

Common cocklebur control in corn 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 corn. This study was conducted on a Normania loam soil containing 5.9% organic matter, pH 7.5 and soil test P and K levels of 20 and 294 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 previous crop was corn and the site was fall chisel plowed. The area was fertilized with 140 lb/A of nitrogen as urea and field cultivated twice on April 29, 1997. On the same day Pioneer '3531' field corn and Croplan Genetics Liberty-Link '402LL' was planted in 30-inch rows at a seeding rate of 30,000 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. Mechanical treatment included cultivation on June 20, 1997. Application dates, environmental conditions, plant sizes and rainfall data are listed below:

Date	April 29	June 5
Treatment	PRE	POST
Temperature (F)		
air	63	82
soil (4 inch)	52	76
Relative humidity (%)	32	33
Wind (mph)	NW 5-8	N 5-8
Sky	cloudy	p. cloudy
Soil moisture	moist	dry
Corn		
leaf no.	—	3
height (inch)	—	7
Yellow foxtail		
leaf no.	—	2 to 4
height (inch)	—	2 to 4
no./ft ²	—	20
Common cocklebur		
leaf no.	—	1 to 2
height (inch)	—	2 to 3
no./ft ²	—	4
Pennsylvania smartweed		
leaf no.	—	2 to 4
height (inch)	—	2 to 3
no./ft ²	—	2
Rainfall after application (inch)		
1 week	1.15	0.0
2 week	0.16	0.57
3 week	0.04	2.01

None of the treatments caused visible crop injury. Cultivated treatments had 83 to 97% common cocklebur control while non-cultivated treatments had 55 to 94% control. ICIA 5676 followed by dicamba with and without cultivation had 97 and 94% control, respectively. Cultivation improved common cocklebur control by 19 and 32 percentage points for glufosinate + atrazine + AMS applied POST and ICIA 5676 followed by glufosinate + AMS, respectively.

Table. Common cocklebur control in corn at Lamberton, MN in 1997 (Gettling).

