

Herbicide performance in soybeans at Lamberton, MN in 1998. Getting, Jodie K., Jeffrey L. Gunsolus, and Thomas R. Hoverstad. The objective of this study was to evaluate herbicide combinations for annual grass and annual broadleaf control in glyphosate tolerant soybeans. This study was conducted on a Ves loam soil containing 4.2 % organic matter, pH 6.5 and soil test P and K levels of 64 and 396 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 1997. The site was fall moldboard plowed. On May 4, 1998 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. Cultivation treatments were cultivated on June 19, 1998. Application dates, environmental conditions, plant sizes and rainfall data are listed below:

Date	May 4	May 5	May 29	June 2	June 16	June 22
Treatment	PPI	PRE	POST I	POST II	POST III	POST IV
Temperature (F)						
air	75	57	66	62	66	62
soil (4 inch)	55	56	68	60	65	76
Relative humidity (%)	30	48	58	55	60	77
Wind (mph)	S 10	WNW 10	N 8	NW 5	calm	WNW 5
Sky	clear	clear	clear	cloudy	clear	clear
Soil moisture	moist	dry	dry	moist	dry	dry
Soybean						
leaf no.	-	-	unifoliate	unifoliate	V2	V3
height (inch)	-	-	3	3	6	8
Yellow foxtail						
leaf no.	-	-	1 to 3	2 to 4	3 to 4	1 to 3
height (inch)	-	-	1 to 3	2 to 4	6 to 8	1 to 3
no./ft <sup>2</sup>	-	-	84	92	90	8
Common lambsquarters						
leaf no.	-	-	2 to 4	2 to 4	6 to 8	2 to 4
height (inch)	-	-	1 to 2	1 to 3	4 to 6	2 to 4
no./ft <sup>2</sup>	-	-	9	9	8	2
Rainfall after application (inch)						
1 week	0.37	0.46	0.25	0.17	0.39	1.80
2 week	0.66	0.58	0.11	0.50	1.80	0.94
3 week	0.00	0.25	0.81	0.39	1.54	0.72

CGA 77102 applied PRE followed by metribuzin + CGA 277476 + NIS + 28%N or sethoxydim + bentazon + fomesafen + COC + 28%N resulted in 85% yellow foxtail control in September. All other treatments had greater than 89% control. The split application of glyphosate or glyphosate applied to 6 to 8-inch weeds resulted in excellent control of yellow foxtail and common lambsquarters and soybean yields equal to the hand-weeded check. Trifluralin applied PPI followed by imazethapyr + COC + 28%N with or without cultivation had excellent weed control and soybean yields equal to the hand-weeded check. All tank-mixes with glyphosate provided excellent yellow foxtail and common lambsquarters control.

Table. Herbicide performance in soybeans at Lamberton, MN in 1998 (Gettina, Gunsolus and Hoverstad).

