

Herbicide performance in corn at Lamberton, MN in 2003. Getting, Jodie K., Jeffrey L. Gunsolus, and Thomas R. Hoverstad. The objective of this study was to evaluate corn herbicide combinations for annual grass and annual broadleaf weed control in corn. This study was conducted on a Normania loam soil containing 5.1% organic matter, pH 6.2 and soil test P and K levels of 42 and 338 lb/A, respectively. A randomized complete block design with four replications and a plot size of 10 by 30 ft was used. The site was planted to oats in 2002 and was fall chiseled. The area was fertilized with 180 lb/A of nitrogen as urea. On May 8, 2003, Garst '8590' imidazolinone tolerant corn, Garst '8590' glyphosate resistant corn and Garst '8517' glufosinate resistant field corn was planted in 30-inch rows at a seeding rate of 33,000 seeds/A. Cyfluthrin + tebupiriphos (Aztec 2.1G) was applied at 6.7 oz/1000 row feet in a T-band for the control of northern corn rootworm larvae. All treatments were applied with a tractor-mounted sprayer delivering 20 gpa at a pressure of 40 psi. The sprayer was equipped with 8002 flat-fan nozzles spaced 15 inches apart on the boom. Application dates, environmental conditions, plant sizes and rainfall data are listed below:

Date	May 8	June 3	June 9	June 30
Treatment	PRE	POST I	POST II	regrowth
Temperature (F)				
air	54	61	73	72
soil (4 inch)	58	66	72	68
Relative humidity (%)	77	63	50	60
Wind (mph)	SE 10	calm	S 7	calm
Sky	cloudy	clear	p. cloudy	clear
Soil moisture	moist	dry	moist	dry
Corn				
leaf no.	-	3-collar	4-collar	8-collar
height (inch)	-	4	6	20
Yellow foxtail				
leaf no.	-	1 to 3	2 to 4	2 to 4
height (inch)	-	1 to 3	2 to 4	2 to 4
no./ft <sup>2</sup>	-	69	109	10
Common lambsquarters				
leaf no.	-	2 to 4	3 to 5	2 to 4
height (inch)	-	1 to 3	2 to 4	1 to 3
no./ft <sup>2</sup>	-	5	5	2
Redroot pigweed				
leaf no.	-	3 to 5	3 to 5	3 to 5
height (inch)	-	1 to 3	2 to 4	1 to 3
no./ft <sup>2</sup>	-	<1	<1	<1
Rainfall after application (inch)				
1 week	1.60	1.24	0.12	0.03
2 week	0.27	0.01	2.56	0.64
3 week	0.38	2.59	1.38	0.63

Early season crop development was delayed due to a June 23 hailstorm. The precipitation received in July and August was below average with a total of 2.96 inches compared to the historical average of 7.07 inches. None of the herbicide treatments caused visible crop injury except for leaf burn (<10%) at 7 DAT on POST applied carfentrazone + atrazine+ COC and carfentrazone + atrazine + dicamba + COC, data not shown. On June 4, flufenacet applied PRE provided 64 and 75% yellow foxtail control and 50 and 64% common lambsquarters control. [S-metolachlor & CGA-154281] applied PRE at 0.71 lb/A gave 81 and 86% yellow foxtail control and 73 and 80% common lambsquarters control. [S-metolachlor & CGA-154281] at 0.96 lb/A gave 84 and 91% yellow foxtail and 76 and 86% common lambsquarters control. All other PRE herbicide treatments resulted in 92% or greater yellow foxtail control. [S-metolachlor & CGA-154281] at 1.91 lb/A provided 86% common lambsquarters control. All other PRE herbicide treatments resulted in 95% or greater common lambsquarters control. In August, [s-metolachlor & CGA-154281] followed by mesotrione + atrazine + COC + 28%N gave 74% yellow foxtail control. [Nicosulfuron & rimsulfuron & flumetsulam & clopyralid] + dicamba + atrazine + COC + AMS, [nicosulfuron & rimsulfuron] + mesotrione + COC + AMS, [nicosulfuron & rimsulfuron & atrazine] + mesotrione + COC + AMS, and [nicosulfuron & rimsulfuron] + [s-metolachlor & atrazine & mesotrione & CGA-154281] + NIS + AMS gave 69, 71, 75, and 76% control respectively. All herbicide treatments had excellent control of common lambsquarters and redroot pigweed. (Southwest Research and Outreach Center, University of Minnesota, Lamberton).

