Weed control with Imperium, Stalwart, and KIH-485 in corn at Lamberton, MN in 2006. Getting, Jodie K. The objective of this study was to evaluate Imperium, Stalwart, and KIH-485 for annual grass and annual broadleaf weed control in corn. This study was conducted on a Normania loam soil containing 4.2% organic matter, pH 6.5 and soil test P and K levels of 34 and 370 lb/A, respectively. A randomized complete block design with four replications and a plot size of 10 by 30 ft was used. The site was planted to oats in 2005 and was fall chiseled. The area was fertilized with 150-100-100 on April 14, 2006. On May 17, 2006 preplant incorporated treatments were applied and tilled twice with a field cultivator set to till 3 to 4 inches deep and operated at 5 to 6 mph. The same day, Pioneer '38H69' glufosinate resistant/glyphosate resistant field corn was planted in 30-inch rows at a seeding rate of 33,000 seeds/A. Tefluthrin (Force) was applied at 5.0 oz/1000 row feet in a T-band for the control of northern corn rootworm larvae. All treatments were applied with a tractor-mounted sprayer delivering 20 gpa at a pressure of 40 psi. The sprayer was equipped with 8002 flat-fan nozzles spaced 15 inches apart on the boom. Application dates, environmental conditions, plant sizes and rainfall data are listed below:

Date	May 17	May 18	May 31	June 5
Treatment	PPI	PRE	POST I	POST II
Temperature (F)				
air	64	48	63	70
soil (4 inch)	52	50	72	72
Relative humidity (%)	52	60	52	60
Wind (mph)	NW 12	calm	calm	S 10
Sky	cloudy	cloudy	clear	clear
Soil moisture	moist	dry	dry	dry
Corn				
leaf no.	-	-	V2	V4
height (inch)	-	-	4	7
Yellow foxtail				
leaf no.	-	-	1 to 3	2 to 4
height (inch)	-	-	1 to 2	2 to 4
no./ft^2	-	-	31	24
Common lambsquarters				
leaf no.	-	-	2 to 3	3 to 4
height (inch)	-	-	1 to 2	2 to 4
no./ft^2	-	-	1	2
Tall waterhemp				
leaf no.	-	-	1 to 2	2 to 4
height (inch)	-	-	0.5 to 1.0	1 to 3
no./ft^2	-	-	2	6
Rainfall after application (inch)				
1 week	0.10	0.31	4.35	5.35
2 week	0.21	0.09	1.09	2.38
3 week	4.35	4.26	2.84	1.39

May precipitation totaled 2.44 inches compared to the long-term average of 3.34 inches. Above normal precipitation in June resulted in 9.39 inches compared to the long-term average of 3.77 inches. The trial received 4.26 inches of rain and hail 1 day after POST II application. The subsoil moisture helped carry the crop through a drier than normal July. The growing degree days were slightly below average for May and June but above average for July. The predominate weed species were yellow foxtail, common lambsquarters, and tall waterhemp. None of the herbicide treatments caused visible crop injury. The PRE treatments received only 0.40 inches of rain within the first two weeks of application. As a result, Harness applied PPI provided greater weed control prior to POST II application than Harness applied PRE treatment. On June 5, prior to POST II herbicide application, Imperium applied PPI at 3.5, 4.5, 5, and 6 pt provided 94, 97, 97, and 98% yellow foxtail control, respectively. Harness at 1.5 pt and 2.5 pt gave 95% control. Harness applied PRE at 2.5 pt had 88% control. KIH-485 applied PRE at all rates provided 53 to 76% control. Imperium and Harness applied PPI gave 98% or greater common lambsquarters and tall waterhemp control. Harness applied PRE resulted in 90% control. KIH-485 provided 50 to 83% and 45 to 68% common lambsquarters control and tall waterhemp control, respectively. POST I treatments, Stalwart C + Roundup Original, Stalwart C + Roundup Original + Clarity, KIH-485 + Roundup Weathermax, Dual II Magnum + Roundup Weathermax, and Harness + Roundup Weathermax had 97% or greater control of yellow foxtail, common lambsquarters, and tall waterhemp. In August, KIH-48 applied alone gave 53 to 74% yellow foxtail control, 40 to 71% common lambsquarters control, and 50 to 81% tall waterhemp control. Harness alone gave 78, 79, and 88% control of yellow foxtail, common lambsquarters, and tall waterhemp, respectively. All other treatments had 88% or greater control of these weeds. (Southwest Research and Outreach Center, University of Minnesota, Lamberton).

