

Herbicide performance in corn at Lamberton, MN in 2000. Getting, Jodie K., Jeffrey L. Gunsolus, and Thomas R. Hoverstad. The objective of this study was to evaluate herbicide combinations and mechanical treatments for annual grass and annual broadleaf weed control in corn. This study was conducted on a Normania loam soil containing 4.2% organic matter, pH 6.5 and soil test P and K levels of 64 and 396 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 1999 and was fall moldboard plowed. The area was fertilized with 180 lb/A of nitrogen as urea. On May 2, 2000 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, 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. 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 2	May 2	May 26	June 2	June 6
Treatment	PPI	PRE	POST I	POST II	POST III
Temperature (F)					
air	45	81	57	64	75
soil (4 inch)	48	66	64	68	80
Relative humidity (%)	66	15	77	52	38
Wind (mph)	calm	calm	E 8	NW 12	S 10
Sky	clear	clear	cloudy	p. cloudy	clear
Soil moisture	dry	dry	dry	dry	dry
Corn					
leaf no.	-	-	2-collar	3-collar	4-collar
height (inch)	-	-	2	3.5	6
Yellow foxtail					
leaf no.	-	-	1 to 2	2 to 3	2 to 4
height (inch)	-	-	0.5	1.5 to 2.0	2 to 4
no./ft ²	-	-	91	80	82
Common lambsquarters					
leaf no.	-	-	1 to 2	2 to 3	3 to 4
height (inch)	-	-	0.5	1 to 2	2 to 4
no./ft ²	-	-	7.5	6	4
Pennsylvania smartweed					
leaf no.	-	-	1 to 2	2 to 3	3 to 4
height (inch)	-	-	0.5	1 to 2	2 to 4
no./ft ²	-	-	<1	<1	<1
Rainfall after application (inch)					
1 week	0.63	0.63	1.78	0.49	0.02
2 week	1.39	1.39	0.49	0.77	0.77
3 week	2.76	2.76	0.77	0.47	0.86

In August, rimsulfuron + FOE 5043 applied PRE followed by dicamba POST III resulted in 83% yellow foxtail control. All other PRE followed by POST III treatments resulted in 89% or greater control. POST II herbicide treatments without either soil applied herbicides or cultivation gave 79 to 91% control. These same treatments with cultivation provided 94 to 97% control. All herbicide treatments provided excellent control of common lambsquarters and Pennsylvania smartweed. Severe winds on August 8th caused extensive root lodging and harvest difficulty. The severe lodging contributed to corn yield variability, data not shown. (Southwest Research and Outreach Center, University of Minnesota, Lamberton).

Table. Herbicide performance in corn at Lamberton, MN in 2000 (Getting, Gunsolus and Hoverstad).

