Preemergence applied KIH-485, s-metolachlor & benoxacor, KIH-485 & atrazine, and s-metolachlor & atrazine & benoxacor for weed control in corn, Ames, IA, 2004. Owen, Micheal D.K., James F. Lux, and Damian D. Franzenburg. The purpose of this study was to evaluate preemergence applied KIH-485, s-metolachlor & benoxacor, KIH-485 & atrazine, and s-metolachlor & atrazine & benoxacor for crop phytotoxicity and weed control in corn. The soil was a Canisteo, Nicollet clay loam with a pH 7.6 and 5% organic matter. The experimental design was a randomized complete block with three replications and plots were 10 by 25 ft. The 2003 crop was soybean. Tillage included a spring field cultivation. Fertilization included 124 lb/A actual N applied as urea. Crop residue on the soil surface was 20% at planting. "Dekalb hybrid DKC53-34" corn was planted 1.5 inches deep on April 23, at 30,200 seeds/A in 30-inch rows. Preemergence (PRE) treatments were applied on April 27 at 20 gpa and 30 psi using flat fan nozzles. Conditions on April 27 were: air temperature 19 C, soil temperature at the 4-inch depth 12 C, 15 mph wind, 0% cloud cover, 32% relative humidity. Weed species occurring in the untreated control included: giant and green foxtail, heavy and light pressure, respectively; velvetleaf, light pressure; common waterhemp, moderate pressure; and common lambsquarters, light pressure. April rainfall included: 0.35, 0.56, 0.65, 0.19 and 0.13 inches on April 18, 20, 24, 25, and 30, respectively. Total rainfall for April was 1.89 inches. May rainfall included: 0.41, 0.03, 0.16, 0.43, 0.12, 0.44, 3.18, 0.21, 1.19, 0.12, 0.45, 0.35, and 0.03 inches on May 8, 9, 12, 13, 14, 17, 22, 23, 24, 28, 29, 30, and 31, respectively. Total rainfall for May was 7.12 inches. June rainfall included: 0.01, 0.25, 0.27, 0.41, 0.33, 0.7, 0.92, 0.21, 0.05, and 0.01 inches on June 6, 10, 11, 12, 14, 16, 21, 24, 27, and 28, respectively. Total rainfall for June was 3.16 inches. July rainfall included: 1.51 inches and 0.18 inches from July 1 through 15 and 16 through 31, respectively. Total rainfall for July was 1.69 inches. Rainfall total for August was 4.54 inches.

Significant differences in corn stand between treatments were not due to the herbicides but rather to variability in seeding rate. No corn injury was observed on any of the observation dates. Both giant and green foxtail species were evaluated as one foxtail rating. The 0.223 and 1.91 lb/A rates of KIH-485 and s-metolachlor & benoxacor, respectively, provided 85% control of foxtail on May 18. Both herbicides demonstrated a rate response up to 95 and 93% control, respectively. Foxtail control with the higher rate of s-metolachlor & benoxacor (3.82 lb/A), KIH-485 & atrazine, and s-metolachlor & atrazine & benoxacor ranged from 93 to 99%. KIH-485 & atrazine provided 96 to 98% velvetleaf control. Velvetleaf control by all other treatments did not exceed 88%. All treatments provided excellent control of common waterhemp. Common lambsquarters control ranged from 88 to 99%.

Foxtail control remained similar for the treatments when observed on June 1. Velvetleaf control on June 1 was rate responsive (from 62 to 90% control) for KIH-485. KIH-485 & atrazine provided 98% velvetleaf control at both application rates. S-metolachlor & benoxacor and s-metolachlor & atrazine & benoxacor provided 10 to 70% velvetleaf control. Common waterhemp and common lambsquarters control was good to excellent with all of the treatments. Little change in weed control was observed on June 30. Velvetleaf control was reduced most significantly with the s-metolachlor & atrazine & benoxacor treatment. (Dept. of Agronomy, Iowa State University, Ames).

