

Herbicide performance in soybeans at Waseca, MN common cocklebur site in 2005. 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 giant ragweed. The research site was a Clarion clay loam soil containing 5% organic matter with a pH of 6.4 and soil test P and K levels of 40 and 173 ppm, respectively. The previous crop was soybean that had been chisel plowed in the fall of 2004. 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. Garst '1827 RR/STS' soybeans were planted on May 24, 2005 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 3, 2005. Application dates, environmental conditions, crop and weed stages are listed below.

Date	May 24	May 24	June 15	June 22	June 22	July 1
Treatment			Post I	Post II	Post III	Post IV
Application Stage	PPI	Pre	4-inch weeds	6-inch weeds	V2 soybean	Crop canopy
air temp °F	81	81	65	79	79	72
soil temp (4-inch)	60	62	61	65	65	70
Relative humidity (%)	26	25	72	64	64	45
Wind	SE 4	SE 3	N 8	SE 3	SE 3	W 9
Soil moisture	Moist	Moist	Moist	Wet	Wet	Moist
Soybeans						
Stage	-	-	V1	V2	V2	V4
height (inch)	-	-	3	6	6	10
Giant foxtail						
leaf no.	-	-	2	4	4	2
height (inch)	-	-	3	6	6	2
Common cocklebur						
leaf no.	-	-	2	4	4	3
height (inch)	-	-	3	6	6	2
Common ragweed						
leaf no.	-	-	3	4-6	4-6	3
height (inch)	-	-	2	5	5	2
Common lambsquarters						
leaf no.	-	-	4	8	8	4
height (inch)	-	-	2	4	4	2
Redroot pigweed						
leaf no.	-	-	2	3-4	3-4	3
height (inch)	-	-	1	3	3	2
Rainfall after application (inch)						
week 1	0.74	0.74	1.00	2.55	2.55	0.35
week 2	0.37	0.37	1.67	0.35	0.35	0.00
week 3	1.76	1.76	1.23	0.00	0.00	2.27

Cool wet conditions persisted after planting resulting in poor soybean stands on this site and consequently weed control was more difficult to obtain than in most cases where a good soybean canopy will aid in weed control. The best common cocklebur control was observed with two-pass glyphosate or preemergence flumioxazin followed by cloransulam plus clethodim plus lactofen. Tank mixing either cloransulam, thifensulfuron or thifensulfuron plus chlorimoron with one-pass glyphosate applications resulted in better broadleaf weed control than where glyphosate was applied alone, especially control of common lambsquarters and redroot pigweed. (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 2005 (Hoverstad and Gunsolus).