Table. Weed control with Imperium, Stalwart, and KIH-485 in corn at Lamberton, MN in 2006 (Getting).

		Yellow foxtail				Common lambsquarters				Tall waterhem				
Treatment[a]	Rate	6/5	6/19	7/3	8/23	6/5	6/19	7/3	8/23	6/5	6/19	7/3	8/23	Yield[b]
Preplant incorporate	(oz/A, pt/A, qt/A, lb/A or %)	----------(% control)----------												(bu/A)
Imperium	5 pt	97	95	94	94	100	99	99	98	100	100	100	97	213
Imperium	6 pt	98	96	95	95	99	98	99	97	100	99	99	97	208
Harness	2.5 pt	95	92	93	92	100	100	99	97	100	100	100	95	204
Preplant incorporate/POST II (3 to 4-inch weeds)														
Imperium / Roundup Weathermax + AMS	3.5 pt / 22 oz + 2.5 lb	94	97	97	96	100	100	100	97	100	100	100	98	206
Imperium / Roundup Weathermax + AMS	4.5 pt / 22 oz + 2.5 lb	97	97	96	97	100	100	100	97	100	100	100	97	209
Harness / Roundup Weathermax + AMS	1.5 pt / 22 oz + 2.5 lb	95	94	90	88	100	100	100	94	98	100	100	96	215
Preemergence														
Harness	2.5 pt	88	83	82	78	90	76	75	79	90	90	88	88	215
KIH-485	4.2 oz	53	53	58	53	50	41	33	40	45	53	43	50	191
KIH-485	8.4 oz	59	73	75	74	83	75	71	71	68	84	80	81	197
Preemergence/POST II (3 to 4-inch weeds)														
KIH-485 / Roundup Weathermax + AMS	2.1 oz / 22 oz + 2.5 lb	70	95	95	96	69	96	96	97	58	100	100	98	210
KIH-485 / Roundup Weathermax + AMS	3.16 oz / 22 oz + 2.5 lb	76	96	96	97	66	99	98	97	53	100	98	98	209
KIH-485 / Roundup Weathermax + AMS	4.2 oz / 22 oz + 2.5 lb	71	97	96	97	75	100	100	98	50	100	100	98	219
POST I (1 to 3-inch weeds)														
Stalwart C + Roundup Original + AMS	1.25 pt + 24 oz + 2.5 lb	98	95	94	93	100	98	97	89	100	98	94	94	210
Stalwart C + Roundup Original + Clarity + NIS + AMS	1.25 pt + 24 oz + 6oz + 0.25% + 2.5 lb	98	93	93	90	100	100	98	94	100	100	95	93	212
KIH-485 + Roundup Weathermax + AMS	3.16 oz + 22 oz + 2.5 lb	98	96	95	94	100	99	98	97	100	100	100	97	219
Dual II Magnum + Roundup Weathermax + AMS	1.25 pt + 22 oz + 2.5 lb	98	95	95	93	100	99	99	97	100	100	100	97	214
Harness + Roundup Weathermax + AMS	1.25 pt + 22 oz + 2.5 lb	97	94	94	92	100	100	99	97	100	100	99	95	206
Check														
Weedy check		0	0	0	0	0	0	0	0	0	0	0	0	142
	LSD (0.10)	8.1	6.0	7.0	6.3	8.9	7.9	8.8	5.4	7.4	5.1	6.3	5.4	13.3

[a] NIS = nonionic surfactant; AMS = spray grade ammonium sulfate.

[b] Yield adjusted to 15.5% moisture.