Fall and spring applied KIH-485, s-metolachlor & benoxacor, metolachlor, dimethenamid-P, flufenacet and others for weed control in no-tillage corn production, Ames, IA, 2005. Owen, Micheal D.K., James F. Lux, and Damian D. Franzenburg. The purpose of this study was to evaluate fall and spring applications of KIH-485, s-metolachlor & benoxacor, metolachlor, s-metolachlor, dimethenamid-P, acetochlor & dichlormid, and flufenacet for crop phytotoxicity and weed control in no-tillage corn production. 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. The study area was left un-tilled from the 2004 soybean cropping year. Fall (FALL) treatments were applied on November 16, 2004 at 20 gpa and 30 psi using flat fan nozzles. Conditions on November 16 were: air temperature 16 C, soil temperature at the 4-inch depth 8 C, 7 mph wind, 100% cloud cover, 75% relative humidity. No weeds were present. Fertilization included 125 lb/A actual N applied in April as urea. Crop residue on the soil surface was 30% at planting. "Garst hybrid 8575" corn was planted 1.5 inches deep on April 29, at 30,200 seeds/A in 30-inch rows. Spring (SPRG) treatments were applied following planting at 20 gpa and 30 psi using flat fan nozzles. Conditions on April 29 were: air temperature 12 C, soil temperature at the 4-inch depth 11 C, 8 mph wind, 70% cloud cover, 35% relative humidity. Weed species occurring in the untreated control included: giant foxtail, light to medium pressure; velvetleaf, common waterhemp and common lambsquarters, light pressure. Dicamba plus 28%N was applied postemergence to the entire study on June 1 at 0.38 lb/A plus 2.0 qt/A, respectively, to manage broadleaf weeds. 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.

There were no significant corn stand differences between treatments. None of the treatments caused corn injury. All FALL 2004 applied treatments demonstrated excellent (> 90%) giant foxtail and common waterhemp control when observed on April 29, 2005. However, only KIH-485 provided excellent velvetleaf and common lambsquarters control. Acetochlor & dichlormid and flufenacet provided at least 93% common lambsquarters control, but less than 80% velvetleaf control. Metolachlor and s-metolachlor treatments provided 60 to 83 % common lambsquarters control on April 29. Dimethenamid-P provided 78% common lambsquarters control and the remaining FALL treatments gave at least 93% control.

On May 25, all treatments provided excellent giant foxtail and common waterhemp control, whether applied FALL or SPRG. KIH-485 demonstrated 70 to 80% velvetleaf control with both application timings; however no other treatments provided more than 53% control. KIH-485 gave at least 92% control of common lambsquarters, regardless of application time; all other treatments provided significantly greater common lambsquarters control for SPRG over FALL applications.

Giant foxtail control on June 27 ranged from 80 to 90% for all treatments and timings, except for FALL applied acetochlor & dichlormid and flufenacet with 65 and 63% control, respectively. When observed on September 23, giant foxtail control was similar to that observed on June 27 for most treatments. (Dept. of Agronomy, Iowa State University, Ames).

Table. Fall and spring applied KIH-485, s-metolachlor & benoxacor, metolachlor, dimethenamid-P, flufenacet and others for weed control in no-tilllage corn production, Ames, IA, 2005 (Owen, Lux, and Franzenburg).

Treatment	Rate	Appl. time	Corn[a] stand	SETFA 4/29/05	ABUTH 4/29/05	AMATA 4/29/05	CHEAL 4/29/05	Corn Injury 5/25/05	SETFA 5/25/05	ABUTH 5/25/05	AMATA 5/25/05	CHEAL 5/25/05	SETFA 6/27/05	SETFA 9/23/05
	(lb/A)			---------- (% weed control) ----------				---- (%) ----	---------- (% weed control) ----------					
Untreated	-	-	27	0	0	0	0	0	0	0	0	0	0	0
KIH-485	0.223	FALL	28	99	90	99	98	0	93	70	98	92	83	82
KIH-485+ glyphosate[b]	0.223+ 0.77	SPRG	29	0	0	0	0	0	99	75	99	95	85	85
KIH-485	0.268	FALL	28	99	96	99	99	0	96	80	99	95	87	87
KIH-485+ glyphosate	0.268+ 0.77	SPRG	27	0	0	0	0	0	98	75	99	95	90	90
S-metolachlor&benoxacor	1.91	FALL	29	99	47	99	83	0	93	35	98	65	80	77
S-metolachlor&benoxacor+ glyphosate	1.91+ 0.77	SPRG	28	0	0	0	0	0	96	40	99	95	85	82
Metolachlor	1.95	FALL	27	99	50	99	60	0	93	37	95	50	82	78
Metolachlor+ glyphosate	1.95+ 0.77	SPRG	27	0	0	0	0	0	95	37	99	95	85	85
S-metolachlor	1.95	FALL	30	99	37	99	60	0	92	32	93	38	80	77
S-metolachlor+ glyphosate	1.95+ 0.77	SPRG	28	0	0	0	0	0	95	37	98	92	88	85
Dimethenamid-P	0.98	FALL	28	99	52	99	78	0	95	37	93	63	83	82
Dimethenamid-P+ glyphosate	0.98+ 0.77	SPRG	29	0	0	0	0	0	95	43	99	92	85	82
Acetochlor&dichlormid	2.4	FALL	28	99	77	99	95	0	93	43	95	80	65	65
Acetochlor&dichlormid+ glyphosate	2.4+ 0.77	SPRG	27	0	0	0	0	0	96	53	99	95	88	87
Flufenacet	0.78	FALL	28	99	67	99	93	0	95	43	95	80	63	63
Flufenacet+ glyphosate	0.78+ 0.77	SPRG	29	0	0	0	0	0	93	42	98	93	70	72
LSD (P=0.05)			3	0	13	0	8	0	4	10	4	9	10	11

[a] Corn stand per 17.5 row feet on July 29.

[b] Glyphosate rate in lb ae/A.