Treatment <sup>a</sup>	Rate	SETFA	XANST	AMBEL	CHEAL	AMARE	Yield
	(lb/A or %)						Bu/A <sup>b</sup>
-----(% control)-----							
<u>Preplant incorporate 2X/POST I (4-inch weeds)</u>							
Pend/Immx+Clsm+NIS+AMS	1.3/0.03+0.016+0.25%+2.5	98	77	83	93	94	42.9
[Pend&imep]/ Clsm+NIS+AMS	[0.84&0.06]/0.016+0.25%+2.5	72	80	88	94	99	37.5
Pend/[Glyt&imep]+NIS+AMS	1.3/[0.75&0.063]+0.125%+2.5	98	62	78	99	99	39.9
<u>Preemergence/ POST I (4-inch weeds)</u>							
[Flmx&clsm]/ Clsm+Lact <sup>1</sup> +V10137+NIS+AMS	0.08+0.03/ 0.016+0.125+0.09+0.25%+2.5	56	82	97	61	99	22.0
[Flmx&clsm]/ Clsm+Lact <sup>1</sup> +V10139+NIS+AMS	0.08+0.03/ 0.016+0.125+0.1+0.25%+2.5	57	78	95	34	99	24.1
Flms/ Clsm+Clet+Lact <sup>2</sup> +COC+AMS	0.05/ 0.016+0.09+0.09+1%+2.5	54	91	92	58	99	15.6
[S-meto&metr]/ Fome+[Flfp-P&fenx]+Clms+ COC+AMS	[1.0&0.23]/ 0.235+[0.125&0.035]+0.016 1%+2.5	65	78	99	63	99	26.6
<u>Preemergence/ POST II (6-inch weeds)</u>							
Alac/Glyt <sup>1</sup> +AMS	2/0.77+2.5	94	53	70	91	81	33.0
Pend+Dime-P/Glyt <sup>1</sup> +AMS	0.48+0.59/0.77+2.5	96	58	60	96	97	37.9
[Flmx&clsm]/Glyt <sup>2</sup> +AMS	[0.05&0.016]/+0.77+2.5	76	69	89	99	85	35.6
[S-meto&metr]/Glyt <sup>3</sup> +AMS	[0.8&0.20]/0.78+2.5	96	51	67	99	87	34.6
Flmx/Glyt <sup>2</sup> +AMS	0.06/0.77+2.5	88	51	79	88	99	29.8
Flmx+Flms/Glyt <sup>2</sup> +AMS	0.05+0.02/0.77+2.5	80	68	90	99	99	33.9
Flmx+metr/Glyt <sup>2</sup> +AMS	0.05+0.14/0.77+2.5	82	60	80	99	93	35.3
<u>POST III (V2 soybean)</u>							
[S-meto&glyt]	[0.70&0.94]	93	73	72	69	51	33.7
<u>POST I (4-inch weeds)/POST IV(Canopy)</u>							
Glyt <sup>1</sup> +AMS/Glyt <sup>1</sup> +AMS	0.94+2.5 / 0.94+2.5	97	96	99	99	99	41.4
<u>POST II (6-inch weeds)</u>							
Glyt <sup>4</sup> +Clsm+AMS	0.75+0.016+2.5	76	70	82	86	69	34.8
Glyt <sup>2</sup> +Thif+AMS	0.77+0.016+2.5	70	73	66	91	80	28.9
Glyt <sup>2</sup> +Thif+Clm+AMS	0.77+0.016+0.005+2.5	80	83	88	92	97	40.5
Glyt <sup>5</sup> +AMS	0.75+2.5	73	71	70	72	26	26.1
Glyt <sup>4</sup> +AMS	0.75+2.5	80	70	72	79	43	33.5
Glyt <sup>1</sup> +AMS	0.77+2.5	70	63	78	82	52	35.0
<u>Checks</u>							
Weedy	-	0	0	0	0	0	0.6
Hand-Weeded	-	100	100	100	100	100	41.3
	LSD (0.10)	12	19	12	18	18	7.6

<sup>a</sup> alac= alachlor = IntRRo 4EC; Clet = clethodim = Select2EC; Clm = Chlorimuron = Classic 25DF; Clsm = cloransulam = FirstRate 84WG; Dime-P = dimethenamid-P = Outlook 6L; [Flfp-P&fenx] = [fluazifop-P & fenoxaprop] = Fusion 2.56L; Flms = flumetsulam = Python 80DF; Flmx = flumioxazin = Valor SX 51DF; [Flmx&clsm] = [Flumioxazin & cloransulam] = Gangster; Fome= fomesafen = Flexstar 1.88L; Glyt<sup>1</sup> = glyphosate = Roundup Weather Max; Glyt<sup>2</sup> = glyphosate = Roundup OriginalMax; Glyt<sup>3</sup> = glyphosate = Touchdown Total; Glyt<sup>4</sup> = glyphosate = Glyphomax XRT; Glyt<sup>5</sup> = glyphosate = Clearout 41 Plus; [Glyt&imep] = [glyphosate & imazethapyr] = Extreme 2.17L; Immx = imazamox = Raptor 1L; Lact<sup>1</sup> = lactofen = Phoenix 2L; Lact<sup>2</sup> = lactofen = Cobra 2L; Pend = pendimethalin = Prowl 3.8 H2O; [Pend&imep] = [pendimethalin & imazethapyr] = Pursuit Plus 2.9L; [S-meto&metr] = [S-metolachlor & metribuzin] = Boundary 6.5L; [S-meto&glyt] = [S-metolachlor & glyphosate] = Sequence 5.25L; Thif = thifensulfuron = Harmony GT 75DF; AMS = N-Pa-K liquid ammonium sulfate; COC = crop oil concentrate, Class Additive 17%; NIS = nonionic surfactant, Class Preference.

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