

Herbicide performance in corn at Lamberton, MN in 2005. Getting, Jodie K., Jeffrey L. Gunsolus, and Thomas R. Hoverstad. The objective of this study was to evaluate corn herbicide combinations for annual grass and annual broadleaf weed control in corn. This study was conducted on a Normania loam soil containing 4.7% organic matter, pH 6.3 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 2004 and was fall chiseled. The area was fertilized with 180 lb/A of nitrogen as urea. On May 4, 2005, Pioneer '38H69' glufosinate resistant/glyphosate resistant field corn was planted in 30-inch rows at a seeding rate of 33,000 seeds/A. Cyfluthrin + tebufospyr (Aztec 2.1G) was applied at 6.7 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 5	June 2	June 6	June 9
Treatment	PRE	POST I	POST II	POST III
Temperature (F)				
air	57	61	64	63
soil (4 inch)	50	60	70	66
Relative humidity (%)	55	77	78	64
Wind (mph)	SW 10	S 5	calm	calm
Sky	clear	cloudy	clear	p. cloudy
Soil moisture	dry	moist	moist	moist
Corn				
leaf no.	-	V2	V3	V4
height (inch)	-	3	4	6
Yellow foxtail				
leaf no.	-	1 to 2	1 to 3	2 to 4
height (inch)	-	0.5 to 1	1 to 3	2 to 4
no./ft <sup>2</sup>	-	59	73	74
Common lambsquarters				
leaf no.	-	1 to 3	2 to 5	2 to 5
height (inch)	-	0.25 to 0.5	1 to 2	2 to 3
no./ft <sup>2</sup>	-	7	6	6
Redroot pigweed				
leaf no.	-	1 to 2	1 to 3	2 to 3
height (inch)	-	0.25 to 0.5	1 to 2	2 to 3
no./ft <sup>2</sup>	-	3	2	1
Rainfall after application (inch)				
1 week	3.65	1.50	1.82	1.25
2 week	1.83	1.25	0.32	0.08
3 week	0.44	0.08	0.27	0.80

A prolonged period of rain with measurable precipitation occurred on 13 out of the first 15 days after planting. The rainfall amount in this period of time resulted in 5.48 inches of rain and corn plant stands in the trial area were reduced because of poor emergence. Plants were counted in each plot to determine if herbicide was the cause of poor emergence. No differences were noted between the plots that had a soil applied herbicide and the plots that were untreated. As a result of uneven corn stand, corn yield was not taken and the lack of a uniform crop canopy allowed yellow foxtail to fill in the gaps. None of the herbicide treatments caused visible crop injury. On June 7, prior to POST III application, Basis + atrazine applied preemergence gave 65% yellow foxtail control and 93% common lambsquarters control. Reduced rates of soil applied herbicide provided good yellow foxtail and common lambsquarters control. Define applied at 12 oz/A resulted in 83 to 88% control of yellow foxtail and 81 to 85 % common lambsquarters control. Harness at 1.25 pint/A, Outlook at 12 oz/A, Cinch at 1 pint/A, Keystone LA at 2.2 pint/A gave 88 to 90% yellow foxtail control and 83 to 95% common lambsquarters control. The full rates of Keystone LA + Hornet, Lumax, Surpass, KIH-485, Dual II Magnum, and Outlook gave 91 to 97% yellow foxtail control and 90 to 98% common lambsquarters control. All soil applied herbicides had 94% or greater redroot pigweed control. On August 29, yellow foxtail control ranged from 75 to 95%. All herbicide treatments gave 97% or greater common lambsquarters control and 95% or greater redroot pigweed control. (Southwest Research and Outreach Center, University of Minnesota, Lamberton).

Table. Herbicide performance in corn at Lamberton, MN in 2005 (Getting, Gunsolus and Hoverstad).