Treatment <sup>a</sup>	Rate	Yield				Cola				Yield (bu/A) <sup>b</sup>
		5/28	6/17	6/29	9/10	5/28	6/17	6/29	9/10	
<u>Preplant incorporate 2X</u>	(lb/A or %)	(% control)								
[Imep&Pend]	[0.063&0.84]	97	95	91	95	97	96	93	97	57.4
Trif+NAF-75	0.75+0.03	97	94	89	92	98	96	94	96	56.4
<u>Preplant incorporate 2X/POST II (3 to 4-inch weeds)</u>										
Trif/Imep+COC+28%N	0.75/0.031+1.25%+1.25%	97	95	95	99	98	94	90	97	58.8
Trif/Imep+COC+28%N	0.75/0.063+1.25%+1.25%	95	97	96	99	98	96	95	99	57.1
Trif/[Bent&Acif]+28%N	0.75/[0.75&0.17]+2.5%	95	95	90	93	97	97	97	98	54.2
Trif/Imep+Lact+COC+28%N	0.75/0.047+0.063+0.625%+2.0%	96	98	95	100	97	99	95	99	55.6
Clom <sup>1</sup> /Imep+COC+28%N	0.75/0.031+1.25%+1.25%	89	94	90	97	91	91	79	87	58.9
[Imep&Pend]/Glyt+NIS+AMS	[0.063&0.84]/0.375+0.25%+2.5	97	100	99	100	98	100	100	100	54.8
Trif/Glyt	0.75/0.56	97	100	98	100	98	100	100	100	57.2
Trif/NAF-75+Thif+NIS+28%N	0.75/0.016+0.002+0.125%+2.5%	96	94	89	93	98	98	95	97	54.3
Trif/AC 299,263+COC+28%N	0.75/0.03+1.25%+1.25%	97	98	97	100	98	98	95	100	58.8
Trif/Imep+NAF-75+COC+28%N	0.75/0.031+0.016+1.25%+2.5%	97	95	96	100	96	96	94	100	55.9
Trif/Imep+Fome+NIS+28%N	0.75/0.031+0.176+0.625%+1.25%	95	98	93	98	96	98	97	99	56.3
Weedy check	-	0	0	0	0	0	0	0	0	28.2
<u>Preplant incorporate 2X/POST II (3 to 4-inch weeds)/cultivate (46 DAP)</u>										
Trif/Imep+COC+28%N/ cultivate	0.75/0.031+1.25%+1.25%	94	94	100	100	97	95	100	100	58.1
Trif/Imep+COC+28%N/ cultivate	0.75/0.063+1.25%+1.25%	94	97	100	100	97	97	100	100	56.0
Trif/[Bent&Acif]+28%N/ cultivate	0.75/[0.75&0.17]+2.5%	96	95	96	95	97	99	100	100	55.7
Hand-weeded	-	95	100	100	100	98	100	100	100	56.2
<u>Preemergence/POST II (3 to 4-inch weeds)</u>										
SAN-582H/Seth	1.5/0.28	75	94	88	90	53	91	83	83	47.6
+Bent&Acif+COC+28%N	+0.75&0.17+0.625%+1.25%									
CGA 77102/Metr	1.91/0.32	80	88	83	85	58	90	91	95	50.3
+CGA 277476+NIS+28%N	+0.094+0.25%+1.25%									
[Meto&Flms]/Glyt	[2.34&0.063]/0.56	78	100	97	100	60	100	99	100	57.1
Clom <sup>2</sup> /Glyt	0.75/0.56	83	100	96	100	61	100	98	100	59.5
F-6285/Glyt+Clim	0.25/0.56+0.005	71	100	96	98	83	100	98	100	58.8
USA 1999/Glyt	0.5/0.56	74	100	98	100	69	100	99	100	58.5
Flms/Glyt	0.04/0.56	70	100	95	96	61	100	99	99	57.3
Weedy check	-	0	0	0	0	0	0	0	0	27.5
<u>POST II (3 to 4-inch weeds)</u>										
Imep+NAF-75+COC+28%N	0.063+0.016+1.25%+2.5%	-	94	91	97	-	95	85	88	57.6
NAF-75+Glyt+NIS+AMS	0.016+0.56+0.125%+2	-	100	95	97	-	100	97	98	57.8
[Flp&Fenx]+Fome	[0.156&0.044]+0.24	-	95	89	95	-	97	88	95	54.0
+Thif+COC+28%N	+0.002+1%+4%									
AC 299,263+COC+28%N	0.04+1.25%+1.25%	-	90	90	97	-	96	93	95	58.0
Seth+[Bent&Acif]+NAF-75	0.28+[0.75&0.17]+0.01	-	95	88	89	-	97	85	89	50.0
+COC+28%N	+0.625%+1.25%									
CGA 277476+Glyt	0.094+0.56	-	100	97	99	-	100	95	98	57.4
Glyt+Clim	0.56+0.005	-	100	95	98	-	100	98	98	58.9
<u>POST III (6 to 8-inch weeds)</u>										
Glyt	0.75	-	0	100	100	-	0	100	100	57.3
<u>POST II (3 to 4-inch weeds)/POST IV (2 to 4-inch weeds)</u>										
Glyt/Glyt	0.56/0.375	-	99	99	100	-	94	91	99	58.4
<u>POST I (3 to 4-inch weeds)/POST II (4 days later)</u>										
Qufp+COC/[Thif&Clim]	0.063+1%/[0.0028&0.005]	-	97	94	96	-	93	85	97	57.0
+NIS+28%N	+0.25%+2.5%									
Qufp+COC/[Thif&Clim]	0.063+1%/[0.0028&0.005]	-	100	95	96	-	100	90	94	55.5
+Fome+NIS+28%N	+0.24+0.25%+2.5%									
Hand-weeded check	-	-	100	97	100	-	100	97	100	60.1
<u>POST II (3 to 4-inch weeds)</u>										
Seth+Bent+Fome+COC+28%N	0.2+1.0+0.18+0.625%+1.25%	-	96	87	85	-	97	86	84	41.5
Imep+COC+28%N	0.063+1.25%+1.25%	-	93	89	97	-	91	76	81	57.2
<u>POST II (3 to 4-inch weeds)/cultivate (46 DAP)</u>										
Seth+Bent+Fome	0.2+1.0+0.18	-	97	95	96	-	98	98	96	49.0
+COC+28%N/cultivate	+0.625%+1.25%									
Imep+COC+28%N/cultivate	0.063+1.25%+1.25%	-	88	95	98	-	90	95	96	54.9
	LSD (0.10)	5	3	3	3	10	3	4	4	3.9

<sup>a</sup> AC 299,263 = Raptor 1L; Bent = Basagran 4L; [Bent&Acif] = Galaxy 3.67E; CGA 277476 = Expert 75WG; CGA 77102 = Dual II Magnum 7.64E; Clim = Classic 25DF; Clom<sup>1</sup> = Command 4E; Clom<sup>2</sup> = Command 3ME; [Flp&Fenx] = Fusion 2.56F; Flms = Python 80DF; Fome = Flexstar 1.88L; F-6285 = Authority 75DF; Glyt = Roundup Ultra 3L; Imep = Pursuit 2AS; [Imep&Pend] = Pursuit Plus 2.9E; Lact = Cobra 2E; [Meto&Flms] = Dual & Broadstrike 7.67L; Metr = Sencor 75DF; NAF-75 = FirstRate 84WG; Qufp = Assure II 0.8E; SAN-582H = Frontier 6E; Seth = Poast 1.5E; Thif = Pinnacle 25DF; [Thif&Clim] = Reliance 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.

<sup>b</sup> Yield adjusted to 13% moisture.