

## Two-Pass Herbicide Programs for Weed Control in Corn

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Micheal Owen, university professor  
Damian Franzenburg, ag specialist  
James Lee, ag specialist  
Iththiphonh Macvilay, research associate  
Brady North, research associate  
Department of Agronomy

### Introduction

The purpose of this study was to evaluate various herbicides applied preemergence and postemergence in corn for crop injury and weed control.

### Materials and Methods

The study was established using a randomized complete block design with three replications. Herbicides were applied in 15 gallons of water per acre. The crop rotation was corn following soybeans. The pre-plant seedbed was prepared with a field cultivator, and corn was planted at 33,674 seeds/acre in 30-in. rows on May 8. Preemergence (PRE) herbicide treatments were applied May 8. Postemergence (POST) treatments were applied June 12 to V4 corn. Weeds were generally 2–3 in. tall at the POST application dates. Weed species in the study included giant foxtail, velvetleaf, common waterhemp, and common dandelion with average population densities of 8, <1, 3, and <1 plants/ft<sup>2</sup>, respectively. Visual estimates of corn injury and percentage weed control were made during the growing season. These observations were compared with an untreated control and made on a zero-to-100 rating scale (0% = no control or injury, 100% = 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 (data not shown). POST

Solstice + Aatrex 4L + Roundup PowerMAX caused 13 and 8 percent injury as observed on June 30 and July 13, respectively (data not shown). On June 9, prior to POST applications, PRE Harness Xtra 5.6, Anthem Max and Lumax EZ provided 92–96 percent giant foxtail control (Table 1), and the remaining PRE treatments gave 77–88 percent giant foxtail control. PRE SureStart II at 2.0 pt/acre, Breakfree NXT ATZ, Harness Xtra 5.6, and Anthem Max gave 83–89 percent velvetleaf control compared with 99 percent control by all other treatments. Prequel + Aatrex 4L gave 88 percent common waterhemp control, while all other treatments afforded at least 94 percent control. Common dandelion control was variable and ranged from 50–94 percent across the PRE treatments.

On July 13, giant foxtail control by PRE SureStart II + Aatrex 4L + POST Durango DMA and PRE Corvus + Aatrex 4L + POST Liberty 280 + Laudis Flexx + Aatrex 4L was 88 percent, and all other treatments gave 92–99 percent control (Table 2). All treatments afforded at least 98 percent control of velvetleaf. PRE SureStart II + Aatrex 4L + POST Durango DMA gave 91 percent common waterhemp control compared with at least 96 percent control by the rest of the treatments. Both SureStart II treatments and PRE Verdict + POST Status + Roundup PowerMAX gave 87–90 percent common dandelion control compared with 93–99 percent control by the rest of the treatments.

### Acknowledgements

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**Table 1. Two-pass herbicide programs for weed control in corn in June.**

Treatment	Rate product/acre	Appln timing	Setfa <sup>f</sup>	Abuth	Amata	Tarof
			Jun 9	Jun 9	Jun 9	Jun 9
			----- % weed control -----			
Untreated			0	0	0	0
SureStart II + Aatrex 4L + (Durango DMA + N-Pak AMS Liquid <sup>a</sup> )	2.5 pt + 2.0 pt (1.0 qt + 2.5% v/v <sup>b</sup> )	PRE + (POST)	88	99	95	67
SureStart II + (SureStart II + Durango DMA + N-Pak AMS Liquid)	2.0 pt + (1.5 pt + 1 qt + 2.5% v/v)	PRE + (POST)	88	89	98	80
Prequel + Aatrex + (Abundit Extra + Realm Q + Aatrex 4L + Approach + AMS <sup>c</sup> )	1.66 oz wt + 2.0 pt + (32.0 fl oz + 4.0 oz wt + 1.0 pt + 4.0 fl oz + 2 lb)	PRE (POST)	77	99	88	77
Instigate + Aatrex 4L + (Abundit Extra + Realm Q + Aatrex 4L + Approach + AMS)	6.0 oz wt + 2.0 pt + (32.0 fl oz + 4.0 oz wt + 1.0 pt + 4.0 fl oz + 2 lb)	PRE + (POST)	77	99	99	90
Breakfree NXT ATZ + (Abundit Extra + Realm Q + Aatrex 4L + Approach + AMS)	1.5 qt + (32.0 fl oz + 4.0 oz wt + 1.0 pt + 4.0 fl oz + 2 lb)	PRE + (POST)	87	83	94	50
Harness Xtra 5.6 + (Impact+Roundup PowerMAX+ Aatrex 4L + MSO <sup>d</sup> + N-Pak AMS Liquid)	2.5 qt + (0.75 fl oz + 32.0 fl oz + 1.0 pt + 0.5% v/v + 2.5% v/v)	PRE (POST)	96	86	99	70
Verdict + (Status+ Roundup PowerMAX+ NIS + AMS)	16.0 fl oz + (5.0 oz wt + 32.0 fl oz + 0.25% v/v + 8.5 lb/100 gal)	PRE + (POST)	87	99	98	80
Anthem Maxx + (Solstice + Aatrex 4L + Roundup PowerMAX + COC + AMS)	5 fl oz + (2.5 fl oz + 1.0 pt 32.0 fl oz + 1.0% v/v + 8.5 lb/100 gal)	PRE + (POST)	92	86	95	52
Lumax EZ + (Halex GT + Aatrex 4L + AMS + NIS <sup>e</sup> )	1.8 qt + (3.6 pt + 1.0 pt + 8.5 lb/100 gal + 0.25% v/v)	PRE + (POST)	95	99	99	94
Zemax + (Halex GT + Aatrex 4L + AMS + NIS)	1.5 qt + (3.6 pt + 1.0 pt + 8.5 lb/100gal + 0.25 % v/v)	PRE + (POST)	78	99	95	83
Corvus + Aatrex 4L + (Liberty 280 + Laudis Flexx + Aatrex 4L + COC + AMS)	4.0 fl oz + 1.0 pt + (29.0 fl oz + 32.0 fl oz + 1.0 pt + 0.5% v/v + 8.5 lb/100 gal)	PRE + (POST)	85	99	96	90
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)	82	99	99	83
LSD (P=.05)			9	13	7	29

