

Herbicide performance in corn at Waseca, MN common cocklebur site in 2002. Hoverstad, Thomas R. and Jeffrey L. Gunsolus. The objective of this trial was to evaluate weed management systems available to corn 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, pH = 6.6 and soil test P and K levels of 36 and 210 ppm, respectively. The previous crop was corn that had been chisel in the fall. The area field cultivated once prior to application of 150 lb N/A as urea. The site was then field cultivated once again to a depth of 3 inches prior to planting to prepare a seedbed. Novartis 'NK 42B7' (imidazolinone and glufosinate tolerant) corn seed was planted on May 10, 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 10, 2002. Application dates, environmental conditions, crop and weed stages are listed below.

Date	May 10	June 5	June 10
Treatment	Pre	3-collar	4-collar
air temp °F	63	74	82
soil temp (4-inch) °F	60	68	73
Relative humidity (%)	35	30	40
Wind	W 11	S 5	S 12
Soil moisture	Dry	Wet	moist
Corn			
stage	--	V3	V4
height (inch)	--	4	6
Common cocklebur			
Leaf no.	--	2-3	3-4
height (inch)	--	4-6	6-8
Rainfall after application (inch)			
Week 1	0.41	1.15	1.15
Week 2	0.00	0.36	2.19
Week 3	0.74	3.15	1.15

Soil applied acetochlor plus [flumetsulam & clopyralid] or RPA 2011772 plus FOE 5043 plus atrazine failed to control common cocklebur. Two-pass programs that resulted in poor control of common cocklebur included Dimethenamid-P followed by carfentrazone plus atrazine or [FOE 5043 & metribuzin] followed by AE F130360 01. A one-pass total post treatment including [nicosulfuron & rimsulfuron] followed by carfentrazone and atrazine resulted in poor common cocklebur control. All these treatments that provided poor common cocklebur control resulted in substantial yield losses. Fair control of common cocklebur and moderate yield losses were observed with FOE 5043 followed by glufosinate and atrazine or [nicosulfuron & rimsulfuron] followed by ZA 1296 plus atrazine. Common cocklebur control was better when ZA 1296 was tank mixed with [nicosulfuron & rimsulfuron & clopyralid & flumetsulam] compared to when tank mixed with [nicosulfuron & rimsulfuron]. (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 corn at a common cocklebur site at Waseca, MN in 2002 (Hoverstad and Gunsolus).

