

Vida Tank Mixtures for Postemergence Weed Control in Fallow

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Summary

The objective of the study was to compare Vida (pyraflufen ethyl) with various tank mix partners for weed control in fallow. All herbicides controlled flixweed and tansymustard 96% or more by 16 days after treatment. Treatments containing Spartan provided faster and better kochia control compared to other herbicides, and these treatments were the only ones to control kochia 95% or more late in the season.

Introduction

Kochia has become one of the most difficult-to-control weeds in the Central Great Plains. One population of kochia in Kansas had demonstrated resistance to four different herbicide modes of action, including atrazine, dicamba, and glyphosate. Therefore, the use of herbicide tank mixtures that utilize novel modes of action is critical for effective control of this weed. The objective of the study was to compare Vida with various tank mix partners for weed control in fallow.

Experimental Procedures

An experiment was conducted at the Kansas State University Southwest Research-Extension Center near Garden City, KS, to compare Vida tank mixtures for weed control in fallow. 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 is shown in Table 1. Plots were 10 by 35 feet and arranged in a randomized complete block with 4 replications. Soil was a Ulysses silt loam with 3.4% organic matter and pH of 7.9. Visual weed control was determined on May 17, May 29, and June 10, 2019. These dates were 4, 16, and 28 days after treatment (DAT), respectively.

Results and Discussion

Tank mixtures containing Spartan (sulfentrazone) controlled kochia, pinnate tansymustard, and flixweed better than most other treatments at 4 DAT, but did not exceed 65% (Table 2). Similarly, kochia control at 16 DAT was 97% or more with all treatments containing Spartan, and 93% with the treatment of Vida plus glyphosate and dicamba. Pinnate tansymustard and flixweed control was 96% or more regardless of treatment at 16 DAT and did not differ between treatments. By 28 DAT, Vida with glyphosate, glyphosate and 2,4-D, or glyphosate and dicamba controlled kochia 75 to

89%, whereas Spartan-containing treatments controlled kochia 95 to 97%. All herbicide treatments completely controlled pinnate tansymustard and flixweed at 28 DAT.

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Table 1. Application information

Application timing	Postemergence
Application date	May 23, 2019
Air temperature (°F)	75
Relative humidity (%)	56
Soil temperature (°F)	60
Wind speed (mph)	3 to 6
Wind direction	Southeast
Soil moisture	Good
Kochia	
Height (inch)	3 to 5
Density (plants/ft ²)	10
Pinnate tansymustard	
Height (inch)	10 to 15
Density (plants/ft ²)	1
Flixweed	
Height (inch)	15 to 25
Density (plants/ft ²)	1

Table 2. Pyraflufen tank mixtures for postemergence weed control in fallow

Treatment ¹	Rate	Kochia			Pinnate tansymustard			Flixweed		
		4 DAT ²	16 DAT	28 DAT	4 DAT	16 DAT	28 DAT	4 DAT	16 DAT	28 DAT
	oz/a	----- % visual -----								
Vida	2.0	43	85	76	40	98	100	35	97	100
Glyphosate	24									
COC	1%									
AMS	3 lb									
Vida	2.0	45	88	75	40	98	100	40	97	100
Glyphosate	24									
2,4-D amine	8.0									
COC	1%									
AMS	3 lb									
Vida	2.0	65	98	97	53	99	100	50	98	100
Spartan 4F	6.0									
Glyphosate	24									
COC	1%									
AMS	3 lb									
Spartan 4F	6.0	60	97	96	53	98	100	50	96	100
Glyphosate	24									
COC	1%									
AMS	3 lb									
Vida	2.0	63	97	95	53	98	100	50	97	100
Spartan 4F	6.0									
2,4-D amine	8.0									
Glyphosate	24									
COC	1%									
AMS	3 lb									
Vida	2.0	45	93	89	40	97	100	43	97	100
Glyphosate	24									
Dicamba	8.0									
COC	1%									
AMS	3 lb									
Vida	2.0	65	97	97	53	98	100	50	97	100
Spartan 4F	6.0									
Dicamba	8.0									
Glyphosate	24									
COC	1%									
AMS	3 lb									
LSD (0.05)		9	4	6	6	NS	NS	5	NS	NS

¹ COC = crop oil concentrate. AMS = ammonium sulfate.

² DAT = days after treatment.