Herbicide performance in soybeans at Waseca, MN common cocklebur site in 2004. 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 Clarion clay loam soil containing 5% organic matter with a pH of 6.6 and soil test P and K levels of 30 and 161 ppm, respectively. The previous crop was soybean that had been chisel plowed in the fall of 2003. 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 17, 2004 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 28, 2004. Application dates, environmental conditions, crop and weed stages are listed below.

Date	May 17	May 18	June 18	June 25	July 8
Treatment			Post I	Post II	Post III
Application Stage	PPI	Pre	4-inch weeds	6-inch weeds	Crop canopy
air temp °F	67	70	62	70	74
soil temp (4-inch)	58	66	68	65	70
Relative humidity (%)	50	30	25	30	35
Wind	W 4	SW 8	N 9	N 4	W 2
Soil moisture	Moist	Moist	Moist	Moist	Moist
Soybeans					
Stage	-	-	V2	V3	R1
height (inch)	-	-	3	4	9
Giant foxtail					
leaf no.	-	-	3	4	3-4
height (inch)	-	-	3-4	4-6	4
Common cocklebur					
leaf no.	-	-	2-4	4-6	2-3
height (inch)	-	-	3	5-6	3
Common ragweed					
leaf no.	-	-	2-4	4-6	2-3
height (inch)	-	-	3	5-6	3
Common lambsquarters					
leaf no.	-	-	4-8	8-10	4
height (inch)	-	-	3-4	4	3-4
Redroot pigweed					
leaf no.	-	-	2-3	3-4	2
height (inch)	-	-	1-2	2-3	2-4
Rainfall after application (inch)					
week 1	2.13	2.58	0.37	0.85	2.49
week 2	1.41	0.98	0.11	2.95	1.85
week 3	0.49	0.49	2.09	2.49	0.34

The dominant weeds in this trial were common cocklebur and common ragweed. [Pendimethalin & imazethapyr] followed by bentazon plus sethoxydim resulted in poor common cocklebur control and poor common ragweed control. Common ragweed control was also poor with pendimethalin followed by imazamox plus acifluorfen. Common lambsquarters control was poor with postemergence fomesafen plus [fluazifop-P & fenoxaprop] plus cloransulam. Several treatments allowed late season redroot pigweed to escape. Soybean yields were consistently higher where glyphosate followed a soil applied treatment than where glyphosate was used postemergence in the absence of any soil applied treatments. (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 2004 (Hoverstad and Gunsolus).

Treatment[a]	Rate	SETFA	XANST	AMBEL	CHEAL	AMARE	Yield
	(lb/A or %)	----------(% control)----------					Bu/A[b]
Preemergence							
Pend+[Flmx&clsm]	1.2+[0.1&0.3]	86	84	94	99	99	41.1
Preplant incorporate 2X/POST I (4-inch weeds)							
Pend[1]/Immx+Acif+NIS+AMS	1.3/0.03+0.125+0.25%+2.5	74	78	36	99	74	4.3
[Pend&imep]/Bent+Seth+NIS+AMS	[0.84&0.06]/[1.0&0.2]+0.25%+2.5	98	49	16	99	99	10.4
Pend[1]/[Glyt&imep]+NIS+AMS	1.3/[0.75&0.063]+0.125%+2.5	99	93	86	91	97	24.5
Preemergence/ POST I (4-inch weeds)							
Flmx+Clsm/Lact+V10137+AMS	0.1+0.03/0.16+0.125+2	98	98	99	99	99	28.7
Pend/ Clsm+Clet+Lact[1]+COC+AMS	1.2/ 0.016+0.125+0.09+1%+2.5	98	94	90	91	57	28.9
[S-meto&metr]/ Fome+[Flfp-P&fenx]+COC+AMS	[1.0&0.23]/ 0.235+[0.125&0.035]+1%+2.5	95	86	95	99	99	35.0
Suen/ Fome+Qufp-P+COC+AMS	0.25/ 0.235+0.06+1%+2.5	99	93	97	99	99	34.5
Preemergence/ POST I (6-inch weeds)							
Alac/Glyt+AMS	2/0.94+2.5	97	93	96	99	96	31.3
Pend[1]+Dime-P/Glyt+AMS	0.48+0.59/0.94+2.5	99	91	82	99	96	41.5
[Flmx&clsm]/Glyt+AMS	[0.05&0.016]/+0.94+2.5	94	96	99	99	99	50.7
[S-meto&metr]/Glyt[2]+AMS	[0.8&0.20]/1.1+2.5	99	89	90	96	89	47.4
Flmx/Glyt+AMS	0.06/0.94+2.5	95	97	99	99	94	47.1
Flmx+Flms/Glyt+AMS	0.05+0.02/0.94+2.5	94	98	95	99	99	49.0
Suen/Glyt+AMS	0.19/0.94+2.5	96	95	84	99	99	38.5
POST I (4-inch weeds)							
Fome+[Flfp-P&fenx]+ Thif+COC+AMS	0.23+[0.156&0.044]+ 0.002+1%+2.5	61	87	83	91	83	12.8
Fome+[Flfp-P&fenx]+ Clsm+COC+AMS	0.23+[0.156&0.044]+ 0.016+1%+2.5	67	95	80	41	68	16.9
POST I (4-inch weeds)/POST III(Canopy)							
Glyt+AMS/Glyt+AMS	0.94+2.5 / 0.94+2.5	98	96	99	88	89	32.7
POST II (6-inch weeds)							
GF 1279+Clsm+AMS	1+0.016+2.5	98	94	95	89	94	33.5
Glyt[3+]AMS	1+2.5	98	96	89	86	85	33.6
GF 1279+AMS	1+2.5	98	96	87	79	57	33.7
Glyt+AMS	0.94+2.5	97	96	91	91	65	32.4
Checks							
Weedy	-	0	0	0	0	0	1.0
Hand-Weeded	-	100	100	100	100	100	48.0
	LSD (0.10)	9	10	15	14	24	6.6

[a] Acif = acifluorfen = Ultra Blazer 2L; alac= alachlor = IntRRo 4EC; Bent = bentazon = Rezult B; Clet = clethodim = Select2EC; 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 = glyphosate = Roundup Weather Max; Glyt[2] = glyphosate = Touchdown Total; Gyt[3] = glyphosate = Clearout 41 Plus; [Glyt&imep] = [glyphosate & imazethapyr] = Extreme 2.17L; Immx = imazamox = Raptor 1L; Lact = lactofen = Phoenix 2L; Lact[1] = lactofen = Cobra 2L; Pend = pendimethalin = Pendimax 3.3 L; Pend[1] = pendimethalin = Prowl 3.8 H2O; [Pend&Imep] = [pendimethalin & imazethapyr] = Pursuit Plus 2.9L; Qufp-P = quizalofop-P = Assure II 0.88L; Seth = sethoxydim = Rezult G; [S-meto&metr] = [S-metolachlor & metribuzin] = Boundary 6.5L; Suen = sufentrazone = 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.