

Weed control with glufosinate in glufosinate tolerant soybeans at Lamberton, MN in 2006. Getting, Jodie K. The objective of this study was to evaluate glufosinate for annual grass and annual broadleaf weed control in glufosinate tolerant 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. The area was fertilized with 39-100-100 on April 14, 2006. On May 17, 2006 'N39031L' glufosinate tolerant soybeans were planted in 30-inch rows at a seeding rate of 160,000 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 18	May 31	June 5	June 27
Treatment	PRE	POST I	POST II	POST III
Temperature (F)				
air	57	72	72	70
soil (4 inch)	56	74	72	70
Relative humidity (%)	41	44	57	46
Wind (mph)	NW 8	calm	S 10	NW 8
Sky	cloudy	clear	clear	p. cloudy
Soil moisture	dry	dry	dry	dry
Soybean				
leaf no.	-	V1	V2	V5
height (inch)	-	3	4	13
Yellow foxtail				
leaf no.	-	1 to 3	3 to 5	2 to 4
height (inch)	-	1 to 2	3 to 4	2 to 4
no./ft <sup>2</sup>	-	26	17	11
Common lambsquarters				
leaf no.	-	2 to 4	4 to 6	3 to 4
height (inch)	-	0.5 to 1	1 to 3	1 to 2
no./ft <sup>2</sup>	-	<1	1	<1
Tall waterhemp				
leaf no.	-	1 to 2	2 to 4	2 to 4
height (inch)	-	0.5 to 1	1 to 3	1 to 3
no./ft <sup>2</sup>	-	2	2	5
Rainfall after application (inch)				
1 week	0.31	4.35	5.35	0.00
2 week	0.09	1.09	2.38	0.27
3 week	4.26	2.84	1.39	0.88

May precipitation totaled 2.44 inches compared to the long-term average of 3.34 inches. Above normal precipitation in June resulted in 9.39 inches compared to the long-term average of 3.77 inches. The trial received 4.26 inches of rain and hail 1 day after POST II application. As a result, there was a heavy flush of new emerging weeds. The growing degree days were slightly below average for May and June but above average for July. The predominate weed species were yellow foxtail, common lambsquarters, and tall waterhemp. None of the herbicide treatments caused visible crop injury. The PRE treatments received only 0.40 inches of rain within the first two weeks of application, resulting in decreased weed control prior to POST application. On July 13, AE F039866 00 SL24 A6 (glufosinate) applied at POST I or POST II resulted in 61% yellow foxtail control. Glufosinate applied sequentially POST I/POST III gave 96% control. Glufosinate following the application of Sencor, Boundary, Valor + Sencor, and Valor + FirstRate provided 73, 89, 74, and 86% control. Those respective treatments gave 94 to 99% and 93 to 97% common lambsquarters and tall waterhemp control, respectively. Glufosinate applied POST I, POST II, and POST I/POST III resulted in 86, 89, and 100% common lambsquarters control and 75, 83, and 100% tall waterhemp control, respectively. The trial was destroyed on July 13 by mowing. (Southwest Research and Outreach Center, University of Minnesota, Lamberton).

Table. Weed control with glufosinate in glufosinate tolerant soybeans at Lamberton, MN in 2006 (Getting).

Treatment <sup>a</sup>	Rate	Yellow foxtail				Common lambsquarters				Tall waterhemp			
		6/5	6/19	7/3	7/13	6/5	6/19	7/3	7/13	6/5	6/19	7/3	7/13
<u>Preemergence/POST II (3 to 4-inch weeds)</u>	(oz/A, pt/A, lb/A or %)	-----(% control)-----											
Sencor / AE F039866 00 SL24 A6 + AMS	8 oz / 22 oz + 1.5 lb	0	92	81	73	95	98	99	98	88	99	95	94
Boundary / AE F039866 00 SL24 A6 + AMS	1.5 pt / 22 oz + 1.5 lb	58	94	90	89	91	98	95	94	84	99	93	93
Valor + Sencor / AE F039866 00 SL24 A6 + AMS	1.5 oz + 3 oz / 22 oz + 1.5 lb	5	91	80	74	97	98	99	98	89	100	96	95
Valor + FirstRate / AE F039866 00 SL24 A6 + AMS	1.5 oz + 0.3 oz / 22 oz + 1.5 lb	0	93	88	86	96	99	99	99	92	100	98	97
<u>POST I (1 to 2-inch weeds)</u>													
AE F039866 00 SL24 A6 + AMS	22 oz + 1.5 lb	96	90	74	61	99	94	90	86	99	96	78	75
<u>POST II (3 to 4-inch weeds)</u>													
AE F039866 00 SL24 A6 + AMS	22 oz + 1.5 lb	-	85	73	61	-	93	90	89	-	94	85	83
<u>POST I (1 to 2-inch weeds)/ POST III (2 to 4-inch regrowth)</u>													
AE F039866 00 SL24 A6 + AMS /	22 oz + 1.5 lb /	95	86	100	96	100	96	100	100	100	95	100	100
AE F039866 00 SL24 A6 + AMS	22 oz + 1.5 lb												
<u>Checks</u>													
Weedy Check	-	0	0	0	0	0	0	0	0	0	0	0	0
	LSD (0.10)	7.4	2.8	3.8	7.3	4.0	3.9	4.9	6.4	5.5	2.6	4.7	3.9

<sup>a</sup> COC = crop oil concentrate; MSO = methylated seed oil; NIS = nonionic surfactant; AMS = spray grade ammonium sulfate.