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Pixxaro Alone and in Combination for Weed Control in Fallow

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Summary

The objective of this study was to compare Pixxaro (halauxifen/fluroxypyr) alone and in combinations for weed control in fallow. Pixxaro alone was equal to or better than Banvel, Starane Ultra, or glyphosate alone for kochia control. However, the best kochia control occurred when these herbicides were mixed in various combinations. Similarly, Pixarro controlled flixweed equally as well as Banvel, Starane Ultra, or glyphosate at 7 days after treatment but flixweed control was complete regardless of herbicide later in the season.

Introduction

Kochia populations in the Central Great Plains have demonstrated resistance to multiple herbicide modes-of-action in recent years, making weed control challenging. Incorporating novel modes-of-action and tank mixtures is key in controlling this troublesome weed. The objective of this study was to compare Pixxaro alone and in combinations 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 Pixxaro alone or with competitive standards for weed control in fallow. All herbicides (Table 2) were applied postemergence using a tractor-mounted, compressed CO_2 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 Beeler silt loam with 2.4% organic matter and pH of 7.6. Visual weed control estimates were determined on May 15, May 27, and June 10, 2020. These dates were 9, 21, and 35 days after herbicide treatment (DAT).

Results and Discussion

This trial was conducted under severe drought conditions, with only 25% of normal precipitation received from the time of application until the final evaluation date. Kochia control with Pixarro alone was equal to or better than Banvel (dicamba), Starane Ultra (fluroxypyr), or glyphosate alone at each rating date. At 35 DAT, Pixxaro alone provided 80% kochia control, whereas the tank mixtures of Banvel plus glyphosate, Starane Ultra plus dicamba and glyphosate, and Pixxaro plus Banvel and glyphosate controlled kochia 94 to 98%. Pixxaro alone controlled flixweed similarly to Banvel, Starane Ultra, and glyphosate alone early in the season. The addition of Banvel and/

or glyphosate to Pixxaro alone improved flixweed control at 21 DAT, but all herbicides provided complete flixweed control by 35 DAT. More research is needed to test Pixxaro for efficacy under favorable growing conditions.

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Table 1. Application, environmental, and weed data for the Pixxaro study in fallow

Application date	**May 6, 2020**
Air temperature (°F)	55
Relative humidity	40
Soil temperature (°F)	59
Wind speed (mph)	1 to 4
Wind direction	North-northeast
Soil moisture	Dry
Kochia	
Height (inches)	2 to 4
Density (plants/10 ft^2)	> 100
Flixweed	
Height (inches)	8 to 12
Density (plants/10 ft^2)	20

Table 2. Pixxaro comparisons for efficacy in fallow

		Kochia			Flixweed		
Treatment[1]	**Rate**	**9 DAT[2]**	**21 DAT**	**35 DAT**	**9 DAT**	**21 DAT**	**35 DAT**
	oz/a	% Visual					
Pixxaro NIS	6.0 0.25%	28	63	80	20	85	100
Banvel NIS	4.0 0.25%	10	55	75	20	78	100
Pixxaro Banvel NIS	6.0 4.0 0.25%	33	73	91	28	91	100
Starane Ultra NIS	6.4 0.25%	25	63	75	20	70	100
Starane Ultra Banvel NIS	6.4 4.0 0.25%	23	75	93	28	85	100
Glyphosate NIS AMS	22 0.25% 1.0%	0	45	55	23	85	100
Pixxaro Glyphosate NIS AMS	6.0 22 0.25% 1.0%	30	73	89	25	91	100
Starane Ultra Glyphosate NIS AMS	6.4 22 0.25% 1.0%	28	73	88	28	94	100
Banvel Glyphosate NIS AMS	4.0 22 0.25% 1.0%	33	68	94	30	90	100
Starane Ultra Banvel Glyphosate NIS AMS	6.4 4.0 22 0.25% 1.0%	35	81	98	35	96	100
Pixxaro Banvel Glyphosate NIS AMS	6.0 4.0 22 0.25% 1.0%	38	81	98	35	96	100
LSD (0.05)		7	6	5	7	6	NS

[1] NIS = nonionic surfactant. AMS = ammonium sulfate.
[2] DAT = days after herbicide treatment.