Treatment <sup>a</sup>	Rate (oz/A, pt/A, lb/A or %)	stand <sup>b</sup> (plants/A)	Yellow foxtail				Common lambsquarters				Redroot pigweed			
			6/7	6/23	7/5	8/29	6/7	6/23	7/5	8/29	6/7	6/23	7/5	8/29
<u>Preemergence</u>			-----(% control)-----											
Keystone LA + Hornet	4.4 pt + 4 oz	16698	97	92	89	83	98	100	98	97	98	100	98	98
Lumax	6 pt	17497	91	88	84	77	98	99	98	98	98	99	98	98
<u>Preemergence/POST III (4-collar corn)</u>														
Surpass / Hornet + Callisto	2.75 pt / 3 oz + 0.75 oz	17351	97	98	95	92	98	100	98	98	98	100	98	98
+ Atrazine + COC + AMS	+ 0.25 lb + 1% + 3 qt													
KIH-485 / Hornet + Callisto	8 oz / 3 oz + 0.75 oz	16625	93	93	93	91	93	99	98	98	97	99	98	97
+ Atrazine + COC + AMS	+ 0.25 lb + 0.25% + 1% + 3 qt													
Outlook / Distinct + Atrazine	21 oz / 4 oz + 0.5 lb	14012	91	97	94	89	91	100	98	98	98	100	98	98
+ NIS + AMS	+ 0.25% + 3 qt													
Define / Liberty + Atrazine + AMS	12 oz / 32 oz + 0.5 lb + 3.5 qt	14230	88	95	93	86	85	100	98	98	97	100	98	98
Define / Option + Distinct	12 oz / 1.5 oz + 2 oz	19239	83	95	94	92	81	100	98	98	94	100	98	97
+ MSO + 28%N	+ 1.5 pt + 3 pt													
Cinch / Steadfast + Callisto	1 pt / 0.75 oz + 2 oz	15028	89	98	95	88	83	100	98	98	97	100	98	98
+ Atrazine + COC + AMS	+ 0.5 lb + 1% + 2.35 qt													
Dual II Magnum / Callisto + Atrazine	2 pt / 3 oz + 0.5 lb	18150	93	97	95	92	90	100	98	98	98	100	98	98
+ COC + 28%N	+ 1% + 2.5%													
Outlook / Aim + Atrazine	21 oz / 0.5 oz + 0.5 lb	18150	97	98	96	92	95	100	98	98	98	100	98	97
+ Clarity + NIS	+ 3 oz + 0.25%													
Harness / Roundup Weathermax + AMS	1.25 pt / 22 oz + 3 qt	15899	88	98	92	84	92	100	98	97	98	100	98	98
Keystone LA / Glyphomax XRT + AMS	2.2 pt / 24 oz + 3 qt	15899	90	99	92	87	95	100	98	98	98	100	98	98
Outlook / Distinct	12 oz / 3 oz	17860	89	97	94	89	85	100	98	98	98	100	98	97
+ Roundup Weathermax + NIS + AMS	+ 11 oz + 0.25% + 3 qt													
Basis + Atrazine / Roundup Original Max	0.4 oz + 0.375 lb / 22 oz	15028	65	95	88	79	93	100	98	98	98	100	97	95
<u>Checks</u>														
Weedy check		17642	0	0	0	0	0	0	0	0	0	0	0	0
Weed-free		16916	100	100	100	100	100	100	100	100	100	100	100	100
<u>POST I (2-collar corn)</u>														
Basis + Lumax + NIS	0.33 oz + 3.5 pt + 0.25%	17787	98	97	95	94	98	100	98	98	98	100	98	98
Lumax + Touchdown Total + AMS	3 pt + 24 oz + 2 qt	16190	98	99	95	92	98	100	98	98	98	100	98	97
Lumax + Liberty + AMS	3 pt + 20 oz + 2 qt	18295	98	98	96	95	98	100	98	98	98	100	98	97
Steadfast + Lumax + NIS	0.75 oz + 2 pt + 0.25%	17714	92	94	93	88	98	100	98	98	98	100	98	97
<u>POST II (3-collar corn)</u>														
Option + Callisto + MSO + 28%N	1.5 oz + 1.5 oz + 1.5 pt + 1.5 qt	16916	-	89	81	75	-	100	98	98	-	100	98	98
Steadfast + Callisto + Atrazine	0.75 oz + 2 oz + 0.5 lb	20183	-	97	89	86	-	100	98	98	-	100	98	98
+ COC + AMS	+ 1% + 2.35 qt													
E9636 + Roundup Original Max + AMS	1 oz + 22 oz + 2.35 qt	18731	-	95	89	84	-	100	98	98	-	100	98	96
E9636 + Roundup Original Max	1 oz + 22 oz	16262	-	98	92	85	-	100	98	98	-	100	98	97
+ Atrazine + AMS	+ 0.25 lb + 2.35 qt													
	LSD (0.10)	ns	6.0	3.2	3.4	6.4	5.2	0.7	0.2	0.5	1.8	0.7	0.4	1.4

<sup>a</sup> COC = crop oil concentrate; MSO = methylated seed oil; NIS = nonionic surfactant; 28%N = an aqueous solution of urea and ammonium nitrate; AMS = liquid spray grade ammonium sulfate.

<sup>b</sup> Number of plants/A on June 1.