## 2008-10 Atrazine BMP at Lamberton, MN in 2008.

Getting, Jodie K., Lisa Behnken, Fritz Breitenbach, Jeffrey Gunsolus, Tom Hoverstad, and Ryan Miller.

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 4.3% organic matter, pH 6.7 and soil test P and K levels of 24 and 326 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 2007 and was fall chiseled. The area was fertilized with 160-60-60 lbs of N, P, and K, respectively. On May 15, 2008, Pioneer '37N16' glufosinate resistant/glyphosate resistant field corn was planted in 30-inch rows at a seeding rate of 33,000 seeds/A. 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 14         June 9           Treatment         PRE         POST           Temperature (F)         air         66         63           soil (4 inch)         66         60           Relative humidity (%)         30         56           Wind (mph)         calm         W 2           Sky         clear         clear           Soil moisture         dry         moist           Corn         leaf no.         -         V3           height (inch)         -         5         5           Green foxtail         leaf no.         -         2 to 4           height (inch)         -         2 to 4           no./ft²         -         2 to 4           Leaf no.         -         3 to 5           height (inch)         -         1 to 3           no./ft²         -         2           Tall waterhemp         leaf no.         -         2 to 4           height (inch)         -         1 to 3           no./ft²         -         2 to 4           height (inch)         -         2 to 4           height (inch)         -         1 to 3           no./ft²									
Temperature (F) air 66 63 soil (4 inch) 66 60 Relative humidity (%) 30 56 Wind (mph) calm W 2 Sky clear clear Soil moisture dry moist Corn leaf no V3 height (inch) - 5 Green foxtail leaf no 2 to 4 height (inch) - 2 to 4 height (inch) - 25 Common lambsquarters leaf no 3 to 5 height (inch) - 1 to 3 no./ft² - 2 Tall waterhemp leaf no 2 to 4 height (inch) - 1 to 3 no./ft² - 2 Rainfall after application (inch) 1 week 0.10 1.05 2 week 0.18 0.00	Date	May 14	June 9						
air       66       63         soil (4 inch)       66       60         Relative humidity (%)       30       56         Wind (mph)       calm       W 2         Sky       clear       clear         Soil moisture       dry       moist         Corn       add the control of the	Treatment	PRE	POST						
soil (4 inch)       66       60         Relative humidity (%)       30       56         Wind (mph)       calm       W 2         Sky       clear       clear         Soil moisture       dry       moist         Corn       -       V3         leaf no.       -       V3         height (inch)       -       5         Green foxtail       -       2 to 4         leaf no.       -       2 to 4         no./ft²       -       25         Common lambsquarters       leaf no.       -       3 to 5         height (inch)       -       1 to 3         no./ft²       -       2       2         Tall waterhemp       leaf no.       -       2 to 4         height (inch)       -       1 to 3       1 to 3         no./ft²       -       2       2         Rainfall after application (inch)       -       1       1.05         2 week       0.10       1.05       2	Temperature (F)								
Relative humidity (%)       30       56         Wind (mph)       calm       W 2         Sky       clear       clear         Soil moisture       dry       moist         Corn       -       V3         leaf no.       -       V3         height (inch)       -       5         Green foxtail       -       2 to 4         leaf no.       -       2 to 4         no./ft²       -       25         Common lambsquarters       leaf no.       -       3 to 5         height (inch)       -       1 to 3         no./ft²       -       2         Tall waterhemp       leaf no.       -       2 to 4         height (inch)       -       1 to 3         no./ft²       -       2         Rainfall after application (inch)       -       2         Rainfall after application (inch)       1.05       0.00	air	66	63						
Wind (mph)         calm         W 2           Sky         clear         clear           Soil moisture         dry         moist           Corn         -         -           leaf no.         -         -         V3           height (inch)         -         5         5           Green foxtail         -         2 to 4           leaf no.         -         2 to 4         -           no./ft²         -         25           Common lambsquarters         leaf no.         -         3 to 5           height (inch)         -         1 to 3           no./ft²         -         2           Tall waterhemp         leaf no.         -         2 to 4           height (inch)         -         1 to 3           no./ft²         -         2           Rainfall after application (inch)         -         2           Rainfall after application (inch)         1.05         0.00	soil (4 inch)	66	60						
