Waterhemp control in glyphosate-resistant corn. Krausz, Ronald F. and Bryan G. Young. This study was designed to identify effective programs for consistent control of waterhemp. The study was conducted on a Weir silt loam with 1.9% organic matter and pH 7.1 at the Belleville Research Center. Fertilizer applied in 2003 was 150, 50 and 150 lb/A N, P_2O_5 and K_2O, 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 19. Plots consisted of four rows with 30 inch row spacing, 25 ft long arranged in a randomized complete block design with three replications. Application timings were; preemergence (PRE), postemergence only at 4 to 6 inch common waterhemp height (4-6"W-1), postemergence only at 6 to 8 inch common waterhemp height (6-8"W), and postemergence at 4 to 6 inch common waterhemp height following a preemergence application (4-6"W-2). The herbicides were broadcast applied with a CO_2 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. Common waterhemp population was 100+ per 0.25 m^2 in the nontreated plots at mid-season.

Application information is listed below.

Date	6-6-03	7-8-03	7-14-03	7-16-03
Treatment	PRE	4-6"W-1	6-8"W	4-6"W-2
Air temperature (F)	65	84	82	82
Relative humidity (%)	96	60	42	50
Soil moisture	wet	normal	normal	normal
field corn				
leaf no.		V4-V7	V5-V8	V6-V9
height (inch)		10-24	10-24	12-28
common waterhemp				
leaf no.		1-15	10+	8-12
height (inch)		1-6	4-10	4-12

The premix of metolachlor plus mesotrione plus atrazine applied preemergence controlled 100% of common waterhemp. Atrazine, metolachlor, and isoxaflutole applied preemergence followed by glyphosate postemergence also controlled common waterhemp, 100%. Isoxaflutole provided greater common waterhemp control than mesotrione. Glyphosate provided 93 to 96% common waterhemp control regardless of formulation or growth stage. Corn grain yields were not obtained due to late planting and inconsistent plant population. (Dept. of Plant, Soil and General Agriculture, Southern Illinois University, Carbondale).

Table. Waterhemp control in glyphosate-resistant corn. (Krausz and Young)

Treatment	Application		Corn injury days after treatment[b]			AMATA control days after treatment		
	Rate	Time	14	28	56	14	28	56
	(lb/A)		%	%	%	%	%	%
Nontreated			0	0	0	0	0	0
Glyphosate(TD)	0.75	4-6"W-1	0	0	0	98	97	96
Glyphosate(TD)	0.75	6-8"W	0	0	0	90	93	93
S-metolachlor&atrazine&CGA-154281	1.44&1.86	PRE	0	0	0	100	100	99
Atrazine	2.0	PRE	0	0	0	100	98	91
Atrazine/glyphosate(TD)	2.0/0.75	PRE/4-6"W-2	0	0	0	100	100	100
S-metolachlor&CGA-154281/glyphosate(TD)	1.27/0.75	PRE/4-6"W-2	0	0	0	100	100	100
Isoxaflutole	0.094	PRE	0	0	0	100	97	93
Mesotrione	0.188	PRE	0	0	0	100	88	60
S-metolachlor&atrazine&mesotrione&CGA-154281	2.0&0.75&0.2	PRE	0	0	0	100	100	100
S-metolachlor&mesotrione&CGA-154281	1.64&0.164	PRE	0	0	0	100	99	92
Glyphosate(TD)+mesotrione	0.75+0.094	4-6"W-1	0	0	0	98	99	99
Isoxaflutole/glyphosate(TD)	0.094/0.75	PRE/4-6"W-2	0	0	0	100	100	100
Glyphosate(WM)	0.75	6-8"W	0	0	0	90	91	93
LSD			0	0	0	2	4	25
P			1	1	1	0.01	0.01	0.01

[a]Glyphosate(TD) was Touchdown from Syngenta Crop Protection, Inc.
Glyphosate(WM) was Roundup WeatherMax from Monsanto Co.

[b]Rating dates:
14 days after PRE, 4-6"W-1, 6-8"W and 4-6"W-2 application was on Jun-20-03, Jul-22-03, Jul-28-03 and Jul-30-03, respectively.
28 days after PRE, 4-6"W-1, 6-8"W and 4-6"W-2 application was on Jul-4-03, Aug-3-03, Aug-11-03 and Aug-13-03, respectively.
56 days after PRE, 4-6"W-1, 6-8"W and 4-6"W-2 application was on Aug-1-03, Sep-2-03, Sep-8-03 and Sep-10-03, respectively.