K-STATE Research and Extension

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Fallow Weed Control with Preemergence Applications of Balance Pro, Corvus, Banvel, Atrazine, and Authority MTZ

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Summary

Atrazine alone applied in the fall was less effective for kochia and Russian thistle control than other fall- or spring-applied herbicides in early summer. In mid season, control of kochia and Russian thistle was 85% or less with all fall-applied herbicides. Banvel (dicamba) increased kochia control when added to Balance Pro (isoxaflutole), plus Autumn Super (iodosulfuron + thiencarbazone), plus atrazine applied in the spring at mid season. All other spring herbicides were similar for kochia control. Russian thistle control was similar among all spring-applied herbicides except atrazine plus Banvel.

Introduction

A March preemergence application of Corvus (isoxaflutole + thiencarbazone) has produced excellent kochia control (1); however, some growers have had difficulty applying this treatment in early spring prior to kochia emergence. Previous work does not compare Corvus to Authority MTZ (sulfentrazone + metribuzin), which also has been shown to provide excellent kochia control. Therefore, it was the objective of this study to compare fall and spring applications of Corvus to Authority MTZ as well as the most popular preemergence treatment, Banvel, in various tank mixes of these products plus atrazine.

Procedures

An experiment was conducted at the Kansas State University Southwest Research-Extension Center near Garden City, KS, to examine the efficacy of fall and spring preemergence herbicides in fallow. The plot area had a dense infestation of kochia in the summer of 2014, which was allowed to naturally reseed. Fall treatments were applied November 20, 2014 and spring applications were made March 9, 2015. All herbicides were applied using a CO_2-pressurized backpack sprayer delivering 20 gpa at 27 psi and 3 mph. Soil was a Ulysses silt loam with 1.4% organic matter, pH of 8.0, and cation exchange capacity of 18.4. Plots were 10 by 35 feet, and arranged as a randomized complete block replicated four times. Weed control was visually evaluated on May 7, June 6, and July 21, 2015, which was 8, 13, and 20 weeks after spring application (WAST), respectively.

Results and Discussion

Generally, atrazine alone applied in the fall was less effective for kochia and Russian thistle control than other fall or spring-applied herbicide at 8 and 13 WAST. By 20 WAST, control of kochia and Russian thistle was 85% or less with all fall-applied herbicides. Banvel increased kochia control 16 to 17% when added to Balance Pro plus Autumn Super plus atrazine applied in the spring at 20 WAST. All other spring herbicides were similar for kochia control at 20 DAT. Russian thistle control was similar among all spring-applied herbicides except atrazine plus Banvel (76%) at 20 WAST. Authority MTZ provided equal control regardless of time of application. However, by 20 WAST, although not statistically significant, the trend suggests that later in the season spring applications might be superior.

Reference

Currie, R. and Geier, P. (2015) "Fallow Weed Control with Preemergence Tank Mixes of Sharpen, Zidua, Sencor, Banvel, Atrazine, Balance Pro, and Corvus," Kansas Agricultural Experiment Station Research Reports: Vol. 1: Iss. 5.

Table 1. Application information.

Application timing	Fall	Spring
Application date	November 11, 2014	March 9, 2015
Air temperature (F)	57	55
Relative humidity (%)	24	47
Soil temperature (F)	24	22
Wind speed (mph)	3 to 5	0 to 2
Wind direction	South	North
Soil moisture	Fair	Good

Table 2. Fallow weed control with preemergence applications of Balance Pro, Corvus, Autumn Super, Banvel, atrazine, and Authority MTZ.

			8 WAST [a]		13 WAST[a]		20 WAST[a]	
Herbicide	Rate	Timing	Kochia	Russian thistle	Kochia	Russian thistle	Kochia	Russian thistle
	oz/a		------- % control -------		------- % control -------		------- % control -------	
Balance Pro	2	Fall	98	100	93	95	73	73
Autumn Super	0.5							
Atrazine	32							
Corvus	4	Fall	99	99	95	97	71	75
Atrazine	32							
Authority MTZ	12	Fall	93	100	93	96	76	85
Atrazine	32	Fall	89	86	84	84	68	68
Balance Pro	1.5	Spring	93	93	91	94	78	95
Autumn Super	0.5							
Atrazine	16							
Balance Pro	1.5	Spring	100	100	99	99	95	91
Autumn Sup	0.5							
Atrazine	16							
Banvel	12							
Balance Pro	2	Spring	91	94	86	90	78	96
Autumn Super	0.5							
Atrazine	16							
Balance Pro	2	Spring	100	100	100	98	94	86
Autumn Super	0.5							
Atrazine	16							
Banvel	12							
Corvus	3.5	Spring	94	91	94	91	89	90
Atrazine	16							
Corvus	3.5	Spring	100	100	98	100	93	91
Atrazine	16							
Banvel	12							
Atrazine	16	Spring	100	100	95	91	89	76
Banvel	12							
Authority MTZ	12	Spring	93	100	90	99	85	95
Untreated	------	------	0	0	0	0	0	0
LSD (0.05)			3.6	3.6	4.5	4.7	11.4	10.5

[a] WAST is weeks after spring application.

Figure 1. Untreated control.

Figure 2. Balance Pro 1.5 oz + Autumn Super 0.5 oz + atrazine 16 oz + Banvel 12 oz 102 days after spring application.

Figure 3. Balance Pro 2.0 oz + Autumn Super 0.5 oz + atrazine 16 oz + Banvel 12 oz 102 days after spring application.

Figure 4. Corvus 3.5 oz + atrazine 16 oz + Banvel 12 oz 102 days after spring application.

Figure 5. Atrazine 16 oz + Banvel 12 oz 102 days after spring application.