

Herbicide performance in corn at Luverne, MN in 2002. 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 Trent silty clay loam soil containing 5.2% organic matter, pH 6.2 and soil test P and K levels of 70 and 348 lb/A, respectively. A randomized complete block design with four replications and a plot size of 10 by 25 ft was used. The site was planted to corn in 2001 and was fall chiseled. The area was fertilized with 150 lb/A of nitrogen as urea. On May 22, 2002, Northrup King 'N42-B7' imidazolinone tolerant/glufosinate resistant field corn was planted in 30-inch rows at a seeding rate of 33,000 seeds/A. Tefluthrin (Force 3G) was applied at 4 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 22	June 18
Treatment	PRE	POST
Temperature (F)		
air	58	68
soil (4 inch)	54	70
Relative humidity (%)	60	40
Wind (mph)	SE 10	S 2-5
Sky	cloudy	sunny
Soil moisture	moist	dry
Corn		
leaf no.	-	4-collar
height (inch)	-	8
Giant foxtail		
leaf no.	-	2 to 4
height (inch)	-	2 to 4
no./ft <sup>2</sup>	-	4
Common lambsquarters		
leaf no.	-	1 to 3
height (inch)	-	1 to 3
no./ft <sup>2</sup>	-	1
Tall waterhemp		
leaf no.	-	1 to 3
height (inch)	-	1 to 3
no./ft <sup>2</sup>	-	<1
Rainfall after application (inch)		
1 week	0.90	0.41
2 week	1.03	0.00
3 week	0.94	0.35

Weed densities in the trial area were relatively low. On June 18, prior to POST treatments, isoxaflutole + flufenacet + atrazine provided 86% giant foxtail control. Flufenacet resulted in 60 to 61% control. [S-metolachlor & CGA-154281] applied at 0.71 lb/A, 0.96 lb/A, and 1.91 lb/A resulted in 76%, 85 to 90%, and 92 to 93% control. Acetochlor applied at 2.0 lb/A and 2.2 lb/A had 97% and 93 to 97% control, respectively. Dimethenamid-P had 91 to 93% control. At 6 days after POST treatments, carfentrazone applied POST resulted in 5 to 8% visible crop injury (data not shown). None of the other herbicide treatments caused visible crop injury. In September, isoxaflutole + flufenacet + atrazine had 68% giant foxtail control. Acetochlor + [flumetsulam & clopyralid] and dimethenamid followed by [flumetsulam & clopyralid] + carfentrazone + NIS + AMS had 86% control. All other herbicide treatments had 89% or greater control. All herbicide treatments had 93% or greater common lambsquarters control and 96% or greater tall waterhemp control. (Southwest Research and Outreach Center, University of Minnesota, Lamberton).

Table. Herbicide performance in corn at Luverne, MN in 2002 (Getting, Gunsolus and Hoverstad).