Table. Herbicide performance in corn at Lamberton, MN in 2003 (Getting, Gunsolus and Hoverstad).

Treatment <sup>a</sup>	Rate	SETLU			CHEAL			AMARE		Yield
		6/4	6/25	8/27	6/4	6/25	8/27	6/25	8/27	
		-----(% control)-----								
<u>Preemergence</u>										
[Acet&Atra]+[Flms&Clpy]	[2.2&0.8]+ [0.047&0.125]	97	94	91	98	98	98	98	98	138
[S-meto&atra&meso&CGA-154281]	[2.0&0.75&0.2]	93	89	85	98	98	98	98	98	144
<u>Preemergence/POST II (4-collar corn)</u>										
Acet/[Flms&Clpy]+Atra+COC+AMS	2.2/[0.034&0.094]+0.67+1%+2.5	98	95	94	98	98	98	98	98	149
Acet/[Flms&Clpy]+Meso+Atra	2.2/[0.034&0.094]+0.02+0.25	97	96	93	97	98	98	98	98	133
+COC+AMS	+1%+2.5									
[Acet&Atra]/	[2.2&0.8]/	98	94	91	98	98	98	98	98	128
[Flms&Clpy]+Dica+NIS+AMS	[0.034&0.094]+0.125+0.25%+2.5									
Dimt-P/[Dica&SAN 1269H]+atra	0.98/[0.125&0.05]+0.45	97	94	92	97	98	98	98	98	134
+NIS+AMS	+0.25%+2.5									
Flufenacet/Gluf+Atra+AMS	0.45/0.42+0.45+3.0	75	94	88	64	98	98	98	98	134
Flufenacet/AE F130360	0.45/0.03	64	93	88	50	98	98	98	98	130
+ [Dica&SAN 1269H]+MSO+28%N	+ [0.125&0.05]+0.94%+2.0%									
[S-meto&CGA-154281] <sup>1</sup> /	0.71/	86	93	87	80	98	98	98	98	141
[Nico&Rims&Flms&Clpy]+Meso	[0.012&0.012&0.035&0.112]+0.03									
+Atra+COC+AMS	+0.45+1%+2.0									
[S-meto&CGA-154281] <sup>1</sup> /	0.71/	81	93	87	73	98	98	98	98	141
[Nico&Rims]+Meso+Atra+COC+AMS	[0.023&0.012]+0.063+0.45+1%+2.0									
[S-meto&CGA-154281]/	1.91/	92	91	83	86	98	98	98	98	145
[Prim&Dica]+Atra+COC+28%N	[0.023&0.125]+0.45+1%+2.5%									
[S-meto&CGA-154281]/	0.96/	84	84	74	76	98	98	98	98	126
Meso+Atra+COC+28%N	0.094+0.25+1%+2.5%									
Dimt-P/Carf+Atra+COC	0.98/0.008+0.9+1%	97	94	94	98	98	98	98	98	140
Acet <sup>1</sup> /glyphosate+AMS	1.09/0.75+2.5	94	98	94	97	98	98	98	98	134
[S-meto&CGA-154281]/	0.96/	91	97	94	86	98	98	98	98	137
glyphosate <sup>1</sup> +AMS	0.75+2.5									
Dimt-P/Dica+glyphosate	0.56/0.25+0.375	96	97	92	95	98	98	98	98	140
<u>POST I (3-collar corn)/regrowth(4-inch weeds)</u>										
Glyphosate+AMS/glyphosate+AMS	0.75+2.5/0.75+2.5	-	90	97	-	95	98	94	98	143
<u>POST II (4-collar corn)/regrowth(4-inch weeds)</u>										
Gluf+Atra+AMS/Gluf+AMS	0.42+0.5+3.0/0.36+3.0	-	88	93	-	97	98	98	98	131
<u>POST II (4-collar corn)</u>										
[Nico&Rims]+Meso+COC+AMS	[0.023&0.012]+0.063+1%+2.0	-	88	71	-	98	98	98	98	119
[Nico&Rims&Atra]+Meso+COC+AMS	[0.023&0.012&0.75]+0.063+1%+2.0	-	91	75	-	98	98	98	98	113
[Nico&Rims&Flms&Clpy]+Dica	[0.012&0.012&0.035&0.112]+0.125	-	86	69	-	98	98	98	98	106
+Atra+COC+AMS	+0.03+1%+2.0									
[Nico&Rims]	[0.023&0.012]	-	89	76	-	98	98	98	98	109
+ [S-meto&atra&meso&CGA-154281]	+ [0.67&0.25&0.07]									
+NIS+AMS	+0.25%+2.0									
<u>POST I (3-collar corn)</u>										
[Imep&Impr]+[Dica&Atra]	[0.042&0.014]+[0.28&0.54]	-	91	86	-	98	98	98	98	126
+NIS+AMS	+0.25%+2.5									
<u>Preemergence/POST II (4-collar corn)</u>										
Dimt-P/Carf+Atra+Dica+COC	0.98/0.008+0.9+0.125+1%	-	96	94	-	98	98	98	98	126
<u>Checks</u>										
Weedy check		0	0	0	0	0	0	0	0	21
Weed-free		100	100	100	100	100	100	100	100	146
	LSD (0.10)	4.6	2.7	3.7	10.9	0.9	ns	1.1	ns	12.5

