

# One-Pass and Two-Pass Herbicide Comparisons in Corn

## RFR-A1950

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### Introduction

The purpose of this study was to compare one-pass with two-pass herbicide programs for crop injury and weed control in corn.

### Materials and Methods

The study was established using a randomized complete block design with three replications. The crop rotation was corn following soybean. The pre-plant seedbed was prepared with a field cultivator, and corn was planted at 36,068 seeds/acre in 30-in. rows May 15. Preemergence (PRE) herbicide treatments were applied May 15 delivering 15 gallons/acre with 11015TTI tips at 35 psi. Postemergence (EPOST & MPOST) treatments were applied June 17 and July 2 to V4 and V7 corn, respectively, delivering 15 gallons/acre with 11015TT tips at 35 psi. Weeds were generally 6 and 3–6 in. tall at the EPOST and MPOST application dates, respectively. Weed species in the study included giant foxtail, velvetleaf and common waterhemp with average population densities of 15, 0.05, and 1 plants/ft<sup>2</sup>, respectively. Visual estimates of percent corn injury and weed control during the growing season were compared with an untreated control (0 percent = no injury or control, and 99 percent = complete crop kill or control).

### Results and Discussion

Summarized in Tables 1 and 2 are the results of the study. None of the PRE, EPOST, or MPOST treatments caused greater than 5 percent corn injury (data not shown).

PRE Corvus + Aatrex 4L provided 87 and 85 percent control of giant foxtail and common waterhemp June 18 (34 days after PRE application), respectively, and all other PRE treatments gave at least 95 percent control of both weeds (Table 1). All PRE treatments provided at least 95 percent velvetleaf control June 18.

There were no significant differences for giant foxtail control between treatments with PRE only applications, when evaluated July 29, 75 days after the PRE applications (Table 2). All three PRE treatments gave 93–96 percent giant foxtail control. PRE Harness + Corvus + Aatrex 4L gave 90 percent velvetleaf control compared with 95 and 98 percent control by Corvus + Harness Xtra 5.6 and Balance Flexx + Harness Xtra 5.6, respectively. Common waterhemp control for the three PRE, only, treatments ranged from 83–90 percent with no significant differences between any of them (Table 2).

All EPOST treatments provided 99 percent control of all weeds July 29 (42 days after EPOST) with the exception of 98 and 94 percent control of velvetleaf and giant foxtail by DiFlexx DUO + Degree Xtra + Roundup PowerMAX and Resicore + Aatrex 4L + Roundup PowerMAX, respectively (Table 2). MPOST Laudis + Warrant + Roundup PowerMAX provided 95 percent common waterhemp control. All one-pass and two-pass programs containing an EPOST application gave significantly greater common waterhemp control than one-pass PRE programs.

### Acknowledgements

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**Table 1. One-pass and two-pass herbicide comparisons in corn (June data).**

Treatment	Rate product/acre	Appln timing	Setfa <sup>c</sup> Jun 18	Abuth Jun 18	Amata Jun 18
			----- % weed control -----		
Untreated			0	0	0
Corvus + Aatrex 4L + (Harness MAX + Aatrex 4L + Roundup PowerMAX + NIS <sup>a</sup> )	3.5 fl oz + 1.5 pt + (40.0 fl oz + 1.5 pt + 32.0 fl oz + 0.25% v/v <sup>b</sup> )	PRE + (EPOST)	87	95	85
Balance Flexx + Harness Xtra 5.6 + (Capreno + Aatrex 4L + Roundup PowerMAX + MSO <sup>c</sup> + AMS <sup>d</sup> )	4.0 fl oz + 2.5 pt + (3.0 fl oz + 1.0 pt + 32.0 fl oz + 0.5% v/v + 1.5 lb/a)	PRE + (EPOST)	95	98	96
Harness MAX + Aatrex 4L + (Harness MAX + Aatrex 4L + Diflexx + Roundup PowerMAX + NIS)	40.0 fl oz + 1.5 pt + (40.0 fl oz + 1.5 pt + 6.0 fl oz + 32 fl oz + 0.25% v/v)	PRE + (EPOST)	98	99	98
DiFlexx DUO + Degree Xtra + Roundup PowerMAX + MSO	24.0 fl oz + 3.5 pt + 32.0 fl oz + 0.5% v/v	EPOST	0	0	0
Capreno + Degree Xtra + Roundup PowerMAX + MSO + AMS	3.0 fl oz + 3.5 pt + 32.0 + 0.5% v/v + 1.5 lb/a)	EPOST	0	0	0
Corvus + Harness Xtra 5.6	5.6 fl oz + 2.0 qt	PRE	98	96	99
Balance Flexx + Harness Xtra 5.6	5.0 fl oz + 2.0 qt	PRE	99	98	99
Harness + Corvus + Aatrex 4L	2.5 pt + 3.5 fl oz + 3.0 pt	PRE	99	98	98
Balance Flexx + Harness + (Laudis + Warrant + Roundup PowerMAX + MSO + AMS)	3.5 fl oz + 1.5 pt. + (3.0 fl oz + 3.0 pt + 32.0 fl oz + 0.5% v/v + 1.5 lb/a)	PRE + (MPOST)	95	95	95
Resicore + Aatrex 4L + Roundup PowerMAX + NIS + AMS	40.0 fl oz + 32.0 fl oz + 32.0 fl oz + 0.25% v/v + 1.5 lb/a	EPOST	0	0	0
Halex GT + Aatrex 4L + NIS + AMS	1.8 qt + 32.0 fl oz + 0.25% v/v + 1.5 lb/a	EPOST	0	0	0
LSD (P = 0.05)			5	4	5