Sky         clear         clear           Soil moisture         dry         moist           Corn         -         V3           leaf no.         -         5           Green foxtail         -         2 to 4           leaf no.         -         2 to 4           no./ft²         -         25           Common lambsquarters         leaf no.         -         3 to 5           height (inch)         -         1 to 3           no./ft²         -         2           Tall waterhemp         leaf no.         -         2 to 4           height (inch)         -         1 to 3           no./ft²         -         2           Rainfall after application (inch)         -         2           Rainfall after application (inch)         1.05         0.00	Relative humidity (%)	30	56						
Soil moisture         dry         moist           Corn         leaf no.         -         V3           height (inch)         -         5           Green foxtail         -         2 to 4           leaf no.         -         2 to 4           no./ft²         -         25           Common lambsquarters         leaf no.         -         3 to 5           height (inch)         -         1 to 3           no./ft²         -         2           Tall waterhemp         leaf no.         -         2 to 4           height (inch)         -         1 to 3           no./ft²         -         2           Rainfall after application (inch)         -         2           1 week         0.10         1.05           2 week         0.18         0.00	Wind (mph)	calm	W 2						
Corn leaf no V3 height (inch) - 5 Green foxtail leaf no 2 to 4 height (inch) - 25 Common lambsquarters leaf no 3 to 5 height (inch) - 1 to 3 no./ft² - 2  Tall waterhemp leaf no 2 to 4 height (inch) - 1 to 3 no./ft² - 2  Rainfall after application (inch) 1 week 0.10 1.05 2 week 0.18 0.00	Sky	clear	clear						
leaf no.       -       V3         height (inch)       -       5         Green foxtail       -       2 to 4         leaf no.       -       2 to 4         no./ft²       -       25         Common lambsquarters       -       3 to 5         leaf no.       -       1 to 3         no./ft²       -       2         Tall waterhemp       -       2 to 4         height (inch)       -       1 to 3         no./ft²       -       2 to 4         Rainfall after application (inch)       -       2         1 week       0.10       1.05         2 week       0.18       0.00	Soil moisture	dry	moist						
height (inch) - 5  Green foxtail leaf no 2 to 4 height (inch) - 25  Common lambsquarters leaf no 3 to 5 height (inch) - 1 to 3 no./ft² - 2  Tall waterhemp leaf no 2 to 4 height (inch) - 1 to 3 no./ft² - 2  Rainfall after application (inch) 1 week 0.10 1.05 2 week 0.18 0.00	Corn								
Green foxtail   leaf no.	leaf no.	-	V3						
leaf no.     height (inch)     no./ft²     Common lambsquarters leaf no.     height (inch)     no./ft²     leaf no.     height (inch)     no./ft²     leaf no.     leaf no.	height (inch)	-	5						
height (inch) - 2 to 4 no./ft² - 25  Common lambsquarters leaf no 3 to 5 height (inch) - 1 to 3 no./ft² - 2  Tall waterhemp leaf no 2 to 4 height (inch) - 1 to 3 no./ft² - 2  Rainfall after application (inch) 1 week 0.10 1.05 2 week 0.18 0.00	Green foxtail								
no./ft² - 25  Common lambsquarters leaf no 3 to 5 height (inch) - 1 to 3 no./ft² - 2  Tall waterhemp leaf no 2 to 4 height (inch) - 1 to 3 no./ft² - 2  Rainfall after application (inch) 1 week 0.10 1.05 2 week 0.18 0.00	leaf no.	-	2 to 4						
Common lambsquarters  leaf no.		-	2 to 4						
leaf no.       -       3 to 5         height (inch)       -       1 to 3         no./ft²       -       2         Tall waterhemp       -       2 to 4         height (inch)       -       1 to 3         no./ft²       -       2         Rainfall after application (inch)       -       2         1 week       0.10       1.05         2 week       0.18       0.00	no./ft²	-	25						
height (inch) - 1 to 3 no./ft² - 2  Tall waterhemp leaf no 2 to 4 height (inch) - 1 to 3 no./ft² - 2  Rainfall after application (inch) 1 week 0.10 1.05 2 week 0.18 0.00	Common lambsquarters								
no./ft² - 2  Tall waterhemp leaf no 2 to 4 height (inch) - 1 to 3 no./ft² - 2  Rainfall after application (inch) 1 week 0.10 1.05 2 week 0.18 0.00	leaf no.	-	3 to 5						
Tall waterhemp leaf no 2 to 4 height (inch) - 1 to 3 no./ft² - 2 Rainfall after application (inch) 1 week 0.10 1.05 2 week 0.18 0.00		-	1 to 3						
leaf no.       -       2 to 4         height (inch)       -       1 to 3         no./ft²       -       2         Rainfall after application (inch)       1 week       0.10       1.05         2 week       0.18       0.00	no./ft²	-	2						
height (inch) - 1 to 3 no./ft² - 2 Rainfall after application (inch) 1 week 0.10 1.05 2 week 0.18 0.00	Tall waterhemp								
no./ft² - 2 Rainfall after application (inch) 1 week 0.10 1.05 2 week 0.18 0.00	leaf no.	-	2 to 4						
Rainfall after application (inch) 1 week 0.10 1.05 2 week 0.18 0.00		-	1 to 3						
1 week 0.10 1.05 2 week 0.18 0.00	no./ft²	-	2						
2 week 0.18 0.00	Rainfall after application (inch)								
	1 week	0.10	1.05						
3 week 0.87 0.61	2 week	0.18	0.00						
	3 week	0.87	0.61						

