

Two pass and one pass programs in corn utilizing KIH-485 and glyphosate, Ames, IA, 2005. Owen, Micheal D.K., James F. Lux, and Damian D. Franzenburg. The purpose of this study was to evaluate reduced preemergence applied rates of KIH-485 followed by postemergence glyphosate and KIH-485 plus glyphosate postemergence tank-mixture, for crop phytotoxicity and weed control in corn. The soil was a Clarion, Webster, Nicollet clay loam with a pH 7.3 and 6.6% organic matter. The experimental design was a randomized complete block with three replications and plots were 10 by 25 ft. The 2004 crop was soybean. Fertilization included 125 lb/A actual N applied as urea. Tillage included a spring field cultivation. Crop residue on the soil surface was 20% at planting. "Dekalb hybrid DKC 53-34" corn was planted 1.5 inches deep on May 5, at 30,200 seeds/A in 30-inch rows. Preemergence (PRE) treatments were applied May 6 at 20 gpa and 30 psi using flat fan nozzles. Conditions on May 6 were: air temperature 24 C, soil temperature at the 4-inch depth 17 C, 8 mph wind, 100% cloud cover, 51% relative humidity. Postemergence (POST) treatments were applied June 7 at 20 gpa and 30 psi using flat fan nozzles. Conditions on June 7 were: air temperature 31 C, soil temperature at the 4-inch depth 22 C, 10 mph wind, 30% cloud cover, 47% relative humidity. Corn growth was V 4 to V 5 and 8 inches tall. Weed species, average size and number per ft<sup>2</sup> occurring in the untreated control included: giant foxtail, one to four leaves, one tiller, 0.25 to 4 inches tall, zero to ten plants; velvetleaf, cotyledon to four leaves, 0.25 to 4 inches, zero to one plant; common waterhemp, two to numerous leaves, 0.5 to 3.5 inches tall, zero to one plant; common lambsquarters, two to numerous leaves, 0.5 to 5 inches, zero to three plants. April rainfall included: 1.65, 0.07, 0.1, 0.15, 0.16, and 0.2 inches on April 11, 12, 16, 20, 21, and 22, respectively. Total rainfall for April was 2.32 inches. May rainfall included: 0.66, 0.41, 0.19, 0.33, and 0.25 inches on May 12, 18, 21, 25, and 29, respectively. Total rainfall for May was 1.83 inches. June rainfall included: 0.94, 0.5, 0.33, 0.33, 0.32, 0.2, 0.29, 0.43, 0.51, 0.89, and 0.25 inches on June 4, 8, 10, 11, 12, 20, 24, 25, 26, 27, and 29, respectively. Total rainfall for June was 4.98 inches. July rainfall included: 0 inches and 3.28 inches from July 1 through 15 and 16 through 31, respectively. Total rainfall for July was 3.28 inches. Rainfall total for August was 2.86 inches.

Differences in corn stand between treatments were not significant. No corn injury occurred from PRE applied treatments when observed on May 31. POST applied KIH-485 plus glyphosate, glyphosate, and acetochlor & MON 4660 plus glyphosate resulted in 7 to 8% injury when observed on June 18, eleven days after application. Three to 7% corn injury was observed on July 6, twenty-nine days after application.

All weed control was rate responsive to PRE applied KIH-485. The 0.223 lb/A rate afforded 85 to 98% control of all weed species when observed on May 31, and prior to sequential POST applications. All treatments provided excellent weed control when observed on June 18. Only POST glyphosate, alone, demonstrated less than 90% of Pennsylvania smartweed on June 18. When observed on July 6, common lambsquarters control fell below 90% for POST applied glyphosate, alone. All other treatments provided at least 93% weed control on July 6. Weed control was very similar for all treatments when observed again on August 24. (Dept. of Agronomy, Iowa State University, Ames).

Table 1. Two pass and one pass programs in corn utilizing KIH-485 and glyphosate, Ames, IA, 2005 (Owen, Lux, and Franzenburg).

Treatment	Rate	Appl. time	Corn <sup>a</sup> stand	Injury 5/31/05	SETFA 5/31/05	ABUTH 5/31/05	AMATA 5/31/05	CHEAL 5/31/05	POLPY 5/31/05	Injury 6/18/05	SETFA 6/18/05	ABUTH 6/18/05	AMATA 6/18/05	CHEAL 6/18/05	POLPY 6/18/05
	(lb/A)			- (%) -	-----	(% weed control)	-----			- (%) -	-----	(% weed control)	-----		
Untreated	-	-	29	0	0	0	0	0	0	0	0	0	0	0	0
KIH-485/ glyphosate <sup>b</sup> +AMS <sup>c</sup>	0.11/ 0.63+17.0	PRE/ POST	29	0	85	50	95	83	53	0	99	99	99	96	96
KIH-485/ glyphosate+AMS	0.223/ 0.63+17.0	PRE/ POST	29	0	93	85	98	93	88	0	99	99	99	99	93
KIH-485+ glyphosate+AMS	0.223+ 0.63+17.0	POST	30	0	0	0	0	0	0	7	99	99	99	98	93
Glyphosate+AMS	0.63+17.0	POST	30	0	0	0	0	0	0	7	99	99	99	98	88
Acetochlor&MON 4660+ glyphosate+AMS	1.21+ 0.63+17.0	POST	29	0	0	0	0	0	0	8	99	99	99	98	93
LSD (P=.05)			2	0	4	6	2	3	3	4	0	0	0	4	5

<sup>a</sup> Corn stand per 17.5 row feet on June 27.<sup>b</sup> Glyphosate rate in lb ae/A.<sup>c</sup> AMS = ammonium sulfate. Rate in lb/100 gallons.

Table 2. Two pass and one pass programs in corn utilizing KIH-485 and glyphosate, Ames, IA, 2005 (Owen, Lux, and Franzenburg).

Treatment	Rate	Appl. time	Injury 7/6/05	SETFA 7/6/05	ABUTH 7/6/05	AMATA 7/6/05	CHEAL 7/6/05	POLPY 7/6/05	SETFA 8/24/05	ABUTH 8/24/05	AMATA 8/24/05	CHEAL 8/24/05	POLPY 8/24/05
	(lb/A)		- (%) -	-----					-----	(% weed control)	-----		
Untreated	-	-	0	0	0	0	0	0	0	0	0	0	0
KIH-485/ glyphosate <sup>a</sup> +AMS <sup>b</sup>	0.11/ 0.63+17.0	PRE/ POST	0	98	93	98	95	96	96	96	99	96	96
KIH-485/ glyphosate+AMS	0.223/ 0.63+17.0	PRE/ POST	0	99	98	99	98	95	99	98	99	98	95
KIH-485+ glyphosate+AMS	0.223+ 0.63+17.0	POST	7	99	99	99	96	95	99	99	95	95	96
Glyphosate+AMS	0.63+17.0	POST	3	90	92	93	88	93	92	93	93	88	93
Acetochlor&MON 4660+ glyphosate+AMS	1.21+ 0.63+17.0	POST	5	99	93	96	93	95	95	96	96	92	95
LSD (P=.05)			3	2	3	3	3	3	3	4	3	3	3

<sup>a</sup> Glyphosate rate in lb ae/A.<sup>b</sup> AMS = ammonium sulfate. Rate in lb/100 gallons.