<sup>a</sup>NIS = Preference nonionic surfactant.

<sup>b</sup>v/v = Volume of product per volume tank mix.

<sup>c</sup>MSO = Succeed Ultra methylated seed oil

<sup>d</sup>AMS = ammonium sulfate fertilizer.

<sup>e</sup>Setfa = giant foxtail, Abuth = velvetleaf, Amata = common waterhemp.

**Table 2. One-pass and two-pass herbicide comparisons in corn (July data).**

Treatment	Rate product/acre	Appln timing	% weed control		
			Setfa <sup>c</sup> Jul 29	Abuth Jul 29	Amata Jul 29
Untreated			0	0	0
Corvus + Aatrex 4L + (Harness MAX +Aatrex 4L + Roundup PowerMAX +NIS <sup>a</sup> )	3.5 fl oz + 1.5 pt + (40.0 fl oz + 1.5 pt + 32.0 fl oz + 0.25% v/v <sup>b</sup> )	PRE + (EPOST)	99	99	99
Balance Flexx + Harness Xtra 5.6 + (Capreno + Aatrex 4L + Roundup PowerMAX + MSO <sup>c</sup> + AMS <sup>d</sup> )	4.0 fl oz + 2.5 pt + (3.0 fl oz + 1.0 pt + 32.0 fl oz + 0.5% v/v + 1.5 lb/a)	PRE + (EPOST)	99	99	99
Harness MAX + Aatrex 4L + (Harness MAX +Aatrex 4L + Diflexx + Roundup PowerMAX + NIS)	40.0 fl oz + 1.5 pt + (40.0 fl oz + 1.5 pt + 6.0 fl oz + 32 fl oz + 0.25% v/v)	PRE + (EPOST)	99	99	99
DiFlexx DUO + Degree Xtra + Roundup PowerMAX + MSO	24.0 fl oz + 3.5 pt + 32.0 fl oz + 0.5% v/v	EPOST	99	98	99
Capreno + Degree Xtra + Roundup PowerMAX + MSO + AMS	3.0 fl oz + 3.5 pt + 32.0 + 0.5% v/v + 1.5 lb/a)	EPOST	99	99	99
Corvus + Harness Xtra 5.6	5.6 fl oz + 2.0 qt	PRE	93	95	90
Balance Flexx + Harness Xtra 5.6	5.0 fl oz + 2.0 qt	PRE	96	98	85
Harness + Corvus + Aatrex 4L	2.5 pt + 3.5 fl oz + 3.0 pt	PRE	96	90	83
Balance Flexx + Harness + (Laudis + Warrant + Roundup PowerMAX + MSO + AMS)	3.5 fl oz + 1.5 pt. + (3.0 fl oz + 3.0 pt + 32.0 fl oz + 0.5% v/v + 1.5 lb/a)	PRE + (MPOST)	99	99	95
Resicore + Aatrex 4L + Roundup PowerMAX + NIS + AMS	40.0 fl oz + 32.0 fl oz + 32.0 fl oz + 0.25% v/v + 1.5 lb/a	EPOST	94	99	99
Halex GT + Aatrex 4L + NIS + AMS	1.8 qt + 32.0 fl oz + 0.25% v/v + 1.5 lb/a	EPOST	99	99	99
LSD (P = 0.05)			5	6	8

<sup>a</sup>NIS = Preference nonionic surfactant.

<sup>b</sup>v/v = Volume of product per volume tank mix.

<sup>c</sup>MSO = Succeed Ultra methylated seed oil

<sup>d</sup>AMS = ammonium sulfate fertilizer.

<sup>e</sup>Setfa = giant foxtail, Abuth = velvetleaf, Amata = common waterhemp.