

## Comparisons of One and Two-Pass Herbicide Programs for Weed Control in Corn

### RFR-A20116

Prashant Jha, associate professor  
Damian Franzenburg, ag specialist  
Iththiphonh Macvilay, research associate  
Department of Agronomy

### 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 four replications. The crop rotation was corn following soybean. The pre-plant seedbed was prepared with a field cultivator, and corn was planted at 32,000 seeds/acre in 30-in. rows May 4. Preemergence (PRE) herbicide treatments were applied May 4 delivering 15 gallons/acre with 110015TTI tips at 35 psi. Postemergence (POST) treatments were applied June 12 to V5 corn, delivering 15 gallons/acre with 110015TT tips at 35 psi. Weeds were generally 2-5 in. tall at the POST application. Weed species in the study at the POST application included only ivyleaf morning glory with an average population density four plants/plot. 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. PRE Verdict caused 15 percent corn injury (June 13), while no significant injury occurred with other PRE treatments (Table 1). POST Capreno + Roundup PowerMAX caused 18 percent injury June 20, 8 days after the POST application (Table 2).

All PRE, only, treatments provided at least 96 percent giant foxtail and common waterhemp control at the POST application and one month later on July 13 (Tables 1 and 2).

Velvetleaf control was at least 95 percent at the POST application (June 13) for all treatments except for SureStart II and Anthem ATZ with 74 and 86 percent control, respectively (Table 1). Velvetleaf control diminished another 5-6 percent for these treatments but maintained at least 95 percent for other treatments by July 13.

PRE Acuron XR at full rates, Acuron Flexi XR at full and setup rates, Harness MAX at the full rate and Verdict gave 87-98 percent ivyleaf morning glory control June 13 (Table 1). The remaining PRE treatments gave 58-80 percent control at the POST application (Table 1). Full rates of PRE Acuron XR and Acuron Flexi XR dropped ivyleaf morning glory control by 8-21 percent when moving from June 13 to July 13 (Table 2). PRE Resicore, Harness MAX, SureStart II, Corvus and Anthem ATZ dropped ivyleaf morning glory control by only 2-6 percent. Meanwhile, treatments with a POST application improved control by 4-32 percent. Ivyleaf morning glory control by Verdict actually dropped from 98 to 91 percent following the POST application of Status + Roundup PowerMAX. However, ivyleaf morning glory control for all treatments with POST applications on July 12 was 88-91 percent (Table 2).

### Acknowledgements

We thank Kent Berns, superintendent, Central Iowa Research Farms and staff for their assistance with this study. Funding for this work was provided by Syngenta.

**Table 1. Comparisons of one and two-pass herbicide programs for weed control in corn in June.**

Treatment	Rate product/acre	Appln timing	Injury Jun 13	Setfa <sup>c</sup> Jun 13	Abuth Jun 13	Amata Jun 13	Ipohe Jun 13
			----- % weed control -----				
Untreated			0	0	0	0	0
Acuron XR	3.0 qt	PRE	0	98	99	98	87
Acuron XR	3.5 qt	PRE	0	99	99	99	95
Acuron Flexi XR	3.0 qt	PRE	0	98	99	99	89
Resicore	2.5 qt	PRE	0	98	96	99	65
Harness MAX	73.0 fl oz	PRE	0	99	99	99	94
SureStart II	3.0 pt	PRE	0	98	74	99	61
Corvus	5.6 fl oz	PRE	3	98	98	99	74
Anthem ATZ	2.5 pt	PRE	0	97	86	99	75
Acuron XR + (Acuron XR + Roundup PowerMAX + Amsol <sup>a</sup> )	1.75 qt + (1.75 qt + 22.0 fl oz + 2.5% v/v <sup>b</sup> )	PRE + (POST)	0	99	99	99	74
Acuron Flexi XR + (Acuron Flexi XR + Roundup PowerMAX + Amsol)	1.5 qt + (1.5 qt + 22.0 fl oz + 2.5% v/v)	PRE + (POST)	0	99	99	99	87
Resicore + (Resicore + Roundup PowerMAX + Amsol)	1.25 qt + (1.25 qt + 22.0 fl oz + 2.5% v/v)	PRE + (POST)	0	99	98	98	75
Harness MAX + (Harness MAX + Roundup PowerMAX + Amsol)	33.0 fl oz + (40.0 fl oz + 22.0 fl oz + 2.5% v/v)	PRE + (POST)	0	96	98	99	58
Verdict + (Status + Roundup PowerMAX + Amsol)	16.0 fl oz + (3.0 oz wt + 22.0 fl oz + 2.5% v/v)	PRE + (POST)	15	99	97	98	98
Corvus + (Capreno + Roundup PowerMAX + Amsol)	3.3 fl oz + (3.0 fl oz + 22.0 fl oz + 2.5% v/v)	PRE + (POST)	0	96	95	98	80
LSD (P = 0.05)			2	2	9	2	14

