

Herbicide performance in soybeans at Lamberton, MN in 1999. 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 tolerant soybeans. This study was conducted on a Normania loam soil containing 4.4 % organic matter, pH 6.2 and soil test P and K levels of 60 and 424 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 1998 and fall moldboard plowed. On May 18, 1999 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 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 19	June 11	June 17	July 7
Treatment	PPI	PRE	POST I	POST II	POST III
Temperature (F)					
air	70	60	70	70	84
soil (4 inch)	70	64	80	72	86
Relative humidity (%)	33	78	71	30	43
Wind (mph)	W 6	SSE 12	N 9	E 5	calm
Sky	clear	p. cloudy	cloudy	p. cloudy	clear
Soil moisture	moist	moist	moist	dry	dry
Soybean					
leaf no.	-	-	V1	V2	R1
height (inch)	-	-	4	5	15
Yellow foxtail					
leaf no.	-	-	2 to 4	3 to 4	2 to 4
height (inch)	-	-	2 to 4	4 to 7	2 to 4
no./ft ²	-	-	69	92	9
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	-	-	3	2	< 1
Rainfall after application (inch)					
1 week	1.00	1.00	0.07	0.64	0.08
2 week	0.06	0.48	0.64	1.18	2.67
3 week	0.50	0.08	1.27	1.47	0.19

None of the herbicide treatments caused visible crop injury. In early June, the PPI treatments provided 90 to 95% yellow foxtail control. Preemergence sulfentrazone at 0.14 lb/A and 0.21 lb/A had 24 to 28% control, respectively. Preemergence USA 1999 had 38% control. In September, mechanical treatments provided 78 to 84% control. Both trifluralin + NAF-75 applied PPI and sulfentrazone applied PRE followed by [Clim & Thif] + quizalofop + NIS + 28%N provided 80% yellow foxtail control. All other treatments had greater than 89% control. All treatments had excellent season-long common lambsquarters control. (Southwest Research and Outreach Center, University of Minnesota, Lamberton).

Table. Herbicide performance in soybeans at Lamberton, MN in 1999 (Getting, Gunsolus and Hoverstad).

