

Herbicide performance in soybeans at Lamberton, MN in 2000. Getting, Jodie K., Jeffrey L. Gunsolus, and Thomas R. Hoverstad. The objective of this study was to evaluate herbicide combinations and mechanical treatments for annual grass and annual broadleaf control in glyphosate-resistant soybeans. This study was conducted on a Normania loam soil containing 4.2 % organic matter, pH 6.0 and soil test P and K levels of 64 and 422 lb/A, respectively. A randomized complete block design with four replications and a plot size of 10 by 30 ft was used. The test site was planted to oats in 1999 and fall moldboard plowed. On May 15, 2000 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 2101' 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 15	May 15	June 12	June 20	July 11
Treatment	PPI	PRE	POST I	POST II	POST III
Temperature (F)					
air	70	68	77	75	79
soil (4 inch)	62	68	76	72	76
Relative humidity (%)	40	46	69	72	78
Wind (mph)	SSE 12	S 15	E 10	calm	SE 10
Sky	Cloudy	p. cloudy	cloudy	cloudy	cloudy
Soil moisture	dry	dry	dry	dry	moist
Soybean					
leaf no.	-	-	V1	V2	R2
height (inch)	-	-	4	7	15
Yellow foxtail					
leaf no.	-	-	2 to 4	3 to 5	2 to 4
height (inch)	-	-	2 to 4	4 to 7	2 to 4
no./ft ²	-	-	37	33	2
Common lambsquarters					
leaf no.	-	-	2 to 4	6 to 8	2 to 4
height (inch)	-	-	1 to 2	4 to 6	2 to 4
no./ft ²	-	-	5	5	<1
Pennsylvania smartweed					
leaf no.	-	-	1 to 3	4 to 6	2 to 4
height (inch)	-	-	1 to 3	4 to 6	2 to 4
no./ft ²	-	-	<1	<1	<1
Rainfall after application (inch)					
1 week	3.08	3.08	0.79	0.86	1.75
2 week	1.13	1.13	0.86	1.39	0.32
3 week	1.43	1.43	1.39	1.35	0.02

In August, clomazone + cloransulam applied PRE provided 85% yellow foxtail control. Trifluralin + cloransulam applied PPI resulted in 86% control. All other herbicide treatments resulted in 90% or greater control. Flumioxazin followed by cloransulam + clethodim had 80% common lambsquarters control. Sethoxydim + bentazon + fomesafen applied POST had 85% control and fomesafen + [fluazifop & fenoxaprop] had 83% control. All other herbicide treatments had 91% or greater control. All treatments provided excellent Pennsylvania smartweed control. Soybean yields were reduced for treatments that failed to give adequate season-long control of either yellow foxtail or common lambsquarters. (Southwest Research and Outreach Center, University of Minnesota, Lamberton).

Table. Herbicide performance in soybeans at Lamberton, MN in 2000 (Getting, Gunsolus and Hoverstad).

