

Corn Weed Management at Lamberton, MN in 2015.

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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 Ves Loam soil containing 4.1% organic matter, pH 5.9 and soil test P and K levels of 15 and 150 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 soybeans in 2014 and fall tillage was done using a mulch ripper. The area was fertilized with 150 lbs of nitrogen as anhydrous ammonia in the spring of 2015. On April 29, 2015, Pioneer 'P9834AMX' glufosinate/glyphosate resistant field corn was planted in 30-inch rows at a seeding rate of 34,000 seeds/A. Herbicide treatments were applied with a tractor-mounted compressed air sprayer delivering 15 gpa at a pressure of 35 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	April 30	May 20	May 28	June 16	June 25
Treatment	PRE	POST I	Post II	Post III	Post IIII
Temperature (F)					
air	65	49	72	65	73
soil (4 inch)	52	56	62	70	78
Relative humidity (%)	24	52	55	57	66
Wind (mph)	ESE 6	WNW 3	SSW 13	E 7	NNW 7
Sky	Clear	Cloudy	P. Cloudy	P. Cloudy	Clear
Soil moisture	Dry	Wet	Moist	Dry	Moist
Corn					
leaf no.	-	V1	V2	V5	V8
height (inch)	-	4"	8"	22"	44"
Yellow foxtail					
leaf no.	-	2 to 3	1 to 2	1 to 4	1 to 7
height (inch)	-	.25 – 1	.5 to 3	1 to 10	1 to 24
no./ft ²	-	99	136	149	91
Common lambsquarters					
leaf no.	-	2 to 3	1 to 2	2 to 6	1 to 8
height (inch)	-	0.25 to 1	.5 to 2	1 to 8	1 to 15
no./ft ²	-	2	25	20	14
Tall waterhemp					
leaf no.	-	2 to 3	1 to 2	1 to 4	1 to 7
height (inch)	-	.25 to 1	.5 to 2	1 to 3	1 to 13
no./ft ²	-	3	19	4	1
Rainfall after application (inch)					
1 week	0.21	0.68	2.82	3.10	0.20
2 week	1.52	2.05	0.82	0.17	1.30
3 week	1.02	1.26	0.23	1.33	0.12

(Southwest Research and Outreach Center, University of Minnesota, Lamberton).

Yield, herbicide rates and weed control are listed in Table 1.

Yellow foxtail was the predominate weed species. Breakfree NXT lite and GF-3471 @ 3 qts provided the highest level of PRE grass control. Accuron @ 3 pt and Corvus @ 5.6 oz provide the lowest yellow foxtail control. Harness @ 1.25 & 2.25 pts and Dual II Magnum @ 2 pts provided lower lambsquarters control than the best performing PRE treatments. All PRE treatments provided excellent initial waterhemp control. Obvious herbicide injury symptoms were not observed in this trial. All herbicide programs yielded better than the untreated check. Total post treatment of Realm Q + Abundit Extra yielded less than the highest yielding treatments.

Table 1. Herbicide performance in corn at Lamberton, MN in 2015 (Vollmer, Gunsolus and Potter).

