

Preemergence Plus Postemergence Herbicide Programs in Corn

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Introduction

The purpose of this study was to evaluate crop injury and weed control for corn herbicide programs using both preemergence and postemergence applications.

Materials and Methods

The study was established using a randomized complete block design with three replications. Herbicides were applied in 15 gallons of water/acre. The crop rotation was corn following soybean. The pre-plant seedbed was prepared with a field cultivator, and corn was planted at 35,077 seeds/acre in 30-in. rows May 13. Preemergence (PRE) herbicide treatments were applied May 13. Postemergence (POST) treatments were applied June 23 to V7 corn. Weeds were generally 5–7 in. tall at the POST application dates. Weed species in the study included giant foxtail, velvetleaf, common waterhemp, common lambsquarters, and Pennsylvania smartweed with average population densities of <1–1 plants/ft². Visual estimates of corn injury and percentage weed control were made during the growing season. These observations are compared with an untreated control and made on a zero to 99 rating scale (0 percent = no control or injury; 99 percent = complete control or crop kill).

Results and Discussion

Summarized in Tables 1 and 2 are the results of the study. None of the PRE treatments

caused corn injury, and only POST Solstice + Aatrex + Roundup PowerMAX caused injury (7 percent) July 10, 17 days after POST (data not shown).

All treatments provided nearly perfect common lambsquarters control with PRE and POST applications (data not shown). All PRE treatments gave similar giant foxtail, velvetleaf and common waterhemp control with 93–99, 94–99 and 98–99 percent control, respectively (Table 1). However, Pennsylvania smartweed control was variable for the PRE treatments ranging from 80 to 99 percent.

POST weed control at approximately 2 weeks after application was excellent with all treatments affording at least 96 percent control (data not shown).

On July 25, 32 days after the POST application, giant foxtail control for PRE Corvus + Aatrex plus POST Liberty + DiFlexx DUO + Aatrex gave 96 percent giant foxtail control compared with at least 98 percent control by all other treatments (Table 2). All treatments gave at least 99 and 98 percent velvetleaf and Pennsylvania smartweed control, respectively. PRE SureStart + Aatrex plus either POST Durango or POST SureStart + Aatrex + Durango gave 95 percent common waterhemp control. All other treatments provided 99 percent common waterhemp control.

Acknowledgements

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Table 1. PRE plus POST herbicide programs in corn.

Treatment	Rate product/acre	Appln timing	Setfa ^g	Abuth	Amata	Polpy
			Jun 9	Jun 9	Jun 9	Jun 9
Untreated			0	0	0	0
Acuron Flexi + (Halex GT + Aatrex 4L + AMS ^a + NIS ^b)	1.5 qt + (3.6 pt + 1.0 pt + 8.5 lb/100 gal + 0.25% v/v ^c)	PRE + (POST)	96	99	99	96
SureStart II + Aatrex 4L + (Durango DMA + N-Pak AMS Liquid ^d)	2.0 pt + 1.0 qt + (1.0 qt + 2.5% v/v)	PRE + (POST)	98	99	98	95
SureStart II + Aatrex 4L + (SureStart II + Aatrex 4L + Durango DMA + N-Pak AMS Liquid)	2.0 pt + 1.0 qt + (1.5 pt + 0.5 qt + 1.0 qt + 2.5% v/v)	PRE + (POST)	96	94	99	91
Resicore + Aatrex 4L + (Resicore + Aatrex 4L + Durango DMA + N-Pak AMS Liquid)	1.5 qt + 1.0 qt + (1.25 qt + 0.5 qt + 1.0 qt + 2.5% v/v)	PRE + (POST)	98	98	99	98
Harness Xtra 5.6 + (Impact + Aatrex 4L + MSO ^e + N-Pak AMS Liquid)	3.6 pt + (0.75 fl oz + 1.0 pt + 1.0% v/v + 2.5% v/v)	PRE (POST)	98	99	99	86
Verdict + (Status+ Roundup PowerMAX+ NIS + AMS)	18.0 fl oz + (5.0 oz wt + 32.0 fl oz + 0.25% v/v + 8.5 lb/100 gal)	PRE + (POST)	98	99	99	99
Corvus + Aatrex 4L + (Liberty 280 + DiFlexx DUO + Aatrex 4L + COC ^f + AMS)	4.0 fl oz + 1.0 pt + (29.0 fl oz + 24.0 fl oz + 1.0 pt + 0.5% v/v + 8.5 lb/100 gal)	PRE + (POST)	93	99	99	99
Corvus + Aatrex 4L + (Roundup PowerMAX + Capreno + Aatrex 4L + COC + AMS)	4.0 fl oz + 1.0 pt + (32.0 fl oz + 3.0 fl oz + 1.0 pt + 1.0% v/v + 8.5 lb/100 gal)	PRE + (POST)	98	95	99	93
Breakfree NXT Lite + (Abundit Edge + Revulin Q + Aatrex 4L + COC + AMS)	1.75 qt + 22 fl oz + 3.4 oz wt + 1.0 pt + 1.0% v/v + 2.0 lb/a)	PRE + (POST)	93	99	99	99
Breakfree NXT Lite + (Abundit Edge + Realm Q + Aatrex 4L + COC + AMS)	1.75 qt + 22 fl oz + 4.0 oz wt + 1.0 pt + 1.0% v/v + 2.0 lb/a)	PRE + (POST)	99	99	99	80
Anthem Maxx + Aatrex 4L + (Solstice + Aatrex 4L + Roundup PowerMAX + NIS + AMS)	4.5 fl oz + 1.0 qt + (2.5 fl oz + 1.0 pt + 32.0 fl oz + 0.25% v/v + 8.5 lb/100 gal)	PRE + (POST)	99	99	99	95
LSD (P = .05)			7	5	1	15

