

Herbicide performance in corn at Waseca, MN common ragweed site in 2003. 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 ragweed. The research site was a Webster clay loam soil containing 6.7% organic matter, pH = 7.0 and soil test P and K levels of 26 and 165 ppm, respectively. The previous crop was oats that had been moldboard plowed in the fall. The area was fertilized in the spring with 150 lb N/A as anhydrous ammonia and field cultivated once to a depth of 3 inches prior to planting to prepare a seedbed. Three corn hybrids were used to evaluate the products for weed control in this trial. Those treatments that included glyphosate were evaluated using Garst '8590RR'. The treatment including [Imazethapyr&Imazapyr] were evaluated using Garst '8590IT'. The treatments using glufosinate and those treatments that require no special herbicide resistance were evaluated using 'Garst 8517LL'. All corn was planted on May 2, 2003 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 18, 2003. Application dates, environmental conditions, crop and weed stages are listed below.

Date	May 2	May 30	June 5	June 24
Treatment	Pre	V3 corn	V4 corn	4-inch regrowth
air temp °F	64	74	72	85
soil temp (4-inch) °F	52	65	65	75
Relative humidity (%)	45	30	55	25
Wind	W6	W 12	S5	W 6
Soil moisture	Moist	Dry	Dry	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 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	1.93	0.03	2.09	0.93
Week 2	1.24	2.09	0.03	1.67
Week 3	0.21	0.03	1.44	1.16

The only treatments that failed to provide excellent giant foxtail control were soil applied [S-metolachlor&mesotrione&atrazine] as a onepass soil applied treatment or preemergence [S-metolachlor&CGA-154281] at a one-half rate followed by mesotrione and atrazine. Common ragweed control was better where [nicosulfuron&rimsulfuron&atrazine] was tank mixed with mesotrione than where [nicosulfuron&rimsulfuron] was tank mixed with mesotrione. The highest corn yields in this trial were associated with the glyphosate treatments but this is likely the result of hybrid differences as weed control was similar for most treatments. (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 Waseca, MN common ragweed site in 2003 (Hoverstad and Gunsolus).