Treatment ^a	Rate (oz/A, pt/A, qt/A or % v/v)	Yellow foxtail				Common Lambsquarters				Tall Waterhemp				Yield (bu/A)
		May 28	Jun 16	Jun 25	Oct 13	May 28	Jun 16	Jun 25	Oct 13	May 28	Jun 16	Jun 25	Oct 13	
Preemergence		-----(% control)-----												
Acuron	3 pt	81 hi	85 efg	81 j	18 h	96 ab	98 a-d	97 c	99 b	99 bc	99 b	98 b	99 b	229 abc
Preemergence / POST II (4" weeds)														
Harness / Diflexx + Roundup Powermax + Destiny HC + AMS	1.25 pt / 10 oz + 28 oz + 0.5% v/v + 2 qt	90 c-f	85 efg	83 ij	81 def	92 bcd	88 ef	99 ab	99 b	97 d	99 b	99 ab	99 b	225 bc
Corvus / Liberty + Atrazine + AMS	5.6 oz / 22 oz + 16 oz + 2 qt	78 i	88 c-f	96 ab	96 abc	99 ab	99 ab	99 ab	99 b	99 b	99 b	99 ab	99 b	229 abc
Harness / Laudis Flexx + Roundup Powermax + Destiny HC + AMS	1.25 pt / 32 oz + 28 oz + 0.5% v/v + 2 qt	91 b-f	85 efg	91 c-f	88 b-e	88 cde	91 c-f	99 ab	99 b	98 c	99 b	99 ab	99 b	225 bc
Breakfree / Realm Q (rimsulfuron + mesotrione + isoxadifen- ethyl) + Abundit Extra + NIS + AMS	2 pt / (1.2 oz + 2.5 oz + 0.3 oz) + 32 oz + 0.25% v/v + 3 qt	91 b-f	91 b-e	90 d-g	88 b-e	93 bcd	93 a-f	99 ab	99 b	99 bc	99 b	99 ab	99 b	232 ab
Breakfree NXT Lite / Instigate (rimsulfuron + mesotrione) + Abundit Extra+ AMS	1.75 qt / (1 oz + 5 oz) + 32 oz + 3 qt	95 ab	95 a-d	84 hij	76 ef	99 ab	99 ab	99 ab	99 b	99 b	99 b	99 ab	99 b	230 abc
Harness / Roundup Powermax + Status + AMS	2.25 pt / 32 oz + 5 oz + 3 qt	94 bc	93 bcd	93 b-e	86 b-e	84 e	91 def	99 ab	99 b	99 b	99 b	99 ab	99 b	228 bc
TripleFlexx II / Impact + Roundup Powermax + Destiny HC + AMS	2 pt / 0.75 oz + 32 oz + 0.5% v/v + 3 qt	93 bcd	88 def	86 ghi	80 def	96 ab	98 a-d	99 ab	99 b	99 b	99 b	99 ab	99 b	232 ab
Dual II Magnum / Halex GT + NorthStar + NIS + AMS	2 pt / 3.6 pt + 3 oz + 0.25% v/v + 3 qt	88 fg	94 a-d	95 bc	96 abc	75 f	73 g	99 b	99 b	99 bc	99 c	99 ab	99 c	236 ab
GF-3471 / Durango DMA + AMS	3 qt / 32 oz + 3 qt	95 ab	95 abc	90 efg	83 def	99 ab	99 ab	99 ab	99 b	99 b	99 b	99 ab	99 b	227 bc
GF-3471 / GF-3471 + Durango DMA + AMS	1.5 qt / 1.25 qt + 32 oz + 3 qt	92 b-f	95 efg	94 bcd	97 abc	99 ab	99 abc	99 ab	99 b	99 b	99 b	99 ab	99 b	228 bc
Surestart II / Durango DMA + AMS	2 pt / 32 oz + 3 qt	91 b-f	79 g	88 fgh	83 def	96 abc	85 f	99 ab	99 b	99 bc	99 b	99 ab	99 b	239 ab
Surestart II / Durango DMA + AMS	2.5 pt / 32 oz + 3 qt	94 bcd	91 b-e	84 hij	80 def	99 ab	99 abc	99 ab	98 d	99 bc	99 b	99 ab	99 b	234 ab
Verdict / Armezon + Outlook + Roundup Powermax + NIS + AMS	18 oz / 0.5 oz + 12 oz + 22 oz + 0.25% v/v + 3 qt	89 def	91 b-e	96 ab	98 ab	97 ab	99 abc	99 ab	99 bcd	99 b	99 b	99 ab	99 b	235 ab
Verdict / Roundup Powermax + Status + NIS + AMS	16 oz / 32 oz + 5 oz + 0.25% v/v + 3 qt	88 efg	89 c-f	89 efg	85 cde	98 ab	98 a-d	99 ab	99 b	99 b	99 b	99 ab	99 b	234 ab
Anthem / Solstice + Roundup Powermax + AMS	8 oz / 3 oz + 32 oz + 3 qt	83 gh	92 b-e	93 b-f	91 a-d	92 bcd	92 b-f	99 ab	99 b	99 b	99 b	99 ab	99 b	236 ab
Harness / Impact + Roundup Powermax + Destiny HC + AMS	2.25 pt / 0.75 oz + 32 oz + 0.5% v/v + 3 qt	93 b-e	91 b-e	89 efg	86 b-e	88 de	96 a-e	99 ab	99 bc	99 b	99 b	99 ab	99 b	243 a
Post I (1" weeds) / Post III (4" Weeds)														
Capreno + Atrazine + Superb HC + AMS / Liberty + AMS	3 oz + 16 oz + 0.5% v/v + 2 qt / 22 oz + 2 qt	0 j	95 a-d	76 k	97 abc	0 e	99 abc	99 b	98 cd	0 g	99 b	97 bc	99 b	234 ab
POST II (2" weeds)														
Acuron + Touchdown Total + AMS	3 pt + 30 oz + 3 qt	0 j	97 ab	90 d-g	73 f	0 g	99 ab	99 ab	99 b	0 e	99 b	99 ab	99 b	226 bc
Solstice + Anthem + Roundup Powermax + NIS + AMS	2.5 oz + 4.25 oz + 32 oz + 0.25% v/v + 3 qt	0 j	91 b-f	89 efg	71 f	0 g	99 ab	99 ab	99 b	0 e	99 b	99 ab	99 b	236 ab
SureStart II + Durango DMA + AMS	2 pt + 32 oz + 3 qt	0 j	97 ab	91 c-f	73 f	0 g	99 abc	99 ab	99 b	0 e	99 b	99 ab	99 b	228 bc
Realm Q (rimsulfuron + mesotrione + isoxadifen-ethyl) + Abundit Extra + NIS + AMS	1.2 oz + 2.5 oz + 0.3 oz + 32 oz + 0.25% v/v + 3 qt	0 j	84 fg	89 efg	39 g	0 g	99 ab	99 b	99 b	0 e	99 b	96 c	99 b	217 c
Checks														
Weedy check		0 j	0 h	0 l	0 i	0 g	0 h	0 d	0 e	0 e	0 d	0 d	0 d	129 d
Weed-free		100 a	100 a	100 a	100 a	100 a	100 a	100 a	100 a	100 a	100 a	100 a	100 a	229 abc
	LSD (0.10)	4.9	7.1	4.6	12.36	7.5	7.6	1.2	0.52	0.8	0.1	1.9	0.14	14.28

^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.