Preemergence efficacy of KIH-485 on yellow foxtail and giant foxtail in field corn. Trower,Timothy L. and Chris M. Boerboom. The purpose of this study was to investigate the preemergence efficacy of KIH-485 applied at rates of 0.122-0.447 lb/a for season-long, grass weed control in field corn. Weed species evaluated were yellow foxtail (SETLU) and common lambsquarters (CHEAL) at one site and giant foxtail (SETFA) and common ragweed (AMBEL) at another site. *S*-metolachlor&CGA-154281 and *s*-metolachlor&atrazine were the standards at both sites while acetochlor&MON 4660 was included only at the yellow foxtail site. Dekalb DKC 50-18 field corn was planted on April 28 at the yellow foxtail site and May 15 at the giant foxtail site at a depth of 1.75 inches in 30-inch rows and a population of 32,400 seeds per acre. A broadcast application of dicamba was made after the June 10 evaluation to eliminate broadleaf pressure. The study was conducted at the University of Wisconsin Arlington Research station on a Plano silt loam with a pH of 6.0 and 3.2% organic matter. Trial design was a randomized complete block with 10 by 25 foot plots replicated four times. Herbicide applications were made with a CO_2 backpack sprayer calibrated at 20 gpa and equipped with XR8003 nozzles. Application data were as follows:

Date	4/28/03	5/15/02
Treatment	PRE	PRE
Spray		
gpa	20	20
psi	23	23
mph	3	3
Temperature (F)		
air	71	61
soil	65	62
Soil moisture (surface)	dry	moist
Wind/direction (mph)	5-8, WNW	4, NNE
Relative humidity (%)	24	58
Cloud cover (%)	10	50
Corn		
leaf no.	--	--
height (inch)	--	--
Yellow foxtail		
leaf no.	--	not present
height (inch)	--	
Common lambsquarters		
leaf no.	--	not present
height (inch)	--	
Giant foxtail	not present	
leaf no.		--
height (inch)		--
Common ragweed	not present	
leaf no.		--
height (inch)		--

Differences in rainfall after application were observed between the two sites. The yellow foxtail site received rainfall amounts of 1.6, 2.0, and 0.6 inches at 7 day intervals (7, 14, and 21 days after application), respectively. Conversely, the giant foxtail location received rainfall amounts of 0.2, 0.2, and 0.6 inches at 7 day intervals after application. No crop injury with any treatment was observed at the giant foxtail location; however, stunting was observed at the site that received more rainfall after application. KIH-485 applied at 0.447 lb/a caused slight crop stunting 24 days after application. S-metolachlor&CGA-154281 was safe at all rates while acetochlor&MON 4660 caused increasing stunting ranging from 2% at 1.31 lb/a to 10% at 5.26 lb/a 14 days after application. Stunting was transitory and not evident 43 days after application.

KIH-485 exhibited a positive rate response with residual giant foxtail control 26 days after application, ranging from 33% control with 0.122 lb/a to 86% control with 0.447 lb/a. All *s*-metolachlor&CGA-154281

rates provided 48 to 96% giant foxtail control 26 days after application. Giant foxtail control with most rates of KIH-485 and the 3.8 lb/a rate of *s*-metolachlor&CGA-154281 remained fairly consistent from 26 to 85 days after application. No rate of *s*-metolachlor&CGA-154281 provided greater than 30% common ragweed suppression 26 days after application. KIH-485 exhibited a positive rate response with a maximum of 77% common ragweed control when applied at 0.447 lb/a and evaluated 26 days after application. Tank mixing KIH-485 and atrazine at 0.148 plus 1.0 lb/a provided equal giant foxtail and better common ragweed control than KIH-485 applied alone at 0.187 lb/a or the *s*-metolachlor&atrazine premix applied at 2.25 lb/a.

