Preemergence applied KIH-485, s-metolachlor & benoxacor, KIH-485 & atrazine, and s-metolachlor & atrazine & benoxacor for weed control in corn, Nashua, 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-metolachor & benoxacor, KIH-485 & atrazine, and s-metolachlor & atrazine & benoxacor for crop phytotoxicity and weed control in corn. The soil was a Floyd, Kenyon, Ostrander loam with a pH 6.7 and 3.3% 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 140 lb/A actual N applied as anhydrous ammonia. Crop residue on the soil surface was 20% at planting. "Dekalb hybrid DKC53-34" corn was planted 1.5 inches deep on May 7, at 33,674 seeds/A in 30-inch rows. Preemergence (PRE) treatments were applied on May 7 at 20 gpa and 30 psi using flat fan nozzles. Conditions on May 7 were: air temperature 16 C, soil temperature at the 4-inch depth 14 C, 15 mph wind, 100% cloud cover, 48% relative humidity. Weed species occurring in the untreated control included: giant foxtail, light to moderate pressure; velvetleaf, light pressure; common waterhemp and common lambsquarters, light to moderate pressure. May rainfall included: 0.89, 0.03, 0.37, 0.74, 0.03, 0.57, 3.66, 1.70, 0.44, 0.54, 2.00, 0.25, and 0.02 inches on May 8, 10, 12, 13, 14, 17, 21, 22, 23, 24, 29, 30, and 31, respectively. Total rainfall for May was 11.24 inches. June rainfall included: 0.01, 0.05, 0.13, 0.01, 0.14, 0.17, 0.41, 0.03, 0.07, 0.99, 0.02, 0.51, 0.03, and 0.26 inches on June 1, 2, 5, 6, 9, 10, 11, 13, 14, 16, 18, 21, 23, and 24, respectively. Total rainfall for June was 2.92 inches. July rainfall included: 4.76 inches and 1.35 inches from July 1 through 15 and 16 through 31, respectively. Total rainfall for July was 6.11 inches. Rainfall total for August was 2.91 inches.

Corn stands were variable when observed on May 26 and significant differences were determined between several treatments. These differences were not a result of herbicide treatment but rather to variability in seeding rate. The highest application rates of KIH-485 and s-metolachlor & benoxacor resulted in negligible corn injury when observed on May 26.

Giant foxtail, common waterhemp and common lambsquarters control was good to excellent with all treatments when observed on May 26, June 10, and July 1, nineteen, thirty-four, and fifty-five days after application, respectively. Significant differences in control between treatments were few. Velvetleaf control with KIH-485 was rate responsive. Control was poor with the lowest rate, while the higher rates provided good to excellent control, especially when observed on July 1. The addition of atrazine to KIH-485 improved velvetleaf control. This prepackaged treatment produced a slightly higher level of control on July 1 than the mid-rate of KIH-485 applied alone. S-metolachlor & atrazine & benoxacor provided acceptable velvetleaf control on May 26, but not on June 10 and July 1. (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, Nashua, IA, 2004 (Owen, Lux, and Franzenburg).

Treatment	Rate	Appl. time	Corn[a] stand	Injury 5/26/04	SETFA 5/26/04	ABUTH 5/26/04	AMATA 5/26/04	CHEAL 5/26/04
	(lb/A)			-- (%) --	---------- (% weed control) ---------			
Untreated	-	-	31	0	0	0	0	0
KIH-485	0.187	PRE	32	0	96	42	99	99
KIH-485	0.223	PRE	33	0	99	63	99	99
KIH-485	0.374	PRE	33	8	99	87	99	99
S-metolachlor&benoxacor	1.6	PRE	32	0	99	8	99	99
S-metolachlor&benoxacor	3.2	PRE	33	2	99	20	99	99
KIH-485&atrazine	0.186&1.19	PRE	33	0	99	90	99	99
KIH-485&atrazine	0.187&1.64	PRE	32	0	99	93	99	99
S-metolachlor&atrazine&benoxacor	1.26&1.64	PRE	34	0	99	87	99	99
LSD (P=0.05)			2	3	1	6	0	0

[a] Corn stand per 17.42 row feet on May 26.

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

Treatment	Rate	Appl. time	Injury 6/10/04	SETFA 6/10/04	ABUTH 6/10/04	AMATA 6/10/04	CHEAL 6/10/04
	(lb/A)		-- (%) --	---------- (% weed control) ---------			
Untreated	-	-	0	0	0	0	0
KIH-485	0.187	PRE	0	96	57	99	98
KIH-485	0.223	PRE	0	98	67	99	96
KIH-485	0.374	PRE	3	99	95	99	99
S-metolachlor&benoxacor	1.6	PRE	0	96	8	99	92
S-metolachlor&benoxacor	3.2	PRE	0	99	13	99	96
KIH-485&atrazine	0.186&1.19	PRE	0	98	78	99	99
KIH-485&atrazine	0.187&1.64	PRE	0	98	85	99	99
S-metolachlor&atrazine&benoxacor	1.26&1.64	PRE	0	96	47	99	98
LSD (P=0.05)			2	3	7	0	4

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

Treatment	Rate	Appl. time	SETFA 7/1/04	ABUTH 7/1/04	AMATA 7/1/04	CHEAL 7/1/04
	(lb/A)		---------- (% weed control) ---------			
Untreated	-	-	0	0	0	0
KIH-485	0.187	PRE	95	67	99	96
KIH-485	0.223	PRE	96	82	99	95
KIH-485	0.374	PRE	99	98	99	98
S-metolachlor&benoxacor	1.6	PRE	95	5	96	88
S-metolachlor&benoxacor	3.2	PRE	95	12	99	95
KIH-485&atrazine	0.186&1.19	PRE	96	85	99	98
KIH-485&atrazine	0.187&1.64	PRE	96	88	99	99
S-metolachlor&atrazine&benoxacor	1.26&1.64	PRE	93	45	96	95
LSD (P=0.05)			3	8	2	5