

Herbicide performance in corn at Waseca, MN common cocklebur site in 2004. Hoverstad, Thomas R. and Jeffrey L. Gunsolus. The objective of this trial was to evaluate weed management systems available to corn producers in southern Minnesota on several annual weed species. This site had an especially high population of common cocklebur. The research site was a Clarion clay loam soil containing 5% organic matter, pH = 6.6 and soil test P and K levels of 30 and 161 ppm, respectively. The previous crop was soybean that had been chisel plowed in the fall. The area was fertilized in the spring with 167 lb N/A as urea and field cultivated once to a depth of 3 inches to prior to planting to prepare a seedbed. Two corn hybrids were used to evaluate the products for weed control in this trial. Those treatments that included glyphosate were evaluated using Pioneer '38H66'. The treatments using glufosinate and those treatments that require no special herbicide resistance were evaluated using Pioneer '38H68'. All corn was planted on May 5, 2004 in 30-inch rows. All treatments were applied with a tractor-mounted sprayer delivering 20 gpa at 40 psi using 8002 flat-fan nozzle tips. Visual estimates of weed control were taken on September 29, 2004. Application dates, environmental conditions, crop and weed stages are listed below.

Date Treatment	May 6 Pre	June 3 V3 corn	June 14 V4 corn	June 30 4-inch regrowth
air temp °F	72	70	72	82
soil temp (4-inch) °F	74	65	70	75
Relative humidity (%)	25	45	35	35
Wind	NE 8	W 5	W 9	S 4
Soil moisture	Dry	Moist	Moist	Moist
Corn				
stage	--	V3	V4	V9
height (inch)	--	4	6	30
Giant foxtail				
leaf no.	--	1-2	2-3	2-4
height (inch)	--	1-2	2-3	3-5
Common cocklebur				
leaf no.	--	2-4	4-6	2-4
height (inch)	--	2-4	6-8	4-8
Common ragweed				
leaf no.	--	2-4	4-6	2-4
height (inch)	--	1-2	3	2-4
Common lambsquarters				
leaf no.	--	2-4	6	6-10
height (inch)	--	1-2	3-4	3-4
Rainfall after application (inch)				
Week 1	1.66	4.29	0.15	2.09
Week 2	0.73	1.18	0.37	2.49
Week 3	2.47	0.37	0.88	1.85

Giant foxtail control was good to excellent for all treatments evaluated. Soil applied [acetochlor & atrazine] plus [flumetsulam & clopyalid] resulted in poorer common cocklebur than soil applied [S-metolachlor & mesotrione & atrazine]. Fair control of common ragweed was observed with preemergence flufenacet followed by foramsulfuron plus mesotrione. Fair control of common ragweed was also observed with postemergence [nicosulfuron & rimsulfuron] tank mixed with mesotrione or [S-metolachlor & mesotrione & atrazine]. All other treatments provided good to excellent control of common ragweed. There was a trend toward poorer common lambsquarters control in glyphosate two-pass treatments where carfentrazone was included in the first pass tank mixed with glyphosate than where two treatments of glyphosate alone were applied. (University of Minnesota, Southern Research and Outreach Center, Waseca, MN and Dept of Agronomy and Plant Genetics, University of Minnesota, St Paul).

Table. Herbicide performance in corn at a common cocklebur site at Waseca, MN in 2004 (Hoverstad and Gunsolus).

