

Herbicide performance in corn at Lamberton, MN in 1998. 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 Ves loam soil containing 4.2% organic matter, pH 6.0 and soil test P and K levels of 64 and 422 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 1997 and was fall moldboard plowed. On May 4, 1998 the preplant incorporated treatments were applied and the area was fertilized with 160 lb/A of nitrogen as urea. The entire area was field cultivated once with a field cultivator set to till 3 inches deep and operated at 5 to 6 mph. On the same day, Garst '8540 IT/LL' imidazolinone tolerant/glufosinate resistant field corn was planted in 30-inch rows at a seeding rate of 30,000 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 on June 12. Application dates, environmental conditions, plant sizes and rainfall data are listed below:

Date	May 4	May 5	May 21	May 26	May 28
Treatment	PPI	PRE	POST I	POST II	POST III
Temperature (F)					
air	75	57	73	78	84
soil (4 inch)	55	56	70	70	76
Relative humidity (%)	30	48	40	37	29
Wind (mph)	S 10	WNW 10	E 5	E 5	NW 8
Sky	clear	clear	p. cloudy	clear	clear
Soil moisture	moist	dry	dry	dry	dry
Corn					
leaf no.	-	-	2-collar	3-collar	3-collar
height (inch)	-	-	3	4	5
Yellow foxtail					
leaf no.	-	-	1 to 2	1 to 3	2 to 3
height (inch)	-	-	0.5	0.5 to 1.5	2 to 3
no./ft ²	-	-	68	80	76
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	-	-	4	7	8
Rainfall after application (inch)					
1 week	0.37	0.46	0.25	0.11	0.25
2 week	0.66	0.58	0.25	0.17	0.11
3 week	0.00	0.25	0.10	0.49	0.42

RPA 201772 + atrazine exhibited chlorotic leaves at 21 days after planting (data not shown), however, the symptoms were not evident by 35 days after planting and corn yield was equal to the hand-weeded check. None of the other treatments caused visible crop injury. In September, glufosinate + F8426 + AMS resulted in 30% common lambsquarters control, all other treatments had greater than 91% control. This same treatment had 66% yellow foxtail control in September. CGA 77102 applied PRE followed by F8426 + atrazine had 70% yellow foxtail control. Corn yields were negatively influenced by the lack of control of yellow foxtail.

Table. Herbicide performance in corn at Lamberton, MN in 1998 (Gettling, Gunsolus and Hoverstad).