Treatment ^a	Rate	SETLU			CHEAL			POLPY			Yield (bu/A) ^b
		6/13	6/26	8/22	6/13	6/26	8/22	6/13	6/26	8/22	
<u>Preplant incorporate 2X</u>	(lb/A or %)	-----(% control)-----									
[Imep&Pend]	[0.063&0.84]	92	92	90	98	98	98	98	98	98	47.9
Trif+cloransulam	0.75+0.03	92	91	86	97	97	94	98	98	98	45.0
<u>Preplant incorporate 2X/POST I (2 to 4-inch weeds)</u>											
Trif/Imep+COC+28%N	0.75/0.031+1.25%+1.25%	90	96	98	95	96	93	77	98	98	48.2
Trif/Imep+COC+28%N	0.75/0.063+1.25%+1.25%	90	96	98	96	98	98	89	98	98	51.0
Trif/[Bent&Acif]+28%N	0.75/[0.75&0.17]+2.5%	88	92	93	90	96	96	86	98	98	46.7
Clom ¹ /Imep+COC+28%N	0.75/0.031+1.25%+1.25%	86	97	97	91	95	94	95	98	98	47.7
[Imep&Pend]/Glyt ¹ +AMS	[0.063&0.84]/0.56+2.5	97	98	98	98	98	98	98	98	98	49.3
Trif/Glyt ¹ +AMS	0.75/0.56+2.5	89	96	98	97	98	98	82	92	98	50.8
[Imep&Pend]/Seth	[0.043&0.59]/0.2	90	98	98	98	98	98	98	98	98	45.9
+Bent+Acif+COC+28%N	+1.0+0.1875+0.625%+1.25%										
Weedy Check	-	0	0	0	0	0	0	0	0	0	9.0
<u>Preplant incorporate 2X/POST I (2 to 4-inch weeds)/cultivate (35 DAP)</u>											
Trif/Imep+COC+28%N/ cultivate	0.75/0.031+1.25%+1.25%	88	96	98	91	94	98	75	91	98	49.2
Trif/Imep+COC+28%N/ cultivate	0.75/0.063+1.25%+1.25%	90	97	98	92	98	98	54	92	98	47.8
Trif/[Bent&Acif]+28%N/cultivate	0.75/[0.75&0.17]+2.5%	87	90	97	95	97	98	80	98	98	49.6
Hand-weeded check (Trif PPI)	-	98	100	100	100	100	100	95	100	100	50.7
<u>Preemergence/POST I (2 to 4-inch weeds)</u>											
Clom ² +Suen ¹	0.75+0.375	96	94	92	98	98	97	98	98	98	47.4
Clom ² +Clsm	0.75+0.031	93	91	85	98	95	92	98	98	97	47.7
Clom ² /Glyt ¹ +AMS	0.75/0.56+2.5	92	98	97	91	97	95	97	98	98	47.9
[FOE 5043&Metr]/Glyt ¹ +AMS	[0.195&0.2925]/0.56+2.5	93	98	97	97	98	98	97	98	98	48.8
[s-meto&metr]/Glyt ¹ +AMS	[0.98&0.23]/0.56+2.5	90	98	98	96	98	96	96	98	98	46.0
SAN 582H/Glyt ¹ +AMS	1.125/0.56+2.5	97	98	98	88	98	96	98	98	98	49.1
Suen ² /Glyt ¹ +AMS	0.1875/0.56+2.5	71	98	98	98	98	98	98	98	98	48.7
Suen ² /Fome+[Flfp&Fenx]	0.25/0.24+[0.156&0.44]	90	98	98	97	98	98	98	98	98	47.3
+COC+28%N	+1.0%+2.5%										
Fimx/Glyt ¹ +AMS	0.78/0.75+2.5	69	97	98	85	97	98	89	95	98	49.3
Fimx/Clsm+Clet+COC+28%N	0.78/0.016+0.094+1.0%+2.5%	71	93	95	95	86	80	98	98	98	45.4
[FOE 5043&Metr]/	[0.195&0.2925]/	93	98	98	98	98	98	98	98	98	43.7
Imep+Fome+COC+28%N	0.031+0.18+0.625%+1.25%										
[s-meto&metr]/Fome	[1.18&0.28]/0.18	95	98	98	96	98	97	98	98	98	45.2
+ [Flfp&Fenx]+MSO+AMS	+ [0.094&0.027]+1.0%+2.0										
[Meto&metr]/	[1.18&0.28]/	91	97	97	97	93	94	98	98	98	46.6
Clms+Clet+MSO+AMS	0.016+0.094+1.0%+2.0										
<u>POST I (2 to 4-inch weeds)/POST III (2 to 4-inch weeds)</u>											
Glyt ¹ +AMS/Glyt ¹ +AMS	0.56+2.5/0.56+2.5	0	98	98	0	98	98	0	98	98	47.9
<u>Mechanical</u>											
Rotary hoe/cultivate 2X	-	71	89	89	68	90	91	75	97	98	46.9
Rotary hoe/cultivate 2X	-	61	87	88	60	90	86	80	92	98	41.5
<u>POST I (2 to 4-inch weeds)</u>											
Fome+[Flfp&Fenx]+COC+28%N	0.24+[0.156&0.44]+1.0%+2.5%	0	98	98	0	95	83	0	98	98	42.0
Clms+Glyt ¹	0.016+0.56	0	98	98	0	98	98	0	98	98	48.0
[Imep&Glyt]+NIS+AMS	[0.063&0.75]+0.125%+2.5	0	98	98	0	98	97	0	98	98	44.6
SAN 582H+Glyt ¹ +AMS	0.94/0.56+2.5	0	98	98	0	98	98	0	98	98	46.5
<u>POST II (4 to 7-inch weeds)</u>											
Glyt ¹ +AMS	0.75+2.5	0	96	98	0	97	98	0	98	98	47.7
ICIA 0224+AMS	1.0+2.5	0	97	97	0	96	95	0	97	98	44.5
<u>POST I (2 to 4-inch weeds)</u>											
Seth+Bent+Fome+COC+28%N	0.2+1.0+0.18+1.25%+4.0%	0	98	97	0	95	85	0	98	98	40.4
Imep+COC+28%N	0.063+1.25%+1.25%	0	97	98	0	93	94	0	98	98	46.1
<u>POST I (2 to 4-inch weeds)/cultivate (43 DAP)</u>											
Seth+Bent+Fome	0.2+1.0+0.18	0	98	98	0	95	97	0	98	98	46.2
+COC+28%N/ cultivate	+1.25%+4.0%										
Imep+COC+28%N/ cultivate	0.063+1.25%+1.25%	0	97	97	0	92	93	0	98	97	47.2
LSD (0.10)		7	2	2	7	4	5	12	3	1	2.9

^a Acif = Ultra Blazer 2L; Bent = Basagran 5L; [Bent&Acif] = Galaxy 3.67E; Clet = Select 2L; Clom¹ = Command 4E; Clom² = Command 3ME; Clsm or cloransulam = FirstRate 84WG; [Flfp&Fenx] = Fusion 2.56F; Fimx = Valor 50DF; [FOE 5043&Metr] = Domain 60DF; Fome = Flexstar 1.88L; Glyt¹ = Roundup Ultra 3L; Glyt² = Glyphomax 3L; ICIA 0224 = Touchdown 5SL; Imep = Pursuit 70DF; [Imep&Glyt] = Extreme 2.17L; [Imep&Pend] = Pursuit Plus 2.9E; Qufp = Assure II 0.8E; SAN 582H = Frontier 6E; Seth = Poast 1.5E; [s-meto&metr] = Boundary 7.8EC; Suen¹ = Spartan 4F; Suen² = Authority 75DF; Trif = Treflan 4E; COC = crop oil concentrate, Class Additive 17%; NIS = nonionic surfactant, Class Preference; 28%N = an aqueous solution of urea and ammonium nitrate; AMS = spray grade ammonium sulfate.

^b Yield adjusted to 13% moisture.