

Herbicide performance in soybeans at Waseca, MN in 1998. Hoverstad, Thomas R., Jeffrey L. Gunsolus and Jodie K Getting. The objective of this trial was to evaluate several new herbicide options and mechanical weed control methods in soybeans for south central Minnesota. The research site was a Webster clay loam soil containing 6.7% organic matter with a pH of 7.4 and soil test P and K levels of 24 and 197 ppm, respectively. The previous crop was oats that had been fall moldboard plowed. The entire area was field cultivated once in the spring prior to herbicide application. Following preplant incorporated treatments the entire area was field cultivated twice to a depth of 3 to 4 inches to incorporate herbicides and prepare a seedbed. Asgrow '2101' soybeans were planted on May 5, 1998 in 30-inch rows. All treatments were applied with a tractor mounted sprayer delivering 20 gpa at 40 psi using 8002 flat-fan nozzle tips. Application dates, environmental conditions, crop and weed stages are listed below.

Date	May 5	May 6	May 29	June 2	June 15
Treatment	PPI	Pre	Post I	Post II	Post III
air temp °F	75	76	83	70	79
soil temp (4-inch)	64	74	69	63	72
Relative humidity (%)	21	10	20	47	45
Wind	W 5	S 6	N 7	SW 15	W 5
Soil moisture	dry	moist	moist	moist	Moist
Soybeans					
Stage	--	--	V1	V2	V4
height (inch)	--	--	3-4	4	7
Giant foxtail					
leaf no.	--	--	2-4	4	1-3*
height (inch)	--	--	2-5	4-5	1-2*
Common ragweed					
leaf no.	--	--	2-6	2-6	2-4*
height (inch)	--	--	2-3	2-3	1-2*
Common lambsquarters					
leaf no.	--	--	4-8	4-8	2-4*
height (inch)	--	--	2-3	2-3	1-2*
Velvetleaf					
leaf no.	--	--	2-4	3-4	2-4*
height (inch)	--	--	2-3	3	1-2*
Redroot Pigweed					
leaf no.	--	--	4-8	4-8	2-4*
height (inch)	--	--	2-3	2-3	1-2*
Rainfall after application (inch)					
week 1	0.83	0.83	0.67	0.44	0.39
week 2	1.53	1.53	0.61	0.55	2.68
week 3	1.40	1.40	0.37	0.39	1.25

* refers to regrowth

The dominant weed species in this trial were giant foxtail and common ragweed. Soil applied treatments followed with postemergence sequential treatments resulted in poor grass control wherever the postemergence portion of this treatment provided additions grass control to control giant foxtail that had escaped soil applied treatments. The trifluralin+NAF-75 soil applied treatment however, provided adequate season long giant foxtail control. Following soil applied trifluralin with postemergence NAF-75 resulted in poorer grass control than when the two were tank mixed soil applied. Two applications of glyphosate provided better control of some broadleaf weeds and resulted in slightly higher soybean yields. Cultivation enhanced weed control and soybean yields with sequential treatments of trifluralin and imazethapyr or [bentazon & acifluorfen] by improving control of escaped weeds and improved soybean yields by 3 to 15 bu/A.

Table. Herbicide performance in soybeans at Waseca, MN in 1998 (Hoverstad, Gunsolus and Getting).