Treatment ^a	Rate (lb/A or %)	Yield				Yield				Yield (bu/A) ^b
		5/28 6/16 6/29 9/10				5/28 6/16 6/29 9/10				
		(% control)								
Preplant incorporate 1X/POST III (2 to 4-inch weeds)										
[EPTC+R-29148&Acet]/Dica	[4.2&1.05]/0.5	95	94	94	95	97	100	100	100	204
CGA 77102/dicamba	1.91/0.5	89	85	81	83	86	99	100	100	181
Acetochlor/dicamba	2.0/0.5	92	90	89	87	93	100	100	100	197
SAN-582H/dicamba	1.5/0.5	91	88	88	84	94	100	100	100	187
Preemergence/POST III (2 to 4-inch weeds)										
CGA 77102/dicamba	1.91/0.5	85	80	76	78	65	100	100	100	185
Acetochlor/dicamba	2.0/0.5	94	93	88	85	90	100	100	100	194
SAN-582H/dicamba	1.5/0.5	91	85	81	80	85	99	100	100	191
Weedy check	-	0	0	0	0	0	0	0	0	102
Preemergence/POST III (2 to 4-inch weeds)/cultivation (39 DAP)										
CGA 77102/Dica/cultivate	1.91/0.5	88	93	88	89	80	99	99	100	189
Acet/Dica/cultivate	2.0/0.5	92	97	94	96	89	100	100	100	193
SAN-582H/Dica/cultivate	1.5/0.5	91	93	91	91	79	100	100	100	189
Hand-weeded check	-	98	100	100	100	96	100	100	100	201
Preemergence										
RPA 201772+acetochlor	0.07+1.0	94	94	90	91	95	99	100	100	199
RPA 201772+atrazine	0.094+0.72	95	90	85	91	95	97	98	99	198
Acetochlor+[Flms&Clpy]	2+[0.056&0.154]	93	90	81	80	95	98	98	99	185
Preemergence/POST III (2 to 4-inch weeds)										
Acet/Gluf+Atra+AMS	1.2/0.26+0.45+2.5	88	99	96	95	71	98	98	99	204
CGA 77102/F8426+atrazine	1.91/0.008+0.45	84	73	68	70	76	90	89	91	173
CGA 77102/Nico+[Flms&Clpy]	1.91/0.023+[0.034&0.094]	86	98	95	95	68	96	96	97	199
+COC+28%N	+1.0%+4.0%									
CGA 77102/	1.91/	71	97	94	90	73	97	99	98	197
[Nico&Rims&Flms&Clpy]	[0.012&0.01&0.034&0.094]									
+Dica+COC+28%N	+0.125+1.0%+4.0%									
BAY FOE 5043/Gluf+Atra+AMS	0.85/0.26+0.45+2.5	78	98	96	96	68	99	98	99	197
BAY FOE 5043/	0.85/	84	98	95	97	79	98	96	98	189
[Nico&Rims&Flms&Clpy]	[0.012&0.01&0.034&0.094]									
+COC+28%N	+1.0%+4.0%									
Acet/[Flms&Clpy]	2.0/[0.034&0.094]	93	92	89	88	89	97	98	98	192
+Dica+NIS+28%N	+0.125+0.25%+2.5%									
CGA 77102/	1.91/	81	89	81	79	61	98	100	100	188
[Prim&Dica]+COC+28%N	[0.023&0.125]+1.25%+1.25%									
CGA 77102+Atra/	1.91+0.72/	86	93	86	81	84	97	99	100	189
[Prim&Dica]+COC+28%N	[0.023&0.125]+1.25%+1.25%									
BAS 65607/BAS 662+NIS+28%N	0.98/0.26+0.25%+1.25%	91	92	86	84	81	99	98	98	191
Weedy check	-	0	0	0	0	0	0	0	0	109
POST I (1 to 2-inch weeds)/Cultivation (39 DAP)										
[Rims&Thif]+Dica	[0.01&0.005]+0.25	-	94	90	85	-	100	100	100	199
+NIS+28%N/cultivate	+0.25%+4.0%									
POST II (1 to 3-inch weeds)/Cultivation (39 DAP)										
[DPX 79406&atrazine]	[0.023&0.75]	-	95	93	91	-	100	100	100	196
+ [Flms&Clpy]+COC+28%N/	+ [0.034&0.094]+1.0%+1.25%									
cultivate										
[Imep&Impr]+Dica	[0.042&0.014]+0.1875	-	98	95	97	-	100	100	99	205
+NIS+28%N/cultivate	+0.25%+1.25%									
POST III (2 to 4-inch weeds)/Cultivation (39 DAP)										
Nico+[Dica&Atra]	0.031+[0.34&0.66]	-	96	96	96	-	100	100	100	190
+NIS+28%N/cultivate	+0.25%+2.5%									
Hand-weeded check	-	-	99	98	98	-	90	97	98	196
POST II (1 to 3-inch weeds)										
[DPX 79406&atrazine]	[0.023&0.75]	-	95	88	86	-	98	98	100	195
+ [Flms&Clpy]+COC+28%N	+ [0.034&0.094]+1.0%+1.25%									
[Imep&Impr]+Dica	[0.042&0.014]+0.1875	-	96	88	83	-	99	98	98	193
+NIS+28%N	+0.25%+1.25%									
POST III (2 to 4-inch weeds)										
Nico+[Dica&Atra]	0.03+[0.34&0.66]	-	97	91	90	-	99	98	100	189
+NIS+28%N	+0.25%+2.5%									
Gluf+Atra+AMS	0.26+0.45+2.5	-	97	91	88	-	99	98	98	190
Gluf+F8426+AMS	0.26+0.008+2.5	-	70	60	66	-	58	35	30	163
[Nico&Rims&Flms&Clpy]	[0.012&0.01&0.034&0.094]	-	96	91	89	-	99	98	100	198
+Dica+COC+28%N	+0.125+1.0%+2.5%									
[Nico&Rims&Flms&Clpy]	[0.012&0.01&0.034&0.094]	-	96	94	90	-	97	96	98	196
+Nico+Dica+COC+28%N	+0.012+0.0625+1.0%+2.5%									
	LSD (0.10)		4	4	4	4	9	5	6	8
			4	4	4	4	9	5	6	8

^a Acet or acetochlor = Surpass 6.4E; Atra or atrazine = Aatrex 90DF; BAS 662 = Distinct 70WG; BAY FOE 5043 = Axiom 68DF; CGA 77102 = Dual II Magnum 7.64EC; Dica or dicamba = Banvel 4S; [Dica&Atra] = Marksman 3.2F; [DPX 79406&Atra] = Basis Gold 89.9WG; [EPTC+R-29148&Acet] = DoublePlay 7EC; [Flms&Clpy] = Homet 85.6WG; F8426 = Air 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; 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.