

Common cocklebur control in soybeans at Lamberton, MN in 1997. Getting, Jodie K. The objective of this study was to evaluate herbicides in combination with cultivation for common cocklebur control in soybeans. This study was conducted on a Normania loam soil containing 5.2% organic matter, pH 7.5 and soil test P and K levels of 20 and 284 lb/A, respectively. A randomized complete block design with a split plot arrangement of treatments with four replications and a plot size of 10 by 30 ft was used. The main plots consisted of cultivation and the subplots were the herbicide treatment. The test site was planted to corn in 1996 and was fall chisel plowed. On May 15, 1997 preplant incorporated treatments were applied and tilled twice with a field cultivator set to till 3 to 4 inches deep and operated at 5 to 6 mph. On the same day 'Parker', Asgrow Roundup Ready 'AG1901', and Asgrow Liberty-Link 'A2704' soybeans were planted in 30-inch rows at a seeding rate of 160,000 seeds/A. All treatments were applied with a tractor-mounted sprayer delivering 20 gpa at a pressure of 40 psi. The sprayer was equipped with 8002 flat-fan nozzles spaced 15 inches apart on the boom. Cultivation treatments were cultivated on July 2, 1997. Application dates, environmental conditions, plant sizes and rainfall data are listed below:

Date	May 15	June 11
Treatment	PPI	POST
Temperature (F)		
air	58	81
soil (4 inch)	50	78
Relative humidity (%)	40	33
Wind (mph)	N 5	S 5
Sky	sunny	p. cloudy
Soil moisture	dry	dry
Soybean		
leaf no.	—	1st trif.
height (inch)	—	4
Yellow foxtail		
leaf no.	—	2 to 4
height (inch)	—	1 to 3
no./ft ²	—	7
Common cocklebur		
leaf no.	—	1 to 3
height (inch)	—	1 to 3
no./ft ²	—	8
Rainfall after application (inch)		
1 week	0.02	0.07
2 week	0.51	2.50
3 week	0.05	2.08

None of the treatments caused visible crop injury. Cultivation improved common cocklebur control for each herbicide treatment. Glyphosate, trifluralin followed by glyphosate, and trifluralin followed by glufosinate resulted in greater than 97% control of yellow foxtail and common cocklebur when cultivated. Trifluralin + F-6285 + NAF-75 applied PPI with and without cultivation resulted in 43 and 8% common cocklebur control, respectively. All other cultivated treatments had greater than 88% common cocklebur control.

Table. Common cocklebur control in soybeans at Lamberton, MN in 1997 (Getting).