<sup>a</sup> Acet or acetochlor = Surpass 6.4E; Acet<sup>1</sup> = Harness 7E; [Acet&Atra] or [acetochlor & atrazine] = Keystone LA 5.5SE; AE F130360 = Option 35 DF; Atra or atrazine = Aatrex 90DF; Carf or carfentrazone = Aim 2EW; Dica or dicamba = Clarity 4L; [Dica&Atra] or [dicamba & atrazine] = Marksman 3.2F; [Dica&SAN 1269H] or [dicamba & SAN 1269H] = Distinct 70WG; Dimt-P or dimethenamid-P = Outlook 6L; flufenacet = Define 60DF; [Flms&Clpy] or [flumetsulam & clopyralid] = Hornet 68.5WDG; Gluf or glufosinate = Liberty 1.67L; glyphosate = Roundup Weathermax 4.5L; glyphosate<sup>1</sup> = Touchdown IQ 3S; [Imep&Impr] or [imazethapyr & imazapyr] = Lightning 70DF; [Nico&Rims] or [nicosulfuron & rimsulfuron] = Steadfast 75DF; [Nico&Rims&Flms&Clpy] or [nicosulfuron & rimsulfuron & flumetsulam & clopyralid] = Accent Gold 78.1WDG; [Prim&Dica] or [primsulfuron & dicamba] = Northstar 47.4WG; [s-meto&CGA-154281] or [s-metolachlor & CGA-154281] = Dual II Magnum 7.64EC; [S-meto&CGA-154281]<sup>1</sup> or [s-metolachlor & CGA-154281]<sup>1</sup> = Cinch 7.64L; [S-meto&atra&meso&CGA-154281] or [s-metolachlor & atrazine & mesotrione & CGA-154281] = Lumax 3.95L; Meso or mesotrione = Callisto 4L; COC = crop oil concentrate; MSO = methylated seed oil; NIS = nonionic surfactant; 28%N = an aqueous solution of urea and ammonium nitrate; AMS = spray grade ammonium sulfate.

<sup>b</sup> Yield adjusted to 15.5% moisture.