

Common cocklebur and giant foxtail control in glyphosate-resistant corn. Krausz, Ronald F. and Bryan G. Young. This study was designed to identify effective programs for consistent control of common cocklebur and giant foxtail in glyphosate-resistant corn. The study was conducted on an Ebbert silt loam with 1.4 % organic matter and pH 5.7 at the Belleville Research Center. Fertilizer applied in 2003 was 150, 50 and 150 lb/A N, P<sub>2</sub>O<sub>5</sub> and K<sub>2</sub>O, respectively, to an area that had been cropped to soybean in 2002. DeKalb 'DKC 60-17' glyphosate-resistant field corn was planted 1.5 inch deep at 28000 seed/A into a reduced-till seedbed on June 5. Plots consisted of four rows with 30 inch row spacing, 30 ft long arranged in a randomized complete block design with three replications. Application timings were; preemergence (PRE), or postemergence at the V2 or V4 corn leaf stage. The herbicides were broadcast applied with a CO<sub>2</sub> pressurized sprayer using 8003 flat fan tips at 40 PSI in 20 GPA water. Monthly rainfall in inches was 2.8, 4.8, 8.3, 1.9 and 4.2 in April, May, June, July and August, respectively. Weed population per 0.25 m<sup>2</sup> in the nontreated plots, mid-season, was 7 giant foxtail and 8 common cocklebur.

Application information is listed below.

Date	6-6-03	6-20-03	6-24-03
Treatment	PRE	V2	V4
Air temperature (F)	68	80	74
Relative humidity (%)	96	32	60
Soil moisture	wet	normal	normal
field corn			
leaf no.		V3	V4
height (inch)		4-6	6-8
giant foxtail			
leaf no.		2-4	3-5
height (inch)		1-2	2-4
common cocklebur			
leaf no.		5-6	6-8
height (inch)		1-2	4-6

In most incidences, the premixes of metolachlor plus mesotrione plus atrazine provided 91% or greater control of giant foxtail. Atrazine alone applied postemergence controlled 53% of giant foxtail and 97% of common cocklebur. The premixes applied preemergence followed by atrazine postemergence provided 92 to 98% common cocklebur control compared to 88% control with a preemergence application of the premixes alone. Glyphosate plus atrazine provided 99 to 100% control of giant foxtail and common cocklebur. Atrazine provided greater common cocklebur control than glyphosate. Corn grain yield ranged from 67 to 169 bu/A. Corn yield was reduced in plots with less than 80% control of common cocklebur. (Dept. of Plant, Soil and General Agriculture, Southern Illinois University, Carbondale).

Table. Common cocklebur and giant foxtail control in glyphosate-resistant corn. (Krausz and Young)

