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Pyraflufen Tank Mixtures for Efficacy in Fallow

R.S. Currie and P.W. Geier

Summary

The objective of this study was to compare Vida (pyraflufen) tank mixtures for glyphosate-resistant kochia control in fallow. Early-season kochia control was best with tank mixtures that included Sharpen (saflufenacil), but tank mixtures including dicamba provided the best control later in the season. No herbicide controlled kochia more than 80% late in the season. All herbicides controlled downy brome more than 90% within 14 days after treatment, and 100% by 21 days after application.

Introduction

Kochia is one of the most common and troublesome weeds in western Kansas. Resistance to multiple herbicide modes of action has developed in kochia, including herbicides such as dicamba and glyphosate. Therefore, the need for novel herbicides for its control is essential. The objective of this trial was to compare Vida with various tank mix partners for kochia control in fallow.

Experimental Procedures

An experiment was conducted to compare Vida tank mixtures for weed control in fallow. All herbicides were applied postemergence using a tractor-mounted, compressed CO₂ sprayer delivering 19.4 gpa at 30 psi and 4.1 mph. Application, environmental, and weed information are shown in Table 1. Plots were 10 by 35 feet and arranged in a randomized complete block design with four replications. Soil was a Ulysses silt loam with 1.8% organic matter and pH of 8.1. Visual weed control estimates were determined on May 13, May 20, and May 27, 2021. These dates were 7, 14, and 21 days after herbicide treatment (DAT).

Results and Discussion

Kochia control at 7 and 14 DAT was greatest (80 to 85%) when Sharpen was included in the herbicide mixture (Table 2). However, by 21 DAT, only those treatments containing dicamba controlled kochia more than 75%. Kochia control with all herbicide treatments peaked at 21 DAT, and began to decline later in the season (data not shown). Vida plus Sharpen, glyphosate and 2,4-D controlled downy brome best at 7 DAT (65%). At 14 DAT, downy brome control was greater than 95% with all treatments except glyphosate with 2,4-D or dicamba. Downy brome control was complete regardless of herbicide treatment by 21 DAT.

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Table 1. Application, environmental, and weed data for the pyraflufen tank mixture study

Application date	May 6, 2021
Air temperature (°F)	72
Relative humidity	43
Soil temperature (°F)	72
Wind speed (mph)	2 to 6
Wind direction	Northeast
Soil moisture	Good
Kochia	
Height (inches)	1 to 3
Density (plants/ft ²)	100
Downy brome	
Height (inches)	10 to 25
Density (plants/ft ²)	15

Table 2. Weed control with pyraflufen tank mixtures in fallow

Treatment ¹	Rate	Kochia			Downy brome		
		7 DAT ²	14 DAT	21 DAT	7 DAT	14 DAT	21 DAT
	oz/a	----- % Visual -----					
Vida	2.0	63	50	45	48	96	100
Glyphosate	24						
COC	1.0%						
AMS	3.0 lb						
Glyphosate	24	20	43	58	43	91	100
2,4-D	8.0						
AMS	3.0 lb						
Vida	2.0	63	58	50	58	97	100
Glyphosate	24						
2,4-D	8.0						
COC	1.0%						
AMS	3.0 lb						
Vida	2.0	80	84	70	60	99	100
Sharpen	2.0						
Glyphosate	24						
COC	1.0%						
AMS	3.0 lb						
Sharpen	2.0	81	80	60	63	98	100
Glyphosate	24						
COC	1.0%						
AMS	3.0 lb						
Vida	2.0	84	85	73	65	97	100
Sharpen	2.0						
2,4-D	8.0						
Glyphosate	24						
COC	1.0%						
AMS	3.0 lb						
Dicamba	8.0	30	55	79	43	93	100
Glyphosate	24						
AMS	3.0 lb						
Vida	2.0	68	68	80	55	97	100
Dicamba	8.0						
Glyphosate	24						
COC	1.0%						
AMS	3.0 lb						
Vida	2.0	81	85	78	55	97	100
Dicamba	8.0						
Sharpen	2.0						
Glyphosate	24						
COC	1.0%						
AMS	3.0 lb						
LSD (0.05)		6	8	7	5	3	NS

¹ COC = crop oil concentrate. AMS = ammonium sulfate. 2,4-D was the amine formulation.

² DAT = days after herbicide treatment.



Figure 1. Untreated control.



Figure 2. Vida 2.0 oz/a plus glyphosate 24 oz/a. Photo taken 14 days after treatment.



Figure 3. Vida 2.0 oz/a plus Sharpen 2.0 oz/a and glyphosate 24 oz/a. Photo taken 14 days after treatment.



Figure 4. Vida 2.0 oz/a plus Sharpen 2.0 oz/a, 2,4-D 8.0 oz/a, and glyphosate 24 oz/a. Photo taken 14 days after treatment.



Figure 5. Vida 2.0 oz/a plus dicamba 8.0 oz/a, Sharpen 2.0 oz/a, and glyphosate 24 oz/a. Photo taken 14 days after treatment.