Table 1. Preemergence applied KIH-485, s-metolachlor & benoxacor, KIH-485 & atrazine, and s-metolachlor & atrazine & benoxacor for weed control in corn, Ames, IA, 2004 (Owen, Lux, and Franzenburg).

Treatment	Rate	Appl. time	Corn[a] stand	Injury 5/18/04	SETSS[b] 5/18/04	ABUTH 5/18/04	AMATA 5/18/04	CHEAL 5/18/04
	(lb/A)			-- (%) --	---------- (% weed control) ---------			
Untreated	-	-	29	0	0	0	0	0
KIH-485	0.223	PRE	32	0	85	50	99	90
KIH-485	0.268	PRE	30	0	87	55	99	98
KIH-485	0.446	PRE	32	0	95	88	99	96
S-metolachlor&benoxacor	1.91	PRE	30	0	85	25	98	88
S-metolachlor&benoxacor	3.82	PRE	31	0	93	35	99	95
KIH-485&atrazine	0.223&1.43	PRE	33	0	96	96	99	99
KIH-485&atrazine	0.223&1.96	PRE	31	0	99	98	99	99
S-metolachlor&atrazine&benoxacor	1.56&2.0	PRE	30	0	93	73	99	99
LSD (P=0.05)			2	0	3	10	1	6

[a] Corn stand per 17.42 row feet on August 2.

[b] SETSS = giant and green foxtail.

Table 2. Preemergence applied KIH-485, s-metolachlor & benoxacor, KIH-485 & atrazine, and s-metolachlor & atrazine & benoxacor for weed control in corn, Ames, IA, 2004 (Owen, Lux, and Franzenburg).

Treatment	Rate	Appl. time	Injury 6/1/04	SETSS[a] 6/1/04	ABUTH 6/1/04	AMATA 6/1/04	CHEAL 6/1/04
	(lb/A)		-- (%) --	---------- (% weed control) ---------			
Untreated	-	-	0	0	0	0	0
KIH-485	0.223	PRE	0	87	62	99	90
KIH-485	0.268	PRE	0	87	70	99	96
KIH-485	0.446	PRE	0	96	90	99	98
S-metolachlor&benoxacor	1.91	PRE	0	83	10	96	87
S-metolachlor&benoxacor	3.82	PRE	0	96	20	99	95
KIH-485&atrazine	0.223&1.43	PRE	0	98	98	99	99
KIH-485&atrazine	0.223&1.96	PRE	0	96	98	99	99
S-metolachlor&atrazine&benoxacor	1.56&2.0	PRE	0	93	70	99	99
LSD (P=0.05)			0	5	7	1	5

[a] SETSS = giant and green foxtail.

Table 3. Preemergence applied KIH-485, s-metolachlor & benoxacor, KIH-485 & atrazine, and s-metolachlor & atrazine & benoxacor for weed control in corn, Ames, IA, 2004 (Owen, Lux, and Franzenburg).

Treatment	Rate	Appl. time	SETSS[a] 6/30/04	ABUTH 6/30/04	AMATA 6/30/04	CHEAL 6/30/04
	(lb/A)		---------- (% weed control) ---------			
Untreated	-	-	0	0	0	0
KIH-485	0.223	PRE	88	65	98	88
KIH-485	0.268	PRE	88	75	99	95
KIH-485	0.446	PRE	96	90	98	96
S-metolachlor&benoxacor	1.91	PRE	80	10	93	87
S-metolachlor&benoxacor	3.82	PRE	96	18	99	90
KIH-485&atrazine	0.223&1.43	PRE	95	93	99	99
KIH-485&atrazine	0.223&1.96	PRE	96	93	99	99
S-metolachlor&atrazine&benoxacor	1.56&2.0	PRE	95	45	99	99
LSD (P=0.05)			6	8	3	4

[a] SETSS = giant and green foxtail.