

Herbicide performance in glyphosate resistant corn at Lamberton, MN in 1999. Getting, Jodie K. and Bruce D. Potter. The objective of this study was to evaluate herbicide combinations for annual grass and annual broadleaf weed control in glyphosate resistant 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. 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 May 12, 1999, Dekalb '493 RR' glyphosate 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. Application dates, environmental conditions, plant sizes and rainfall data are listed below:

Date	May 13	June 8	June 15
Treatment	PRE	POST I	POST II
Temperature (F)			
air	53	88	67
soil (4 inch)	56	76	72
Relative humidity (%)	81	43	46
Wind (mph)	ENE 7	SE 15	S 5
Sky	cloudy	clear	cloudy
Soil moisture	dry	dry	dry
Corn			
leaf no.	-	4-collar	6-collar
height (inch)	-	8	12
Yellow foxtail			
leaf no.	-	2 to 4	2 to 4
height (inch)	-	2 to 4	2 to 4
no./ft ²	-	83	8
Common lambsquarters			
leaf no.	-	2 to 4	2 to 4
height (inch)	-	1 to 3	1 to 3
no./ft ²	-	1	<1
Redroot pigweed			
leaf no.	-	2 to 4	-
height (inch)	-	1 to 3	-
no./ft ²	-	< 1	-
Rainfall after application (inch)			
1 week	0.58	0.70	0.66
2 week	0.98	0.66	1.11
3 week	0.48	1.11	1.56

Crop injury was not observed in any treatment. Preemergence treatments of E9636 + FOE 5043 and RPA 201772 provided 79 and 80% control of yellow foxtail, respectively. All other treatments provided 90% control or better. All treatments provided greater than 90% control of common lambsquarters. (Southwest Research and Outreach Center, University of Minnesota, Lamberton).

Table. Herbicide performance in glyphosate resistant corn at Lamberton, MN in 1999 (Getting, Potter).

Treatment ^a	Rate	Yeft			Colq		Yield (bu/A) ^b
		6/7	6/28	9/9	6/28	9/9	
<u>Preemergence</u>	(lb/A or %)	-----(% control)-----					
[Acet ¹ &ZA 1296]	[1.8&0.16]	96	97	97	99	98	180
[Acet ¹ &ZA 1296]	[2.0&0.18]	97	95	92	99	98	180
RPA 201772+Acet ³	0.082+0.98	98	97	96	99	98	187
E9636+FOE 5043	0.031+0.45	79	69	69	92	98	182
Acet ²	2.0	95	95	92	99	98	181
<u>Preemergence/POST I (2 to 4-inch weeds)</u>							
Acet ¹ / ZA 1296+COC+28%N	2.0/0.094+1.0%+2.5%	98	97	97	99	98	180
[Acet&Atra]/	[1.8&1.2]/	97	98	97	99	98	189
ZA 1296+COC+28%N	0.094+1.0%+2.5%						
Acet ¹ / ZA 1296+Atra+COC+28%N	2.0/0.094+0.25+1.0%+2.5%	99	98	97	99	98	182
Acet ² / ZA 1296+COC+28%N	2.0/0.094+1.0%+2.5%	98	97	97	99	98	182
RPA 201772/Glyt+AMS	0.094/0.375+2.5	90	98	97	99	98	180
RPA 201772/Glyt+AMS	0.082/0.375+2.5	80	98	97	99	98	186
EXP 31809B/Glyt+AMS	0.082/0.75+2.5	95	98	98	99	98	180
E9636+FOE 5043/DPX 79406	0.01+0.15/0.023	74	95	93	99	98	176
+ [Flms&Clpy]+COC+28%N	+ [0.034&0.094]+1.0%+4.0%						
Acet ² /DPX 79406	0.67/0.023	91	97	98	99	98	173
+ [Flms&Clpy]+COC+28%N	+ [0.034&0.094]+1.0%+4.0%						
CGA 77102/	1.91/	93	95	95	99	98	179
[Prim&Dica]+COC+28%N	[0.023&0.125]+1.25%+2.5%						
CGA 77102+Atra/	1.91+0.68/	94	94	95	99	98	183
[Prim&Dica]+COC+28%N	[0.023&0.125]+1.25%+2.5%						
CGA 77102+Atra/	1.59+0.56/	95	96	96	99	98	189
[Prim&Dica]+COC+28%N	[0.023&0.125]+1.25%+2.5%						
SAN-582H/	1.5/	98	98	98	99	98	180
BAS 662+NIS+28%N	0.26+0.25%+1.25%						
CGA 77102/[Flms&Clpy]	1.91/[0.034&0.094]	95	95	91	99	98	185
+F8426+NIS	+0.008+0.25%						
CGA 77102/Atra+F8426+NIS	1.91/0.5+0.008+0.25%	96	93	93	99	98	181
<u>Preemergence/POST II (12-inch corn)</u>							
Acet ³ /Glyt+AMS	1.0/0.75+2.5	94	97	98	99	98	177
<u>POST I (2 to 4-inch weeds)</u>							
Glyt+AMS	0.75+2.5	-	98	95	99	98	179
Acet ³ +Glyt+AMS	1.3+0.75+2.5	-	97	98	99	98	189
Nico+F8426+NIS+28%N	0.031+0.008+0.25%+4.0%	-	91	89	92	96	187
Nico+F8426+COC+28%N	0.031+0.008+1.0%+4.0%	-	91	89	94	98	179
Nico+Brox+COC	0.031+0.25+1.0%	-	93	90	97	98	180
Nico+TADS13169+COC+28%N	0.031+0.25+1.0%+2.5%	-	91	88	97	98	177
<u>Checks</u>							
Weedy check	-	0	0	0	0	0	129
Hand-weeded check (Glyt POST)		98	99	100	99	99	184
	LSD (0.10)	7	5	4	2	1	14

^a Acet¹ = Topnotch 3.2CS; Acet² = Surpass 6.4EC; Acet³ = Harness 7E; [Acet&Atra] = Fultime 4CS; Atra = Aatrexx 90DF; BAS 662 = Distinct 70WG; Brox = Buctril 2E; CGA 77102 = Dual II Magnum 7.64EC; [Flms&Clpy] = Hornet 85.6WG; F8426 = Aim 40DF; Glyt = Roundup Ultra 3S; Nico = Accent 75DF; [Prim&Dica] = Northstar 47.4WG; 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.