

Herbicide performance in soybeans at Waseca, MN common cocklebur site in 2002. 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 a site that was heavily infested with 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 corn that had been fall chisel 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 '2103' soybeans were planted on May 15, 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 9, 2002. Application dates, environmental conditions, crop and weed stages are listed below.

Date	May 15	May 17	June 14	June 20	July 12
Treatment			Post I	Post II	Post III
Application Stage	PPI	Pre	4-inch weeds	6-inch weeds	Crop canopy
air temp °F	75	51	73	87	72
soil temp (4-inch)	70	54	70	76	72
Relative humidity (%)	40	40	30	46	45
Wind	W 8	N 5	NW 10	W 8	N 5
Soil moisture	dry	Dry	Moist	Moist	Moist
Soybeans					
Stage	-	-	V2	V4	R1
height (inch)	-	-	6	8	14
Common cocklebur					
leaf no.	-	-	4	6-10	3-4
height (inch)	-	-	4	4-6	4
Rainfall after application (inch)					
week 1	0.00	0.00	2.19	1.15	0.00
week 2	0.71	0.74	1.15	0.00	0.56
week 3	2.52	2.49	0.00	0.89	1.24

Preemergence [sulfentrazone & cloransulam] either tank mixed with [S-metolachlor and metribuzin] or followed by [Fluazifop-P & fenoxaprop] failed to provide adequate common cocklebur control. Glyphosate in a one-pass or two-pass treatment resulted in similar common cocklebur control. Tank mixing carfentrazone or cloransulam with glyphosate provided similar control to glyphosate alone. (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 2002 (Hoverstad and Gunsolus).

Treatment <sup>a</sup>	Rate (lb/A or %)	XANST (% control)	Yield Bu/A <sup>b</sup>
<u>Preplant incorporate 2X/POST I (4-inch weeds)</u>			
Pend/Immx+Acif+NIS+AMS	1.0/0.031+0.1875+0.25%+3.4	90	50.2
Pend/Immx+Clsm+NIS+AMS	1.0/0.031+0.01+0.25%+3.4	97	49.2
Pend/[Glyt&imep]+NIS+AMS	1.0/[0.75&0.063]+0.25%+2.6	99	54.0
<u>Preemergence</u>			
[Suen&clsm]/[S-meto&metr]	[0.25&0.03]/[0.8&0.2]	20	30.6
<u>Preemergence/ POST I (4-inch weeds)</u>			
Flsm/Clsm+Clet+Lact+ NIS+AMS	0.05/0.016+0.125+0.125+ 0.25%+2.5	99	48.4
[Suen&clsm]/ [Flfp-P&fenx]+COC+AMS	[0.25&0.03]/ [0.156&0.04]+1%+2.5	40	34.1
Flmx/Clsm+Lact+Clet+ NIS+AMS	0.078/0.016+0.125+0.125+ 0.25%+2.5	97	50.5
[S-meto&metr]/ Fome+[Flfp-P&fenx]+COC+AMS	[0.8&0.2]/ 0.235+[0.156&0.04]+1%+2.5	95	54.1
Suen/ Fome+Qufp-P+ COC+AMS	0.21/0.235+0.06+ 1%+2.5	91	51.5
<u>Preemergence/ POST I (6-inch weeds)</u>			
Suen/Glyt+Clim+AMS	0.16/0.76+0.015+2.5	99	54.6
Flms/Glyt <sup>2</sup> +AMS	0.05/0.75+2.5	99	52.6
[Suen&clsm]/Glyt <sup>2</sup> +AMS	[0.13&0.016]/0.75+2.5	97	55.0
Flmx/Glyt+AMS	0.06/0.75+2.5	99	54.1
[S-meto&metr]/Glyt <sup>3</sup> +AMS	[0.8&0.2]/0.75+2.5	99	54.9
[Foe-5043&metr]/Glyt+AMS	[0.15&0.225]/0.56+2.5	99	53.7
Suen/Glyt+AMS	0.19/0.76+2.5	97	48.6
<u>POST I (4-inch weeds)</u>			
Fome+[Flfp-P&fenx]+Thif+COC+AMS	0.23[0.156&0.044]+0.002+1%+2.5	85	48.8
<u>POST I (4-inch weeds)/POST III(Canopy)</u>			
Glyt+AMS/Glyt+AMS	0.75+2.5 / 0.75+2.5	94	53.7
<u>POST II (6-inch weeds)</u>			
Glyt <sup>2</sup> +Carf+AMS	0.75+0.004+2.5	97	52.6
Glyt <sup>2</sup> +Clms+AMS	0.75+0.016+2.5	97	51.4
[Imep&Glyt]+NIS+AMS	[0.063&0.75]+0.125%+2.5	99	51.7
Glyt+AMS	0.76+2.5	94	54.3
<u>Checks</u>			
Weedy Check		0	9.2
Hand-Weeded		94	54.9
	LSD (0.10)	10	6.5

<sup>a</sup> Acif = acifluorfen = Ultra Blazer 2L; Fome= fomesafen = Flexstar 1.88L; Suen = sufentrazone = Authority 75DF; Carf = carfentrazone = Aim EW; Clim = clorimuron = Classic 75DF; Glyt = glyphosate = Roundup Ultra Max 3.75L; Glyt<sup>2</sup> = glyphosate = Glyphomax Plus 3L; Glyt<sup>3</sup> = glyphosate = Touchdown IQ; Pend = pendimethalin = Prowl 3.8 H2O; Clsm = cloransulam = FirstRate 84WG; [Glyt&imep] = [glyphosate & imazethapyr] = Extreme 2.17L; [Flfp-P&fenx] = [fluazifop-P & fenoxaprop = Fusion 2.56L; Flms = flumetsulam = Python 80DF; [S-meto&metr] = [S-metolachlor & metribuzin] = Boundary 6.5L; [FOE-5043&metr] = [FOE-5043&metribuzin] = Domain 60 DF; Flmx = flumioxazin = Valor 50DF; [Suen&clsm] = [sulfentrazone & cloransulam] = Guantlet; Immx = imazomox = Raptor 1L; Clet = clethodim = Select 2EC; Lact = lactofen = Phoenix 2L; Qufp-P = quizalofop-P = Assure II 0.88L; Thif = thifensulfuron = Harmony GT 75DF; = COC = crop oil concentrate, Class Additive 17%; NIS = nonionic surfactant, Class Preference; AMS = spray grade ammonium sulfate.

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