

Herbicide performance in soybeans at Lamberton, 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 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. On May 17, 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 2103' 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 17	May 18	June 11	June 14	July 9
Treatment	PPI	PRE	POST I	POST II	POST III
Temperature (F)					
air	48	39	74	55	84
soil (4 inch)	60	44	76	62	86
Relative humidity (%)	50	70	75	95	55
Wind (mph)	N 2-5	NW 2-5	N 5-8	N 5-8	ENE 8
Sky	p. cloudy	clear	clear	clear	clear
Soil moisture	moist	dry	moist	dry	dry
Soybean					
leaf no.	-	-	V1	V2	R1
height (inch)	-	-	4	5	18
Yellow foxtail					
leaf no.	-	-	2 to 4	2 to 5	4 to 6
height (inch)	-	-	2 to 4	4 to 6	4 to 6
no./ft ²	-	-	49	37	8
Common lambsquarters					
leaf no.	-	-	2 to 5	2 to 6	2 to 4
height (inch)	-	-	2 to 3	2 to 4	2 to 4
no./ft ²	-	-	4	6	<1
Redroot pigweed					
leaf no.	-	-	2 to 4	3 to 6	-
height (inch)	-	-	1 to 3	2 to 4	-
no./ft ²	-	-	2	1	-
Rainfall after application (inch)					
1 week	0.00	0.00	0.24	0.28	0.66
2 week	0.60	0.62	1.18	0.98	0.07
3 week	1.86	1.90	0.00	0.18	2.29

On June 17, herbicide treatments tank-mixed with lactofen, acifluorfen, fomesafen, and carfentrazone had 21 to 24%, 19%, 14 to 19%, and 19% visible crop injury, respectively. All other herbicide treatments had 3% or less crop injury. In September, sulfentrazone + cloransulam + [s-metolachlor & metribuzin] had 78% yellow foxtail control. All other herbicide treatments had 90% or greater control. Glyphosate applied POST II alone or tank-mixed with carfentrazone, cloransulam, or imazethapyr resulted in 96%, 91%, and 98% control, respectively. Flumetsulam applied PRE followed by cloransulam + clethodim + lactofen + NIS + AMS POST I resulted in 81% common lambsquarters control. All other herbicide treatments had 90% or greater control. All herbicide treatments had 92% or greater redroot pigweed control. (Southwest Research and Outreach Center, University of Minnesota, Lamberton).

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

Treatment ^a	Rate (lb/A or %)	Injury		SETLU			CHEAL			AMARE			Yield (bu/A) ^b
		6/17	6/24	6/10	6/24	9/11	6/10	6/24	9/11	6/10	6/24	9/11	
<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	19	6	96	97	98	98	100	100	98	100	100	50.8
Pend/Immx+Clms+NIS+AMS	1.0/0.031+0.01+0.25%+3.4	3	0	95	97	98	97	100	100	98	100	100	48.7
Pend/[Imep&glyphosate]+NIS+AMS	1.0/[0.063&0.75]+0.13%+2.6	1	0	96	99	98	97	100	100	98	100	100	49.6
<u>Preemergence</u>													
Sulfentrazone+Clms+[S-meto&Metr]	0.25+0.031+[0.82&0.2]	0	0	90	81	78	97	89	90	97	93	92	41.0
<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	24	8	10	90	90	50	84	81	76	98	96	48.9
Sulfentrazone+Clms/[Flfp-P&Fenx] +COC+AMS	0.25+0.031/[0.156&0.044] +0.625%+2.5	1	0	68	95	97	93	91	93	97	97	96	51.5
Flumioxazin/Clms+Lact+Clet +NIS+AMS	0.078/0.016+0.125+0.125 +0.25%+2.5	21	5	81	94	95	93	93	91	97	100	97	49.3
[S-meto&Metr]/Fome +[Flfp-P&Fenx]+COC+AMS	[0.82&0.2]/0.24 +[0.125&0.035]+1.0%+2.5	19	5	90	99	97	90	100	100	87	100	100	52.4
Sulfentrazone/Fome+Qufp-P +COC+AMS	0.21/0.24+0.06 +1.0%+2.5	14	5	25	92	93	86	98	99	61	100	100	51.4
<u>Preemergence/POST II (6-inch weeds)</u>													
Sulfentrazone/glyphosate ² +Clm+AMS	0.16/0.75+0.016+2.5	0	0	50	96	96	88	100	100	80	100	99	53.5
Flumetsulam/glyphosate ¹ +AMS	0.053/0.75+2.5	0	0	28	97	97	75	100	100	91	100	100	53.2
Sulfentrazone+Clms/glyphosate ¹ +AMS	0.127+0.016/0.75+2.5	0	0	49	97	97	76	100	99	93	100	100	53.1
Flumioxazin/glyphosate ² +AMS	0.0625/0.75+2.5	0	0	81	95	95	95	100	100	97	100	100	51.7
[S-meto&Metr]/glyphosate ³ +AMS	[0.82&0.2]/0.75+2.5	0	0	89	98	97	80	100	100	91	100	100	53.3
[Flufenacet&Metr]/glyphosate ² +AMS	[0.15&0.23]/0.56++2.5	0	0	81	97	96	83	99	100	93	100	100	52.5
Sulfentrazone/glyphosate ² +Clm+AMS	0.19/0.75+2.5	0	0	78	96	95	96	100	100	96	100	99	53.3
<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	15	4	0	94	96	0	99	99	0	100	100	51.5
<u>POST II (6-inch weeds)/POST III (soybean canopy)</u>													
Glyphosate ² +AMS/glyphosate ² +AMS	0.75+2.5/0.75+2.5	1	1	0	92	98	0	98	99	0	100	100	51.0
<u>POST II (6-inch weeds)</u>													
Glyphosate ¹ +Carf+AMS	0.75+0.004+2.5	19	9	0	97	91	0	98	95	0	100	93	48.9
Glyphosate ¹ +Clsm+AMS	0.75+0.016+2.5	1	1	0	97	96	0	99	100	0	100	100	50.6
[Imep&glyphosate]+NIS+AMS	[0.063&0.75]+0.13%+2.6	3	1	0	97	98	0	100	99	0	100	99	51.7
Glyphosate ² +AMS	0.75+2.5	0	0	0	97	96	0	100	97	0	99	97	51.9
Weedy Check	-	0	0	0	0	0	0	0	0	0	0	0	14.3
Weed-free check	-	0	0	100	100	100	100	100	100	100	100	100	52.3
	LSD (0.10)	3.3	1.8	11.8	2.2	2.0	12.4	2.6	3.3	13.7	1.7	2.9	3.10

^a Acif or acifluorfen = Ultra Blazer 2L; Clet or clethodim = Select 2L; Clm 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; glyphosate¹ = Glyphomax Plus 3L; glyphosate² = Roundup Ultra Max 3.75L; glyphosate³ = 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 H₂O 3.8; Qufp-P or quizalofop-P = Assure II 0.88E; [s-meto&metr] or [s-metolachlor & metribuzin] = Boundary 7.8EC; sulfentrazone = Authority 75DF; Thif or thifensulfuron = Harmony GT 75DF; COC = crop oil concentrate; NIS = nonionic surfactant; AMS = spray grade ammonium sulfate.

^b Yield adjusted to 13% moisture.