Herbicide performance in corn at Waseca, MN giant ragweed 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 giant ragweed. The research site was a Nicollet clay loam soil containing 7.5% organic matter, pH = 7.2 and soil test P and K levels of 35 and 196 ppm, respectively. The previous crop was oats that had been moldboard 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	May 6	June 3	June 14	June 30
Treatment	Pre	V3 corn	V4 corn	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
Giant ragweed				
leaf no.	--	2-4	4-6	3-4
height (inch)	--	4-6	6-10	4-8
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

Ample soil moisture after planting and throughout the spring resulted in excellent grass control for preemergence treatments. Flufenacet followed by glufosinate and atrazine resulted in poor giant ragweed control Flufenacet followed by foramsulfuron plus mesotrione also resulted in poor giant ragweed control. Postemergence treatments that failed to control giant ragweed included [nicosulfuron & rimsulfuron] tank mixed with either mesotrione or [S-metolachlor & mesotrione & atrazine]. Using [nicosulfuron & rimsulfuron & clopyalid & flumetsulam] postemergence resulted in better giant ragweed control than the tank mixes that included [nicosulfuron & rimsulfuron]. Treatments that provided less than 60% giant ragweed control based on visual estimates of weed control resulted in 80 to 100 bushel yield reductions. (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 giant ragweed site at Waseca, MN in 2004 (Hoverstad and Gunsolus).

Treatment[a]	Rate	SETFA	AMBTR	Yield
	(lb/A or %)	----(% control)----		Bu/A[b]
Preemergence Corn hybrid = Pioneer 38H68				
[Acet&atra]+[Flms&clpy]	[2.2&0.8]+[0.046&0.125]	95	70	175
[S-meto&meso&atra]	[2&0.2&0.75]	85	85	199
Preemergence/POST II (V4 corn) Corn hybrid = Pioneer 38H68				
Acet/ Flms&clpy]+Meso+Atra+NIS+AMS	2.2/ [0.035&0.09]+0.023+0.25+1%+2.5	98	99	203
[Acet&atra]/ Flms&clpy]+Dica+Atra+NIS+AMS	[2.2&0.8]/ [0.035&0.09]+0.125+0.25+1%+2.5	96	97	217
Dime-P/ [Dica&difl]+Atra+NIS+AMS	0.98/ [0.125&0.05]+0.45+0.25%+2.5	97	97	193
Flct/Gluf+Atra+AMS	0.45/0.42+0.45+3	99	60	112
Flct/ Fora+[Dica&difl]+MSO+28%	0.45/ 0.033+[0.125&0.05]+1.5pt+3pt	98	94	143
Flct[2]/ Fora+Meso+MSO+28%	0.38/ 0.033+0.047+1.5pt+3pt	99	29	105
[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	96	94	179
[S-meto&CGA-154281]/ [Nico&rims]+Meso Atra+COC+AMS	0.71/ [0.02&0.01]+0.063 0.45+1%+2	97	96	189
[S-meto&CGA-154281]/ Meso+Gluf+Atra+AMS	0.95/ 0.94+0.22+0.5+2	99	96	194
[S-meto&CGA-154281]/ Meso+Atra+COC+28%N	1.91/ 0.094+0.5+1%+2.5%	93	94	203
Dime-P/ Carf+Atra+Dica+NIS	0.98/ 0.008+0.5+0.94+0.25%	93	87	188
POST II (V4 Corn) Corn hybrid = Pioneer 38H68				
[Nico&rims]+ Meso+COC+AMS	[0.02&0.01]+ 0.06+1%+2	99	44	120
[Nico&rims&clpy&flms]+ Dica+Atra+COC+AMS	[0.01&0.01&0.11&0.03]+ 0.125+0.45+1%+2	95	79	161
[Nico&rims]+ [S-meto&meso&atra]+NIS+AMS	[0.02&0.01]+ [0.5&0.05&0.19]+0.25%+2	98	36	104
Checks Corn Hybrid = Pioneer 38H68				
Weedy	-	0	0	3
Hand-Weeded	-	100	100	192
Preemergence/POST II (V4 corn) Corn hybrid = Pioneer 38H66				
Acet[2]/Glyt+AMS	1.1/0.94+2.5	99	91	183
[S-meto&CGA-154281]/Glyt[2]+AMS	0.95/1.1+2.5	99	87	173
[Acet&atra]+GF1279+AMS	[1.1&0.4]/1.0+2.5	99	90	186
Dime-P/[Dica&difl]+Glyt+NIS+AMS	0.56/[0.094&0.04]+0.47+0.25%+2.5	99	95	184
[S-meto&CGA-154281/ Glyt+Rims+AMS	0.71/ 0.94+0.016+2.5	99	87	186
POST I (V3 corn) / POST III (4-inch Regrowth) Corn hybrid = Pioneer 38H66				
Glyt+AMS/ Glyt+AMS	0.94+2.5 / 0.94+2.5	99	96	214
Glyt+Carf+AMS/ Glyt+AMS	0.94+0.008+2.5 / 0.94+2.5	99	99	204
Checks Corn Hybrid = Pioneer 38H68				
Hand-Weeded	-	100	100	213
	LSD (0.10)	4	18	39

[a]Acet = acetochlor = Surpass 6.4E; Acet[2] = 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; Flct[2] = flufenacet = DefineSC 4L; Fora = foramsulfuron= Option 35DF; [Flms&clpy] = [flumetsulam & clopyralid] = Hornet WDG; Glyt = glyphosate = Roundup Weather MAX; Glyt[2]= 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-metoloachlor & 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.

NCWSS Research Report Index Outline - 2004

Section* Weed Control in Corn

Title*

Objective* To evaluate weed management systems available to corn producers in southern Minnesota on several annual weed species.

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*indicates a required field

Crops	1	corn, field	Zea mays	Pioneer 38H66 LL			
Crops	2	corn, field	Zea mays	Pioneer 39H66 RR			
Weeds	1	0	0	0			
Weeds	2	AMBTR	ragweed, giant	Ambrosia trifida			
Herbicides	1	Keystone LA	acetochlor	atrazine	dichlormid		
Herbicides	2	Hornet	flumetsulam	clopyralid			
Herbicides	3	Lumax	s-metolachlor	atrazine	mesotrione	benoxacor	
Herbicides	4	Surpass	acetochlor	dichlormid			
Herbicides	5	Callisto	mesotrione				
Herbicides	6	Clarity	dicamba				
Herbicides	7	Outlook	dimethenamid-P				
Herbicides	8	Distinct	dicamba	diflufenzopyr			
Herbicides	9	Define	flufenacet				
Herbicides	10	Liberty	glufosinate				
Herbicides	11	Option	foramsulfuron				
Herbicides	12	Define SC	flufenacet(2)				
Herbicides	13	Cinch	s-metolachlor	benoxacor			
Herbicides	14	Accent Gold WDG	nicosulfuron	rimsulfuron	clopyralid	flumetsulam	
Herbicides	15	Steadfast	nicosulfuron	rimsulfuron			
Herbicides	16	Dual II Magnum	s-metolachlor	benoxacor			
Herbicides	17	Aim	carfentrazone				
Herbicides	18	Harness	acetochlor	MON 4660			
Herbicides	19	Roundup Weather	glyphosate				
Herbicides	20	Touchdown Total	glyphosate				
Herbicides	21	GF-1279	glyphosate				
Herbicides	22	Matrix	rimsulfuron				