Kansas Agricultural Experiment Station Research Reports

Volume 3
Issue 5 *Southwest Research-Extension Center*
Reports

Article 24

2017

Winter and Early Spring Herbicides for Kochia Control in Fallow

R. Currie

Kansas State University, rscurrie@ksu.edu

P. Geier

Kansas State University, pgeier@ksu.edu

Follow this and additional works at: <https://newprairiepress.org/kaesrr>

Part of the [Agronomy and Crop Sciences Commons](#), and the [Weed Science Commons](#)

Recommended Citation

Currie, R. and Geier, P. (2017) "Winter and Early Spring Herbicides for Kochia Control in Fallow," *Kansas Agricultural Experiment Station Research Reports*: Vol. 3: Iss. 5. <https://doi.org/10.4148/2378-5977.7406>

This report is brought to you for free and open access by New Prairie Press. It has been accepted for inclusion in Kansas Agricultural Experiment Station Research Reports by an authorized administrator of New Prairie Press. Copyright 2017 the Author(s). Contents of this publication may be freely reproduced for educational purposes. All other rights reserved. Brand names appearing in this publication are for product identification purposes only. No endorsement is intended, nor is criticism implied of similar products not mentioned. K-State Research and Extension is an equal opportunity provider and employer.

Winter and Early Spring Herbicides for Kochia Control in Fallow

R.S. Currie and P.W. Geier

Summary

A study was initiated near Garden City, KS, in fall of 2015 and spring of 2016 comparing the weed control of several herbicide treatments and their time of application for kochia control in fallow. All herbicide treatments applied in December 2015 provided 99 or 100% kochia control in early spring. However, control declined to less than 60% with these treatments by June 8, 2016. Spring-applied herbicides were generally more efficacious than winter-applied herbicides on June 8, with the best control from treatments of Clarity (dicamba) plus atrazine with or without Zidua (pyroxasulfone) (88 to 89%).

Introduction

Atrazine, Clarity, Corvus (isoxaflutole + thienencarbazone), OpTill (saflufenacil + imazethapyr), Sharpen (saflufenacil), and Zidua have all been shown to effect kochia control. However, information is needed on how to combine these products in tank mixes and when to apply them. Therefore, it was the objective of this research to explore various combinations and timings of application of these products for kochia control.

Experimental Procedures

An experiment at the Kansas State University Southwest Research-Extension Center near Garden City, KS, examined the efficacy of winter and early spring herbicide applications for kochia control in fallow. Herbicides were applied December 3, 2015, and March 14, 2016. 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 in a randomized complete block replicated four times. A tractor-mounted, compressed-CO₂ sprayer delivering 20 GPA at 3.0 mph and 30 psi was used to apply all herbicides. Kochia plants in the spring averaged less than 0.5-inch tall and 100 plants/10 ft² on March 14. Visual weed control was determined on March 7, April 1, and June 8, 2016, which was 95 days after winter applications and 18 and 86 days after spring applications, respectively.

Results and Discussion

All herbicide treatments applied in December 2015 provided 99 or 100% kochia control on March 7 and April 1, 2016. However, control declined to less than 60% with these treatments by June 8. Spring-applied herbicides were generally more effective than winter-applied herbicides on June 8, with the best control from treatments of Clarity plus atrazine with or without Zidua (88 to 89%). Previous work has also shown

a reduced control with winter application (Proc. North Central Weed Sci. Soc. 70:49-50). However, these studies did not show as severe a penalty for winter application due to different patterns of fall and winter precipitation. Although the weed control shown here in June is not commercially acceptable, it was likely good enough to allow a later application with paraquat combined with atrazine or metribuzin to maintain adequate control further into the season.

Reference

Currie, R.S., P.W. Geier, C.R. Thompson. Comparisons of winter versus early spring preemergence herbicide applications for kochia control in fallow. Proc. North Central Weed Sci. Soc. 70:49-50

Table 1. Winter and spring herbicide applications for kochia control

Herbicide	Rate	Timing	Kochia		
			March 7	April 1	June 8
			----- % control -----		
Clarity	16	Winter	100	100	53
Atrazine	24	Winter			
Sharpen	2	Winter	99	99	45
Atrazine	24	Winter			
Sharpen	2	Winter	100	100	53
Atrazine	24	Winter			
Clarity	8	Winter			
Zidua	2.5	Winter	100	100	55
Atrazine	24	Winter			
Clarity	8	Winter			
OpTill	2	Winter	100	100	59
Zidua	2	Winter			
Clarity	8	Winter			
Corvus	3.3	Winter	100	100	53
Atrazine	24	Winter			
Clarity	8	Winter			
Clarity	16	Spring	---	65	88
Atrazine	24	Spring			
Sharpen	2	Spring	---	70	74
Atrazine	24	Spring			
Sharpen	2	Spring	---	70	73
Atrazine	24	Spring			
Clarity	8	Spring			
Zidua	2.5	Spring	---	63	89
Atrazine	24	Spring			
Clarity	8	Spring			
OpTill	2	Spring	---	60	58
Zidua	2	Spring			
Clarity	8	Spring			
Corvus	3.3	Spring	---	75	64
Atrazine	24	Spring			
Clarity	8	Spring			
Untreated	---	---	0	0	0
Least significant difference (0.05)			2	6	7

Figure 1. Untreated control.

Figure 2. Clarity 16 oz + atrazine 24 oz applied in winter, 195 days after treatment.

Figure 3. Zidua 2.5 oz + atrazine 24 oz + Clarity 8 oz applied in winter, 195 days after application.

Figure 4. Clarity 16 oz + atrazine 24 oz applied in spring, 93 days after treatment.

Figure 5. Zidua 2.5 oz + atrazine 24 oz + Clarity 8 oz applied in spring, 93 days after application.