

Herbicide performance in soybeans at Luverne, MN in 2002. Getting, Jodie K., Jeffrey L. Gunsolus, and Thomas R. Hoverstad. The objective of this study was to evaluate soybean herbicide combinations for annual grass and annual broadleaf weed control in glyphosate-resistant soybeans. This study was conducted on a Trent silty clay loam soil containing 5.2% organic matter, pH 6.2 and soil test P and K levels of 70 and 348 lb/A, respectively. A randomized complete block design with four replications and a plot size of 10 by 25 ft was used. The site was planted to corn in 2001 and was fall chiseled. On May 22, 2002 preplant incorporated treatments were applied and tilled twice with a field cultivator set to till 3 to 4 inches deep and operated at 5 to 6 mph. The same day Asgrow 'AG 1602' glyphosate-resistant 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 22	May 23	June 18	June 24	July 29
Treatment	PPI	PRE	POST I	POST II	POST III
Temperature (F)					
air	58	64	82	72	85
soil (4 inch)	54	57	76	74	84
Relative humidity (%)	60	30	40	65	46
Wind (mph)	SE 10	NW 10-15	SE 8-10	calm	SW 2-5
Sky	cloudy	clear	p. cloudy	p. cloudy	clear
Soil moisture	moist	dry	dry	dry	dry
Soybean					
leaf no.	-	-	V2	V3	R3
height (inch)	-	-	4	6	24
Giant foxtail					
leaf no.	-	-	2 to 4	3 to 4	4 to 6
height (inch)	-	-	2 to 4	5 to 8	4 to 6
no./ft <sup>2</sup>	-	-	14	12	<1
Common lambsquarters					
leaf no.	-	-	2 to 5	2 to 6	2 to 5
height (inch)	-	-	2 to 3	2 to 5	2 to 3
no./ft <sup>2</sup>	-	-	1	1	<1
Tall waterhemp					
leaf no.	-	-	2 to 4	2 to 5	2 to 4
height (inch)	-	-	1 to 3	2 to 4	1 to 3
no./ft <sup>2</sup>	-	-	<1	<1	<1
Rainfall after application (inch)					
1 week	0.90	0.90	0.41	0.00	2.43
2 week	1.03	1.03	0.00	0.00	1.81
3 week	0.94	0.94	0.35	1.11	0.16

Low weed densities occurred in this trial. On June 18, prior to POST treatments, [s-metolachlor & metribuzin] provided 88% giant foxtail control. Sulfentrazone + cloransulam + [s-metolachlor & metribuzin] had 89% control. Pendimethalin obtained 86 to 91% control. All other soil applied treatments had 76% or less control. All soil applied herbicide treatments resulted in 90% or greater common lambsquarters control. Sulfentrazone + cloransulam had 83% tall waterhemp control. All other soil applied treatments had 92% or greater control. In September, sulfentrazone + cloransulam + [s-metolachlor & metribuzin] had 86% giant foxtail control. All other herbicide treatments had 96% or greater control. Flumetsulam followed by cloransulam + clethodim + lactofen + NIS + AMS and flumioxazin followed by cloransulam + lactofen + clethodim + NIS + AMS had 85% and 86% common lambsquarters control, respectively. All other treatments had 94% or greater control. Pendimethalin followed by imazamox + cloransulam + NIS + AMS had 75% tall waterhemp control. All other herbicide treatments had 93% or greater control. (Southwest Research and Outreach Center, University of Minnesota, Lamberton).

Table. Herbicide performance in soybeans at Luverne, MN in 2002 (Getting, Gunsolus and Hoverstad).