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

Table. 2008-10 Atrazine BMP at Lamberton, MN in 2008 (Getting, Behnken, Breitenbach, Gunsolus, Hoverstad, and Miller).

		Green foxtail			Common lambsquarters			Tall waterhemp						
Treatment <sup>a</sup>	Rate	Jun 9	Jun 20	Jul 10	Aug 19	Jun 9	Jun 20	Jul 10	Aug 19	Jun 9	Jun 20	Jul 10	Aug 19	Yield <sup>b</sup>
Preemergence/POST (2 to 4-inch weeds)	(oz/A, pt/A, qt/A, lb/A or %)				(% control)								(bu/A)	
Dual II Magnum / Callisto + COC + 28%N	1 pt / 3 oz + 1% + 2.5%	69 ab	81 bc	79 ab	74 ab	66 bc	97 a	98 a	98 a	90 a	98 a	98 a	98 a	132 de
Dual II Magnum / Callisto + Aatrex + COC + 28%N	1 pt / 3 oz + 1 pt + 1% + 2.5%	71 ab	88 a	81 a	78 a	68 bc	98 a	98 a	98 a	90 a	98 a	98 a	98 a	140 cd
Dual II Magnum / Callisto + Buctril + COC + 28%N	1 pt / 3 oz + 6 oz + 1% + 2.5%	75 a	80 c	74 b-d	70 b	71 ab	98 a	98 a	98 a	88 ab	98 a	98 a	98 a	143 b-d
Dual II Magnum / Callisto + Clarity + COC + 28%N	1 pt / 3 oz + 4 oz + 1% + 2.5%	65 b	75 c	69 d	70 b	76 a	98 a	98 a	98 a	89 ab	98 a	98 a	98 a	139 с-е
Dual II Magnum / Hornet + COC + 28%N	1 pt / 3 oz + 1% + 2.5%	71 ab	65 d	59 e	58 c	61 c	85 b	98 a	98 a	89 ab	98 a	98 a	98 a	123 e
Dual II Magnum / Hornet + Aatrex + COC + 28%N	1 pt / 3 oz + 1 pt + 1% + 2.5%	69 ab	74 c	71 cd	71 ab	65 bc	98 a	98 a	98 a	89 ab	98 a	98 a	98 a	159 ab
Dual II Magnum / Hornet + Callisto + COC + 28%N	1 pt / 3 oz + 1 oz + 1% + 2.5%	71ab	78 c	75 a-d	73 ab	69 a-c	97 a	98 a	98 a	86 b	98 a	98 a	98 a	153 a-c
Dual II Magnum / Clarity + 28%N	1 pt / 1 pt + 2.5%	71ab	78 c	71 cd	70 b	73 ab	96 a	98 a	98 a	90 a	98 a	98 a	98 a	142 cd
Dual II Magnum / Clarity + Aatrex + 28%N	1 pt / 1 pt + 1 pt + 2.5%	70 ab	86 ab	78 a-c	74 ab	73 ab	98 a	98 a	98 a	89 ab	98 a	98 a	98 a	160 a
Dual II Magnum / Clarity + Callisto + COC + 28%N	1 pt / 1 pt + 3 oz + 1% + 2.5%	68 b	79 c	76 a-c	75 ab	70 ab	98 a	98 a	98 a	89 ab	98 a	98 a	98 a	151 a-c
Checks														
Weedy check		0 c	0 e	0 f	0 d	0 d	0 с	0 b	0 b	0 с	0 b	0 b	0 b	31 f
	LSD (0.10)	7.1	6.8	7.1	6.6	8.5	3.9	ns	ns	ns	ns	ns	ns	16.7

<sup>&</sup>lt;sup>a</sup> COC = crop oil concentrate; 28%N = an aqueous solution of urea and ammonium nitrate.
<sup>b</sup> Yield adjusted to 15.5% moisture.