

Herbicide performance in glyphosate-resistant corn at Lamberton, MN in 2002. Getting, Jodie K. and Bruce D. Potter. The objective of this study was to evaluate glyphosate for annual grass and annual broadleaf weed control in glyphosate-resistant 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 60 and 316 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 2001 and was fall chiseled. The area was fertilized with 180 lb/A of nitrogen as urea. On May 2, 2002, Dekalb 'DKC 50-73RR' glyphosate-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 3	June 5	June 25
Treatment	PRE	POST I	POST II
Temperature (F)			
air	40	72	72
soil (4 inch)	40	78	70
Relative humidity (%)	30	50	88
Wind (mph)	SE 10	NNE 3	SSE 8
Sky	clear	clear	p. cloudy
Soil moisture	dry	moist	dry
Corn			
leaf no.	-	3-collar	8-collar
height (inch)	-	5	24
Yellow foxtail			
leaf no.	-	1 to 4	2 to 4
height (inch)	-	1 to 3	2 to 4
no./ft ²	-	28	10
Common lambsquarters			
leaf no.	-	3 to 5	3 to 5
height (inch)	-	1 to 2	1 to 2
no./ft ²	-	4	<1
Redroot pigweed			
leaf no.	-	3 to 5	3 to 5
height (inch)	-	1 to 2	1 to 2
no./ft ²	-	5	<1
Rainfall after application (inch)			
1 week	1.25	0.57	0.00
2 week	0.36	0.24	0.18
3 week	0.00	1.18	0.66

None of the herbicide treatments caused visible crop injury. On June 4, prior to POST I treatments, [s-metolachlor & CGA-154281] applied PRE at 0.96 lb/A and 1.91 lb/A gave 75 to 79% and 87% yellow foxtail control, respectively. Acetochlor applied PRE at 1.0 lb/A and 1.09 lb/A gave 90 and 87% control, respectively and dimethenmid-P applied PRE at 0.94 lb/A gave 90% control. [S-metolachlor & CGA-154281] applied PRE at 0.96 lb/A and 1.91 lb/A gave 45 to 59% and 76% common lambsquarters control, respectively. Acetochlor applied PRE at 1.0 lb/A and 1.09 lb/A gave 89% control and dimethenmid-P applied PRE at 0.94 lb/A gave 91% control. All soil applied herbicides provided 90% or greater redroot pigweed control. In September, [s-metolachlor & CGA-154281] followed by [primisulfuron & dicamba] resulted in 89% yellow foxtail control. All other PRE/POST I treatments resulted in 92% or greater control. Glyphosate + AMS applied POST I gave 86 to 88% yellow foxtail control and 89% common lambsquarters control. Glyphosate tank-mixed with either [s-metolachlor & CGA-154281] or acetochlor resulted in 96 and 97% yellow foxtail control, respectively and 92 and 94% common lambsquarters, respectively. Glyphosate applied POST I followed by glyphosate POST II provided 96% or greater control of yellow foxtail, common lambsquarters, and redroot pigweed. (Southwest Research and Outreach Center, University of Minnesota, Lamberton).

Table. Herbicide performance in glyphosate-resistant corn at Lamberton, MN in 2002 (Getting and Potter).

Treatment ^a	Rate	SETLU			CHEAL			AMARE		
		6/4	6/21	9/10	6/4	6/21	9/10	6/4	6/21	9/10
PRE/POST I (3 to 4" weeds)	(lb/A or %)	-----(% control)-----								
Acetochlor ¹ /glyphosate ¹ +AMS	1.0/0.75+2.5	90	97	96	89	99	95	96	100	99
[S-meto&CGA-154281]/ glyphosate ² +AMS	0.96/ 0.56+1.7	79	96	95	59	98	93	93	99	98
[S-meto&CGA-154281]/ glyphosate ² +AMS	0.96/ 0.75+1.7	75	96	94	45	96	90	90	99	97
Dimt-P/[Dica&SAN 1269H] +NIS+AMS	0.94/[0.128&0.051] +0.25%+1.0	90	92	92	91	97	97	97	99	97
[S-meto&CGA-154281]/ [Prim&Dica]+COC+28%N	1.91/ [0.023&0.125]+1.0%+2.5%	87	93	89	76	94	95	94	99	97
Acetochlor ² /glyphosate ³ +AMS	1.09/0.75+2.5	87	97	94	89	99	94	95	99	97
POST I (3 to 4" weeds)										
Glyphosate ³ +AMS	0.75+2.5	0	91	88	0	95	89	0	98	95
Acetochlor ² +glyphosate ³ +AMS	1.09+0.75+2.5	0	98	97	0	99	94	0	99	98
[S-meto&CGA-154281] +glyphosate ² +AMS	0.96 +0.75+2.5	0	97	96	0	96	92	0	99	98
Glyphosate ² +AMS	0.75+2.5	0	91	86	0	94	89	0	97	93
POST I (3 to 4" weeds) /POST II (regrowth)										
Glyphosate ³ +AMS/ glyphosate ³ +AMS	0.75+2.5/ 0.56+2.5	0	91	97	0	94	98	0	96	98
Glyphosate ² +AMS/ glyphosate ² +AMS	0.75+2.5/ 0.56+1.7	0	91	96	0	96	98	0	96	98
Checks										
Weedy check		0	0	0	0	0	0	0	0	0
Weed-free		100	100	100	100	100	100	100	100	100
	LSD (0.10)	2.6	2.0	2.7	5.6	2.2	5.3	1.4	2.0	1.9

^a Acetochlor¹ = Surpass 6.4EC; Acetochlor² = Harness 7E; [Dica&SAN 1269H] or [dicamba & SAN 1269H] = Distinct 70WG; Dimt-P or dimethenamid-P = Outlook 6L; glyphosate¹ = Glyphomax Plus 3L; glyphosate² = Touchdown 3L; glyphosate³ = Roundup Ultra Max 3.75L; [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, Class Additive 17%; NIS = nonionic surfactant, Class Preference; 28%N = an aqueous solution of urea and ammonium nitrate; AMS = spray grade ammonium sulfate.