

Kochiavore at Three Rates with Several Adjuvants for Postemergence Fallow Weed Control

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Summary

A study was initiated near Garden City, KS, in 2016, comparing the weed control Kochiavore with several additives for kochia control in fallow. The control of kochia, Russian thistle, and flixweed increased as Kochiavore rate increased when applied without adjuvant. There were no noticeable differences in the effect of adjuvant systems on Kochiavore performance. Russian thistle and flixweed control was excellent regardless of herbicide rate or adjuvant. Kochia control was generally best when Kochiavore was applied at 2.5 pt/a.

Introduction

Kochiavore is a proprietary package mix of 2,4-D, bromoxynil, and fluroxypyr marketed by Winfield Solutions LLC for kochia control. Banvel (dicamba) and Vida (pyraflufen) tank mixes have also shown promise for postemergence kochia control. Therefore, it was the objective of this study to compare these products with various adjuvant systems for fallow weed control.

Experimental Procedures

An experiment conducted at the Kansas State University Southwest Research-Extension Center near Garden City, KS, evaluated Kochiavore herbicide at three rates and with various adjuvants for weed control in fallow. All treatments were applied on May 10, 2016, when kochia averaged 5 inches tall and 10 plants per square foot, Russian thistle was 3 inches tall and 3 plants/10 ft², and flixweed was 15 inches tall and 1 plant per square foot. Herbicides were applied using a tractor-mounted, compressed-CO₂ sprayer, delivering 20 GPA at 3.0 mph and 30 psi. Plots were 10- by 35-feet, and treatments were arranged in a randomized complete block with four replications. Visual weed control was determined on May 24 and June 6, 2016, 14 and 27 days after herbicide treatment (DAT), respectively.

Results and Discussion

When no adjuvant was included, control of kochia, Russian thistle, and flixweed increased as Kochiavore rate increased at 14 DAT. Within herbicide rates, no adjuvant system increased the efficacy of Kochiavore alone on any species at 14 DAT. By 27 DAT, Russian thistle and flixweed control was complete regardless of herbicide rate

or adjuvant, and kochia control was generally best when Kochiavore was applied at 2.5 pt/a. Because kochia naturally reseeded for two years prior to this test, weed pressure was far greater than most producers often face. Where weed pressure is less, 90% efficacy might translate into acceptable control. Furthermore, that level of control would allow a postemergence application of paraquat with atrazine or metribuzin to be successful, which would have otherwise been ineffective due to poor spray coverage.

Table 1. Kochiavore rates and adjuvants for postemergence fallow weed control

Herbicide ^a	Rate	14 days after treatment			27 days after treatment		
		Kochia	Russian thistle	Flixweed	Kochia	Russian thistle	Flixweed
	per a	----- % control -----					
Kochiavore	1.5 pt	75	86	71	76	100	100
Kochiavore	1.5 pt	78	89	78	81	100	100
Destiny HC	1.0 pt						
InterLock	4 oz						
Kochiavore	1.5 pt	78	88	75	80	100	100
AG14039	1.0 pt						
Kochiavore	2.0 pt	83	90	78	83	100	100
Kochiavore	2.0 pt	80	93	80	84	100	100
Destiny HC	1.0 pt						
InterLock	4 oz						
Kochiavore	2.0 pt	79	91	79	90	100	100
AG14039	1.0 pt						
Kochiavore	2.5 pt	85	95	83	91	100	100
Kochiavore	2.5 pt	83	95	83	91	100	100
Destiny HC	1.0 pt						
InterLock	4 oz						
Kochiavore	2.5 pt	83	95	80	85	100	100
AG14039	1.0 pt						
Glyphosate	32 oz	45	89	70	83	100	100
AMS	2%						
Vida	2.0 oz	79	86	81	78	100	100
Banvel	2.0 oz						
2,4-D amine	8.0 oz						
MSO	1%						
Untreated	---	0	0	0	0	0	0
LSD (0.05)		4	3	6	6	NS	NS

^a AG14039 is an experimental adjuvant, AMS is ammonium sulfate, MSO is methylated seed oil.
LSD = Least significant difference.



Figure 1. Untreated control.



Figure 2. Kochiavore 1.5 pt, 34 days after application.



Figure 3. Kochiavore 2.5 pt, 34 days after application.



Figure 4. Kochiavore 2.5 pt + Destiny HC 1.0 pt + InterLock 4 oz, 34 days after application.



Figure 5. Glyphosate 32 oz + AMS 2%, 34 days after application.