

## **Corn Pre Herbicide Performance at Lamberton, MN in 2014**

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The objective of this study was to evaluate pre-emerge corn herbicide combinations for annual grass and annual broadleaf weed control in corn. This study was conducted on a Ves Loam soil containing 4.4% organic matter, pH 5.5 and soil test P and K levels of 24 and 169 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 2013 and fall tillage was done using a mulch ripper. The area was fertilized with 150 lbs of nitrogen as Anhydrous Ammonia in the fall of 2013. On May 20, 2014, Dekalb 'DK 48-12' glufosinate resistant/glyphosate resistant field corn was planted in 30-inch rows at a seeding rate of 36,000 seeds/A. All 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:

<b>Date</b>	<b>May 20</b>	<b>June 13</b>	<b>June 23</b>
Treatment	PRE	POST I	POST II
Temperature (F)			
air	68	64	72
soil (4 inch)	58	68	70
Relative humidity (%)	47	41	66
Wind (mph)	WNW 8	W 4	NW 8
Sky	p. cloudy	clear	Clear
Soil moisture	dry	dry	Dry
Corn			
leaf no.	-	V4	V6
height (inch)	-	15	24
Yellow foxtail			
leaf no.	-	2 to 5	2 to 8
height (inch)	-	1 to 7	1 to 12
no./ft <sup>2</sup>	-	14	19
Common lambsquarters			
leaf no.	-	1 to 4	2 to 4
height (inch)	-	0.5 to 1	1 to 4
no./ft <sup>2</sup>	-	<1	1
Tall waterhemp			
leaf no.	-	2 to 5	2 to 10
height (inch)	-	0.5 to 2	1 to 5
no./ft <sup>2</sup>	-	8	17
Rainfall after application (inch)			
1 week	0.00	3.82	0.41
2 week	2.22	0.13	0.11
3 week	0.79	0.41	0.32

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

Yield, herbicide rates and weed control are shown in Table 1. Instigate had the lowest yellow foxtail control among pre-emerge treatments. No pre only program provided season-long yellow foxtail control. With the exception of Lumax EZ, all pre-emerge herbicides followed by early (4 collar corn) post treatments had lower yellow foxtail control. This is most likely due, in part, to randomization placing these treatments in an area of very high yellow foxtail density. By July 10, and through the end of the season, Outlook+ Sharpen PRE had more ( $p = 0.10$ ) common lambsquarters and waterhemp than other treatments. SureStart followed by a 4 collar POST treatment had more end-of-season lambsquarters. There was no visible crop injury with any of these treatments. The untreated weedy check and Instigate 7 oz PRE treatments yielded the least ( $p < 0.10$ ). The 3.25 qt Lumax EZ PRE only and 3pt Harness PRE followed by 32 oz Ignite + AMS POST @ 6 collar also yielded less than highest yielding treatments.

Table 1. Corn Pre Herbicide at Lamberton, MN in 2014 (Vollmer, Hoverstad, Gunsolus and Potter).

Treatment <sup>a</sup>	Rate	Yellow Foxtail				Common Lambsquarters				Tall Waterhemp				Yield <sup>b</sup>
		Jun 12	Jun 30	Jul 10	Oct 21	Jun 12	Jun 30	Jul 10	Oct 21	Jun 12	Jun 30	Jul 10	Oct 21	
<b>Preemergence</b>	(oz/A, pt/A, qt/A, lb/A or %)	-----(% control)-----												(bu/A)
Harness	3 pt	96 a	81 ab	70 abc	71 abc	92 a	82 b	86 b	86 ab	99 a	85 b	97 a	97 a	202 a
SureStart	3 pt	97 a	77 ab	74 ab	77 ab	98 a	98 a	93 ab	93 a	98 a	97 a	93 a	94 a	192 abc
Outlook + Sharpen	21 oz + 3.5 oz	99 a	79 ab	53 bcd	62 bcd	99 a	92 a	70 c	70 b	98 a	92 ab	71 b	72 b	201 ab
Lumax EZ	3.25 qt	96 a	82 ab	70 abc	71 abc	97 a	99 a	99 a	99 a	99 a	99 a	99 a	99 a	185 bcd
Instigate	7 oz	36 cd	8 d	13 ef	13 ef	97 a	99 a	97 ab	99 a	97 a	97 a	99 a	99 a	173 de
<b>Preemergence/Post I (4-collar corn)</b>														
Harness / Roundup Power Max + AMS	1.5 pt / 32 oz + 3qt	90 a	77 ab	60 bcd	62 bcd	80 b	92 ab	89 ab	93 a	91 ab	90 ab	97 a	97 a	188 a-d
SureStart / Roundup Power Max + AMS	1.5 pt / 32 oz + 3 qt	80 ab	60 bc	43 cde	41 cde	93 a	97 a	94 ab	72 b	91 ab	85 b	94 a	94 a	190 abc
Verdict / Roundup Power Max + AMS	18 oz / 32 oz + 3 qt	79 ab	80 ab	70 abc	59 bcd	94 a	93 a	99 a	99 a	98 a	93 ab	99 a	99 a	187 a-d
Lumax EZ / Roundup Power Max + AMS	2 qt / 32 oz + 3 qt	57 bc	77 ab	77 ab	84 ab	94 a	99 a	99 a	99 a	84 b	97 a	99 a	99 a	195 ab
Instigate / Roundup Power Max + AMS	5.25 oz / 32 oz + 3 qt	15 de	40 c	30 def	30 def	98 a	94 a	97 ab	99 a	96 a	90 ab	92 a	93 a	194 abc
<b>Preemergence/Post II (6-collar corn)</b>														
Harness / Ignite + AMS	3 pt / 32 oz + 3 qt	98 a	99 a	99 a	99 a	97 a	99 a	99 a	99 a	98 a	99 a	99 a	99 a	180 cd
SureStart / Ignite + AMS	3 pt / 32 oz + 3 qt	80 ab	92 a	97 a	99 a	96 a	99 a	99 a	99 a	99 a	99 a	99 a	99 a	187 a-d
Outlook + Sharpen / Ignite + AMS	21 oz + 3.5 oz / 32 oz + 3 qt	93 a	99 a	99 a	99 a	94 a	99 a	99 a	99 a	94 a	99 a	99 a	99 a	192 abc
Lumax EZ / Ignite + AMS	3.25 qt / 32 oz + 3 qt	99 a	99 a	99 a	99 a	99 a	99 a	99 a	99 a	99 a	99 a	99 a	99 a	192 abc
Instigate / Ignite + AMS	7 oz / 32 oz + 3 qt	60 bc	99 a	97 a	99 a	95 a	99 a	99 a	99 a	96 a	99 a	99 a	99 a	202 a
<b>Checks</b>														
Weedy check		0 e	0 d	0 f	0 f	0 c	0 c	0 d	0 c	0 c	0 c	0 c	0 c	158 e
	LSD (0.10)	26.0	22.6	30.6	33.7	7.5	8.6	12.6	17.9	9.9	10.3	11.4	11.9	15.8

<sup>a</sup> COC = crop oil concentrate; NIS = nonionic surfactant; AMS = liquid spray grade ammonium sulfate.

<sup>b</sup> Yield adjusted to 15.5% moisture.