

Woolly Cupgrass Management in Field Corn, St. Charles, MN. 1997. Breitenbach Fritz, Thomas Hoverstad, and Jeffery Gunsolus.

The objective of this study was to evaluate pre-emergent and post-emergence herbicides for control of woolly cupgrass in field corn. The site selected for this trial was a grower's field. This research was conducted on a Waubeek silt loam soil containing 3.2% organic matter with a pH of 6.8. Soil test P and K levels were 19 and 155 lb. per acre, respectively. The previous crop was field corn. The field had been chisel plowed in the fall. Anhydrous ammonia was applied in the spring, at a rate of 150-lb. actual nitrogen per acre. The field was leveled with a field cultivator, and planted. Force 3G insecticide was T-banded at a rate of 5.5 lb. per acre. The field was planted with Pioneer 3751 IR, DeKalb 493SR, and DeKalb 493GR hybrid seed corn on April 29, 1997, in 30 inch rows at a population of 32000 seeds per acre. The trial was a randomized complete block design replicated four times. All treatments were applied with a tractor mounted compressed air sprayer equipped with XR8002 flat-fan nozzles spaced 15 inches apart delivering 20 gpa at 32 psi. None of the treatments were cultivated. Application dates and environmental conditions, crop stage and weed heights are listed below:

Date	May 13	June 2	June 10	June 19
Treatment	Pre	E-Post	Post I	Post II
Temperature	50	70	74	69
Percent Relative Humidity	38	44	46	84
Percent Cloud Cover	60	0	0	100
Wind Speed (MPH)	12	12	5	9
Soil Moisture	dry	dry	dry	dry
Rainfall after application (inches)				
5-13 to 5-19	0.45"	6-10 to 6-16	0.40"	
5-20 to 5-26	1.00"	6-17 to 6-23	0.40"	
5-27 to 6-02	0.00"	6-24 to 6-24	1.20"	
6-03 to 6-09	0.60"			
Corn Stage (collars)	NA	2	3	7
Wocg Height (inches)	0-1	1.5	3.0	2.5
Weed Density per sq ft	6	107	133	NA

Pre-emergence treatments: All treatments containing Balance, including the EXP31498A (Balance + Acetochlor), and EXP31430A (Balance + Atrazine) premixes performed very well when compared against the Acetochlor check. Percent control for woolly cupgrass ranged from 84 to 95 percent for the Balance treatments, compared to 60 percent for Acetochlor standard (8/5 ratings). Minimal crop injury was seen in with the Balance treatments (6/10 ratings). It is worth noting that the EXP premixes tended to have higher injury ratings when compared to Balance tankmixed with Acetochlor (Harness 7E was the Acetochlor source used in 1997).

Pre-emergence followed by sequential post-emergence treatments: Sequential treatments performed significantly better than the Acetochlor pre-emergence standard. Acetochlor, Dual II Mag., Axiom, and Frontier treatments followed sequentially with post treatments of Accent, Poast Plus, or Liberty improved control of woolly cupgrass. The Axiom pre + Accent post, Frontier pre + Poast Plus post, and Acetochlor pre + Liberty post offered control similar to those of treatments containing Balance (along, or tank mixed). Balance and EXP premixes pre-emergence followed sequentially by Accent provided some of the best control of woolly cupgrass 94 to 99 percent (8/5 ratings).

Table1. Woolly cupgrass control in field corn at St. Charles, MN in 1997 (Breitenbach, Hoverstad, and Gunsolus).