Treatment ^a	Rate	Gift	Corw	Vele	Colq	Rrpw	Yield
	(lb/A or %)			-----(% control)-----			(bu/A) ^b
<u>Preplant incorporate 2X</u>							
[Imep&Pend]	[0.063&0.84]	92	71	99	99	99	48.7
Trif+NAF-75	0.75+0.03	86	88	99	99	99	54.1
<u>Preplant incorporate 2X/POST II (4-inch weeds)</u>							
Trif/Imep+COC+28%N	0.75/0.031+1.25%+1.25%	99	68	99	99	99	52.5
Trif/Imep+COC+28%N	0.75/0.063+1.25%+1.25%	99	87	99	99	99	56.6
Trif/[Bent&Acif]+28%N	0.75/[0.75&0.17]+2.5%	51	84	99	99	99	31.9
Trif/Imep+Lact+COC+28%N	0.75/0.047+0.063+0.625%+2.0%	98	98	99	87	99	55.0
Clom ¹ /Imep+COC+28%N	0.75/0.031+1.25%+1.25%	99	81	99	96	99	57.7
Trif/NAF-75+Thif+NIS+28%N	0.75/0.016+0.002+0.125%+2.5%	50	99	96	99	99	38.8
Trif/AC 299,263+COC+28%N	0.75/0.03+1.25%+1.25%	99	81	99	99	99	55.7
Trif/Imep+NAF-75+COC+28%N	0.75/0.031+0.016+1.25%+2.5%	99	99	99	99	99	53.0
Trif/Imep+Fome+NIS+28%N	0.75/0.031+0.176+0.625%+1.25%	97	99	97	98	99	56.2
Weedy check	-	0	0	0	0	0	10.9
<u>Preplant incorporate 2X/POST III (4-inch regrowth)</u>							
[Imep&Pend]/Glyt+NIS+AMS	[0.063&0.84]/0.375+0.25%+2.5	99	99	99	99	99	58.0
Trif/Glyt	0.75/0.56	99	99	97	99	99	57.8
<u>Preplant incorporate 2X/POST II (4-inch weeds)/cultivate (37 DAP)</u>							
Trif/Imep+COC+28%N/ Cultivate	0.75/0.031+1.25%+1.25%	99	94	99	97	99	55.7
Trif/Imep+COC+28%N/ Cultivate	0.75/0.063+1.25%+1.25%	99	96	99	99	99	58.9
Trif/[Bent&Acif]+28%N/ Cultivate	0.75/[0.75&0.17]+2.5%	80	91	99	99	97	48.5
Hand-weeded	-	100	100	100	100	100	60.3
<u>Preemergence/POST II (4-inch weeds)</u>							
SAN-582H/Seth	1.5/0.28	92	88	96	82	83	53.3
+ [Bent&Acif]+COC+28%N	+ [0.75&0.17]+0.625%+1.25%						
CGA 77102/Metr	1.91/0.32	76	96	99	99	96	47.3
+CGA 277476+NIS+28%N	+0.094+0.25%+1.25%						
[Meto&Flms]/Glyt	[2.34&0.063]/0.56	98	95	99	99	99	58.6
Clom ² /Glyt	0.75/0.56	99	96	99	98	93	59.5
F-6285/Glyt+Clim	0.25/0.56+0.005	97	92	94	99	99	57.6
USA 1999/Glyt	0.5/0.56	98	91	89	95	90	58.3
Flms/Glyt	0.04/0.56	96	89	99	99	99	58.9
Weedy check	-	0	0	0	0	0	11.0
<u>POST II (4-inch weeds)</u>							
Imep+NAF-75+COC+28%N	0.063+0.016+1.25%+2.5%	98	99	99	75	99	58.1
NAF-75+Glyt+NIS+AMS	0.016+0.56+0.125%+2	98	99	96	90	87	59.3
[Flfp&Fenx]+Fome	[0.156&0.044]+0.24	97	99	99	92	99	56.8
+Thif+COC+28%N	+0.002+1%+4%						
AC 299,263+COC+28%N	0.04+1.25%+1.25%	99	75	98	99	99	56.6
Seth+[Bent&Acif]+NAF-75	0.28+[0.75&0.17]+0.01	98	90	96	79	81	57.4
+COC+28%N	+0.625%+1.25%						
CGA 277476+Glyt	0.094+0.56	98	92	83	99	97	58.0
Glyt+Clim	0.56+0.005	95	89	90	95	99	57.6
Glyt	0.75	98	84	92	99	84	56.9
<u>POST I (3 to 4-inch weeds)/POST III (4-inch regrowth)</u>							
Glyt/Glyt	0.56/0.375	99	99	99	99	99	59.2
<u>POST I (3 to 4-inch weeds)/POST II (4-inch weeds)</u>							
Qufp+COC/[Thif&Clim]	0.063+1%/[0.0028&0.005]	97	66	75	97	99	51.9
+NIS+28%N	+0.25%+2.5%						
Qufp+COC/[Thif&Clim]	0.063+1%/[0.0028&0.005]	96	94	78	82	99	56.4
+Fome+NIS+28%N	+0.24+0.25%+2.5%						
Hand-weeded check	-	100	100	100	100	100	59.1
<u>POST II (4-inch weeds)</u>							
Seth+Bent+Fome+COC+28%N	0.2+1.0+0.18+0.625%+1.25%	96	99	99	93	97	56.9
Imep+COC+28%N	0.063+1.25%+1.25%	99	79	96	86	99	56.9
<u>POST II (4-inch weeds)/cultivate (37 DAP)</u>							
Seth+Bent+Fome	0.2+1.0+0.18	98	99	99	99	99	57.2
+COC+28%N/cultivate	+0.625%+1.25%						
Imep+COC+28%N/cultivate	0.063+1.25%+1.25%	99	98	99	96	99	57.0
LSD (0.10)		8	9	7	7	6	3.9

^a 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; Clom¹ = Command 4E; Clom² = Command 3ME; [Flfp&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.

^b Yield adjusted to 13% moisture.