

Herbicide performance in corn at Lamberton, MN in 1999. Getting, Jodie K., Jeffrey L. Gunsolus, and Thomas R. Hoverstad. The objective of this study was to evaluate herbicide combinations for annual grass and annual broadleaf weed control in corn. This study was conducted on a Normania loam soil containing 4.4% organic matter, pH 6.0 and soil test P and K levels of 68 and 406 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 1998 and was fall moldboard plowed. The area was fertilized with 160 lb/A of nitrogen as urea. On May 12, 1999 the preplant incorporated treatments were applied and the entire area was field cultivated once with a field cultivator set to till 3 to 4-inches deep and operated at 5 to 6 mph. On the same day, Garst '8773 BT/IT/LL' imidazolinone tolerant/glufosinate resistant field corn was planted in 30-inch rows at a seeding rate of 33,000 seeds/A. 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. Mechanical treatment included cultivation. Application dates, environmental conditions, plant sizes and rainfall data are listed below:

Date	May 12	May 13	May 28	June 3	June 8
Treatment	PPI	PRE	POST I	POST II	POST III
Temperature (F)					
air	52	47	70	64	76
soil (4 inch)	55	56	66	64	74
Relative humidity (%)	80	100	56	71	64
Wind (mph)	N 10	N 6	calm	E 5	NE 8
Sky	cloudy	cloudy	clear	p. cloudy	p. cloudy
Soil moisture	moist	moist	dry	dry	dry
Corn					
leaf no.	-	-	2-collar	3-collar	4-collar
height (inch)	-	-	2.5	4	8
Yellow foxtail					
leaf no.	-	-	1 to 2	1 to 3	2 to 4
height (inch)	-	-	0.5	0.5 to 1.5	2 to 4
no./ft ²	-	-	98	79	83
Common lambsquarters					
leaf no.	-	-	1 to 2	1 to 3	2 to 4
height (inch)	-	-	0.5	0.25 to 1.5	1 to 3
no./ft ²	-	-	0.5	0.5	1
Rainfall after application (inch)					
1 week	0.58	0.76	0.48	0.50	0.70
2 week	0.98	0.80	0.75	0.32	0.66
3 week	0.48	0.48	0.07	0.64	1.11

None of the herbicide treatments caused visible crop injury. In June, PRE [BAY FOE 5043 & metribuzin] at [0.374 & 0.094 lb/A] and [0.442 & 0.11 lb/A] provided 53% and 56% yellow foxtail control, respectively. Preemergence RPA 201772 at 0.082 lb/A had 84% yellow foxtail control and CGA 77102 at 0.63 lb/A had 75% control. All other soil applied treatments had greater than 89% control. In September, POST I and POST II treatments with cultivation provided 76 to 91% yellow foxtail control. POST II treatments without cultivation provided 75 to 76% control. All treatments had excellent season-long control of common lambsquarters. (Southwest Research and Outreach Center, University of Minnesota, Lamberton).

Table. Herbicide performance in corn at Lamberton, MN in 1999 (Getting, Gunsolus and Hoverstad).

Treatment ^a	Rate (lb/A or %)	Yeft			Colq			Yield (bu/A) ^b
		6/7	6/30	9/9	6/7	6/30	9/9	
<u>Preplant incorporate 1X/POST III (2 to 4-inch weeds)</u>								
[EPTC+R-29148&Acet]/Dica	[4.2&1.05]/0.5	92	93	88	97	98	98	170
CGA 77102/dicamba	1.91/0.5	93	92	89	97	98	98	170
Acetochlor/dicamba	2.0/0.5	93	92	88	96	98	98	163
SAN-582H/dicamba	1.5/0.5	91	91	86	97	98	98	175
<u>Preemergence/POST III (2 to 4-inch weeds)</u>								
CGA 77102/dicamba	1.91/0.5	95	93	91	98	98	98	163
Acetochlor/dicamba	2.0/0.5	97	97	97	98	98	98	166
SAN-582H/dicamba	1.5/0.5	97	96	94	98	98	98	169
Weedy check	-	0	0	0	0	0	0	107
<u>Preemergence/POST III (2 to 4-inch weeds)/cultivation (36 DAP)</u>								
CGA 77102/Dica/cultivate	1.91/0.5	96	97	98	98	98	98	163
Acet/Dica/cultivate	2.0/0.5	97	98	98	98	98	98	176
SAN-582H/Dica/cultivate	1.5/0.5	98	98	98	98	98	98	177
Hand-weeded check (Gluf POST)		97	98	100	97	98	98	168
<u>Preemergence</u>								
[RPA 201772&BAY FOE 5043] +atrazine	[0.069&0.33] +0.9	94	90	90	98	98	98	168
RPA 201772+atrazine	0.094+0.72	89	88	84	98	98	98	171
Acet ¹ + [Flms&Clpy]	2+[0.056&0.154]	97	93	91	98	98	98	159
<u>Preemergence/POST III (2 to 4-inch weeds)</u>								
Acet ¹ /Gluf+Atra+AMS	1.2/0.26+0.45+2.5	93	97	96	98	98	98	159
RPA 201772/Gluf+Atra+AMS	0.082/0.26+0.72+2.5	84	97	97	98	98	98	158
CGA 77102/ [Nico&Rims&Flms&Clpy] +Dica+COC+28%N	0.63/ [0.012&0.01&0.034&0.094] +0.125+1.0%+4.0%	75	95	91	94	98	98	173
[BAY FOE 5043&metribuzin]/ Gluf+Atra+AMS	[0.374&0.094]/ 0.26+0.45+2.5	53	91	89	96	97	97	162
[BAY FOE 5043&metribuzin]/ [Nico&Rims&Flms&Clpy] +COC+28%N	[0.442&0.11]/ [0.012&0.01&0.034&0.094] +1.0%+4.0%	56	93	89	98	98	98	170
Acet ¹ /[Flms&Clpy] +Dica+NIS+28%N	2.0/[0.034&0.094] +0.125+0.25%+2.5%	97	95	90	98	98	98	167
Acet ¹ /[Flms&Clpy] +F8426+NIS+28%N	2.0/[0.034&0.094] +0.008+0.25%+2.5%	95	96	91	98	98	98	163
CGA 77102/ [Prim&Dica]+COC+28%N	1.91/ [0.023&0.125]+1.25%+2.5%	91	94	92	98	98	98	173
CGA 77102/[Prim&Dica] +Nico+COC+28%N	1.91/[0.023&0.125] +0.016+1.25%+2.5%	95	98	97	98	98	98	154
SAN-582H/BAS 662+NIS+28%N	1.5/0.26+0.25%+1.25%	96	96	97	98	98	98	155
Weedy check	-	0	0	0	0	0	0	80
<u>POST I (1 to 2-inch weeds)/Cultivation (36 DAP)</u>								
[Rims&Thif]+Dica +NIS+28%N/cultivate	[0.01&0.005]+0.25 +0.25%+4.0%	91	85	76	98	98	98	161
<u>POST II (1 to 3-inch weeds)/Cultivation (36 DAP)</u>								
[DPX 79406&atrazine] +[Flms&Clpy]+COC+28%N/ cultivate	[0.023&0.75] +[0.034&0.094]+1.0%+1.25%	-	91	88	-	98	98	164
[Imep&Impr]+Dica +NIS+28%N/cultivate	[0.042&0.014]+0.1875 +0.25%+1.25%	-	92	91	-	98	98	170