^aAMS = ammonium sulfate fertilizer.^bNIS = Preference nonionic surfactant.^cv/v = volume of product per volume tank mix.^dN-Pak AMS liquid = ammonium sulfate.^eMSO = Succeed Ultra methylated seed oil.^fCOC = Premium Crop Oil Concentrate.^gSetfa = giant foxtail, Abuth = velvetleaf, Amata = common waterhemp, Polpy = Pennsylvania smartweed.

Table 2. PRE plus POST herbicide programs in corn.

Treatment	Rate product/acre	Appln timing	Setfa ^g	Abuth	Amata	Polpy
			Jul 25	Jul 25	Jul 25	Jul 25
			----- % weed control -----			
Untreated			0	0	0	0
Acuron Flexi + (Halex GT + Aatrex 4L + AMS ^a + NIS ^b)	1.5 qt + (3.6 pt + 1.0 pt + 8.5 lb/100 gal + 0.25% v/v ^c)	PRE + (POST)	99	99	99	99
SureStart II + Aatrex 4L + (Durango DMA + N-Pak AMS Liquid ^d)	2.0 pt + 1.0 qt + (1.0 qt + 2.5% v/v)	PRE + (POST)	98	99	95	99
SureStart II + Aatrex 4L + (SureStart II + Aatrex 4L + Durango DMA + N-Pak AMS Liquid)	2.0 pt + 1.0 qt + (1.5 pt + 0.5 qt + 1.0 qt + 2.5% v/v)	PRE + (POST)	99	99	95	99
Resicore + Aatrex 4L + (Resicore + Aatrex 4L + Durango DMA + N-Pak AMS Liquid)	1.5 qt + 1.0 qt + (1.25 qt + 0.5 qt + 1.0 qt + 2.5% v/v)	PRE + (POST)	99	99	99	99
Harness Xtra 5.6 + (Impact + Aatrex 4L + MSO ^e + N-Pak AMS Liquid)	3.6 pt + (0.75 fl oz + 1.0 pt + 1.0% v/v + 2.5% v/v)	PRE (POST)	99	99	99	98
Verdict + (Status+ Roundup PowerMAX+ NIS + AMS)	18.0 fl oz + (5.0 oz wt + 32.0 fl oz + 0.25% v/v + 8.5 lb/100 gal)	PRE + (POST)	99	99	99	99
Corvus + Aatrex 4L + (Liberty 280 + DiFlexx DUO + Aatrex 4L + COC ^f + AMS)	4.0 fl oz + 1.0 pt + (29.0 fl oz + 24.0 fl oz + 1.0 pt + 0.5% v/v + 8.5 lb/100 gal)	PRE + (POST)	96	99	99	99
Corvus + Aatrex 4L + (Roundup PowerMAX + Capreno + Aatrex 4L + COC + AMS)	4.0 fl oz + 1.0 pt + (32.0 fl oz + 3.0 fl oz + 1.0 pt + 1.0% v/v + 8.5 lb/100 gal)	PRE + (POST)	99	99	99	99
Breakfree NXT Lite + (Abundit Edge + Revulin Q + Aatrex 4L + COC + AMS)	1.75 qt + 22 fl oz + 3.4 oz wt + 1.0 pt + 1.0% v/v + 2.0 lb/a)	PRE + (POST)	99	99	99	99
Breakfree NXT Lite + (Abundit Edge + Realm Q + Aatrex 4L + COC + AMS)	1.75 qt + 22 fl oz + 4.0 oz wt + 1.0 pt + 1.0% v/v + 2.0 lb/a)	PRE + (POST)	99	99	99	99
Anthem Maxx + Aatrex 4L + (Solstice + Aatrex 4L + Roundup PowerMAX + NIS + AMS)	4.5 fl oz + 1.0 qt + (2.5 fl oz + 1.0 pt + 32.0 fl oz + 0.25% v/v + 8.5 lb/100 gal)	PRE + (POST)	99	99	99	99
LSD (P = .05)			2	-	2	1

^aAMS = ammonium sulfate fertilizer.^bNIS = Preference nonionic surfactant.^cv/v = Volume of product per volume tank mix.^dN-Pak AMS liquid = ammonium sulfate.^eMSO = Succeed Ultra methylated seed oil.^fCOC = Premium Crop Oil Concentrate.^gSetfa = giant foxtail, Abuth = velvetleaf, Amata = common waterhemp, Polpy = Pennsylvania smartweed.