Voraxor for Burndown and Residual Weed Control in Spring Fallow

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Summary

The addition of Voraxor improved the burndown rate of all weed species evaluated compared to Zidua SC plus Enlist One, Boundary 6.5, or Matador-S alone early in the season. The 1.0 oz rate of Voraxor was as effective as the 1.4 oz rate for most species evaluated; only Palmer amaranth and green foxtail responded differently between Voraxor rates. Voraxor-containing treatments controlled Palmer amaranth, Russian thistle, and green foxtail 90% or more at 35 days after treatment, and kochia and puncturevine 84% to 100%.

Introduction

Fallow weed control between crops is an important component of reduced and no-till agriculture on the Plains of the Western U.S. However, the widespread development of herbicide resistant weeds has impaired fallow weed control efforts in recent years. Consequently, development of novel herbicides to combat resistant weeds has become increasingly important. Voraxor herbicide combines saflufenacil with a new herbicide, trifludimoxazin, for burndown and residual weed control. The objective of this study was to evaluate Voraxor for efficacy in spring fallow.

Experimental Procedures

An experiment compared Voraxor at two rates in combination with various tank mixtures for weed control in spring fallow. Herbicides were applied using a tractor-mounted, compressed-CO_2 sprayer delivering 19.4 gpa at 30 psi and 4.1 mph. Application, environmental, and plant information is shown in Table 1. Plots were 10 by 35 ft, and arranged in a randomized complete block design replicated four times. Soil was Ulysses silt loam having 2.7% organic matter, pH of 7.9, and cation exchange capacity (CEC) of 28.4. Visual weed control was determined on May 30 and July 1, 2024. These dates were 3 and 35 days after herbicide application (DAT).

Results and Discussion

At 3 DAT, Voraxor at 1.0 or 1.4 oz increased the control (burndown) of kochia, Palmer amaranth, Russian thistle, puncturevine, and green foxtail compared to Zidua SC plus Enlist One, Boundary 6.5, or Matador-S alone (Table 2). This trend continued for kochia control at 35 DAT. By 35 DAT, either rate of Voraxor improved Palmer amaranth control compared to Boundary 6.5 or Matador-S alone, but only the higher rate improved Palmer amaranth compared to Zidua SC plus Enlist One. For Russian thistle and puncturevine at 35 DAT, Voraxor did not improve control compared to Zidua SC plus Enlist One or Matador alone, but did improve control compared to

Boundary 6.5. Neither rate of Voraxor improved green foxtail control with Zidua SC plus Enlist One at 35 DAT. However, green foxtail control at 35 DAT was slightly less when the 1.0 oz rate of Voraxor was added to Boundary or Matador-S, and similar when the 1.4 oz rate was used.

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

Application date	May 27, 2024
Air temperature (F)	75
Relative humidity (%)	31
Soil temperature (F)	69
Wind speed (mph)	2 to 5
Wind direction	Northeast
Soil moisture	Fair
Palmer amaranth	
Height (in.)	0.5 to 2
Density (plants/ft^2)	0.2
Kochia	
Height (in.)	1 to 3
Density (plants/ft^2)	3
Russian thistle	
Height (in.)	1 to 3
Density (plants/ft^2)	0.2
Puncturevine	
Diameter (in.)	1 to 4
Density (plants/ft^2)	0.2
Green foxtail	
Height (in.)	1 to 2
Density (plants/ft^2)	0.2

Table 2. Efficacy of Voraxor plus tank mixtures in spring fallow

		Kochia		Palmer amaranth		Russian thistle		Puncturevine		Green foxtail	
Treatment[1]	Rate	3 D[2]	35 D[2]	3 D	35 D	3 D	35 D	3 D	35 D	3 D	35 D
	oz/a	% Visual									
Zidua SC Enlist One COC	3.25 32 1.0%	53	45	65	86	58	98	58	90	53	90
Voraxor Zidua SC MSO	1.0 3.25 1.0%	93	88	100	90	100	94	99	91	96	91
Voraxor Zidua SC MSO	1.4 3.25 1.0%	93	88	100	92	100	100	100	96	94	90
Voraxor Zidua SC Enlist One MSO	1.0 3.25 32 1.0%	95	86	100	94	100	100	100	95	99	93
Voraxor Zidua SC Enlist One MSO	1.4 3.25 32 1.0%	95	90	100	96	100	100	100	100	98	91
Boundary 6.5 COC	24 1.0%	40	50	55	73	53	78	58	70	53	98
Voraxor Boundary 6.5 MSO	1.0 24 1.0%	94	93	100	94	100	100	100	89	98	90
Voraxor Boundary 6.5 MSO	1.4 24 1.0%	97	93	100	96	100	100	100	84	98	94
Matador-S COC	48 1.0%	50	53	50	78	55	93	48	93	53	100
Voraxor Matador-S MSO	1.0 48 1.0%	95	95	100	97	100	100	100	98	98	94
Voraxor Matador-S MSO	1.4 48 1.0%	97	96	100	95	99	100	100	100	98	94
LSD (0.05)		6	7	7	8	5	7	6	11	7	6

[1] All treatments included glyphosate at 22 oz/a plus ammonium sulfate at 8.5 lb/100 gallons. COC is crop oil concentrate, MSO is methylated seed oil.

[2] D is days after herbicide application.