Resicore and Glyphosate Application Timings in Corn

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Summary

A study was initiated near Garden City, KS, in 2016, comparing the weed control of several herbicide treatments in irrigated corn. All treatments provided excellent, season-long control of kochia, Russian thistle, Palmer amaranth and green foxtail. Herbicide-treated corn yielded 219 to 235 bu/a, which was 86 to 102 bu/a more than nontreated corn; however, no differences in yield occurred among herbicide treatments.

Introduction

Hornet WDG (flumetsulam + clopyralid), Keystone NXT (acetochlor + atrazine), Resicore (acetochlor + clopyralid + mesotrione), and SureStart II (acetochlor + clopyralid + flumetsulam) have been shown to provide broad spectrum weed control in corn. Therefore, it was the objective of this study to measure their level of control under local irrigated conditions.

Procedures

An experiment conducted at the Kansas State University Southwest Research-Extension Center near Garden City, KS, evaluated the efficacy of preplant or preemergence followed by postemergence applications in corn. All herbicides were applied using a compressed-CO_2 backpack sprayer, delivering 20 GPA at 3.0 mph and 27 psi. Application dates, timings, and environmental conditions are shown in Table 1. 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 estimates of weed control were taken on May 26 and July 7, 2016. Corn yields were determined September 26, 2016, by mechanically harvesting the two center rows of each plot and adjusting weights to 15.5% moisture.

Results and Discussion

Kochia, Russian thistle, and green foxtail control was 98% or more regardless of herbicide treatment on May 26. Kochia control remained at 98% or more on July 7, while all herbicides provided complete Russian thistle and green foxtail control at the later rating date. Palmer amaranth control was 100% regardless of treatment or evaluation date (data not shown). Herbicide-treated corn yielded 219 to 235 bu/a, which was 86 to 102 bu/a more than nontreated corn; however, no differences in yield occurred among herbicide treatments (data not shown).

Table 1. Application information

Application timing	19 days preplant	Preemergence	Postemergence
Application date	April 7, 2016	April 26, 2016	June 6, 2016
Air temperature (°F)	49	81	75
Relative humidity (%)	47	10	83
Soil temperature (°F)	47	68	70
Wind speed (mph)	7 to 10	4 to 6	5 to 7
Wind direction	North	South-southeast	South
Soil moisture	Fair	Good	Excellent

Table 2. Resicore and glyphosate timings in corn

			Kochia		Russian thistle		Green foxtail	
Treatment[a]	Rate	Timing[b]	May 26	July 7	May 26	July 7	May 26	July 7
	per A		% control					
Resicore	2.5 qt	19 DPP	100	100	98	100	99	100
Atrazine	1 qt	19 DPP						
Glyphosate	1 qt	19 DPP						
2,4-D ester	16 oz	19 DPP						
AMS	2.5%	19 DPP						
Glyphosate	1 qt	POST						
AMS	2.5%	POST						
Keystone	2 qt	PRE	99	100	100	100	100	100
NXT	4 oz	PRE						
Hornet WDG	1 qt	PRE						
Glyphosate	2.5%	PRE						
AMS	1 qt	POST						
Glyphosate	2.5%	POST						
AMS								
SureStart II	2.5 qt	PRE	99	98	100	100	99	100
Atrazine	1 qt	PRE						
Glyphosate	1 qt	PRE						
AMS	2.5%	PRE						
Glyphosate	1 qt	POST						
AMS	2.5%	POST						
Resicore	2.5 qt	PRE	100	100	100	100	100	100
Atrazine	1 qt	PRE						
Glyphosate	1 qt	PRE						
AMS	2.5%	PRE						
Glyphosate	1 qt	POST						
AMS	2.5%	POST						
Resicore	1.25 qt	PRE	100	100	100	100	98	100
Atrazine	1 qt	PRE						
Glyphosate	1 qt	PRE						
AMS	2.5%	PRE						
Resicore	1.25 qt	POST						
Atrazine	0.5 qt	POST						
Glyphosate	1 qt	POST						
AMS	2.5%	POST						
Untreated	----	---	0	0	0	0	0	0
Least standard deviation (0.05)			2	2	2	NS	3	NS

[a] AMS is ammonium sulfate.

[b] 19 DPP is 19 days preplant, PRE is preemergence and POST is postemergence when corn was 20 to 24 inches tall.

Figure 1. Untreated control.

Figure 2. Resicore 2.5 qt + atrazine 1 qt + glyphosate 1 qt applied 19 days preplant followed by glyphosate 1 qt applied postemergence, 31 days after postemergence application.

Figure 3. Keystone NXT 2 qt + Hornet WDG 4 oz + glyphosate 1 qt applied preemergence followed by glyphosate 1 qt applied postemergence, 31 days after postemergence application.

Figure 4. SureStart II 2.5 qt + atrazine 1 qt + glyphosate 1 qt applied preemergence followed by glyphosate 1 qt applied postemergence, 31 days after postemergence application.

Figure 5. Resicore 2.5 qt + atrazine 1 qt + glyphosate 1 qt applied preemergence followed by glyphosate 1 qt applied postemergence, 31 days after postemergence application.

Figure 6. Resicore 1.25 qt + atrazine 1 qt + glyphosate 1 qt applied preemergence followed by Resicore 1.25 qt + atrazine 0.5 qt + glyphosate 1 qt applied postemergence, 31 days after postemergence application.