

Herbicide performance in soybeans at Waseca, MN common cocklebur site in 2003. Hoverstad, Thomas R and Jeffrey L. Gunsolus. The objective of this trial was to evaluate soybean weed management systems available to producers in southern Minnesota on several annual weed species. This site had a particularly high infestation of common cocklebur. The research site was a Webster clay loam soil containing 5% organic matter with a pH of 6.6 and soil test P and K levels of 36 and 210 ppm, respectively. The previous crop was soybean that had been chisel plowed in the fall of 2002. 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 '2105' soybeans were planted on May 20, 2002 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. Visual estimates of weed control were taken on September 19, 2003. Application dates, environmental conditions, crop and weed stages are listed below.

Date	May 20	May 21	June 19	June 24	July 14
Treatment			Post I	Post II	Post III
Application Stage	PPI	Pre	4-inch weeds	6-inch weeds	Crop canopy
air temp °F	55	65	75	85	72
soil temp (4-inch)	55	58	68	72	72
Relative humidity (%)	25	30	30	25	45
Wind	W 5	N 6	SW 2	W 8	N 5
Soil moisture	Moist	Moist	Dry	Moist	Moist
Soybeans					
Stage	-	-	V2	V3	R1
height (inch)	-	-	5	6	13
Giant foxtail					
leaf no.	-	-	3	4	3-4
height (inch)	-	-	3-4	5-7	4
Common Cocklebur					
leaf no.			2	3	2
height (inch)			4	6	5
Common ragweed					
leaf no.	-	-	2-4	4-6	2-3
height (inch)	-	-	3	5-6	3
Common lambsquarters					
leaf no.	-	-	4-8	8-12	4
height (inch)	-	-	3-4	5	3-4
Rainfall after application (inch)					
week 1	0.06	0.06	1.44	0.93	0.37
week 2	0.09	0.14	0.26	1.83	0.07
week 3	2.08	2.07	2.59	1.00	0.13

The dominant weeds in this trial were common cocklebur and common ragweed. Most treatments provided excellent control of common cocklebur, especially those that had glyphosate as one component of the treatment. The poorest control of common cocklebur resulted when fomesafen and quizalofop-P were applied following soil applied sulfentrazone. Those treatments that failed to control common lambsquarters resulted in substantial yield losses. Glyphosate treatments provided good control of common lambsquarters where other postemergence treatments failed. Sulfentrazone was the best soil applied product for control of common lambsquarters. (University of Minnesota, Southern Research and Outreach Center, Waseca, MN and Dept of Agronomy and Plant Genetics, University of Minnesota, St Paul).

Table. Herbicide performance in soybeans at Waseca, MN common cocklebur site in 2003 (Hoverstad and Gunsolus).