Treatment ^a	Rate (lb/A or %)	SETFA	AMBEL	CHEAL	Yield Bu/A ^b
		-----(% control)-----			
<u>Preemergence Corn hybrid = Garst 8517LL</u>					
[Acet&atra]+[Flms&clpy]	[2.2&0.8]+[0.046&0.15]	98	99	99	172
[S-meto&meso&atra]	[2&0.2&0.75]	75	99	99	155
<u>Preemergence/POST II (V4 corn) Corn hybrid = Garst 8517LL</u>					
Acet/[Flms&clpy]+Atra+COC+AMS	2.2/[0.035&0.11]+0.75+1%+2.5	97	99	99	173
Acet/	2.2/	98	99	99	182
Flms&clpy]+Meso+Atra+NIS+AMS	[0.035&0.11]+0.023+0.25+1%+2.5	99	99	99	169
[Acet&atra]/	[2.2&0.8]/	99	99	99	169
Flms&clpy]+Dica+Atra+NIS+AMS	[0.035&0.11]+0.125+0.25+1%+2.5	99	99	99	169
Dime-P/	0.98/	96	97	99	175
[Dica&diff]+Atra+NIS+AMS	[0.125&0.05]+0.45+0.25%+2.5	96	97	99	175
Flct/Gluf+Atra+AMS	0.45/0.42+0.45+3	98	97	99	160
Flct/	0.45/	95	98	99	157
Fora[Dica&diff]+MSO+28%	0.033[[0.125&0.05]+1.5pt+3pt	95	98	99	157
[S-meto&CGA-154281]/	0.71/	95	99	99	163
[Nico&rims&clpy&flms]+Meso+	[0.01&0.01&0.11&0.03]+0.03+	95	99	99	163
Atra+COC+AMS	0.45+1%+2				
[S-meto&CGA-154281]/	0.71/	97	97	99	182
[Nico&rims]+Meso	[0.02&0.01]+0.063	97	97	99	182
Atra+COC+AMS	0.45+1%+2				
[S-meto&CGA-154281]/	1.91/	95	99	99	167
[Prim&dica]+Atra+COC+28%N	[0.03&0.12]+0.45+1%+2.5%	95	99	99	167
[S-meto&CGA-154281]/	0.95/	75	99	99	169
Meso+Atra+COC+28%N	0.094+0.25+1%+2.5%	75	99	99	169
Dime-P/Carf+atra+COC	0.98/0.007+0.9+1%	93	96	99	166
Dime-P/	0.98/	92	99	99	183
Carf+Atra+Dica+COC	[0.007]+0.9+0.125+1%	92	99	99	183
<u>Preemergence/POST II (V4 corn) Corn hybrid = Garst 8590 RR</u>					
Acet ² /Glyt+AMS	1.1/0.94+2.5	99	96	99	192
[S-meto&CGA-154281]/Glyt ² +AMS	0.95/0.9+2.5	98	96	94	190
Dime-P/Dica+Glyt	0.56/0.25+0.47	98	96	99	201
<u>POST I (V3 corn) / POST III (4-inch Regrowth) Corn hybrid = Garst 8590 RR</u>					
Glyt+AMS/ Glyt+AMS	0.94+2.5 / 0.94+2.5	99	99	99	210
<u>POST I (V3 corn) / POST III (4-inch Regrowth) Corn hybrid = Garst 8517LL</u>					
Gluf+Atra+AMS / Gluf+Atra+AMS	0.42+0.5+2.5/ 0.42+0.5+2.5	98	99	99	179
<u>POST 1(V3 corn) Corn hybrid = Garst 8590IT</u>					
[Imep&impr]+[Dica&atra]+	[0.042&0.014]+[0.28&0.55]+	96	97	99	182
NIS+AMS	0.25%+2.5				
<u>POST II (V4 Corn) Corn hybrid = Garst 8517LL</u>					
[Nico&rims]+	[0.02&0.01]+	96	78	99	164
Meso+COC+AMS	0.06+1%+2				
[Nico&rims&atra]+	[0.02&0.01+0.75]+	92	99	99	153
Meso+COC+AMS	0.06+1%+2				
[Nico&rims&clpy&flms]+	[0.01&0.01&0.11&0.03]+	89	99	99	180
Dica+Atra+COC+AMS	0.125+0.03+1%+2				
[Nico&rims]+	[0.01&0.01&0.11&0.03]+	89	91	99	177
[S-meto&meso&atra]+NIS+AMS	[0.67&0.067&0.25]+0.25%+2				
<u>Checks</u>					
Weedy	-	0	0	0	26
Hand-Weeded	-	100	100	100	188
	LSD (0.10)	4	4	2	17

^a Acet = acetochlor = Surpass 6.4E; Acet² = acetochlor = Harness 7E; [Acet&atra] = [Acetochlor&atrazine] = Keystone LA; Atra = atrazine = Aatrex 90DF; Carf = carfentrazone = Aim EW; Dica = dicamba = Clarity 4S; [Dica&atra] = [dicamba & atrazine] = Marksman 3.3L; [Dica&diff] = [dicamba & diflufenzopyr] = Distinct 70WG; Dime-P = Dimethenamid-P = Outlook 6L; Flct = flufenacet = Define 60DF; [Flms&clpy] = [flumetsulam & clopyralid] = Hornet WDG; Fora = foramsulfuron = Option 35DF; Gluf = glufosinate = Liberty 1.67L; Glyt = glyphosate = Roundup Weather MAX; Glyt² = glyphosate = Touchdown IQ; [Imep&impr] = [imazethapyr & imazapyr] = Lightning 70DF; Meso = mesotrione = Callisto 4L; [Nico&rims&clpy&flms] = [nicosulfuron & rimsulfuron & clopyralid & flumetsulam] = Accent Gold WDG; [Nico&rims] = [nicosulfuron & rimsulfuron] = Steadfast 75DF; [Prim&dica] = [primisulfuron & dicamba] = Northstar 47.4WG; [S-meto&CGA-154281] = [S-metolachlor & CGA-154281] = Dual II Magnum 7.64EC; [S-meto&meso&atra] = [S-metolachlor&mesotrione&atrazine] = Lumax; NIS = nonionic surfactant, Class Preference; AMS = spray grade ammonium sulfate; COC = crop oil concentrate, Class Additive 17%; 28%N = an aqueous solution of urea and ammonium nitrate.

^b Yield adjusted to 15.5% moisture.