

Effect of time of glyphosate application on weed control, soybean 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 soybeans. 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. On May 17, 2006, Asgrow 'AG2107' glyphosate resistant soybean was planted in 30-inch rows at a seeding rate of 160,000 seeds/A. On July 28, all plots were treated with Warrior (lambda-cyhalothrin) for soybean aphid control. 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	July 3
Treatment	PRE	POST I	POST II	POST III	POST IV	POST V	POST VI
Temperature (F)							
air	52	68	82	61	64	57	72
soil (4 inch)	52	72	86	70	70	70	76
Relative humidity (%)	54	52	30	59	60	82	73
Wind (mph)	N 5	calm	N 10	N 7	SW 8	W 5	SE 9
Sky	cloudy	clear	clear	cloudy	clear	clear	cloudy
Soil moisture	dry	dry	dry	moist	moist	moist	dry
Corn							
leaf no.	-	V1	V1	V2	V3	V5	R1
height (inch)	-	2	3	5	6	10	18
Foxtails (Yellow foxtail predominate)							
leaf no.	-	1 to 3	2 to 4	3 to 5	5 to 7	6 to 8	3 to 4
height (inch)	-	1 to 2	2 to 4	5 to 6	6 to 8	10 to 12	4 to 6
no./ft <sup>2</sup>	-						
Common lambsquarters							
leaf no.	-	2 to 3	3 to 5	6 to 8	7 to 8	8 to 10	4 to 6
height (inch)	-	0.5 to 1	2 to 3	4 to 6	6 to 8	9 to 10	4 to 6
no./ft <sup>2</sup>	-						
Tall waterhemp							
leaf no.	-	1 to 2	2 to 4	3 to 4	4 to 6	7 to 9	3 to 5
height (inch)	-	0.25 to 1	1 to 2	3 to 4	6 to 8	8 to 10	3 to 6
no./ft <sup>2</sup>	-						
Rainfall after application (inch)							
1 week	0.31	4.35	4.26	1.63	2.84	1.11	0.27
2 week	0.09	1.09	1.63	2.30	1.11	0.00	0.88
3 week	4.26	2.84	2.30	1.11	0.00	1.15	0.48

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

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

Treatment <sup>a</sup>	canopy <sup>b</sup>	Yellow foxtail			Common lambsquarters			Tall waterhemp			Yield (bu/A) <sup>c</sup>
		6/28	7/14	9/19	6/28	7/14	9/19	6/28	7/14	9/19	
PRE / POST I (1 to 2-inch weeds)	17.3	91	88	88	100	97	97	96	93	94	58.4
POST I (1 to 2-inch weeds)	18.8	78	65	53	86	93	90	64	53	40	52.5
PRE / POST II (3 to 4-inch weeds)	17.0	94	91	89	100	98	96	94	93	87	62.9
POST II (3 to 4-inch weeds)	19.0	85	79	71	97	94	89	65	51	40	52.2
PRE / POST III (5 to 6-inch weeds)	17.0	95	92	94	98	97	97	97	90	92	61.9
POST III (5 to 6-inch weeds)	19.5	88	75	75	94	93	90	78	60	66	59.3
PRE / POST IV (7 to 8-inch weeds)	17.3	99	97	97	100	99	98	100	95	96	63.3
POST IV (7 to 8-inch weeds)	18.0	94	91	91	99	95	97	91	83	87	59.7
PRE / POST V (9 to 12-inch weeds)	17.0	100	98	98	100	100	98	100	100	98	59.5
POST V (9 to 12-inch weeds)	19.3	100	99	98	100	100	98	100	98	98	62.0
PRE	-	69	59	45	74	74	70	45	33	25	32.4
POST II (3 to 4-inch weeds)/POST VI (regrowth)	16.8	85	100	98	94	100	98	74	100	98	58.8
<u>Checks</u>											
Weedy Check	-	0	0	0	0	0	0	0	0	0	18.7
Weed-free check	16.3	100	100	100	100	100	100	100	100	100	59.6
LSD (0.10)		4.4	6.1	6.9	6.5	3.7	4.8	10.5	8.1	10.4	

<sup>a</sup> PRE = Boundary (1.5 pt/A); POST = Touchdown Total (24 oz/A) + AMS (2.5 lb/A).

<sup>b</sup> Day in July when soybean rows canopied.

<sup>c</sup> Yield adjusted to 13% moisture.