Treatment ^a	Rate (lb/A or %)	SETVU			CHEAL			POLYP		
		6/7	6/26	8/23	6/7	6/26	8/23	6/7	6/26	8/23
-----(% control)-----										
<u>Preplant incorporate 1X/POST III (4-collar corn)</u>										
[EPTC+R-29148&Acet]/dicamba	[4.2&1.05]/0.5	91	93	94	94	98	98	79	98	98
CGA 77102/dicamba	1.91/0.5	85	86	87	80	98	98	73	98	98
Acetochlor/dicamba	2.0/0.5	89	88	89	91	98	98	71	98	98
BAS 656/dicamba	1.0/0.5	88	87	85	90	98	98	83	98	98
<u>Preemergence/POST III (4-collar corn)</u>										
CGA 77102/dicamba	1.91/0.5	93	92	91	89	98	98	84	98	98
Acetochlor/dicamba	2.0/0.5	94	92	94	94	98	98	94	98	98
BAS 656/dicamba	1.0/0.5	95	92	92	89	98	98	89	98	98
Weedy check	-	0	0	0	0	0	0	0	0	0
<u>Preemergence/POST III (4-collar corn)/cultivation (48 DAP)</u>										
CGA 77102/dicamba/cultivate	1.91/0.5	91	97	97	84	99	98	85	99	98
Acetochlor/dicamba/cultivate	2.0/0.5	95	98	98	96	99	98	96	99	98
BAS 656/dicamba/cultivate	1.0/0.5	92	98	97	88	99	98	75	99	98
Hand-weeded check (Gluf POST)	-	100	100	100	100	100	100	100	100	100
<u>Preemergence</u>										
[Acet&Atra]+[Flms&Clpy]	[0.93&0.62]+[0.043&0.117]	92	90	89	98	95	97	98	96	98
Acetochlor+RPA 201772	1.0+0.078	97	94	92	99	98	98	99	98	98
<u>Preemergence/POST II (3-collar corn)</u>										
BAS 656/BAS 662+NIS+28%N	1.0/0.26+0.25%+1.25%	97	97	96	96	98	98	96	98	98
<u>Preemergence/POST III (4-collar corn)</u>										
BAS 656/BAS 662+NIS+28%N	1.0/0.18+0.25%+1.25%	91	95	94	92	95	98	90	98	95
Acet ¹ /Gluf+Atra+AMS	1.2/0.26+0.45+2.5	90	96	96	88	98	98	86	98	98
CGA 77102/[Nico&Rims&Flms&Clpy]	0.63/[0.012&0.01&0.034&0.094]	84	93	90	61	97	98	68	98	97
+Dica+COC+28%N	+0.125+1.0%+4.0%									
[FOE 5043&metribuzin]/Gluf+Atra+AMS	[0.374&0.094]/0.26+0.45+2.5	83	94	94	73	98	98	76	98	98
[FOE 5043&metribuzin]/	[0.442&0.11]/	82	96	95	77	98	98	77	98	98
[Nico&Rims&Flms&Clpy]	[0.012&0.01&0.034&0.094]									
+COC+28%N	+1.0%+4.0%									
Rims+FOE 5043/Dica	0.031+0.45/0.25	84	81	83	91	97	98	90	98	98
CGA 77102/[Flms&Clpy]+Carf+NIS	2.0/[0.043&0.117]+0.008+0.25%	91	89	89	88	98	98	88	98	98
CGA 77102/[Prim&Dica]+Carf+NIS	1.91/[0.023&0.125]+0.008+0.25%	86	92	91	78	97	98	85	98	98
[FOE 5043&metribuzin]/Dica	[0.775&0.195]/0.5	85	88	89	91	98	98	94	98	98
Acet ¹ /ZA 1296+COC+28%N	2.0/0.094+1.0%+2.5%	93	94	95	95	98	98	95	98	98
Acet ¹ /[Flms&Clpy]+Dica+NIS+AMS	2.0/[0.043&0.117]+0.125+0.25%+2.0	96	96	94	97	98	98	98	98	98
RPA 201772/Gluf+Atra+AMS	0.058/0.31+0.45+2.5	80	96	92	95	97	98	95	98	97
CGA 77102/[Prim&Dica]+COC+28%N	1.91/[0.023&0.125]+1.25%+2.5%	94	94	92	89	98	98	93	98	98
<u>Mechanical</u>										
Rotary hoe/flare weed/ cultivate 2X	-	0	80	68	0	73	78	0	76	89
Rotary hoe/cultivate 2X	-	0	78	71	0	83	84	0	90	93
<u>POST I (2-collar corn)/Cultivation (48 DAP)</u>										
[Rims&Thif]+Dica+NIS+28%N/cultivate	[0.01&0.005]+0.25+0.25%+4.0%	0	97	94	0	98	98	0	98	98
<u>POST II (3-collar corn)/Cultivation (48 DAP)</u>										
[Rims&Nico&atrazine]	[0.012&0.012&0.75]	0	96	94	0	98	98	0	98	98
+ [Flms&Clpy]+COC+28%N/cultivate	+ [0.034&0.094]+1.0%+1.25%									
[Imep&Impr]+Dica+NIS+28%N/cultivate	[0.042&0.014]+0.1875+0.25%+1.25%	0	97	97	0	98	98	0	98	98
<u>POST III (4-collar corn)/Cultivation (48 DAP)</u>										
[Dica&San 1269H&Nico]+NIS+28%N/ cultivate	[0.135+0.052+0.031]+0.25%+2.5%	0	94	95	0	98	97	0	98	98
<u>POST II (3-collar corn)</u>										
[Rims& Nico&atrazine]	[0.012&0.012&0.75]	0	85	79	0	98	98	0	98	98
+ [Flms&Clpy]+COC+28%N	+ [0.034&0.094]+1.0%+1.25%									
[Imep&Impr]+Dica+NIS+28%N	[0.042&0.014]+0.1875+0.25%+1.25%	0	94	91	0	97	98	0	98	98
Rims+Nico+BAS 662+NIS+28%N	0.012+0.023+0.18+0.25%+2.5%	0	91	84	0	98	98	0	98	98
<u>POST III (4-collar corn)</u>										
[Dica&San 1269H&Nico]+NIS+28%N	[0.135+0.052+0.031]+0.25%+2.5%	0	91	87	0	97	98	0	98	98
Gluf+Atra+AMS	0.26+0.45+2.5	0	84	80	0	97	98	0	98	98
[Nico&Rims&Flms&Clpy]	[0.012&0.01&0.034&0.094]	0	93	86	0	97	98	0	98	98
+Dica+COC+28%N	+0.125+1.0%+2.5%									
	LSD (0.10)	3	3	4	8	6	3	12	5	2

^a Acet or acetochlor = Harness 7E; Acet¹ = Surpass 6.4E; [Acet&Atra] = Surpass 100; Atra or atrazine = Aatrex 90DF; BAS 656 = Outlook 6L; BAS 662 = Distinct 70WG; Carf = Aim 40DF; CGA 77102 = Dual II Magnum 7.64EC; Dica or dicamba = Clarity 4L; [Dica&San 1269H&Nico] = Celebrity Plus 75.5DF; [EPTC+R-29148&Acet] = DoublePlay 7EC; [Flms&Clpy] = Hornet 85.6WG; [FOE 5043&metribuzin] = Axiom 68DF; 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&Nico&Atra] = Basis Gold 89.5WG; [Rims&Thif] = Basis 75DF; RPA 201772 = Balance Pro 4L; [RPA 201772&BAY FOE 5043] = Epic 58 DF; 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.

