Reviton and Vida in fallow

Treatment	Rate	7 DAT ¹	14 DAT	22 DAT	28 DAT
	oz/a	% Visual			
Vida	2.0	38	48	58	50
Glyphosate	24				
Ammonium sulfate	2.0%				
Glyphosate	24	0	0	0	0
Ammonium sulfate	2.0%				
Vida	2.0	53	58	73	63
2,4-D amine	16				
Crop oil concentrate	1.0%				
Ammonium sulfate	2.0%				
Vida	2.0	50	70	80	68
Glyphosate	24				
2,4-D amine	16				
Ammonium sulfate	2.0%				
Reviton	2.0	65	75	84	79
Crop oil concentrate	1.0%				
Ammonium sulfate	2.0%				
Reviton	1.0	70	78	85	75
2,4-D amine	16				
Crop oil concentrate	1.0%				
Ammonium sulfate	2.0%				
Reviton	1.0	73	79	89	86
Glyphosate	24				
Crop oil concentrate	1.0%				
Ammonium sulfate	2.0%				
Reviton	1.0	63	75	84	78
Glyphosate	24				
2,4-D amine	16				
Ammonium sulfate	2.0%				
LSD (0.05)		9	7	8	9

¹ DAT = days after treatment.