Treatment ^a	Rate	Yeft			Colq			Yield
		6/10	6/29	9/9	6/10	6/29	9/9	
<u>Preplant incorporate 2X</u>	(lb/A or %)	-----(% control)-----						(bu/A) ^b
[Imep&Pend]	[0.063&0.84]	95	93	91	98	98	98	46.7
Trif+NAF-75	0.75+0.03	92	86	80	97	97	97	42.2
<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%	94	95	96	97	97	98	48.9
Trif/Imep+COC+28%N	0.75/0.063+1.25%+1.25%	91	97	98	96	97	98	50.3
Trif/[Bent&Acif]+28%N	0.75/[0.75&0.17]+2.5%	91	90	86	97	97	98	46.9
Trif/Imep+Lact+COC+28%N	0.75/0.047+0.063+0.625%+2.0%	93	95	97	97	98	98	48.8
Clom ¹ /Imep+COC+28%N	0.75/0.031+1.25%+1.25%	90	95	95	97	97	98	52.6
[Imep&Pend]/Glyt+AMS	[0.063&0.84]/0.56+2.5	93	98	98	97	98	98	51.1
Trif/Glyt	0.75/0.56	93	97	97	97	97	97	49.4
Trif/NAF-75+Thif+NIS+28%N	0.75/0.016+0.002+0.125%+2.5%	93	88	85	97	97	98	43.5
Trif/AC 299,263+COC+28%N	0.75/0.03+1.25%+1.25%	91	97	98	97	98	98	50.8
Trif/Imep+NAF-75+COC+28%N	0.75/0.031+0.016+1.25%+2.5%	91	94	97	98	97	97	48.1
Trif/Imep+Fome+COC+28%N	0.75/0.031+0.176+1.25%+1.25%	90	94	97	98	98	98	49.0
Weedy check	-	0	0	0	0	0	0	19.1
<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%	92	98	98	97	98	98	52.2
Trif/Imep+COC+28%N/cultivate	0.75/0.063+1.25%+1.25%	95	98	98	97	98	98	51.0
Trif/[Bent&Acif]+28%N/cultivate	0.75/[0.75&0.17]+2.5%	96	97	94	98	98	97	48.2
Hand-weeded check (Trif PPI)	-	94	99	100	98	99	99	54.5
<u>Preemergence/POST I (2 to 4-inch weeds)</u>								
[Meto&metr]/Glyt+AMS	[0.79&0.19]/0.56+2.5	73	98	97	85	98	98	52.0
Alachlor/Glyt+AMS	2/0.56+2.5	89	98	97	90	97	98	51.1
Clom ² /Glyt+AMS	0.75/0.56+2.5	79	98	98	92	98	98	53.1
Suen/Glyt+AMS	0.14/0.56+2.5	24	97	94	86	98	98	52.4
USA 1999/Glyt+AMS	0.5/0.56+2.5	38	98	97	85	98	98	53.6
SAN-582H/Seth+Bent+Acif+28%N	1.5/0.2+1.0+0.16+1.25%	90	97	94	93	97	97	50.3
Suen/[Clim&Thif]+Oufp+NIS+28%N	0.21/[0.01&0.003]+0.055+0.25%+2.5%	28	81	80	84	98	96	47.4
Suen/Clim+NAF-75+Oufp+COC+28%N	0.21/0.005+0.008+0.055+1.0%+2.5%	28	89	89	75	97	97	49.1
SAN-582H/Glyt+AMS	0.94/0.56+2.5	89	98	98	94	97	98	53.2
Hand-weeded check (Trif PPI)	-	95	97	99	97	97	99	51.7
<u>POST I (2 to 4-inch weeds)</u>								
AC 299,263+COC+28%N	0.04+1.25%+1.25%	-	97	95	-	98	98	50.9
Clet+Lact+NAF-75+COC+AMS	0.125+0.094+0.016+0.625%+2.5	-	96	91	-	95	94	47.2
Gyt+Clim	0.56+0.005	-	97	93	-	96	97	51.5
Imep+Glyt+NIS+AMS	0.063+0.375+0.25%+2.5	-	97	97	-	98	98	52.2
Seth+Bent+Fome+COC+28%N	0.2+1.0+0.18+0.625%+1.25%	-	95	89	-	97	97	48.8
Imep+COC+28%N	0.063+1.25%+1.25%	-	96	97	-	97	97	51.8
<u>POST I (2 to 4-inch weeds)/cultivate (35 DAP)</u>								
Seth+Bent+Fome+COC+28%N/cultivate	0.2+1.0+0.18+0.625%+1.25%	-	98	96	-	98	98	51.9
Imep+COC+28%N/cultivate	0.063+1.25%+1.25%	-	98	98	-	97	98	49.3
<u>POST I (2 to 4-inch weeds)/POST III (2 to 4-inch weeds)</u>								
Glyt+AMS/Glyt+AMS	0.56+2.5/0.56+2.5	-	96	98	-	97	98	54.2
Glyt+AMS/Glyt+AMS	0.25+2.5/0.47+2.5	-	96	98	-	96	98	54.0
<u>POST II (4 to 7-inch weeds)</u>								
ICIA 0224+AMS	1.0+2.5	-	98	97	-	98	98	49.6
Glyt+AMS	0.75+2.5	-	98	98	-	98	98	53.1
<u>Mechanical</u>								
Spring-tooth harrow 2X/ cultivate 2X		86	92	84	90	98	98	44.5
Cultivate 2X	-	-	88	78	-	98	97	42.9
	LSD (0.10)	4	2	3	2	2	2	4.1

^a AC 299,263 = Raptor 1L; alachlor = Lasso MT 4ME; Bent = Basagran 4L; [Bent&Acif] = Galaxy 3.67E; Clet = Select 2L; Clim = Classic 25DF; [Clim&Thif] = Synchrony 25DF; Clom¹ = Command 4E; Clom² = Command 3ME; Fome = Flexstar 1.88L; Glyt = Roundup Ultra 3L; ICIA 0224 =

Touchdown 5SL; Imep = Pursuit 70DF; [Imep&Pend] = Pursuit Plus 2.9E; Lact = Cobra 2E; [Meto&metr] = Turbo Magnum 7.8EC; NAF-75 = FirstRate 84WG; Qufp = Assure II 0.8E; SAN-582H = Frontier 6E; Seth = Poast 1.5E; Suen = Authority 75DF; Thif = Pinnacle 25DF; 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.