Treatment <sup>a</sup>	Rate	SETFA			CHEAL			AMATU			Yield (bu/A) <sup>b</sup>
		6/18	6/27	9/13	6/18	6/27	9/13	6/18	6/27	9/13	
Preemergence	(lb/A or %)	-----(% control)-----									
Acetochlor+[Flms&Clpy]	2.2+[0.047&0.125]	95	92	86	97	96	93	98	97	97	114
Isoxaflutole+flufenacet+Atra	0.07+0.375+1.0	86	80	68	97	98	96	97	97	97	112
<u>Preemergence/POST (4-collar corn)</u>											
Acet/[Flms&Clpy]+Atra+COC+AMS	2.2/[0.034&0.094]+0.75+1%+2.5	93	94	91	96	98	98	95	98	98	112
Acet/[Flms&Clpy]+Dica+NIS+AMS	2.2/[0.034&0.094]+0.125+0.25%+2.5	97	97	95	97	98	98	98	98	98	113
Dimt-P/[Flms&Clpy]+Carf+NIS+AMS	0.94/[0.034&0.094]+0.008+0.25%+2.5	91	93	86	94	98	98	93	98	98	107
Dimt-P/Carf+Atra+COC	0.94/0.008+1.0+1%	93	95	93	93	98	98	93	98	98	114
Dimt-P/[Dica&SAN 1269H] +NIS+AMS	0.94/[0.128&0.051] +0.25%+1.0	93	95	92	95	98	98	95	97	97	112
[Flufenacet&Metr]/AE F130360 +MSO+28%N	[0.50.128]/0.03 +0.94%+2.0%	90	97	95	94	96	96	90	96	96	116
[S-meto&CGA-154281]/ Meso+Atra+COC+28%N	1.91/ 0.094+0.25+1%+2.5%	93	94	90	94	98	98	94	98	98	116
[S-meto&CGA-154281]/ [Prim&Dica]+COC+28%N	1.91/ [0.023&0.125]+1%+2.5%	92	97	91	96	98	98	97	98	98	107
[S-meto&CGA-154281]/ [Nico&Rims]+Meso+Atra+COC+28%N	0.96/ [0.016&0.008]+0.094+0.25+1%+2.5%	90	95	95	91	98	97	97	98	98	106
[S-meto&CGA-154281]/ Meso+Gluf+AMS	0.96/ 0.094+0.18+3.0	85	98	96	97	98	98	95	98	98	116
Flufenacet/AE F130360 +[Dica&SAN 1269H]+MSO+28%N	0.375/0.03 +[0.128&0.051]+0.94%+2.0%	60	95	93	93	98	97	96	98	98	113
[S-meto&CGA-154281]/ [Nico&Rims&Flms&Clpy] +Atra+COC+28%N	0.71/ [0.014&0.014&0.042&0.113] +0.75+1%+2.5%	76	95	93	89	98	98	95	98	98	104
Flufenacet/Gluf+Atra+AMS	0.375/0.31+0.5+3.0	61	98	96	90	98	98	97	98	98	103
Acet <sup>1</sup> /MON 12075+NIS	2/0.169+0.25%	97	93	89	98	98	98	98	98	98	107
<u>POST (4-collar corn)</u>											
[Imep&Impr]+[Dica&Atra] +NIS+AMS	[0.042&0.014]+[0.28&0.54] +0.25%+2.5	0	91	95	0	98	97	0	98	96	106
[Nico&Rims]+Meso+Atra +COC+AMS	[0.023&0.012]+0.063+0.25 +1%+2.0	0	93	93	0	98	98	0	98	97	98
[Nico&Rims]+[Flms&Clpy] +Atra+COC+AMS	[0.023&0.012]+[0.034&0.094] +0.5+1%+2.0	0	93	93	0	98	98	0	98	98	98
[Nico&Rims]+Carf+Atra +COC+AMS	[0.023&0.012]+0.008+0.5 +1%+2.0	0	94	92	0	98	97	0	98	98	93
[Nico&Rims&Flms&Clpy]+Dica +Atra+COC+AMS	[0.014&0.014&0.042&0.113]+0.125 +0.5+1%+2.0	0	93	93	0	98	98	0	98	98	112
[Nico&Rims&Flms&Clpy]+Meso +Atra+COC+AMS	[0.014&0.014&0.042&0.113]+0.031 +0.25+1%+2.0	0	93	90	0	98	98	0	98	97	106
<u>Checks</u>											
Weedy check		0	0	0	0	0	0	0	0	0	83
Weed-free		100	100	100	100	100	100	100	100	100	113
	LSD (0.10)	8.5	3.5	5.1	5.7	1.3	1.8	4.4	1.1	1.6	14.0

<sup>a</sup> Acet or acetochlor = Surpass 6.4E; Acet<sup>1</sup> = Harness 7E; 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; [Flms&Clpy] or [flumetsulam & clopyralid] = Hornet 68.5WDG; flufenacet = Define 60DF; [flufenacet&Metr] or [flufenacet & metribuzin] = Axiom 68DF; Gluf or glufosinate = Liberty 1.67L; [Imep&Impr] or [imazethapyr & imazapyr] = Lightning 70DF; isoxaflutole = Balance Pro 4L; Meso or mesotrione = Callisto 4L; MON 12075 = Yukon 68DF; [Nico&Rims] or [nicosulfuron & rimsulfuron] = Steadfast 75DF; [Nico&Rims&Flms&Clpy] or [nicosulfuron & rimsulfuron & flumetsulam & clopyralid] = Accent Gold 83.8DF; [Prim&Dica] or [primsulfuron & dicamba] = Northstar 47.4WG; [S-meto&CGA-154281] or [s-metolachlor&CGA-154281] = Dual II Magnum 7.64EC; 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.