

# The Effect of Corn Herbicides on Weed Control

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## Objective

To evaluate the effect of several different herbicides on the control of annual grass and giant ragweed in corn.

## Background

Cooperator:	Tom Weiler	Fertilizer:	200 lbs. 19-19-19 at planting
County:	Morrow		110 lbs. NH <sub>4</sub> sidedressed June 18
Nearest town:	Chesterville	Herbicides:	See Results
Soil Type:	Sloan silty clay loam	Hybrid:	Golden Harvest H-8877
Previous Crop:	Soybeans	Row Width:	30 inches
Drainage:	Systematically tiled	Planting Date:	April 27, 2001
Soil Test:	pH 7.0, P 23 ppm, K 154 ppm	Planting Rate:	30,200 seeds/A
		Harvest Date:	October 22, 2001

## Methods

The field chosen has moderate to high giant ragweed pressure and light annual grass (mostly giant foxtail) pressure. Thirteen different herbicide treatments and an untreated check were replicated four times in a randomized complete block design. Plot size was 10 feet wide by 40 feet in length. The preemergence herbicides were applied on May 1. The postemergence herbicides were applied on June 8 when the corn was 18 inches tall and fourth-collar stage; giant ragweed was 15 inches tall; and annual grasses were 3 to 5 inches tall. The treatments were applied with a backpack carbon-dioxide-pressurized sprayer with an output volume of 20 gallons per acre at 30 pounds of pressure per square inch. Weed control was evaluated, based upon a scale of 0% indicating no herbicide activity to 100% indicating complete plant death, on August 22, 2001.

## Results

**Table 1. Visual Evaluation of Control of Annual Grasses and Giant Ragweed in Corn<sup>a</sup>**

Herbicide Treatment <sup>b</sup>	Herbicide Rate	Treatment Timing <sup>c</sup>	Weed Control <sup>d</sup>		Cost <sup>e</sup> (\$/A)	Total Cost <sup>f</sup> (\$/A)
			Giant Ragweed (%)	Annual Grass (%)		
Define 60DF	19.5 oz/A	PRE	92 abc	96a	24.37	30.11
Banvel 4 L	8.0 oz/A	POST			5.74	
Axiom 68DF	21.5 oz/A	PRE	98 ab	95a	21.7	27.44
Banvel 4L	8.0 oz/A	POST			5.74	

Harness 7.0EC	2.5 pt/A	PRE			25.16	
Banvel 4L	8.0 oz/A	POST	100 a	95 a	5.74	30.9
Dual II Magnum 7.64EC	1.84 pt/A	PRE			25.54	
Banvel 4L	8.0 oz/A	POST	84 bcd	88 ab	5.74	31.28
Outlook 6.0EC	19.5 oz/A	PRE				Price
Banvel 4L	8.0 oz/A	POST	84 bcd	78 b		Unavailable
Degree 3.8EC	4.6 pt/A	PRE			25.21	
Banvel 4L	8.0 oz/A	POST	92 abc	91 ab	5.74	30.95
Topnotch 3.2 EC	2.75 qt/A	PRE			24.66	
Banvel 4L	8.0 oz/A	POST	100 a	95 a	5.74	30.4
Harness Xtra 5.6F	2.65 qt/A	PRE			24.16	24.16
Dual II Magnum 7.64EC	1.5 pt/A	PRE			20.88	
Callisto 4SC +	4.0 oz/A	POST			13.33	
COC +	1.0 %v/v	POST	82 cd	94 a	1.52	36.31
UAN - 28% N	2.5 %v/v	POST			0.58	
Dual II Magnum 7.64EC	1.5 pt/A	PRE			20.88	
Callisto 4SC +	4.0 oz/A	POST			13.33	
Atrazine 90DF +	0.28 lb/A	POST	86 abcd	88 ab	0.65	36.96
COC +	1.0 %v/v	POST			1.52	
UAN - 28% N	2.5 %v/v	POST			0.58	
Leadoff 5.0L	1.0 qt/A	PRE			10.04	
Basis Gold 89.5DF +	14 oz/A	POST			18.53	
Distinct 76.4DF +	1.0 oz/A	POST	78 d	91 ab	2.24	32.7
MSO +	0.5 %v/v	POST			1.6	
UAN - 28% N	1.25 %v/v	POST			0.29	
Epic 58DF	12 oz/A	PRE			22.8	
Aim 40DG +	0.33 oz/A	POST			2.76	
Atrazine 90DF +	1.5 lb/A	POST	100 a	99 a	3.5	30.44
NIS +	0.25 %v/v	POST			0.8	
UAN - 28% N	2.5 %v/v	POST			0.58	
Princep 4F	1.5 qt/A	PRE			6.7	
Distinct 76.4DF +	6.0 oz/A	POST			13.44	
NIS +	0.25 %v/v	POST	81 cd	95 a	0.8	21.23
UAN - 28% N	1.25 %v/v	POST			0.29	
LSD (0.05)			14.3	14.4		
F-Test			2.5	12		
CV			11.10%	11.50%		

<sup>a</sup> Rainfall recorded in May: May 1-8 = 0.4 inch, May 9-15=1.2 inch, May 16-31=3.4 inch.

<sup>b</sup> All treatments were applied at 20 gallons per acre and 30 psi.

<sup>c</sup> PRE treatments were applied on May 1 and POST treatments were applied on June 8 with the corn being 18 inches tall and four collars (V4), giant ragweed being 15 inches tall, and annual grasses being 3-5 inches tall.

<sup>d</sup> Treatment means followed by the same letter are not significantly different. Visual evaluation of weed control was done on August 22.

<sup>e</sup> All herbicides and adjuvant costs listed in the table were 2001 in-season retail prices.

<sup>f</sup> The total cost includes the herbicides and adjuvants only listed in the previous column

## **Summary and Notes**

Axiom, Harness, and Topnotch followed by Banvel and Epic followed by Aim plus Atrazine provided 98% or better control of giant ragweed. Dual II Magnum followed by Callisto, Leadoff followed by Basis Gold plus Distinct, and Princep followed by Distinct (6.0 oz/A) showed significantly lower giant ragweed control compared to the other treatments. All treatments provided greater than 90% control of annual grasses, except Dual II Magnum followed by Banvel, Outlook followed by Banvel, Harness Xtra, and Dual II Magnum followed by Callisto + Atrazine. The Princep followed by Distinct was the least expensive herbicide treatment.

## **Acknowledgment**

We would like to thank Tom Weiler and Dave Ufferman for their assistance in this project. We would also like to thank Golden Harvest for the seed used for the project. Thanks to Geoffrey Trainer (OSU Crop Science graduate student) for evaluating the weed control.

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