Table. Herbicide performance in corn at Lamberton, MN in 1999 (Getting, Gunsolus and Hoverstad). continued

Treatment ^a	Rate (lb/A or %)	Yeft			Colq			Yield (bu/A) ^b
		6/7	6/30	9/9	6/7	6/30	9/9	
<u>POST III (2 to 4-inch weeds)/Cultivation (36 DAP)</u>								
Nico+BAS 662+NIS+28%N/ cultivate	0.031+0.18+0.25%+2.5%	-	88	89	-	98	98	167
<u>Mechanical</u>								
Spring-tooth harrow 2X/ cultivate 2X	-	90	93	81	97	98	98	155
Cultivate 2X	-	-	76	60	-	98	98	136
Hand-weeded check (Gluf POST)		100	97	97	97	97	97	167
<u>POST II (1 to 3-inch weeds)</u>								
[DPX 79406&atrazine] +[Flms&Clpy]+COC+28%N	[0.023&0.75] +[0.034&0.094]+1.0%+1.25%	-	87	75	-	98	98	161
[Imep&Impr]+Dica +NIS+28%N	[0.042&0.014]+0.1875 +0.25%+1.25%	-	86	76	-	98	98	156
<u>POST III (2 to 4-inch weeds)</u>								
Nico+BAS 662+NIS+28%N	0.031+0.18+0.25%+2.5%	-	90	80	-	98	98	171
Nico+F8426+Atra+NIS+28%N	0.031+0.008+0.5+0.25%+2.5%	-	90	81	-	98	98	158
Gluf+Atra+AMS	0.26+0.45+2.5	-	93	86	-	98	98	168
Gluf+F8426+AMS	0.26+0.008+2.5	-	85	79	-	97	97	173
[Nico&Rims&Flms&Clpy] +Dica+COC+28%N	[0.012&0.01&0.034&0.094] +0.125+1.0%+2.5%	-	92	81	-	98	98	156
[Nico&Rims&Flms&Clpy] +F8426+COC+28%N	[0.012&0.01&0.034&0.094] +0.008+1.0%+2.5%	-	90	81	-	98	98	163
Weedy check	-	0	0	0	0	0	0	64
	LSD (0.10)	6	3	4	2	1	1	11

^a Acet or acetochlor = Harness 7E; Acet¹ = Surpass 6.4E; Atra or atrazine = Aatrexx 90DF; BAS 662 = Distinct 70WG; [BAY FOE 5043&metribuzin] = Axiom 68DF; CGA 77102 = Dual II Magnum 7.64EC; Dica or dicamba = Clarity 4L; [DPX 79406&Atra] = Basis Gold 89.9WG; [EPTC+R-29148&Acet] = DoublePlay 7EC; [Flms&Clpy] = Hornet 85.6WG; F8426 = Aim 40DF; Gluf = Liberty 1.67L; [Imep&Impr] = Lightning 70DF; Nico = Accent 75DF; [Nico&Rims&Flms&Clpy] = Accent Gold 83.8DF; [Prim&Dica] = Northstar 47.4WG; [Rims&Thif] = Basis 75DF; RPA 201772 = Balance 75DF; [RPA 201772&BAY FOE 5043] = Epic 58 DF; SAN-582H = Frontier 6EC; 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.