Treatment	Rate	Timing	Inj. (6/10)	Wocg (6/10)	Wocg (8/5)
	Rate/acre		%	% Control	
Balance	2.0 oz	Pre	0	84	84
Balance + Atrazine	2.0 oz + 1.0 lb ai	Pre	5.3	91	87
Balance + Acetochlor	2.0 oz + 1.0 lb ai	Pre	1.5	90	87
Balance + Acetochlor	1.5 oz + 1.0 lb ai	Pre	1.5	93	85
Balance + Acetochlor	1.3 oz + 2.0 lb ai	Pre	0.5	92	88
Acetochlor	2.625 lb ai	Pre	0	85	60
Axiom	19.0 oz	Pre	0	71	60
Balance + Axiom	1.5 oz + 13.0 oz	Pre	2.8	91	88
Balance + Axiom	2.0 oz + 13.0 oz	Pre	5.9	96	95
EXP31498A	24.0 oz	Pre	3.3	90	87
EXP31498A	32.0 oz	Pre	6.3	94	88
EXP31498A	40.0 oz	Pre	6.8	95	91
EXP31498A + Atrazine	32.0 oz + 1.0 lb ai	Pre	9.3	95	90
EXP31430A	43.0 oz	Pre	7.5	91	91
Balance / Accent <u>1/</u>	1.5 oz / 0.5 oz	Pre/ Post II	0	85	98
Balance / Accent <u>1/</u>	2.0 oz / 0.5 oz	Pre/ Post II	5.0	83	94
EXP31498A / Accent <u>1/</u>	40.0 oz / 0.5 oz	Pre/ Post II	4.3	91	97
EXP31498A / Accent <u>1/</u>	40.0 oz / 0.33 oz	Pre/ Post II	4.5	94	99
EXP31430A + Acetochlor / Accent <u>1/</u>	31.0 oz + 2.0 lb ai / 0.5 oz	Pre/ Post II	0.3	93	98
Acetochlor / Accent + Buctril <u>2/</u>	1.75 lb ai / 0.5 oz + 1.0 pt	Pre/ Post I	0	74	73
Acetochlor / Accent + Buctril <u>2/</u>	2.19 lb ai / 0.5 oz + 1.0 pt	Pre/ Post I	0	81	76
Acetochlor / Accent + Buctril <u>2/</u>	2.42 lb ai / 0.5 oz + 1.0 pt	Pre/ Post I	0	76	76
Axiom / Accent <u>1/</u>	19 oz / 0.5 oz	Pre/ Post I	0	74	83
Dual II Mag / Accent + Beacon + Clarity	1.5 pt / 0.33 oz + 0.38 oz + 2.0 oz <u>1/</u>	Pre/ Post I	0	65	72
Frontier / Poast Plus + Clarity <u>3/</u>	28 oz / 24 oz + 8 oz	Pre/ Post I	0	80	87
Frontier / Frontier + Poast Plus + Clarity <u>3/</u>	16 oz / 12 oz + 24 oz + 8 oz	Pre/ Post I	0	78	81
Acetochlor / Liberty <u>4/</u>	1.6 lb ai / 20.0 oz	Pre/ Post II	0	88	82
Dual II Mag + Accent + Beacon + Clarity <u>1/</u>	1.0 pt + 0.33 oz + 0.38 oz + 2.0 oz	E-Post	0	95	66
Acetochlor + Accent + Buctril <u>2/</u>	1.5 lb ai + 0.5 oz + 1.0 pt	E-Post	0	93	73
Prowl + Accent + Beacon <u>1/</u>	2.4 pt + 0.5 oz + 0.38 oz	E-Post	0	94	73
Lightning + Clarity <u>5/</u>	1.28 oz + 6.0 oz	E-Post	0	93	81
Prowl + Lightning + Clarity <u>5/</u>	3.0 pt + 1.28 oz + 6.0 oz	E-Post	0	95	86
Accent + Buctril <u>2/</u>	0.67 oz + 1.0 pt	Post I	0	0	74
Poast Plus + Marksman / Poast Plus <u>3/</u>	16.0 oz + 3.5 pt / 16.0 oz	Post I/Post II	0	0	99
Liberty + Atrazine <u>4/</u>	20.0 oz + 1.0 lb ai	Post II	0	0	87
Untreated Check			0	0	0
LSD (0.10)			3	5	6

1/ Prime Oil 1.25% V/V + 28% N 4 qt/a. 2/ Activate Plus 0.25% V/V + 28% N 4 qt/a. 3/ Prime Oil 1.25% V/V + 28% N 2 qt/a. 4/ AMS 2.0 lb/a. 5/ Activate Plus 0.25% V/V + 28% N 1.0 qt/a. Riverside/Terra Prime Oil (petroleum based crop oil concentrate with 17 % emulsifier), Riverside/Terra Activate Plus Non-Ionic Surfactant, 28% N = aqueous solution of urea and ammonium nitrate. AMS = sprayable ammonium sulfate

Early Post treatments: Early post treatments generally performed below expectations, and offered control ratings ranging from 66 to 73 percent (8/5 rating). The exceptions were Lightning + Clarity, and Prowl + Lightning + Clarity. These treatments provided control ratings of 81 and 86 percent respectively (8/5 ratings).

Post emergence treatments: The Accent + Buctril post emergence standard provided woolly cupgrass control of 74 percent (8/5 ratings). The split application of Poast Plus + Marksman, followed by Poast Plus provided very good control, 99 percent (8/5 ratings). The Liberty + Atrazine treatment also provided good control of woolly cupgrass at 87 percent control (8/5 ratings).

Balance injury: Several Balance and EXP premix plots exhibited injury symptoms, these plots were hand harvested along with some comparable standards. The results are presented in the table below.

**Table 2. Impact of Balance injury on yield in field corn at St. Charles, MN 1997.
(Breitenbach, Hoverstad, and Gunsolus)**

Treatment	Rate	Timing	Inj. (6/10)	Wocg (8/5)	Yield Bu/a
Balance	2.0 oz	Pre	0.0	84	178
Balance + Acetochlor	2.0 oz + 1.0 lb ai	Pre	1.5	87	163
Balance + Atrazine	2.0 oz + 1.0 lb ai	Pre	5.3	87	186
EXP31498A	32.0 oz	Pre	6.3	90	170
EXP31430A	43.0 oz	Pre	7.5	91	179
Balance / Accent <u>1/</u>	2.0 oz / 0.5 oz	Pre/ Post II	5.0	94	186
Lightning + Clarity <u>5/</u>	1.28 oz + 6.0 oz	E-Post	0	81	178
Acetochlor / Accent + Buctril <u>2/</u>	1.75 lb ai / 0.5 oz + 1.0 pt	Pre/Post I	0	73	155
	LSD (0.10)		3	6	11