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Palmer Amaranth Control and Sorghum Response to Tank Mixtures of Huskie

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Abstract

Although Huskie treatments caused significant chlorosis, the sorghum recovered fully and chlorosis did not affect yield. All tank mixes of Huskie provided good Palmer amaranth control at all rating dates. Starane NXT provided poor Palmer amaranth control at all rating dates. All tank mixes of Huskie significantly elevated yield compared to the untreated controls or Starane NXT treatments.

Keywords

Palmer amaranth, sorghum; tank mix, Huskie, weed science, weed control, herbicide

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Summary

Although Huskie treatments caused significant chlorosis, the sorghum recovered fully and chlorosis did not affect yield. All tank mixes of Huskie provided good Palmer amaranth control at all rating dates. Starane NXT provided poor Palmer amaranth control at all rating dates. All tank mixes of Huskie significantly elevated yield compared to the untreated controls or Starane NXT treatments.

Introduction

Although Huskie (pyrasulfotole+bromoxynil) often provides good broadleaf control by itself, its weed control is often enhanced with tank mixes of Banvel (dicamba), Atrazine, 2,4-D, and Starane NXT (fluroxypyr +bromoxynil). It was the objective of this study to measure the impact of tank mixtures of these compounds with Huskie.

Procedures

An experiment at the Kansas State University Southwest Research-Extension Center in Garden City, Kansas, examined crop tolerance and Palmer amaranth control with Huskie plus atrazine and other tank mix partners in irrigated grain sorghum. Grain sorghum was planted June 16, 2014. All herbicides were applied postemergence July 11, 2014, when sorghum was 6 to 8 inches tall and Palmer amaranth was 1 to 5 inches tall. Treatments were applied using a CO_2-pressurized, backpack sprayer delivering 20 gpa at 3.0 mph and 27 psi. 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, arranged as a randomized complete block design replicated four times. Sorghum injury was visually determined July 14 and July 31, 2014, (3 and 20 days after treatment). Visual weed control ratings were taken July 31 and August 17, 2014, which were 20 and 37 days after treatment, respectively. Grain yields were determined November 18, 2014, by harvesting the center two rows of each plot and adjusting the weights to 14% moisture.

Results and Discussion

Although Huskie treatments caused significant chlorosis 28 days after planting (DAP), by 45 DAP the sorghum recovered fully. All tank mixes of Huskie provided good Palmer amaranth control at all rating dates. Starane NXT provided poor Palmer amaranth control at all rating dates. All tank mixes of Huskie significantly elevated yield compared to the untreated controls or Starane NXT treatments. Although the overall level of weed control was so high that it was not possible to define small differences in overall control, the simple addition of atrazine suggested the greatest gain for the least cost.

Table 1. Palmer amaranth control with and crop response to Huskie tank mixtures postemergence in grain sorghum.

			Sorghum		Palmer amaranth		
			Chlorosis	Injury	Control		
Trt.	Herbicide[1]	Rate (oz/a)	28 DAP[2]	45 DAP	45 DAP	59 DAP	Yield[3]
1	Huskie	13	21	0	100	99	52.4
	Atrazine	16					
2	Huskie	16	24	0	96	94	48.5
	Atrazine	16					
3	Huskie	13	23	0	100	96	44.3
	Atrazine	16					
	2,4-D ester	4					
4	Huskie	13	23	0	99	99	37.1
	Atrazine	16					
	Banvel	4					
5	Huskie	13	21	0	99	95	58.2
	Atrazine	16					
	Starane Ultra	3					
6	Starane NXT	14	9	0	50	43	7.6
7	Untreated control		0	0	0	0	4.2
	LSD @ 5%=		3.8	ns	6.7	5.3	27.8

[1] All Huskie treatments included ammonium sulfate at 1 lb/a plus nonionic surfactant at 0.25% v/v.
[2] Days after planting.
[3] Bu/a.