

Effect of time of glyphosate application on weed control, corn growth, and yield at Lamberton, MN in 2006. Gunsolus, Jeffrey L., Milton Haar, and Jodie K. Getting. A field study was conducted at the Southwest Research and Outreach Center near Lamberton, MN to evaluate the effects of time of glyphosate application on crop development and 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 34 and 370 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 2005 and was fall chiseled. The area was fertilized with 150-100-100 on April 14, 2006. On May 17, 2006, Pioneer '38H69' glyphosate resistant field corn was planted in 30-inch rows at a seeding rate of 33,000 seeds/A. Tefluthrin (Force) was applied at 5.0 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. Time of herbicide application was determined by weed height. Application dates, environmental conditions, plant sizes and rainfall data are listed below:

Date	May 18	May 31	June 2	June 8	June 13	June 22
Treatment	PRE	POST I	POST II	POST III	POST IV	POST V
Temperature (F)						
air	52	68	82	61	64	57
soil (4 inch)	52	72	86	70	70	70
Relative humidity (%)	54	52	30	59	60	82
Wind (mph)	N 5	calm	N 10	N 7	SW 8	W 5
Sky	cloudy	clear	clear	cloudy	clear	Clear
Soil moisture	dry	dry	dry	moist	moist	moist
Corn						
leaf no.	-	V2	V3	V5	V6	V8
height (inch)	-	4	5	11	16	29
Foxtails (Yellow foxtail predominate)						
leaf no.	-	1 to 3	2 to 4	3 to 5	5 to 7	6 to 8
height (inch)	-	1 to 2	2 to 4	5 to 6	6 to 8	10 to 12
no./ft ²	-					
Common lambsquarters						
leaf no.	-	2 to 3	3 to 5	6 to 8	7 to 8	8 to 10
height (inch)	-	0.5 to 1	2 to 3	4 to 6	6 to 8	9 to 10
no./ft ²	-					
Tall waterhemp						
leaf no.	-	1 to 2	2 to 4	3 to 4	4 to 6	7 to 9
height (inch)	-	0.25 to 1	1 to 2	3 to 4	6 to 8	8 to 10
no./ft ²	-					
Rainfall after application (inch)						
1 week	0.31	4.35	4.26	1.63	2.84	1.11
2 week	0.09	1.09	1.63	2.30	1.11	0.00
3 week	4.26	2.84	2.30	1.11	0.00	1.15

(Southwest Research and Outreach Center, University of Minnesota, Lamberton).

Table. Effect of time of glyphosate application on weed control, corn growth, and yield at Lamberton, MN in 2006. (Gunsolus, Haar, Getting).

Treatment ^a	Yellow foxtail			Common lambsquarters			Tall waterhemp			Yield (bu/A) ^b
	6/28	7/14	8/23	6/28	7/14	8/23	6/28	7/14	8/23	
	-----(% control)-----									
PRE / POST I (1 to 2-inch weeds)	93	91	90	98	97	95	97	96	95	214
POST I (1 to 2-inch weeds)	83	74	70	91	88	86	88	83	75	213
PRE / POST II (3 to 4-inch weeds)	95	93	90	100	98	97	100	98	95	212
POST II (3 to 4-inch weeds)	91	87	83	97	90	88	90	85	78	215
PRE / POST III (5 to 6-inch weeds)	97	94	93	100	99	98	100	99	97	216
POST III (5 to 6-inch weeds)	90	85	79	99	91	91	93	85	80	219
PRE / POST IV (7 to 8-inch weeds)	95	96	92	100	100	98	100	100	97	211
POST IV (7 to 8-inch weeds)	95	91	87	99	97	96	100	98	91	208
PRE / POST V (9 to 12-inch weeds)	98	97	97	100	100	98	100	100	97	208
POST V (9 to 12-inch weeds)	98	98	98	100	99	98	100	99	96	198
PRE	73	68	66	80	74	74	73	61	55	197
POST I (1 to 2-inch weeds)/POST V (corn canopy)	100	100	96	100	100	99	100	100	98	213
<u>Checks</u>										
Weedy Check	0	0	0	0	0	0	0	0	0	162
Weed-free check	100	100	99	100	100	100	100	100	100	221
<u>POST I (1 to 2-inch weeds)</u>										
Lumax (3pt) + Touchdown Total (24oz) + AMS (2.5lb)	97	95	92	100	100	98	100	100	97	209
Harness (1.25pt) + Roundup Weathermax (22oz) + AMS (2.5lb)	97	93	91	100	97	96	99	96	95	213
Resolve (1oz) + Atrazine (1pt) + Roundup Weathermax (22oz) + NIS (0.25%) + AMS (2.5lb)	90	87	81	97	94	93	91	88	85	213
Outlook (12oz)+ Clarity (8oz) + Roundup Weathermax (22oz) + AMS (2.5lb)	94	91	87	100	98	96	99	98	93	210
LSD (0.10)	2.4	2.9	4.1	3.0	4.9	5.0	5.2	6.8	7.4	11.2

^a PRE = Harness (1.25 pt/A); POST = Roundup Weathermax (22 oz/A) + AMS (2.5 lb/A).

^b Yield adjusted to 15.5% moisture.