Efficacy of Preemergence or Early Postemergence Weed Control with Keystone NXT, Hornet WDG, Atrazine, SureStart II, Lumax EZ, and Resicore

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Summary

Control of buffalobur was complete regardless of herbicide used. Velvetleaf and punctturevine control, although not perfect, was excellent by all herbicides. The premix of SureStart II (acetochlor + flumetsulam + clopyralid) with atrazine and Durango DMA (glyphosate) applied early postemergence and the preemergence herbicides Resicore (acetochlor + mesotrione + clopyralid) with atrazine and Lumax EZ (*S*-metolachlor + atrazine + mesotrione) provided excellent Palmer amaranth control. The early postemergence treatment of SureStart II plus atrazine and Durango DMA was the only treatment to provide excellent control of green foxtail.

Introduction

There are many products that provide an excellent foundation treatment that are supposed to be followed by a subsequent, postemergence application. It was the objective of this test to evaluate such compounds.

Procedures

An experiment at the Kansas State University Southwest Research-Extension Center near Garden City, KS determined the efficacy of preemergence and early postemergence herbicides in irrigated corn. Preemergence herbicides were applied June 2, 2015, with early postemergence treatments applied June 16, 2015. Corn was 5 to 7 inches tall when early postemergence treatments were made, and weeds were 1 to 2 inches tall. Herbicides were applied using a CO_2-compressed tractor-mounted or backpack sprayer delivering 20 gpa at 3 mph and 27 or 30 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 and arranged in a randomized complete block with four replications. Visual weed control was determined July 28, 2015, which was 42 days after early postemergence application (42 DAPT). Grain yields were determined October 14, 2015 by mechanically harvesting the center two rows of each plot and adjusting weights to 15.5% moisture.

Results and Discussion

Control of buffalobur was complete at 42 DAPT regardless of herbicide. Velvetleaf and puncturevine control was 99 to 100 and 95 to 99%, respectively, at the same date by all herbicides. The premix of SureStart II with atrazine and Durango DMA applied early postemergence and the preemergence herbicides Resicore with atrazine and Lumax EZ controlled Palmer amaranth 96 to 99%. The early postemergence treatment of SureStart II plus atrazine and Durango DMA was the only treatment to control green foxtail more than 95% at 42 DAPT. Grain yields did not differ between herbicide treatments or the untreated controls.

Table 1. Application information.

Application timing	Preemergence	Postemergence
Application date	June 2, 2015	June 16, 2015
Air temperature (°F)	75	82
Relative humidity (%)	62	44
Soil temperature (°F)	67	76
Wind speed (mph)	5 to 8	3 to 5
Wind direction	North	North
Soil moisture	Good	Fair

Table 2. Efficacy of preemergence or early postemergence herbicides in irrigated corn.

			42 days after early postemergence application					
Treatment[a]	Rate	Timing[b]	Palmer amaranth	Velvetleaf	Puncturevine	Buffalobur	Green foxtail	Yield
			% visual					bu/a
Keystone NXT Hornet WDG	2.4 qt 4.0 oz	PRE PRE	95	100	95	100	91	134.0
SureStart II Atrazine	2.0 pt 1.0 qt	PRE PRE	90	100	98	100	84	122.1
SureStart II Atrazine Durango DMA AMS	2.0 pt 1.0 qt 32 oz 2.5 %	EPOST EPOST EPOST EPOST	99	100	99	100	97	141.9
Resicore Atrazine	2.5 qt 1.0 qt	PRE PRE	99	99	96	100	89	124.1
Resicore Atrazine	1.5 qt 1.0 qt	PRE PRE	96	100	96	100	85	135.6
Lumax EZ	2.7 qt	PRE	99	100	98	100	85	148.7
Untreated			0	0	0	0	0	130.2
LSD (0.05)			4.1	1.4	5.5	NS	4.6	NS

[a] AMS is ammonium sulfate.
[b] PRE is preemergence, EPOST is early postemergence.

Figure 1. Untreated control.

Figure 2. SureStart II 2 pt + atrazine 1 qt + Durango DMA 32 oz + AMS early postemergence, 50 days after early postemergence application.

Figure 3. Resicore 2.5 qt + atrazine 1 qt preemergence, 64 days after preemergence application.

Figure 4. Resicore 1.5 qt + atrazine 1 qt preemergence, 64 days after preemergence application.

Figure 5. Lumax EZ 2.7 qt preemergence, 64 days after preemergence application.