Treatment <sup>a</sup>	Rate (lb/A or %)	XANST (% control)	Yield Bu/A <sup>b</sup>
<u>Preemergence</u>			
Acet+[Flms&clpy]	2.2+[0.046&0.15]	83	145
Isft+FOE 5043+Atra	0.07/0.375+1.0	90	158
<u>Preemergence/POST III (4-collar corn)</u>			
Acet/[Flms&clpy]+Atra+COC+AMS	2.2/[0.035&0.11]+0.75+1%+2.5	99	174
Acet/[Flms&clpy]+Dica+NIS+AMS	2.2/[0.035&0.11]+0.125+1%+2.5	99	170
Dimethenamid-P/ [Flms&clpy]+Carf+NIS+AMS	0.94/ [0.035&0.11]+0.007+0.25%+2.5	97	162
Dimethenamid-P/ Carf+atra+NIS+AMS	0.94/ 0.007+1.0+0.25%+2.5	81	139
Dimethenamid-P/ [Dica&SAN 1269H]+NIS+AMS	0.94/ [0.125&0.05]+0.25%+2.5	91	163
[FOE 5043&metr]/ AE F130360 01+MSO+28%	[0.45&0.11]/ 0.03+1%+2.5%	94	143
[S-meto&CGA-154281]/ Meso+atra+COC+28%N	1.91/ 0.094+0.25+1%+2.5%	93	154
[S-meto&CGA-154281]/ [Prim&dica]+COC+28%N	1.91/ [0.023&0.125]+1%+2.5%	98	167
[S-meto&CGA-154281]/ Meso+[Nico&rims]+ atra+COC+28%N	1.91/ 0.094+[0.016&0.008]+ 0.25+1%+2.5%	88	148
[S-meto&CGA-154281]/ Meso+Gluf+atra+COC+28%N	1.91/ 0.094+0.18+0.25+1%+2.5%	90	163
FOE 5043/ AE F130360+[Dica&SAN 1269H]+ MSO+28%	0.375/ 0.033+[0.125&0.05]+ 1.5pt+3pt	94	164
[S-meto&CGA-154281]/ [Nico&rims&clpy&flms]+ atra+COC+28%N	1.91/ [0.01&0.01&0.11&0.03]+ .75+1%+qt	99	174
FOE 5043/Gluf+Atra+AMS	0.375/0.31+0.5+3.0	46	159
Acet <sup>2</sup> /[Hals&dica]+NIS	2.2/[0.03&.14]+0.25%	89	148
<u>POST I (3-collar Corn)</u>			
[Imep&impr]+[Dica&atra]+ NIS+AMS	[0.042&0.014]+[0.28&0.55]+ 0.25%+2.5	97	164
<u>POST II (4-collar Corn)</u>			
[Nico&rims]+ Meso+atra+COC+AMS	[0.023&0.012]+ 0.06+0.25+1%+2	97	164
[Nico&rims]+ [Flms&clpy]+atra+COC+AMS	[0.023&0.012]+ [0.035&0.11]+0.5+1%+2	91	163
[Nico&rims]+ Carf+Atra+COC+AMS	[0.023&0.012]+ 0.007+0.5+1%+2	84	159
[Nico&rims&clpy&flms]+ Dica+Atra+COC+AMS	[0.01&0.01&0.11&0.03]+ 0.125+0.5+1%+2	98	156
[Nico&rims&clpy&flms]+ Meso+Atra+COC+AMS	[0.01&0.01&0.11&0.03]+ 0.03+0.25+1%+2	93	152
<u>Checks</u>			
Weedy	-	0	42
Hand-Weeded	-	100	172
	LSD (0.10)	17	19

<sup>a</sup>Acet = acetochlor = Surpass 6.4E; Acet<sup>2</sup> = acetochlor = Harness 7E; Atra = atrazine = Aatrex 90DF; AE F130360 01 = Option 35DF; [Dica&SAN 1269H] = Dicamba & SAN1269H = Distinct 70WG; [FOE 5043&metr] = [FOE 5043 & metribuzin] = Axiom 60DF; [S-meto&CGA-154281] = [S-metolachlor & CGA-154281] = Dual II Magnum 7.64EC; Dica = dicamba = Clarity 4S; [Flms&clpy] = [flumetsulam & clopyralid] = Hornet WDG; carf = carfentrazone = Aim EW; Gluf = glufosinate = Liberty 1.67L; [Hals & dica] = [halosulfuron & dicamba] = Yukon67.5DF; [Imep&impr] = [imazethapyr & imazapyr] = Lightning 70DF; [Nico&rims&clpy&flms] = [nicosulfuron & rimsulfuron & clopyralid & flumetsulam] = Accent Gold WDG; [Prim&Dica] = [primisulfuron & dicamba] = Northstar 47.4WG; Isft = isoxaflutole = Balance Pro 4L; Dimethenamid-P=Outlook 6L; [Dica&atra] = [dicamba & atrazine] = Marksman 3.3L; [Nico&rims] = [nicosulfuron & rimsulfuron] = Steadfast 75DF; FOE 5043 = Define 60DF; Meso = mesotrione = Callisto 4L; COC = crop oil concentrate, Class Additive 17%; NIS = nonionic surfactant, Class Preference; 28%N = an aqueous solution of urea and ammonium nitrate; AMS = spray grade ammonium sulfate.

<sup>b</sup> Yield adjusted to 15.5% moisture.