Treatment ^a	Rate	Cultivate	Yeff			Cocb		
			7/28	8/11	9/5	7/28	8/11	9/5
<u>Preplant incorporate 2X</u>	(lb/A or %)		(% control)					
Trif+F-6285+NAF-75	0.75+0.3+0.04	Yes	93	91	89	76	65	43
Trif+F-6285+NAF-75	0.75+0.3+0.04	No	90	88	86	45	23	8
<u>Preplant incorporate 2X/POST (3 to 4-inch weeds)</u>								
Trif/glufosinate+AMS	0.75/0.26+2.5	Yes	97	97	97	97	98	97
Trif/glufosinate+AMS	0.75/0.26+2.5	No	94	93	94	91	91	83
Trif/glyphosate+AMS	0.75/0.75+2.5	Yes	98	98	98	98	98	97
Trif/glyphosate+AMS	0.75/0.75+2.5	No	97	96	95	93	92	81
Pend/AC 299,263+MSO+28%N	1.24/0.03+0.94%+1.25%	Yes	98	98	97	97	97	93
Pend/AC 299,263+MSO+28%N	1.24/0.03+0.94%+1.25%	No	97	95	95	87	85	71
Pend/Imep+COC+28%N	1.24/0.063+1.25%+1.25%	Yes	97	97	96	97	97	93
Pend/Imep+COC+28%N	1.24/0.063+1.25%+1.25%	No	97	97	98	92	91	78
Trif/NAF-75+NIS+28%N	0.75/0.016+0.125%+2.5%	Yes	93	92	91	97	98	94
Trif/NAF-75+NIS+28%N	0.75/0.016+0.125%+2.5%	No	91	90	85	97	96	90
Trif/Fome+MSO+28%N	0.75/0.24+1.0%+2.5%	Yes	93	93	90	97	97	93
Trif/Fome+MSO+28%N	0.75/0.24+1.0%+2.5%	No	90	85	85	93	86	80
Trif/[Bent&Acif]+28%N	0.75/[0.75&0.17]+2.5%	Yes	91	89	88	97	97	93
Trif/[Bent&Acif]+28%N	0.75/[0.75&0.17]+2.5%	No	90	86	83	88	83	74
Trif/CGA 277476+NIS+28%N	1.91/0.07+0.25%+1.25%	Yes	96	95	91	96	95	88
Trif/CGA 277476+NIS+28%N	1.91/0.07+0.25%+1.25%	No	91	89	89	87	83	74
<u>POST (3 to 4-inch weeds)</u>								
Glyphosate+AMS	1.0+2.5	Yes	98	98	99	98	98	99
Glyphosate+AMS	1.0+2.5	No	95	93	93	92	91	83
<u>Checks</u>								
Weedy check	-	Yes	73	65	49	60	40	18
Weedy check	-	No	0	0	0	0	0	0
Hand-weeded	-	Yes	100	100	100	100	100	100
Hand-weeded	-	No	100	96	95	98	98	94
	LSD (0.10)		3	5	7	4	7	8
Average across treatments:								
<u>Preplant incorporate 2X</u>								
Trif+F-6285+NAF-75	0.75+0.3+0.04	-	91	90	88	61	44	25
<u>Preplant incorporate 2X/POST (3 to 4-inch weeds)</u>								
Trif/glufosinate+AMS	0.75/0.26+2.5	-	96	95	96	94	94	90
Trif/glyphosate+AMS	0.75/0.75+2.5	-	98	97	97	95	95	89
Pend/AC 299,263+MSO+28%N	1.24/0.03+0.94%+1.25%	-	97	97	96	92	91	82
Pend/Imep+COC+28%N	1.24/0.063+1.25%+1.25%	-	97	97	97	95	94	85
Trif/NAF-75+NIS+28%N	0.75/0.016+0.125%+2.5%	-	92	91	88	97	97	92
Trif/Fome+MSO+28%N	0.75/0.24+1.0%+2.5%	-	91	89	87	95	91	86
Trif/[Bent&Acif]+28%N	0.75/[0.75&0.17]+2.5%	-	90	88	85	93	90	83
Trif/CGA 277476+NIS+28%N	1.91/0.07+0.25%+1.25%	-	94	92	90	91	89	81
<u>POST (3 to 4-inch weeds)</u>								
Glyphosate+AMS	1.0+2.5	-	97	96	96	95	95	91
<u>Checks</u>								
Weedy check	-	-	36	33	24	30	20	9
Hand-weeded	-	-	99	98	98	99	99	97
	LSD (0.10)		2	4	5	3	5	6
Average for cultivation across herbicide treatments:								
		Yes	94	93	90	93	90	84
		No	86	84	83	80	76	68
	LSD (0.10)		1	2	3	3	2	1

^a AC 299,263 = Raptor 1L; [Bent&Acif] = Galaxy 3.67E; CGA 277476 = Expert 75WG; Fome = Flexstar 1.88L; F-6285 = Authority 75DF; glufosinate = Liberty 1.67L; glyphosate = Roundup Ultra 4L; Imep = Pursuit 70WDG; NAF-75 = FirstRate 84WG; Pend = Prowl 3.3EC; Trif = Treflan 4E; AMS = spray grade ammonium sulfate; MSO = methylated seed oil, Class Destiny MSO; COC = crop oil concentrate, Class Additive 17%; NIS = nonionic surfactant, Class Preference; 28%N = an aqueous solution of urea and ammonium nitrate.