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# Weed Management Programs in Corn

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# Weed Management Programs in Corn

**Abstract**

The purpose of this study was to evaluate various herbicides and application timings in corn for crop injury and weed control.

**Keywords**

RFR A9123, Agronomy

**Disciplines**

Agricultural Science | Agriculture | Agronomy and Crop Sciences

# Weed Management Programs in Corn

## RFR-A9123

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### Introduction

The purpose of this study was to evaluate various herbicides and application timings 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 20 gallons of water per acre. The crop rotation was corn following soybean. The pre-plant seedbed was prepared with a field cultivator. Corn was planted at 35,077 seeds/acre in 30-in. rows on May 19. Preemergence (PRE) treatments were applied following planting. Postemergence (EPOST, MPOST, and LPOST) treatments were applied on June 3, 17, and 23, respectively. Corn growth was V1, V3 to V4, and V5 to V6 on June 3, 17, and 23, respectively. Weeds were generally 0.25 to 1.5 in. tall, 0.25 to 5 in. and 0.25 to 4 in. tall, on June 3, 17, and 23, respectively. Weed species in the study included: giant foxtail, velvetleaf, common waterhemp, and common lambsquarters with average populations of < 1 to 10 plants/ft<sup>2</sup>. Giant foxtail populations approached the 10 plants/ft<sup>2</sup> average. 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 100 rating scale (0% = no control or injury; 100% = complete control or crop kill). Corn yields were adjusted to 15.5% moisture.

### Results and Discussion

Summarized in Tables 1 and 2 are the results of the study. EPOST treatments of Corvus plus Atrazine and Balance Flexx plus Atrazine resulted in 17 and 15% corn injury, respectively, when observed on June 17–14 days after application (Table 1). No corn injury was evident on July 1 from the PRE + MPOST and MPOST treatments, 14 days after MPOST application timing. On July 1–43, 28, and 14 days after PRE, EPOST, and MPOST application timing, respectively—weed control with the treatments ranged from 90 to 99%. MPOST applied Steadfast Q was an exception where 83% common waterhemp control was observed.

Giant foxtail control ranged from 77–95%, velvetleaf 82–98%, common waterhemp 48–98% and common lambsquarters 90–99% with the treatments on July 29–36 days after the LPOST application timing (Table 2). Giant foxtail control on July 29 with the PRE and EPOST treatments ranged from 77–88%, Control with the PRE + MPOST, MPOST, and PRE + LPOST ranged from 85–95%. EPOST applied Capreno plus Atrazine and PRE applied SureStart followed by LPOST Durango DMA gave 82% velvetleaf control and PRE applied Harness Xtra followed by LPOST Roundup PowerMAX gave 85% velvetleaf control. All remaining treatments gave 88% or greater velvetleaf control. All treatments, except MPOST applied Steadfast Q, gave 85% or greater common waterhemp control.

Herbicide treatment corn yields ranged from 186 to 218 bushels/acre and no significant differences in yield between treatments were observed. All herbicide treatment yields were significantly higher than the untreated control.

### Acknowledgements

We would like to thank Ken Pecinovsky and the farm staff for their assistance with this study.

**Table 1. Weed management programs in corn.**

Treatment <sup>a</sup>	Rate <sup>b</sup>	Appln timing	Injury		Setfa <sup>c</sup>	Abuth <sup>c</sup>	Amata <sup>c</sup>	Cheal <sup>c</sup>
			Jun 17	Jul 1	Jul 1	Jul 1	Jul 1	Jul 1
	Product/acre		----- (%) -----	----- (%) -----	----- (%) -----			
Untreated	-	-	0	0	0	0	0	0
Corvus + Atrazine	5.6 fl oz + 2.0 pt	PRE	0	0	92	92	95	99
Balance Flexx + Atrazine	6.0 fl oz + 2.0 pt	PRE	0	0	92	93	96	99
Corvus + Atrazine + NIS	5.6 fl oz + 2.0 pt + 0.25%	EPOST	17	8	95	98	98	99
Balance Flexx + Atrazine + NIS	6.0 fl oz + 2.0 pt + 0.25%	EPOST	15	5	98	99	99	99
Capreno + Atrazine + COC + AMS	3.0 fl oz + 2.0 pt + 1.0% + 1.5 lb	EPOST	0	0	90	90	95	99
Corvus + (Laudis + Atrazine + MSO + AMS)	3.0 fl oz + (3.0 fl oz + 2.0 pt + 1.0% + 1.5 lb)	PRE + (MPOST)	0	0	99	99	99	99
Balance Flexx + (Laudis + Atrazine + MSO + AMS)	3.0 fl oz + (3.0 fl oz + 2.0 pt + 1.0% + 1.5 lb)	PRE + (MPOST)	0	0	99	99	99	99
Corvus + Ignite 280 + Laudis + MSO + AMS)	3.0 fl oz + (22.0 fl oz + 2.0 fl oz + 1.0% + 1.5 lb)	PRE + (MPOST)	0	0	98	99	99	98
Balance Flexx + Ignite 280 + Laudis + MSO + AMS)	3.0 fl oz + (22.0 fl oz + 2.0 fl oz + 1.0% + 1.5 lb)	PRE + (MPOST)	0	0	96	99	99	99
Corvus + (Capreno + Atrazine + COC + AMS)	3.0 fl oz + (3.0 fl oz + 2.0 pt + 1.0% + 1.5 lb)	PRE + (MPOST)	0	0	99	99	99	99
Balance Flexx + (Capreno + Atrazine + COC + AMS)	3.0 fl oz + (3.0 fl oz + 2.0 pt + 1.0% + 1.5 lb)	PRE + (MPOST)	0	0	99	99	99	99
Halex GT + Atrazine + NIS + AMS	3.6 pt + 0.5 pt + 0.25% + 1.5 lb	MPOST	0	0	99	99	99	99
Lumax + (Touchdown Total + AMS)	2.0 qt + (24.0 fl oz + 1.5 lb)	PRE + (LPOST)	0	0	99	99	99	99
Integrity + (Roundup PowerMAX + AMS)	13.0 fl oz + (22.0 fl oz + 1.5 lb)	PRE + (LPOST)	0	0	99	99	99	99
SureStart + (Durango DMA + AMS)	1.75 pt + (24.0 fl oz + 3.0 lb)	PRE + (LPOST)	0	0	99	99	99	99
Steadfast Q + COC + AMS	1.5 oz wt + 1.0% + 2.0 lb	MPOST	0	0	95	92	83	95
Harness Xtra + (Roundup PowerMAX + AMS)	1.5 qt + (22.0 fl oz + 1.5 lb)	PRE + (LPOST)	0	0	99	99	99	99
LSD (P = 0.05)			1	1	3	2	4	1

