

## Fallow Weed Control with Preemergence Applications of Clarity, Atrazine, Spartan Guard, Sharpen, Zidua, and Corvus

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### Summary

Kochia control at 8 weeks after spring application (WAST) was greatest when Clarity (dicamba) was included in the spring applications or when Corvus (isoxaflutole + thiencazuron) was applied with atrazine and Clarity in the fall. The best kochia control at 13 WAST occurred with spring applications containing Clarity. Only Clarity plus Atrazine, Sharpen, Zidua, Spartan Guard, or Corvus applied in the spring provided as much as 90% kochia control at 20 WAST. Only the spring application of Spartan Guard and Clarity controlled Russian thistle 90% at 20 WAST.

### Introduction

Late February to very early March preemergence treatments with dicamba have become standard practice in this region for kochia control. However, the window of application in early spring prior to emergence of the kochia is very narrow. Weather is often favorable for application for several days in early to mid winter. Therefore, it was the objective of this research to see if control suffered by earlier applications.

### 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. Fall treatments were applied December 4, 2014 and spring applications were made March 10, 2015. All herbicides were applied using a CO<sub>2</sub>-pressurized, backpack sprayer delivering 20 GPA at 27 psi and 3 mph (Table 1). 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. Visual weed control was determined May 8, June 4, and July 21, 2015, which were 8, 13, and 20 weeks after spring herbicide application (WAST).

### Results and Discussion

Kochia control at 8 WAST was greatest when Clarity (dicamba) was included in the spring applications or when Corvus (isoxaflutole + thiencazuron) was applied with Atrazine and Clarity in the fall. Russian thistle control at the same date was generally best with spring applications except when Spartan Guard (sulfentrazone + pendimethalin) was applied in the fall or Sharpen (saflufenacil) plus Atrazine was spring-applied.

The best kochia control at 13 WAST occurred with spring applications containing Clarity, and Russian thistle control at 13 WAST was best when Clarity was included in the spring applications with Spartan, Zidua (pyroxasulfone), Spartan Guard, or Corvus. Only Clarity plus Atrazine, Sharpen, Zidua, Spartan Guard, or Corvus applied in the spring provided as much as 90% kochia control at 20 WAST. Only the spring application of Spartan Guard and Clarity controlled Russian thistle 90% at 20 WAST. Although spring applications tended to be best, the penalty for early application was modest, particularly earlier in the fallow period.

**Table 1. Application information.**

Application timing	Fall	Spring
Application date	December 4, 2014	March 10, 2015
Air temperature (F)	52	63
Relative humidity (%)	43	42
Soil temperature (F)	32	24
Wind speed (mph)	4 to 6	3 to 5
Wind direction	South	Southwest
Soil moisture	Dry	Good

**Table 2. Fallow weed control with preemergence applications of Clarity, Atrazine, Spartan Guard, Spartan, Zidua, and Corvus.**

Herbicide	Rate oz/a	Timing	8 WAST <sup>a</sup>		13 WAST <sup>a</sup>		20 WAST <sup>a</sup>	
			Kochia ----- % control -----	Russian thistle ----- % control -----	Kochia ----- % control -----	Russian thistle ----- % control -----	Kochia ----- % control -----	Russian thistle ----- % control -----
Clarity	16	Fall	88	80	84	74	73	58
Atrazine	24							
Sharpen	2	Fall	89	90	83	84	65	68
Atrazine	24							
Sharpen	2	Fall	88	86	85	85	65	68
Atrazine	42							
Clarity	8							
Zidua	2.5	Fall	96	86	94	84	83	63
Atrazine	24							
Clarity	8							
OpTill	2	Fall	90	95	89	91	70	78
Zidua	2							
Clarity	8							
Spartan Guard	58	Fall	95	100	86	93	73	88
Clarity	8							
Corvus	3.3	Fall	97	95	91	93	79	73
Atrazine	24							
Clarity	8							
Clarity	16	Spring	100	100	95	89	91	58
Atrazine	24							
Sharpen	2	Spring	91	94	91	86	81	70
Atrazine	24							
Sharpen	2	Spring	100	100	96	94	93	68
Atrazine	42							
Clarity	8							
Zidua	2.5	Spring	99	100	98	94	95	68
Atrazine	24							
Clarity	8							
OpTill	2	Spring	97	99	96	96	79	85
Zidua	2							
Clarity	8							
Spartan Guard	58	Spring	100	100	98	99	91	90
Clarity	8							
Corvus	3.3	Spring	100	100	100	98	91	80
Atrazine	24							
Clarity	8							
Untreated	-----	-----	0	0	0	0	0	0
LSD (0.05)			3.5	3.7	5.2	6.4	22.1	10.6

<sup>a</sup> WAST is weeks after spring application.



**Figure 1. Untreated control.**



**Figure 2. Sharpen 2 oz + atrazine 24 oz + Clarity 8 oz 101 days after spring application.**



**Figure 3. Zidua 2.5 oz + atrazine 24 oz + Clarity 8 oz 101 days after spring application.**



**Figure 4. Corvus 3.3 oz + atrazine 24 oz + Clarity 8 oz 101 days after spring application.**