All treatments provided 99% or greater yellow foxtail control 24 days after application. Differences in residual yellow foxtail control were noted 43 days after application. Yellow foxtail control decreased with the 1.31 and 1.75 lb/a rates of acetochlor&MON 4660 and the 0.112 lb/a rate of KIH-485 while all rates of *s*-metolachlor&CGA-154281 provided 92% or greater control 43 days after application. Similar to the giant foxtail data, yellow foxtail control with KIH-485 remained fairly consistent from 43 to 102 days after application. At intermediate rates, KIH-485 provided greater residual yellow foxtail control followed by *s*-metolachlor&CGA-154281 and acetochlor&MON 4660. KIH-485 and acetochlor&MON 4660 provided similar common lambsquarters control 43 days after application. KIH-485 at 0.187-0.447 provided 81% or greater common lambsquarters compared to 73% and 87% control with acetochlor&MON 4660 at 2.63 and 5.26 lb/a, respectively. Use rates of *s*-metolachlor&CGA-154281 provided less residual common lambsquarters control than KIH-485 or acetochlor&MON 4660 at 26 days after application. No difference in residual yellow foxtail control was noted when tank mixing atrazine at 1.0 lb/a with KIH-485 at 0.148 lb/a compared to KIH-485 applied alone at 0.187 lb/a; however, the tank mixture provided better residual common lambsquarters control. No differences in weed control were observed between KIH-485 tank mixed with atrazine or the *s*-metolachlor&atrazine premix applied at 2.25 lb/a. (Department of Agronomy, University of Wisconsin-Madison).

Table 1. Preemergence efficacy of KIH-485 on yellow foxtail in field corn (Trower and Boerboom)

		Corn	Weed Control[a]					
		Stunting	SETLU				CHEAL	
Treatment	Rate	May 22	May 22	June 10	June 24	August 8	May 22	June 10
	(lb/a)	----(%)----	----------(%)----------				--------(%)--------	
Untreated		0	0	0	0	0	0	0
KIH-485	0.112	0	99	28	43	45	78	55
KIH-485	0.187	1	100	90	77	86	98	81
KIH-485	0.223	0	100	95	88	86	99	86
KIH-485	0.447	4	100	100	100	97	100	95
s-metolachlor&CGA-154281	0.95	0	100	92	40	45	65	13
s-metolachlor&CGA-154281	1.6	0	100	94	64	69	82	45
s-metolachlor&CGA-154281	1.9	1	100	96	60	75	84	55
s-metolachlor&CGA-154281	3.8	0	100	100	97	93	95	70
acetochlor&MON 4660	1.31	2	100	25	10	43	85	50
acetochlor&MON 4660	1.75	3	100	53	25	58	98	58
acetochlor&MON 4660	2.63	4	100	92	68	73	97	73
acetochlor&MON 4660	5.26	10	100	97	92	83	100	87
KIH-485 + atrazine	0.148+1.0	0	100	97	91	86	100	99
s-metolachlor&atrazine	1.25&1.0	0	100	95	88	82	100	98
LSD (P=0.1)		3	NS	12	20	12	8	12

[a]Weed control is a visual rating of biomass reduction ranging from 0-100, where 100 is complete weed control.

Table 2. Preemergence efficacy of KIH-485 on giant foxtail in field corn (Trower and Boerboom)

		Corn	Weed Control[a]					
		Stunting	SETFA				AMBEL	
Treatment	Rate	May 29	May 29	June 10	June 24	August 8	May 29	June 10
	(lb/a)	----(%)----	----------(%)----------				--------(%)--------	
Untreated		0	0	0	0	0	0	0
KIH-485	0.122	0	95	33	59	53	15	23
KIH-485	0.187	0	97	58	82	64	35	33
KIH-485	0.223	0	95	88	86	68	60	48
KIH-485	0.447	0	98	86	88	88	74	77
s-metolachlor&CGA-154281	0.95	0	94	48	40	30	30	10
s-metolachlor&CGA-154281	1.6	0	91	85	77	65	20	5
s-metolachlor&CGA-154281	1.9	0	98	93	82	73	20	5
s-metolachlor&CGA-154281	3.8	0	99	96	95	94	63	30
KIH-485 + atrazine	0.148+1.0	0	91	66	84	77	65	72
s-metolachlor&atrazine	1.25&1.0	0	95	94	87	75	56	49
LSD (P=0.1)		NS	6	11	12	17	21	13

[a]Weed control is a visual rating of biomass reduction ranging from 0-100, where 100 is complete weed control.