Evaluation of BMP rates of atrazine tank-mixed with broadleaf herbicides at Lamberton, MN in 2009.

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The objective of this study was to evaluate corn herbicide combinations with and without atrazine 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 6.1 and soil test P and K levels of 68 and 376 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 2008 and was fall chiseled. The area was fertilized with 170-60-60. On May 11, 2009, Pioneer '35F44' 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 11	June 1
Treatment	PRE	POST
Temperature (F)		
air	68	75
soil (4 inch)	62	72
Relative humidity (%)	28	24
Wind (mph)	S 10	E 8
Sky	clear	clear
Soil moisture	dry	dry
Corn		
leaf no.	-	V3
height (inch)	-	5
Yellow foxtail		
leaf no.	-	2 to 4
height (inch)	-	2 to 5
no./ft^2	-	38
Common lambsquarters		
leaf no.	-	4 to 6
height (inch)	-	2 to 4
no./ft^2	-	9
Tall waterhemp		
leaf no.	-	1 to 3
height (inch)	-	1 to 2
no./ft^2	-	2
Rainfall after application (inch)		
1 week	0.01	1.36
2 week	0.34	0.13
3 week	0.16	1.22

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

Table. Evaluation of BMP rates of atrazine tank-mixed with broadleaf herbicides at Lamberton, MN in 2009 (Getting, Behnken, Breitenbach, Gunsolus, Hoverstad, Miller).

Treatment[a]	Rate	Yellow foxtail				Common lambsquarters				Tall waterhemp				Yield[b]
		Jun 2	Jun 16	Jun 25	Aug 18	Jun 2	Jun 16	Jun 25	Aug 18	Jun 2	Jun 16	Jun 25	Aug 18	
	(oz/A, pt/A, lb/A or %)	----------(% control)----------												(bu/A)
Preemergence/POST (2 to 5-inch weeds)														
Dual II Magnum / Laudis + MSO + 28%N	1 pt / 3 oz + 1% + 1.5 qt	28 de	93 cd	91 c-e	84 fg	23 e	99 a	99 a	97 a	35 e	99 a	98 a	95 c-e	205 ab
Dual II Magnum / Laudis + Aatrex + MSO + 28%N	1 pt / 3 oz + 1 pt + 1% + 1.5 qt	30 de	99 a	95 bc	89 b-e	25 de	99 a	99 a	99 a	38 e	99 a	99 a	99 ab	208 ab
Dual II Magnum / Laudis + Buctril + MSO + 28%N	1 pt / 3 oz + 6 oz + 1% + 1.5 qt	25 e	92 cd	90 de	87 c-g	25 de	99 a	99 a	97 a	38 e	99 a	99 a	98 a-c	216 a
Dual II Magnum / Laudis + Clarity + MSO + 28%N	1 pt / 3 oz + 4 oz + 1% + 1.5 qt	28 de	94 b-d	90 de	84 fg	33 d	99 a	99 a	99 a	35 e	99 a	99 a	99 ab	203 ab
Dual II Magnum / Ignite + AMS	1 pt / 22 oz + 10 lb/100 gal	33 d	91 d	89 e	83 g	33 d	97 a	98 a	95 a	40 e	98 a	96 a	94 d-f	206 ab
Dual II Magnum / Ignite + Aatrex + AMS	1 pt / 22 oz + 1 pt + 10 lb/100 gal	33 d	94 b-d	93 b-e	86 d-g	33 d	99 a	99 a	98 a	40 e	99 a	99 a	97 a-d	205 ab
Dual II Magnum / Ignite + Buctril + AMS	1 pt / 22 oz + 6 oz + 10 lb/100 gal	28 de	93 cd	90 de	85 e-g	28 de	99 a	99 a	95 a	38 e	99 a	97 a	93 ef	208 ab
Camix / Accent + MSO + 28%N	2 qt / 0.67 oz + 1% + 1.5 qt	43 c	91 d	94 b-d	90 a-d	45 c	92 b	98 a	95 a	50 d	97 a	97 a	91 f	199 b
Lumax / Accent + MSO + 28%N	2.5 qt / 0.67 oz + 1% + 1.5 qt	48 bc	91 d	94 b-d	91 a-c	53 c	92 b	96 a	96 a	66 c	99 a	97 a	96 a-e	213 a
Surestart	1.75 pt	45 bc	33 e	20 f	20 i	53 c	40 d	28 c	18 c	70 bc	73 c	73 c	70 h	131 d
Surestart + Aatrex	1.75 pt + 1.25 pt	50 b	35 e	23 f	28 h	69 b	61 c	53 b	35 b	75 b	78 b	75 b	75 g	144 c
Dual II Magnum / Capreno + MSO + 28%N	1 pt / 3 oz + 1% + 1.5 qt	33 d	96 a-c	97 ab	91 a-c	33 d	99 a	99 a	97 a	40 e	99 a	99 a	98 a-c	203 ab
Dual II Magnum / Capreno + Aatrex + MSO + 28%N	1 pt / 3 oz + 1 pt + 1% + 1.5 qt	25 e	99 a	96 a-c	91 ab	25 de	99 a	99 a	98 a	38 e	99 a	99 a	98 a-c	208 ab
Dual II Magnum / Capreno + Buctril + MSO + 28%N	1 pt / 3 oz + 6 oz + 1% + 1.5 qt	28 de	93 cd	95 bc	89 b-e	25 de	99 a	98 a	97 a	35 e	99 a	99 a	99 a	207 ab
POST (2 to 5-inch weeds)														
Halex GT + NIS + AMS	3.6 pt + 0.25% + 10 lb/100 gal	0 f	99 a	95 a-c	88 b-f	0 f	99 a	99 a	98 a	0 f	99 a	99 a	97 a-e	206 ab
Halex GT + Aatrex + NIS + AMS	3.6 pt + 1 pt + 0.25% + 10 lb/100 gal	0 f	99 a	95 bc	95 a	0 f	99 a	99 a	99 a	0 f	99 a	99 a	99 ab	204 ab
Halex GT + Buctril + NIS + AMS	3.6 pt + 6 oz + 0.25% + 10 lb/100 gal	0 f	98 ab	97 ab	92 ab	0 f	99 a	98 a	98 a	0 f	99 a	99 a	99 ab	209 ab
Checks														
Weed free	-	100 a	100 a	100 a	94 a	100 a	100 a	100 a	96 a	100 a	100 a	100 a	99 ab	203 ab
Weedy check	-	0 f	0 f	0 g	0 j	0 f	0 e	0 d	0 d	0 f	0 d	0 c	0 i	82 e
	LSD (0.10)	5.9	4.3	4.8	4.6	9.4	4.3	4.5	5.5	8.9	5.0	5.0	3.7	13.6

[a] COC = crop oil concentrate; MSO = methylated seed oil; NIS = nonionic surfactant; 28%N = an aqueous solution of urea and ammonium nitrate; AMS = spray grade ammonium sulfate.
[b] Yield adjusted to 15.5% moisture.