Treatment ^a	Rate (lb/A or %)	SETFA	XANST -----(% control)-----	AMBEL	CHEAL	Yield Bu/A ^b
<u>Preplant incorporate 2X/POST I (4-inch weeds)</u>						
Pend/Immx+Acif+NIS+AMS	1.3/0.023+0.125+0.25%+2.5	98	96	65	85	26.7
Pend/Immx+Clsm+NIS+AMS	1.3/0.023+0.01+0.25%+2.5	98	91	87	79	35.9
Pend/[Glyt&imep]+NIS+AMS	1.3/[0.75&0.063]+0.25%+2.5	99	86	91	99	35.8
<u>Preemergence/ POST I (4-inch weeds)</u>						
[Flmx&clsm]/Lact+Clet+NIS+AMS	[0.08&0.03]/0.125+0.09+0.25%+2	99	93	99	13	9.7
[Flmx&clsm]/ Clsm+Lact+Clet+NIS+AMS	[0.05&0.016]/ 0.016+0.125+0.09+0.25%+2	98	99	99	25	17.0
[Flms/ Clsm+Clet+Lact+COC+AMS	0.05/ 0.016+0.125+.009+1%+2.5	99	99	99	16	10.4
[S-meto&metr]/ Fome+[Flfp-P&fex]+COC+AMS	[1.0&0.23]/ 0.235+[0.125&0.035]+1%+2.5	91	96	99	44	20.1
Suen/ Fome+Qufp-P+COC+AMS	[1.0&0.23]/ 0.235+0.06+1%+2.5	97	75	99	83	33.2
<u>Preemergence/ POST I (6-inch weeds)</u>						
Suen/Glyt+Clim+AMS	0.25/+0.94+0.015+2.5	98	99	99	99	38.1
Flms/Glyt ² +AMS	0.05/1+2.5	97	99	99	99	40.5
[Flmx&clsm]/Glyt+AMS	[0.05&0.016]/+0.94+2.5	99	98	99	99	39.1
[S-meto&metr]/Glyt ³ +AMS	[0.8&0.20]/0.75+2.5	99	87	99	99	35.3
Flmx/Glyt+AMS	0.06/0.94+2.5	99	99	99	99	39.7
Suen/Glyt+AMS	0.19/0.94+2.5	97	91	90	99	37.7
<u>POST I (4-inch weeds)</u>						
Fome+[Flfp-P&fex]+Thif+COC+AMS	0.23[0.156&0.044]+0.002+1%+2.5	90	90	92	58	24.8
Fome+[Flfp-P&fex]+ Clsm+COC+AMS	0.23[0.156&0.044]+ 0.016+1%+2.5	96	99	99	21	11.6
<u>POST I (4-inch weeds)/POST III(Canopy)</u>						
Glyt+AMS/Glyt+AMS	0.9+2.5 / 0.9+2.5	99	99	99	99	38.9
<u>POST II (6-inch weeds)</u>						
Glyt+Carf+AMS	0.9+0.004+2.5	94	88	93	96	35.8
Glyt ⁴ +Clsm+AMS	1+0.016+2.5	98	99	99	82	33.7
Glyt ³ +AMS	1+2.5	95	92	92	92	34.4
Glyt ² +AMS	1+2.5	95	92	90	94	37.6
Glyt+AMS	0.94+2.5	92	92	99	94	33.0
<u>Checks</u>						
Weedy	-	0	0	0	0	2.5
Hand-Weeded	-	100	100	100	100	35.9
	LSD (0.10)	2	10	9	14	5.3

^a Acif = acifluorfen = Ultra Blazer 2L; Carf = carfentrazone = Aim EW; Clet = clethodim = Select2EC; Clim = chlorimuron = Classic 75DF; Clsm = cloransulam = FirstRate 84WG; [Flfp-P&fex] = [fluazifop-P & fenoxaprop] = Fusion 2.56L; Flms = flumetsulam = Python 80DF; Flmx = flumioxazin = Valor 50DF; [Flmx&clsm] = [Flumioxazin & cloransulam] = Gangster; Fome = fomesafen = Flexstar 1.88L; Glyt = glyphosate = Roundup Weather Max; Glyt² = glyphosate = Warrant; Glyt³ = glyphosate = Touchdown IQ; Glyt⁴ = glyphosate = Glyphomax Plus; Glyt⁵ = glyphosate = Clearout 41 Plus; [Glyt&imep] = [glyphosate & imazethapyr] = Extreme 2.17L; Immx = imazamox = Raptor 1L; Lact = lactofen = Phoenix 2L; Pend = pendimethalin = Prowl 3.8 H2O; Qufp-P = quizalofop-P = Assure II 0.88L; [S-meto&metr] = [S-metolachlor & metribuzin] = Boundary 6.5L; Suen = sulfentrazone = Authority 75DF; Thif = thifensulfuron = Harmony GT 75DF; AMS = spray grade ammonium sulfate; COC = crop oil concentrate, Class Additive 17%; NIS = nonionic surfactant, Class Preference.

^b Yield adjusted to 13% moisture.