<sup>a</sup>N-Pak AMS liquid = ammonium sulfate.<sup>b</sup>v/v = volume of product per volume tank mix.<sup>c</sup>AMS = ammonium sulfate fertilizer.<sup>d</sup>MSO = Succeed Ultra methylated seed oil.<sup>e</sup>NIS = preference nonionic surfactant.<sup>f</sup>Setfa = giant foxtail, Abuth = velvetleaf, Amata = common waterhemp, tarof = common dandelion.

**Table 2. Two-pass herbicide programs for weed control in corn in July.**

Treatment	Rate product/acre	Appln timing	% weed control -----			
			Setfa <sup>f</sup> Jul 13	Abuth Jul 13	Amata Jul 13	Tarof Jul 13
Untreated			0	0	0	0
SureStart II + Aatrex 4L + (Durango DMA + N-Pak AMS Liquid <sup>a</sup> )	2.5 pt + 2.0 pt (1.0 qt + 2.5% v/v <sup>b</sup> )	PRE + (POST)	88	98	91	87
SureStart II + (SureStart II + Durango DMA + N-Pak AMS Liquid)	2.0 pt + (1.5 pt + 1 qt + 2.5% v/v)	PRE + (POST)	99	99	98	90
Prequel + Aatrex + (Abundit Extra + Realm Q + Aatrex 4L + Approach + AMS <sup>c</sup> )	1.66 oz wt + 2.0 pt + (32.0 fl oz + 4.0 oz wt + 1.0 pt + 4.0 fl oz + 2 lb)	PRE (POST)	93	99	99	99
Instigate + Aatrex 4L + (Abundit Extra + Realm Q + Aatrex 4L + Approach + AMS)	6.0 oz wt + 2.0 pt + (32.0 fl oz + 4.0 oz wt + 1.0 pt + 4.0 fl oz + 2 lb)	PRE + (POST)	95	99	99	95
Breakfree NXT ATZ + (Abundit Extra + Realm Q + Aatrex 4L + Approach + AMS)	1.5 qt + (32.0 fl oz + 4.0 oz wt + 1.0 pt + 4.0 fl oz + 2 lb)	PRE + (POST)	98	99	99	93
Harness Xtra 5.6 + (Impact+Roundup PowerMAX+ Aatrex 4L + MSO <sup>d</sup> + N-Pak AMS Liquid)	2.5 qt + (0.75 fl oz + 32.0 fl oz + 1.0 pt + 0.5% v/v + 2.5% v/v)	PRE (POST)	92	99	96	99
Verdict + (Status+ Roundup PowerMAX+ NIS + AMS)	16.0 fl oz + (5.0 oz wt + 32.0 fl oz + 0.25% v/v + 8.5 lb/100 gal)	PRE + (POST)	93	98	96	90
Anthem Maxx + (Solstice + Aatrex 4L + Roundup PowerMAX + COC + AMS)	5 fl oz + (2.5 fl oz + 1.0 pt 32.0 fl oz + 1.0% v/v + 8.5 lb/100 gal)	PRE + (POST)	99	99	99	99
Lumax EZ + (Halex GT + Aatrex 4L + AMS + NIS <sup>e</sup> )	1.8 qt + (3.6 pt + 1.0 pt + 8.5 lb/100 gal + 0.25% v/v)	PRE + (POST)	99	99	99	99
Zemax + (Halex GT + Aatrex 4L + AMS + NIS)	1.5 qt + (3.6 pt + 1.0 pt + 8.5 lb/100gal + 0.25 % v/v)	PRE + (POST)	99	99	99	96
Corvus + Aatrex 4L + (Liberty 280 + Laudis Flexx + Aatrex 4L + COC + AMS)	4.0 fl oz + 1.0 pt + (29.0 fl oz + 32.0 fl oz + 1.0 pt + 0.5% v/v + 8.5 lb/100 gal)	PRE + (POST)	88	98	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	96
LSD (P=.05)			5	2	5	9

<sup>a</sup>N-Pak AMS liquid = ammonium sulfate.<sup>b</sup>v/v = volume of product per volume tank mix.<sup>c</sup>AMS = ammonium sulfate fertilizer.<sup>d</sup>MSO = Succeed Ultra methylated seed oil.<sup>e</sup>NIS = preference nonionic surfactant.<sup>f</sup>Setfa = giant foxtail, Abuth = velvetleaf, Amata = common waterhemp, tarof = common dandelion.