Treatment <sup>a</sup>	Application		Corn yield bu/A	Corn injury days after treatment <sup>b</sup>			Control, days after treatment					
				14	28	56	SETFA			XANST		
	Rate (lb/A)	Time					14	28	56	14	28	56
Nontreated			67	0	0	0	0	0	0	0	0	0
S-metolachlor&atrazine&CGA-154281	1.44&1.86	PRE	157	0	0	0	100	100	100	90	90	88
S-metolachlor&atrazine&CGA-154281	1.27&1.63	PRE	148	0	0	0	100	100	100	93	91	89
S-metolachlor&atrazine&CGA-154281/atrazine+COC	1.27&1.63/0.9+1.0%	PRE/V4	160	0	0	0	100	100	100	95	94	94
S-metolachlor&atrazine&CGA-154281	1.25&1.0	PRE	119	0	0	0	100	100	100	88	77	73
S-metolachlor&atrazine&CGA-154281/atrazine+COC	1.25&1.0/1.5+1.0%	PRE/V4	168	0	0	0	99	99	99	93	92	92
S-metolachlor&atrazine&mesotrione&CGA-154281	2.0&0.75&0.2	PRE	148	0	0	0	100	100	100	92	85	92
S-metolachlor&atrazine&mesotrione&CGA-154281/atrazine+COC	2.0&0.75&0.2/1.75+1.0%	PRE/V4	165	0	0	0	99	99	99	97	96	96
S-metolachlor&atrazine&mesotrione&CGA-154281/atrazine+COC	2.0&0.75&0.2/1.25+1.0%	PRE/V4	173	0	0	0	100	100	100	98	98	98
S-metolachlor&atrazine&mesotrione&CGA-154281	1.7&0.634&0.17	PRE	157	0	0	0	100	100	100	94	94	91
S-metolachlor&atrazine&mesotrione&CGA-154281/atrazine+COC	1.7&0.634&0.17/1.9+1.0%	PRE/V4	174	0	0	0	100	100	100	98	98	98
S-metolachlor&atrazine&mesotrione&CGA-154281/atrazine+COC	1.7&0.634&0.17/1.4+1.0%	PRE/V4	173	0	0	0	100	100	100	98	97	97
S-metolachlor&atrazine&mesotrione&CGA-154281/atrazine+COC	1.29&0.48&0.129/2.0+1.0%	PRE/V4	168	0	0	0	100	100	100	98	94	95
S-metolachlor&atrazine&mesotrione&CGA-154281/atrazine+COC	1.29&0.48&0.129/1.6+1.0%	PRE/V4	162	0	0	0	100	100	100	96	92	92
S-metolachlor&mesotrione&CGA-154281	1.64&0.164	PRE	121	0	0	0	100	100	98	85	72	72
S-metolachlor&mesotrione&CGA-154281/atrazine+COC	1.27&0.127/2.0+1.0%	PRE/V4	156	0	0	0	93	91	91	97	96	96
Mesotrione/glyphosate(TD)	0.188/0.75	PRE/V4	157	0	0	0	100	97	97	87	83	83
Mesotrione+glyphosate(TD)	0.094+0.75	V4	164	0	0	0	97	95	95	93	86	86
S-metolachlor&atrazine&CGA-154281/glyphosate(TD)	1.27&1.63/0.75	PRE/V4	165	0	0	0	97	91	91	94	89	89
S-metolachlor&atrazine&CGA-154281/glyphosate(TD)	1.25&1.0/0.75	PRE/V4	166	0	0	0	99	96	96	95	92	92
S-metolachlor&atrazine&mesotrione&CGA-154281/glyphosate(TD)	1.29&0.48&0.129/0.75	PRE/V4	150	0	0	0	98	95	95	92	87	85
S-metolachlor&mesotrione&CGA-154281/glyphosate(TD)	1.27&0.127/0.75	PRE/V4	156	0	0	0	93	88	88	88	83	83
Glyphosate(TD)+atrazine	0.75+2.0	V4	169	0	0	0	100	100	100	100	99	99
Glyphosate(TD)	0.75	V4	151	0	0	0	93	90	90	87	80	80
Atrazine+COC	2.0+1.0%	V2	137	0	0	0	70	53	53	98	97	97
Dicamba&diflufenzopyr&nicosulfuron+NIS+28%N	0.124&0.048&0.0282+0.25%+4.0pt	V4	137	0	0	0	98	95	95	97	88	88
Nicosulfuron&rimsulfuron+dicamba+NIS+28%N	0.0233&0.0117+0.188+0.25%+4.0pt	V4	145	0	0	0	100	98	98	95	93	92
LSD			39	0	0	0	7	16	15	6	12	11
P			0.01	1.0	1.0	1.0	0.01	0.01	0.01	0.01	0.01	0.01

<sup>a</sup>COC = Prime Oil crop oil concentrate, a petroleum based additive with 17% emulsifier from Agrilience, LLC.

All glyphosate was Touchdown from Syngenta Crop Protection, Inc.

NIS = Activator 90, a nonionic surfactant from Loveland Industries, Inc.

28%N = 28% urea ammonium nitrate.

<sup>b</sup>Rating dates:

14 days after PRE, V2 and V4 was on Jun-20-03, Jul-4-03 and Jul-8-03, respectively.

28 days after PRE, V2 and V4 was on Jul-4-03, Jul-18-03 and Jul-22-03, respectively.

56 days after PRE, V2 and V4 was on Aug-1-03, Aug-15-03 and Aug-19-03, respectively.