

Herbicide performance in corn at Lamberton, MN in 2006. 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 4.2% 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, Pioneer '38H65' 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 18	May 30	June 3
Treatment	PRE	POST I	POST II
Temperature (F)			
air	48	82	64
soil (4 inch)	50	82	72
Relative humidity (%)	60	20	60
Wind (mph)	calm	N 8	SE 12
Sky	cloudy	clear	clear
Soil moisture	dry	dry	dry
Corn			
leaf no.	-	V2	V3
height (inch)	-	3	6
Yellow foxtail			
leaf no.	-	1 to 2	2 to 4
height (inch)	-	1 to 1.5	2 to 4
no./ft ²	-	28	25
Tall waterhemp			
leaf no.	-	1 to 2	2 to 4
height (inch)	-	0.5 to 1.0	1 to 3
no./ft ²	-	8	9
Rainfall after application (inch)			
1 week	0.31	4.35	4.26
2 week	0.09	1.09	1.63
3 week	4.26	2.84	2.30

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 3 days after POST II application. As a result, there was a heavy flush of new emerging weeds. The growing degree days were slightly below average for May and June but above average for July. The population of common lambsquarters was relatively low and all treatments provided excellent control at all rating dates (data not shown). The predominate weed species were yellow foxtail 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, the treatments with a reduced rate of soil applied herbicide had some weed escapes prior to POST application. In August, all herbicide treatments had 83% or greater yellow foxtail control and 86% or greater tall waterhemp control. All of the treatment corn yields were statistically equal to the weed-free check. (Southwest Research and Outreach Center, University of Minnesota, Lamberton).

Table. Herbicide performance in corn at Lamberton, MN in 2006 (Getting, Gunsolus and Hoverstad).

Treatment ^a	Rate	Yellow foxtail				Tall waterhemp				Yield ^b (bu/A)
		6/3	6/19	7/3	8/23	6/3	6/19	7/3	8/23	
<u>Preemergence</u>	(oz/A, pt/A, qt/A, lb/A or %)	-----(% control)-----								
Keystone LA + Hornet	4.4 pt + 4 oz	94	87	83	85	97	98	96	96	218
<u>Preemergence/POST II (4-collar corn)</u>										
Surpass / Hornet + Callisto	2.75 pt / 3 oz + 0.75 oz	88	90	88	88	94	100	98	98	211
+ Atrazine + COC + AMS	+ 8 oz + 1% + 3 qt									
Outlook / BAS 799 + Atrazine	21 oz / 5 oz + 16 oz	90	89	85	83	88	99	97	96	221
+ NIS + AMS	+ 0.25% + 3 qt									
Define / Liberty + Atrazine + AMS	12 oz / 32 oz + 16 oz + 3.5 qt	84	95	92	91	76	100	95	92	220
Define / Option + Distinct	12 oz / 1.5 oz + 2 oz	75	96	93	91	76	100	97	95	219
+ MSO + 28%N	+ 1.5 pt + 1.5 qt									
Define / AE 0172747 + MSO + 28%N	12 oz / 3 oz + 1.5 pt + 1.5 qt	80	98	94	93	81	100	97	94	218
Cinch / Steadfast + Callisto	1 pt / 0.75 oz + 2 oz	79	97	95	94	66	100	97	96	223
+ Atrazine + COC + AMS	+ 16 oz + 1% + 3 qt									
Dual II Magnum / Callisto + Atrazine	1 qt / 3 oz + 16 oz	70	90	87	84	75	100	98	98	216
+ COC + 28%N	+ 1% + 2.5%									
Outlook / Aim + Atrazine	21 oz / 0.5 oz + 16 oz	80	87	86	83	93	100	98	97	206
+ Clarity + NIS	+ 3 oz + 0.25%									
Harness / Roundup Weathermax + AMS	1.25 pt / 22 oz + 3 qt	88	97	93	93	95	100	97	96	211
Lumax / Touchdown Total + AMS	3 pt / 24 oz + 3 qt	90	97	94	95	93	100	99	98	212
Lumax / Liberty + AMS	3 pt + 24 oz + 3 qt	84	92	89	89	91	100	98	97	216
Keystone LA / Glyphomax XRT + AMS	2.2 pt / 24 oz + 3 qt	84	97	95	93	93	100	98	97	214
Outlook / Roundup Weathermax	12 oz / 14 oz	81	95	92	91	89	100	96	92	216
+ BAS 799 + AMS	+ 2.5 oz + 3 qt									
Dual II Magnum / Touchdown Total	1 pt / 24 oz	80	97	94	93	83	100	98	96	212
+ Callisto + AMS	+ 3 oz + 3 qt									
Resolve + Atrazine /	1 oz + 16 oz /	71	94	91	90	75	100	93	90	207
Roundup Original Max + NIS + AMS	22 oz + 0.25% + 3 qt									
GF 1834 / Glyphomax XRT + AMS	1.75 pt / 24 oz + 3 qt	90	97	96	94	94	100	100	97	210
<u>Checks</u>										
Weedy check		0	0	0	0	0	0	0	0	152
Weed-free		100	100	100	100	100	100	100	100	216
<u>POST I (2-collar corn)</u>										
Accent + Harmony GT + Lumax + NIS	0.45 oz + 0.05 oz + 2 pt + 0.25%	-	93	89	89	-	100	98	95	206
Lumax + Touchdown Total + AMS	3 pt + 24 oz + 3 qt	-	95	93	92	-	100	98	98	221
Lumax + Liberty + AMS	3 pt + 20 oz + 3 qt	-	95	93	92	-	100	98	98	215
<u>POST II (4-collar corn)</u>										
Steadfast + Callisto + Atrazine	0.75 oz + 2 oz + 16 oz	-	94	89	84	-	100	96	94	220
+ COC + AMS	+ 1% + 3 qt									
Resolve + Atrazine	1 oz + 16 oz	-	94	87	84	-	100	90	86	218
+ Roundup Original Max + NIS + AMS	+ 22 oz + 0.25 % + 3 qt									
	LSD (0.10)	9.1	3.3	4.6	5.4	10.4	0.8	3.0	4.2	11.7

^a 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.

^b Yield adjusted to 15.5% moisture.