

Preemergence applications of KIH-485, s-metolachlor & CGA-154281, and s-metolachlor & atrazine & CGA-154281 for woolly cupgrass control in corn, Lewis, IA, 2003. Owen, Micheal D.K., James F. Lux, and Damian D. Franzenburg. The purpose of this study was to evaluate various preemergence applied rates of KIH-485 and s-metolachlor & CGA-154281 for crop phytotoxicity and weed control in corn. The soil was a Marshall and Exira silty clay loam with a pH 6.0 and 5.0% organic matter. The experimental design was a randomized complete block with three replications and plots were 10 by 25 ft. The 2002 crop was soybean. Tillage included a spring tandem disking and field cultivation. Fertilization included 120 lb/A actual N applied as anhydrous ammonia. Crop residue on the soil surface was 10% at planting. "DeKalb hybrid 33R79" corn was planted 1.5 inches deep on May 22, at 31,000 seeds/A in 30-inch rows. Preemergence (PRE) treatments were applied after planting at 20 gpa and 25 psi using flat fan nozzles. Conditions on May 22 were: air temperature 20 C, soil temperature at the 4-inch depth 17 C, 3 mph wind, 90% cloud cover, 63% relative humidity. Weed species and average number per ft² in the untreated control included: woolly cupgrass, zero to ten plants; common waterhemp, zero to three plants; common lambsquarters, zero to three plants. May rainfall included: 1.22, 0.23, 0.24, 0.01, 0.94, 0.27, 0.01, 0.67, 0.25, 0.24, 0.10, 0.10, 0.09, and 0.31 inches on May 4, 5, 6, 7, 8, 10, 12, 13, 14, 19, 24, 27, 28, and 29, respectively. Total rainfall for May was 4.68 inches. June rainfall included: 0.37, 0.15, 0.09, 0.15, 0.04, 0.65, 0.37, 0.07, 0.01, 0.06, 0.35, 0.07, and 0.05 inches on June 2, 5, 6, 7, 8, 9, 15, 17, 18, 22, 23, 25, 27, and 28, respectively. Total rainfall for June was 2.43 inches. July rainfall included: 1.43 inches and 0.72 inches from July 1 through 15 and 16 through 31, respectively. Total rainfall for July was 2.15 inches. Rainfall total for August was 0.68 inches.

There were no significant differences in corn stand between herbicide treatments when observed on June 12. Negligible corn injury was observed on June 4, 12 and 18 from various PRE applied rates of KIH-485 and s-metolachlor & CGA-154281. Woolly cupgrass control with PRE KIH-485 and s-metolachlor was rate responsive. Further, woolly cupgrass control was unacceptable at all evaluation dates. All treatments demonstrated excellent control of common waterhemp. At several evaluation dates, the highest rates of either KIH-485 or s-metolachlor & CGA-154281 provided slightly better common waterhemp control than the lowest rates. Common lambsquarters control was rate responsive for KIH-485 and s-metolachlor & CGA-154281 at all evaluation dates. Control surpassed 90% for only the 0.268 lb/A rate of KIH-485 when observed through June 18. KIH-485 plus atrazine and s-metolachlor & atrazine & CGA-154281 demonstrated excellent common lambsquarters control at all observation dates. (Dept. of Agronomy, Iowa State University, Ames).

Table 1. Preemergence applications of KIH-485, s-metolachlor & CGA-154281, and s-metolachlor & atrazine & CGA-154281 for woolly cupgrass control in corn, Lewis, IA, 2003 (Owen, Lux, and Franzenburg).

Treatment	Rate (lb/A)	Appl. time	Corn ^a stand	Corn injury		ERBVI	AMATA	CHEAL
				6/4/03	6/12/03	6/12/03	6/12/03	6/12/03
				----- (%) -----		----- (% weed control) -----		
Untreated	-	-	30	0	0	0	0	0
KIH-485	0.112	PRE	31	0	0	27	95	70
KIH-485	0.187	PRE	28	0	2	47	96	83
KIH-485	0.223	PRE	30	2	2	67	98	90
KIH-485	0.268	PRE	34	2	2	67	99	95
S-metolachlor&CGA-154281	0.955	PRE	30	2	2	48	95	72
S-metolachlor&CGA-154281	1.595	PRE	30	0	0	60	98	83
S-metolachlor&CGA-154281	1.91	PRE	33	0	0	72	98	82
KIH-485+atrazine	0.179+2.0	PRE	28	0	0	60	99	99
S-metolachlor&atrazine& CGA-154281	1.56&2.02	PRE	30	0	0	75	99	99
LSD (P=0.05)			6	3	3	9	3	11

^a Corn stand per 17.5 row feet on June 12.

Table 2. Preemergence applications of KIH-485, s-metolachlor & CGA-154281, and s-metolachlor & atrazine & CGA-154281 for woolly cupgrass control in corn, Lewis, IA, 2003 (Owen, Lux, and Franzenburg).

Treatment	Rate (lb/A)	Appl. time	Corn injury		ERBVI	AMATA	CHEAL	ERBVI	AMATA	CHEAL
			6/18/03	6/27/03	6/18/03	6/18/03	6/18/03	6/27/03	6/27/03	6/27/03
			----- (%) -----		----- (% weed control) -----					
Untreated	-	-	0	0	0	0	0	0	0	0
KIH-485	0.112	PRE	0	0	27	95	70	28	95	67
KIH-485	0.187	PRE	2	0	47	96	82	50	96	80
KIH-485	0.223	PRE	2	0	65	98	88	63	99	83
KIH-485	0.268	PRE	2	0	70	99	93	72	99	85
S-metolachlor&CGA-154281	0.955	PRE	2	2	47	93	65	45	93	62
S-metolachlor&CGA-154281	1.595	PRE	0	0	63	98	73	58	98	65
S-metolachlor&CGA-154281	1.91	PRE	0	0	73	98	75	67	98	72
KIH-485+atrazine	0.179+2.0	PRE	2	2	63	99	99	65	99	99
S-metolachlor&atrazine& CGA-154281	1.56&2.02	PRE	0	0	72	99	99	65	99	99
LSD (P=0.05)			4	2	10	4	12	15	4	15

Table 3. Preemergence applications of KIH-485, s-metolachlor & CGA-154281, and s-metolachlor & atrazine & CGA-154281 for woolly cupgrass control in corn, Lewis, IA, 2003 (Owen, Lux, and Franzenburg).

Treatment	Rate (lb/A)	Appl. time	Corn injury	ERBVI	AMATA	CHEAL
			7/11/03	7/12/03	7/13/03	7/14/03
			----- (%) -----	----- (% weed control) -----		
Untreated	-	-	0	0	0	0
KIH-485	0.112	PRE	0	23	91	60
KIH-485	0.187	PRE	0	45	96	78
KIH-485	0.223	PRE	0	62	99	78
KIH-485	0.268	PRE	0	70	99	83
S-metolachlor&CGA-154281	0.955	PRE	0	42	93	43
S-metolachlor&CGA-154281	1.595	PRE	0	52	96	47
S-metolachlor&CGA-154281	1.91	PRE	0	62	96	65
KIH-485+atrazine	0.179+2.0	PRE	0	60	99	99
S-metolachlor&atrazine& CGA-154281	1.56&2.02	PRE	0	60	98	99
LSD (P=0.05)			0	17	6	18