Treatment <sup>a</sup>	Rate (lb/A or %)	SETFA			CHEAL			AMATU		
		6/18	7/3	9/13	6/18	7/3	9/13	6/18	7/3	9/13
<u>Preplant incorporate 2X/POST I (4-inch weeds)</u>										
Pend/Immx+Acif+NIS+AMS	1.0/0.031+0.1875+0.25%+3.4	88	96	98	95	100	99	95	100	100
Pend/Immx+Clms+NIS+AMS	1.0/0.031+0.01+0.25%+3.4	86	98	100	97	100	99	94	89	75
Pend/[Imep&glyphosate]+NIS+AMS	1.0/[0.063&0.75]+0.13%+2.6	91	100	100	97	100	99	97	98	98
<u>Preemergence</u>										
Sulfentrazone+Clms+[S-meto&Metr]	0.25+0.031+[0.82&0.2]	89	85	86	97	98	94	97	95	93
<u>Preemergence/POST I (4-inch weeds)</u>										
Flumetsulam/Clsm+Clet+Lact +NIS+AMS	0.053/0.016+0.125+0.125 +0.25%+2.5	18	94	96	91	90	85	96	100	100
Sulfentrazone+Clms+[Flfp-P&Fenx] +COC+AMS	0.25+0.031/[0.156&0.044] +0.625%+2.5	75	96	99	96	100	98	93	98	97
Flumioxazin/Clms+Lact+Clet +NIS+AMS	0.078/0.016+0.125+0.125 +0.25%+2.5	76	94	96	96	95	86	97	100	99
[S-meto&Metr]/Fome +[Flfp-P&Fenx]+COC+AMS	[0.82&0.2]/0.24 +[0.125&0.035]+1.0%+2.5	88	99	100	93	100	96	93	100	99
Sulfentrazone/Fome+Qufp-P +COC+AMS	0.21/0.24+0.06 +1.0%+2.5	39	100	98	95	99	99	96	100	100
<u>Preemergence/POST II (6-inch weeds)</u>										
Sulfentrazone/glyphosate <sup>2</sup> +Clim+AMS	0.16/0.75+0.016+2.5	63	100	100	96	100	100	92	100	100
Flumetsulam/glyphosate <sup>1</sup> +AMS	0.053/0.75+2.5	55	100	100	93	100	100	93	100	100
Sulfentrazone+Clms/glyphosate <sup>1</sup> +AMS	0.127+0.016/0.75+2.5	58	100	100	90	100	100	83	100	100
Flumioxazin/glyphosate <sup>2</sup> +AMS	0.0625/0.75+2.5	75	100	100	97	100	99	97	100	99
[S-meto&Metr]/glyphosate <sup>3</sup> +AMS	[0.82&0.2]/0.75+2.5	88	100	100	93	100	100	96	100	100
[Flufenacet&Metr]/glyphosate <sup>2</sup> +AMS	[0.15&0.23]/0.56+2.5	23	100	100	93	97	100	95	100	100
Sulfentrazone/glyphosate <sup>2</sup> +Clim+AMS	0.19/0.75+2.5	23	100	100	96	100	100	92	100	100
<u>POST I (4-inch weeds)</u>										
Fome+[Flfp-P&Fenx] +Thif+COC+AMS	0.24+[0.156&0.044] +0.002+1.0%+2.5	0	100	97	0	100	98	0	100	100
<u>POST II (6-inch weeds)/POST III (soybean canopy)</u>										
Glyphosate <sup>2</sup> +AMS/glyphosate <sup>2</sup> +AMS	0.75+2.5/0.75+2.5	0	99	100	0	98	100	0	100	100
<u>POST II (6-inch weeds)</u>										
Glyphosate <sup>1</sup> +Carf+AMS	0.75+0.004+2.5	0	100	100	0	100	100	0	98	100
Glyphosate <sup>1</sup> +Clsm+AMS	0.75+0.016+2.5	0	100	100	0	100	100	0	100	100
[Imep&glyphosate]+NIS+AMS	[0.063&0.75]+0.13%+2.6	0	100	100	0	100	100	0	100	100
Glyphosate <sup>2</sup> +AMS	0.75+2.5	0	100	100	0	100	99	0	99	100
Weedy Check	-	0	0	0	0	0	0	0	0	0
Weed-free check		100	100	100	100	100	100	100	100	100
	LSD (0.10)	17.0	3.4	2.8	4.3	2.8	3.6	5.5	3.8	7.6

<sup>a</sup> Acif or acifluorfen = Ultra Blazer 2L; Clet or clethodim = Select 2L; Clim or chlorimuron = Classic 75DF; Clsm or cloransulam = FirstRate 84WG; [Flfp-P&Fenx] or [fluazifop-P & fenoxaprop] = Fusion 2.56F; Flms or flumetsulam = Python 85DF; flumioxazin = Valor 50DF; [flufenacet&Metr] or [flufenacet & metribuzin] = Domain 60DF; Fome or fomesafen = Flexstar 1.88L; glyphosate<sup>1</sup> = Glyphomax Plus 3L; glyphosate<sup>2</sup> = Roundup Ultra Max 3.75L; glyphosate<sup>3</sup> = Touchdown IQ 3L; [Imep&glyphosate] or [imazethapyr & glyphosate] = Extreme 2.17L; Immx or imazamox = Raptor 1L; Lact or lactofen = Phoenix 2EC; Pend or pendamethalin = Prowl H<sub>2</sub>O 3.8; Qufp-P or quizalofop-P = Assure II 0.88E; [s-meto&metr] or [s-metolachlor & metribuzin] = Boundary 6.5EC; sulfentrazone = Authority 75DF; Thif or thifensulfuron = Harmony GT 75DF; COC = crop oil concentrate; NIS = nonionic surfactant; AMS = spray grade ammonium sulfate.