<sup>a</sup>NIS = Activator 90 a non-ionic surfactant from UAP - Loveland Industries; COC = Herbimax crop oil concentrate from UAP - Loveland Industries; AMS = ammonium sulfate fertilizer from Agrilience, LLC; MSO = modified vegetable oil and surfactant blend from UAP - Loveland Industries.

<sup>b</sup>% = % volume/volume; lb = lb/acre.

<sup>c</sup>Setfa = giant foxtail, Abuth = velvetleaf, Amata = common waterhemp, Cheal = common lambsquarters.

**Table 2. Weed management programs in corn.**

Treatment <sup>a</sup>	Rate <sup>b</sup>	Appln timing	Setfa <sup>c</sup> Jul 29	Abuth <sup>c</sup> Jul 29	Amata <sup>c</sup> Jul 29	Cheal <sup>c</sup> Jul 29	Yield Nov 11
	Product/acre		----- (%) -----				(Bu/acre)
Untreated	-	-	0	0	0	0	118
Corvus + Atrazine	5.6 fl oz + 2.0 pt	PRE	77	90	85	99	186
Balance Flexx + Atrazine	6.0 fl oz + 2.0 pt	PRE	82	92	85	98	193
Corvus + Atrazine + NIS	5.6 fl oz + 2.0 pt + 0.25%	EPOST	88	95	95	99	190
Balance Flexx + Atrazine + NIS	6.0 fl oz + 2.0 pt + 0.25%	EPOST	88	96	92	99	210
Capreno + Atrazine + COC + AMS	3.0 fl oz + 2.0 pt + 1.0% + 1.5 lb	EPOST	80	82	85	99	194
Corvus + (Laudis + Atrazine + MSO + AMS)	3.0 fl oz + (3.0 fl oz + 2.0 pt + 1.0% + 1.5 lb)	PRE + (MPOST)	88	95	91	99	197
Balance Flexx + (Laudis + Atrazine + MSO + AMS)	3.0 fl oz + (3.0 fl oz + 2.0 pt + 1.0% + 1.5 lb)	PRE + (MPOST)	87	95	95	99	213
Corvus + Ignite 280 + Laudis + MSO + AMS)	3.0 fl oz + (22.0 fl oz + 2.0 fl oz + 1.0% + 1.5 lb)	PRE + (MPOST)	85	90	95	99	212
Balance Flexx + Ignite 280 + Laudis + MSO + AMS)	3.0 fl oz + (22.0 fl oz + 2.0 fl oz + 1.0% + 1.5 lb)	PRE + (MPOST)	85	93	92	99	190
Corvus + (Capreno + Atrazine + COC + AMS)	3.0 fl oz + (3.0 fl oz + 2.0 pt + 1.0% + 1.5 lb)	PRE + (MPOST)	92	96	95	99	209
Balance Flexx + (Capreno + Atrazine + COC + AMS)	3.0 fl oz + (3.0 fl oz + 2.0 pt + 1.0% + 1.5 lb)	PRE + (MPOST)	90	95	98	99	200
Halex GT + Atrazine + NIS + AMS	3.6 pt + 0.5 pt + 0.25% + 1.5 lb	MPOST	92	95	90	98	208
Lumax + (Touchdown Total + AMS)	2.0 qt + (24.0 fl oz + 1.5 lb)	PRE + (LPOST)	95	98	95	99	210
Integrity + (Roundup PowerMAX + AMS)	13.0 fl oz + (22.0 fl oz + 1.5 lb)	PRE + (LPOST)	92	93	85	98	218
SureStart + (Durango DMA + AMS)	1.75 pt + (24.0 fl oz + 3.0 lb)	PRE + (LPOST)	90	82	87	99	197
Steadfast Q + COC + AMS	1.5 oz wt + 1.0% + 2.0 lb	MPOST	93	88	48	90	206
Harness Xtra + (Roundup PowerMAX + AMS)	1.5 qt + (22.0 fl oz + 1.5 lb)	PRE + (LPOST)	92	85	86	99	214
LSD (P=0.05)			7	8	12	2	39

<sup>a</sup>NIS = Activator 90 a non-ionic surfactant from UAP - Loveland Industries; COC = Herbimax crop oil concentrate from UAP - Loveland Industries; AMS = ammonium sulfate fertilizer from Agrilience, LLC; MSO = modified vegetable oil and surfactant blend from UAP - Loveland Industries.

<sup>b</sup>% = % volume/volume; lb = lb/acre.

<sup>c</sup>Setfa = giant foxtail, Abuth = velvetleaf, Amata = common waterhemp, Cheal = common lambsquarters.