<sup>a</sup>Amsol = liquid ammonium sulfate from Winfield United.<sup>b</sup>Volume of product per volume tank mix.<sup>c</sup>Setfa = giant foxtail, Abuth = velvetleaf, Amata = common waterhemp, Ipohe = ivyleaf morning glory.

**Table 2. Comparisons of one and two-pass herbicide programs for weed control in corn in June and July.**

Treatment	Rate product/acre	Appln timing	Injury Jun 20	Setfa <sup>c</sup> Abuth Amata Ipohe			
				Jun 20	Jul 13	Jul 13	Jul 13
			----- % weed control -----				
Untreated			0	0	0	0	0
Acuron XR	3.0 qt	PRE	0	97	99	98	79
Acuron XR	3.5 qt	PRE	0	99	99	99	85
Acuron Flexi XR	3.0 qt	PRE	0	97	98	99	68
Resicore	2.5 qt	PRE	0	97	95	99	61
Harness MAX	73.0 fl oz	PRE	0	98	98	99	88
SureStart II	3.0 pt	PRE	0	97	69	99	55
Corvus	56.0 fl oz	PRE	0	96	97	98	69
Anthem ATZ	2.5 pt	PRE	0	96	80	99	73
Acuron XR + (Acuron XR + Roundup PowerMAX + Amsol <sup>a</sup> )	1.75 qt + (1.75 qt + 22.0 fl oz + 2.5% v/v <sup>b</sup> )	PRE + (POST)	0	99	99	99	88
Acuron Flexi XR + (Acuron Flexi XR + Roundup PowerMAX + Amsol)	1.5 qt + (1.5 qt + 22.0 fl oz + 2.5% v/v)	PRE + (POST)	0	99	99	99	91
Resicore + (Resicore + Roundup PowerMAX + Amsol)	1.25 qt + (1.25 qt + 22.0 fl oz + 2.5% v/v)	PRE + (POST)	0	99	99	99	88
Harness MAX + (Harness MAX + Roundup PowerMAX + Amsol)	33.0 fl oz + (40.0 fl oz + 22.0 fl oz + 2.5% v/v)	PRE + (POST)	0	98	99	99	90
Verdict + (Status + Roundup PowerMAX + Amsol)	16.0 fl oz + (3.0 oz wt + 22.0 fl oz + 2.5% v/v)	PRE + (POST)	8	99	99	99	91
Corvus + (Capreno + Roundup PowerMAX + Amsol)	3.3 fl oz + (3.0 fl oz + 22.0 fl oz + 2.5% v/v)	PRE + (POST)	18	98	97	98	88
LSD (P = 0.05)			3	3	8	1	12

<sup>a</sup>Amsol = liquid ammonium sulfate from Winfield United.

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

Setfa = giant foxtail, Abuth = velvetleaf, Amata = common waterhemp, Ipohe = ivyleaf morning glory.