

Evaluation of glyphosate-resistant corn tolerance to formulations of glyphosate. Krausz, Ronald F. and Bryan G. Young. This study was designed to evaluate glyphosate-resistant corn tolerance to several rates and formulations of glyphosate. The study was conducted on an Ebbert silt loam with 1.2% organic matter and pH 6.0 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 May 24. Plots consisted of four rows with 30 inch row spacing, 24 ft long arranged in a randomized complete block design with three replications. Application timings were at the V3 or V6 corn leaf stage. The herbicides were broadcast applied with a CO<sub>2</sub> pressurized sprayer using 8002 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. The study was maintained weed-free.

Application information is listed below.

Date	6-16-03	6-27-03
Treatment	V3	V6
Air temperature (F)	86	70
Relative humidity (%)	72	54
Soil moisture	wet	wet
field corn		
leaf no.	V3	V6
height (inch)	5	10

ICIA-0224 was the only glyphosate formulation that caused any corn injury. ICIA-0224 at 1.0 and 3.0 lb ai/A applied at the V6 growth stage of corn caused 48% and 82% height reduction at 14 DAT, respectively. ICIA-0224 at 3.0 lb ai/A applied at the V6 growth stage of corn caused 94% plant death at 56 DAT and reduced corn grain yield to 0 bu/A. ICIA -0224 at 1.0 lb ai/A applied at the V6 growth stage reduced grain yield by 49%. Corn grain yield ranged from 0 to 219 bu /A. None of the other glyphosate formulations reduced height or grain yield regardless of rate or growth stage. (Dept. of Plant, Soil and General Agriculture, Southern Illinois University, Carbondale).

Table. Evaluation of glyphosate-resistant corn tolerance to formulations of glyphosate. (Krausz and Young)

Treatment <sup>a</sup>	Application		Corn, height reduction days after treatment			Corn, leaf discoloration days after treatment			Corn, kill	Corn	Corn
	Rate	Time	14	28	56	14	28	56	56	height	yield
	(lb/A)		%	%	%	%	%	%	DAT <sup>b</sup>	Inches	bu/A
Nontreated			0	0	0	0	0	0	0	94	186
Glyphosate(UM)	0.75	V3	0	0	0	0	0	0	0	96	199
Glyphosate(WM)	0.75	V3	0	0	0	0	0	0	0	97	200
Glyphosate(CP)	0.75	V3	0	0	0	0	0	0	0	96	205
Glyphosate(TD)	0.75	V3	0	0	0	0	0	0	0	97	197
Glyphosate(TT)	0.75	V3	0	0	0	0	0	0	0	96	205
ICIA-0224	1.0	V3	0	0	0	0	0	0	0	97	204
Glyphosate(UM)	2.25	V3	0	0	0	0	0	0	0	98	202
Glyphosate(WM)	2.25	V3	0	0	0	0	0	0	0	98	203
Glyphosate(CP)	2.25	V3	0	0	0	0	0	0	0	98	209
Glyphosate(TD)	2.25	V3	0	0	0	0	0	0	0	98	205
Glyphosate(TT)	2.25	V3	0	0	0	0	0	0	0	98	205
ICIA-0224	3.0	V3	0	0	0	1	0	0	0	97	181
Glyphosate(UM)	0.75	V6	0	0	0	0	0	0	0	98	203
Glyphosate(WM)	0.75	V6	0	0	0	0	0	0	0	97	202
Glyphosate(CP)	0.75	V6	0	0	0	0	0	0	0	97	210
Glyphosate(TD)	0.75	V6	0	0	0	0	0	0	0	97	209
Glyphosate(TT)	0.75	V6	0	0	0	0	0	0	0	98	201
ICIA-0224	1.0	V6	48	35	25	10	10	2	0	85	94
Glyphosate(UM)	2.25	V6	0	0	0	0	0	0	0	97	209
Glyphosate(WM)	2.25	V6	0	0	0	0	0	0	0	96	193
Glyphosate(CP)	2.25	V6	0	0	0	0	0	0	0	97	200
Glyphosate(TD)	2.25	V6	0	0	0	0	0	0	0	98	207
Glyphosate(TT)	2.25	V6	0	0	0	0	0	0	0	97	193
ICIA-0224	3.0	V6	82	85	82	32	50	2	94	51	0
Glyphosate(UM)	0.75	V3	0	0	0	0	0	0	0	97	203
/glyphosate(UM)	/0.75	/V6									
Glyphosate(WM)	0.75	V3	0	0	0	0	0	0	0	98	209
/glyphosate(WM)	/0.75	/V6									
Glyphosate(CP)	0.75	V3	0	0	0	0	0	0	0	99	207
/glyphosate(CP)	/0.75	/V6									
Glyphosate(TD)	0.75	V3	0	0	0	0	0	0	0	99	209
/glyphosate(TD)	/0.75	/V6									
Glyphosate(TT)	0.75	V3	0	0	0	0	0	0	0	98	219
/glyphosate(TT)	/0.75	/V6									
LSD			2	0	2	2	0	0	2	8	17
P			0.01	1.0	0.01	0.01	1.0	1.0	0.01	0.01	0.01

<sup>a</sup>Blanket PRE application of s-metolachlor&atrazine&CGA-154281 at 1.44&1.86 lb/A applied to all plots including the nontreated. Study is weed-free.

Glyphosate(UM) was Roundup UltraMax from Monsanto Co.

Glyphosate(WM) was Roundup WeatherMax from Monsanto Co.

Glyphosate(CP) was Clearout 41 Plus from Chemical Products Technologies, LLC.

Glyphosate(TD) was Touchdown from Syngenta Crop Protection, Inc.

Glyphosate(TT) was Touchdown Total from Syngenta Crop Protection, Inc.

<sup>b</sup>DAT = days after treatment.

Ratings at 14, 28 and 56 days after V3 applications were on Jun-30-03, Jul-14-03 and Aug-11-03, respectively.

Ratings at 14, 28 and 56 days after V6 applications were on Jul-11-03, Jul-25-03 and Aug-22-03, respectively.

<sup>c</sup>EOS = end of season.