Treatment ^a	Rate (lb/A or %)	Cultivate	Yeff			Cocb		
			7/28	8/11	9/5	7/28	8/11	9/5
			—————(% control)—————					
<u>Preemergence/POST (3 to 4-inch weeds)</u>								
ICIA 5676/glufosinate+AMS	2.0/0.26+2.5	Yes	97	97	95	91	89	87
ICIA 5676/glufosinate+AMS	2.0/0.26+2.5	No	93	93	91	81	70	55
ICIA 5676/Dica	2.0/0.5	Yes	97	96	97	97	97	97
ICIA 5676/Dica	2.0/0.5	No	90	88	85	94	93	94
ICIA 5676/[Brox&Atra]	2.0/[0.25&0.5]	Yes	97	96	96	93	91	92
ICIA 5676/[Brox&Atra]	2.0/[0.25&0.5]	No	93	91	91	87	83	76
ICIA 5676/[Flms&Clpy]+NIS+28%N	2.0/[0.034&0.094]+0.25%+2.5%	Yes	96	95	93	93	93	93
ICIA 5676/[Flms&Clpy]+NIS+28%N	2.0/[0.034&0.094]+0.25%+2.5%	No	92	88	90	89	88	89
ICIA 5676/[Flms&Clpy&2,4-D] +NIS+28%N	2.0/[0.023&0.063&0.125] +0.25%+2.5%	Yes	97	97	96	95	95	96
ICIA 5676/[Flms&Clpy&2,4-D] +NIS+28%N	2.0/[0.023&0.063&0.125] +0.25%+2.5%	No	89	82	81	91	90	89
ICIA 5676/MON 12000+Dica+NIS	2.0/0.031+0.063+0.25%	Yes	97	95	96	94	94	93
ICIA 5676/MON 12000+Dica+NIS	2.0/0.031+0.063+0.25%	No	91	86	86	90	87	87
ICIA 5676/Prim+Dica+COC+28%N	2.0/0.018+0.063+1.25%+2.5%	Yes	98	97	97	95	93	92
ICIA 5676/Prim+Dica+COC+28%N	2.0/0.018+0.063+1.25%+2.5%	No	94	91	93	84	79	74
ICIA 5676/[CGA 152005&Prim] +Dica+COC+28%N	2.0/[0.014&0.014] +0.063+1.25%+2.5%	Yes	98	94	89	96	95	94
ICIA 5676/[CGA 152005&Prim] +Dica+COC+28%N	2.0/[0.014&0.014] +0.063+1.25%+2.5%	No	94	93	93	87	81	79
ICIA 5676/F8426+Atra+Dica+NIS	2.0/0.008+0.50.094+0.25%	Yes	98	96	96	93	92	91
ICIA 5676/F8426+Atra+Dica+NIS	2.0/0.008+0.50.094+0.25%	No	97	94	93	85	81	79
<u>POST (3 to 4-inch weeds)</u>								
Glufosinate+Atra+AMS	0.26+0.5+2.5	Yes	89	85	86	90	86	83
Glufosinate+Atra+AMS	0.26+0.5+2.5	No	87	79	74	83	74	64
<u>Checks</u>								
Weedy check	-	Yes	58	40	20	66	60	53
Weedy check	-	No	0	0	0	0	0	0
Hand-weeded	-	Yes	100	100	100	100	100	100
Hand-weeded	-	No	100	100	100	100	100	100
	LSD (0.10)		4	4	5	4	6	9
Average across treatments:								
<u>Preemergence/POST (3 to 4-inch weeds)</u>								
ICIA 5676/glufosinate+AMS	2.0/0.26+2.5	-	95	95	93	86	79	71
ICIA 5676/Dica	2.0/0.5	-	93	92	91	96	95	96
ICIA 5676/[Brox&Atra]	2.0/[0.25&0.5]	-	95	94	94	90	87	84
ICIA 5676/[Flms&Clpy]+NIS+28%N	2.0/[0.034&0.094]+0.25%+2.5%	-	94	91	91	91	91	91
ICIA 5676/[Flms&Clpy&2,4-D] +NIS+28%N	2.0/[0.023&0.063&0.125] +0.25%+2.5%	-	93	89	89	93	93	93
ICIA 5676/MON 12000+Dica+NIS	2.0/0.031+0.063+0.25%	-	94	91	91	92	90	90
ICIA 5676/Prim+Dica+COC+28%N	2.0/0.018+0.063+1.25%+2.5%	-	96	94	95	89	86	83
ICIA 5676/[CGA 152005&Prim] +Dica+COC+28%N	2.0/[0.014&0.014] +0.063+1.25%+2.5%	-	96	93	91	91	88	86
ICIA 5676/F8426+Atra+Dica+NIS	2.0/0.008+0.50.094+0.25%	-	97	95	94	89	86	85
<u>POST (3 to 4-inch weeds)</u>								
Glufosinate+Atra+AMS	0.26+0.5+2.5	-	88	82	80	86	80	74
<u>Checks</u>								
Weedy check	-	-	29	20	10	33	30	26
Hand-weeded	-	-	100	100	100	100	100	100
	LSD (0.10)		3	3	4	3	4	6
Average for cultivation across herbicide treatments:								
	-	Yes	93	90	88	92	90	89
	-	No	85	82	81	81	77	74
	LSD (0.10)		1	1	1	2	2	4

^a Atrazine = Aatrex 90DF; [Brox&Atra] = Buctril & Atrazine 3.2F; [CGA 152005&Prim] = Exceed 57WDG; Dica = Banvel 4S; [Flms&Clpy] = Hornet 85.6WG; [Flms&Clpy&2,4-D] = Scorpion III 84.3DF; F8426 = Aim 40DF; glufosinate = Liberty 1.67L; ICIA 5676 = Surpass 6.4EC; MON 12000 = Permit 75DF; Prim = Beacon 75DF; COC = crop oil concentrate, Class Additive 17%; NIS = nonionic surfactant, Class Preference; 28%N = an aqueous solution of urea and ammonium nitrate.