Treatment ^a	Rate (lb/A or %)	SETFA	XANST	AMBEL	CHEAL	Yield Bu/A ^b
		-----(% control)-----				
<u>Preemergence Corn hybrid = Pioneer 38H68</u>						
[Acet&atra]+[Flms&clpy]	[2.2&0.8]+[0.046&0.125]	98	74	90	99	179
[S-meto&meso&atra]	[2&0.2&0.75]	98	92	96	99	182
<u>Preemergence/POST II (V4 corn) Corn hybrid = Pioneer 38H68</u>						
Acet/ Flms&clpy]+Meso+Atra+NIS+AMS	2.2/ [0.035&0.09]+0.023+0.25+1%+2.5	99	99	96	99	181
[Acet&atra]/ Flms&clpy]+Dica+Atra+NIS+AMS	[2.2&0.8]/ [0.035&0.09]+0.125+0.25+1%+2.5	97	99	99	99	186
Dime-P/ [Dica&difl]+Atra+NIS+AMS	0.98/ [0.125&0.05]+0.45+0.25%+2.5	99	96	99	99	188
Flct/Gluf+Atra+AMS	0.45/0.42+0.45+3	98	93	99	99	185
Flct/ Fora+[Dica&difl]+MSO+28%	0.45/ 0.033+[0.125&0.05]+1.5pt+3pt	99	96	99	99	159
Flct ² / Fora+Meso+MSO+28%	0.38/ 0.033+0.047+1.5pt+3pt	99	94	74	99	178
[S-meto&CGA-154281]/ [Nico&rims&clpy&flms]+Meso+ Atra+COC+AMS	0.71/ [0.01&0.01&0.11&0.03]+0.031+ 0.45+1%+2	99	99	99	99	180
[S-meto&CGA-154281]/ [Nico&rims]+Meso Atra+COC+AMS	0.71/ [0.02&0.01]+0.063 0.45+1%+2	99	95	99	99	185
[S-meto&CGA-154281]/ Meso+Gluf+Atra+AMS	0.95/ 0.94+0.22+0.5+2	99	99	99	99	190
[S-meto&CGA-154281]/ Meso+Atra+COC+28%N	1.91/ 0.094+0.5+1%+2.5%	99	99	99	99	186
Dime-P/ Carf+Atra+Dica+NIS	0.98/ 0.008+0.5+0.94+0.25%	99	98	99	99	184
<u>POST II (V4 Corn) Corn hybrid = Pioneer 38H68</u>						
[Nico&rims]+ Meso+COC+AMS	[0.02&0.01]+ 0.06+1%+2	97	95	78	99	180
[Nico&rims&clpy&flms]+ Dica+Atra+COC+AMS	[0.01&0.01&0.11&0.03]+ 0.125+0.45+1%+2	86	99	98	99	175
[Nico&rims]+ [S-meto&meso&atra]+NIS+AMS	[0.02&0.01]+ [0.5&0.05&0.19]+0.25%+2	98	95	84	99	179
<u>Checks Corn Hybrid = Pioneer 38H68</u>						
Weedy	-	0	0	0	0	27
Hand-Weeded	-	100	100	100	100	190
<u>Preemergence/POST II (V4 corn) Corn hybrid = Pioneer 38H66</u>						
Acet ² /Glyt+AMS	1.1/0.94+2.5	97	93	97	99	199
[S-meto&CGA-154281]/Glyt ² +AMS	0.95/1.1+2.5	99	94	93	98	197
[Acet&atra]+GF1279+AMS	[1.1&0.4]/1.0+2.5	94	95	94	96	203
Dime-P/[Dica&difl]+Glyt+NIS+AMS	0.56/[0.094&0.04]+0.47+0.25%+2.5	97	99	99	99	191
[S-meto&CGA-154281]/ Glyt+Rims+AMS	0.71/ 0.94+0.016+2.5	99	99	99	99	187
<u>POST I (V3 corn) / POST III (4-inch Regrowth) Corn hybrid = Pioneer 38H66</u>						
Glyt+AMS/ Glyt+AMS	0.94+2.5 / 0.94+2.5	98	99	99	99	209
Glyt+Carf+AMS/ Glyt+AMS	0.94+0.008+2.5 / 0.94+2.5	99	99	99	77	207
<u>Checks Corn Hybrid = Pioneer 38H68</u>						
Hand-Weeded	-	100	100	100	100	194
	LSD (0.10)	3	6	7	11	16

^aAcet = acetochlor = Surpass 6.4E; Acet² = acetochlor = Harness 7E; [Acet&atra] = [acetochlor & atrazine] = Keystone LA 5.5 SE; Atra = atrazine = Aatrex 90DF; Carf = carfentrazone = Aim EW; Dica = dicamba = Clarity 4S; [Dica&difl] = [dicamba & diflufenzopyr] = Distinct 70WG; Dime-P = Dimethenamid-P = Outlook 6L; Flct = flufenacet = Define 60DF; Flct² = flufenacet = DefineSC 4L; Fora = foramsulfuron = Option 35DF; [Flms&clpy] = [flumetsulam & clopyralid] = Hornet WDG; Glyt = glyphosate = Roundup Weather MAX; Glyt² = glyphosate = Touchdown Total; Gluf = glufosinate = Liberty 1.67L; Meso = mesotrione = Callisto 4L; [Nico&rims&clpy&flms] = [nicosulfuron & rimsulfuron & clopyralid & flumetsulam] = Accent Gold WDG; [Nico&rims] = [nicosulfuron & rimsulfuron] = Steadfast 75DF; Rims = rimsulfuron; [S-meto&CGA-154281] = [S-metolachlor & CGA-154281] = Cinch 7.64EC; [S-meto&meso&atra] = [S-metolachlor & mesotrione & atrazine] = Lumax 3.95L; COC = crop oil concentrate, Class Additive 17%; NIS = nonionic surfactant, Class Preference; 28%N = an aqueous solution of urea and ammonium nitrate; AMS = spray grade ammonium sulfate.

^b Yield adjusted to 15.5% moisture.