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Preemergence Weed Control with FulTime NXT and Competitive Standards in Grain Sorghum

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Summary

At 71 days after treatment, FulTime NXT (acetochlor + atrazine) at 2.5 or 3.0 qt/a and Lumax EZ (*S*-metolachlor + atrazine + mesotrione) at 2.0 qt/a were the only treatments to control Palmer amaranth at 90% or more. All treatments provided similar velvetleaf control. Green foxtail control was 75 to 83% with all rates of FulTime NXT or Lumax EZ. Sorghum receiving FulTime NXT at 2.5 or 3.0 qt/a or Lumax EZ yielded significantly more than the control treatments.

Introduction

Weed control with the highest labelled rate of FulTime NXT often results in superior control to other products but may or may not be cost competitive. Therefore, it was the objective of this experiment to use increasing rates of FulTime NXT to determine what rate would be competive with other industry standards.

Procedures

An experiment was conducted the Kansas State University Southwest Research-Extension Center near Garden City, KS, to determine the efficacy of preemergence applications of FulTime NXT at three rates compared to standard treatments in grain sorghum. All herbicides were applied June 10, 2015, using a tractor-mounted, compressed-CO_2 sprayer delivering 20 gpa at 3.0 mph and 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, replicated four times. Visual weed control ratings were taken on August 20, 2015, which was 71 days after treatment. Sorghum yields were determined on October 20, 2015, by machine harvesting the center two rows of each plot, weighing the grain, and correcting for 14.0% moisture.

Results and Discussion

At 71 days after treatment, FulTime NXT at 2.5 or 3.0 qt/a and Lumax EZ at 2.0 qt/a were the only treatments to control Palmer amaranth 90% or more. All treatments provided similar velvetleaf control. Puncturevine control was best (78 to 83%) with FulTime NXT at 3.0 qt/a and Lumax EZ at 2.0 qt/a. Similarly, green foxtail control was 75 to 83% with all rates of FulTime NXT or Lumax EZ. Sorghum receiving FulTime

NXT at 2.5 or 3.0 qt/a or Lumax EZ yielded 31 to 53 bu/a more grain than untreated sorghum. In this experiment, although the Lumax EZ treatments had a higher yield than the second highest rate of FulTime NXT, they were not statistically different. Further work during the next few years should be done to compare these compounds at various rates.

Table 1. Application information.

Application timing	Preemergence
Application date	June 10, 2015
Air temperature (°F)	81
Relative humidity (%)	48
Soil temperature (°F)	76
Wind speed (mph)	4 to 6
Wind direction	South
Soil moisture	Fair

Table 2. Preemergence weed control with FulTime NXT and competitive standards in grain sorghum.

		71 days after treatment				
Treatment	Rate	Palmer amaranth	Velvetleaf	Puncturevine	Green foxtail	Yield
	qt/a	---------- % visual ----------				bu/a
FulTime NXT	2.0	80	95	70	75	54.2
FulTime NXT	2.5	90	93	75	78	69.7
FulTime NXT	3.0	93	100	78	83	60.9
Bicep II Magnum	1.6	78	100	70	73	44.7
Atrazine	1.0	68	90	65	55	42.3
Lumax EZ	2.0	94	100	83	80	82.6
Untreated	---	0	0	0	0	28.6
LSD (0.05)		12.8	10.4	8.2	9.1	29.1

Figure 1. Untreated control.

Figure 2. FulTime NXT 2 qt preemergence, 55 days after treatment.

Figure 3. FulTime NXT 2.5 qt preemergence, 55 days after treatment.

Figure 4. FulTime NXT 3 qt preemergence, 55 days after treatment.

Figure 5. Bicep II Magnum 1.6 qt preemergence, 55 days after treatment.

Figure 6. Atrazine 1 qt preemergence, 55 days after treatment.

Figure 7. Lumax EZ 2 qt preemergence, 55 days after treatment.