

## Annual weed control with MON 63410 in soybeans at Lamberton, MN in 2009.

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The objective of this study was to evaluate MON 63410 applied to V2 and V5 soybeans for annual grass and annual broadleaf weed control in glyphosate-resistant soybeans. 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. On May 21, 2009, Asgrow 'AG 2107' glyphosate-resistant soybeans were planted into a stale seedbed that was field cultivated on April 15. Soybeans were planted in 30-inch rows at a seeding rate of 160,000 seeds/A. On July 29, all plots were treated with bifenthrin for soybean aphid and spider mite control. 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 in the plots to be sprayed and rainfall data are listed below:

Date	May 21	June 15	July 1
Treatment	Burndown	POST I	POST II
Temperature (F)			
air	63	68	63
soil (4 inch)	68	64	70
Relative humidity (%)	42	64	68
Wind (mph)	NW 8	SE 7	N 10
Sky	cloudy	cloudy	clear
Soil moisture	dry	dry	dry
Soybean			
leaf no.	-	V2	V5
height (inch)	-	4	11
Yellow foxtail			
leaf no.	1 to 2	2 to 4	4 to 6
height (inch)	0.5 to 1.0	2 to 4	12 to 14
no./ft <sup>2</sup>	101	12	30
Common lambsquarters			
leaf no.	1 to 3	3 to 5	8 to 10
height (inch)	0.5 to 1.0	2 to 4	12 to 14
no./ft <sup>2</sup>	12	1	1
Tall waterhemp			
leaf no.	-	2 to 4	7 to 9
height (inch)	-	1 to 2	10 to 12
no./ft <sup>2</sup>	-	1	1
Rainfall after application (inch)			
1 week	0.45	1.22	1.18
2 week	0.05	0.46	0.32
3 week	1.40	0.09	0.03

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

**Table. Annual weed control with MON 63410 in soybeans at Lamberton, MN in 2009 (Getting).**

Treatment <sup>a</sup>	Rate (oz/A, pt/A, qt/A)	Yellow foxtail					Common lambsquarters					Tall waterhemp				Yield (bu/A) <sup>c</sup>
		May 29	Jun 15	Jul 1	Jul 13	Sep 17	May 29	Jun 15	Jul 1	Jul 13	Sep 17	Jun 15	Jul 1	Jul 13	Sep 17	
<b>Burndown/POST I (V2 soybeans)</b>																
Valor SX + Roundup Powermax + AMS / MON 63410 + Roundup Powermax + AMS	1 oz + 22 oz + 3 qt / 3 pt + 22 oz + 3 qt	99 a	81 b	98 a	95 a	96 a	95 b	84 c	99 a	98 a	99 a	96 b	99 a	99 b	99 a	55.8 ab
Valor SX + Roundup Powermax + AMS / MON 63410 + Roundup Powermax + AMS	2 oz + 22 oz + 3 qt / 3 pt + 22 oz + 3 qt	99 a	85 a	98 a	96 a	95 a	96 ab	86 bc	99 a	99 a	99 a	98 a	99 a	99 a	99 a	52.4 b-d
Valor SX + Roundup Powermax + AMS / MON 63410 + Roundup Powermax + AMS	1 oz + 22 oz + 3 qt / 4 pt + 22 oz + 3 qt	99 a	80 b	97 a	94 a	96 a	97 ab	89 ab	99 a	99 a	99 a	98 a	99 a	99 a	99 a	56.4 a
Valor SX + Roundup Powermax + AMS / Dual II Magnum + Roundup Powermax + AMS	1 oz + 22 oz + 3 qt / 1.31 pt + 22 oz + 3 qt	99 a	80 b	98 a	96 a	96 a	97 ab	84 c	99 a	99 a	99 a	98 a	99 a	99 a	99 a	52.5 b-d
Valor SX + Roundup Powermax + AMS / Dual II Magnum + Roundup Powermax + AMS	2 oz + 22 oz + 3 qt / 1.31 pt + 22 oz + 3 qt	99 a	84 a	98 a	98 a	97 a	97 ab	89 ab	99 a	99 a	99 a	98 a	99 a	99 a	99 a	51.8 cc
<b>Burndown/POST II (V5 soybeans)</b>																
Valor SX + Roundup Powermax + AMS / MON 63410 + Roundup Powermax + AMS	1 oz + 22 oz + 3 qt / 3 pt + 22 oz + 3 qt	99 a	80 b	60 d	95 a	99 a	95 b	85 bc	74 b	99 a	99 a	96 b	94 d	99 a	99 a	49.5 d
Valor SX + Roundup Powermax + AMS / MON 63410 + Roundup Powermax + AMS	2 oz + 22 oz + 3 qt / 3 pt + 22 oz + 3 qt	99 a	84 a	71 b	97 a	99 a	97 ab	89 ab	79 b	99 a	99 a	98 a	95 c	99 a	99 a	50.1 cc
Valor SX + Roundup Powermax + AMS / MON 63410 + Roundup Powermax + AMS	2 oz + 22 oz + 3 qt / 4 pt + 22 oz + 3 qt	99 a	80 b	68 c	95 a	99 a	97 ab	88 a-c	79 b	99 a	99 a	98 a	97 b	99 a	99 a	49.2 d
Valor SX + Roundup Powermax + AMS / Cobra + COC	2 oz + 22 oz + 3 qt / 12.5 oz + 0.25%	99 a	80 b	60 d	50 c	23 c	97 ab	86 bc	74 b	60 b	35 b	98 a	95 c	95 c	91 b	13.0 f
Valor SX + Roundup Powermax + AMS / Cobra + COC + MON 63410	2 oz + 22 oz + 3 qt / 12.5 oz + 0.25% + 3 pt	99 a	80 b	68 c	58 b	28 b	97 a	89 ab	74 b	45 c	30 c	98 a	97 b	95 c	89 c	18.6 e
<b>Burndown/POST I (V2 soybeans)/POST II (V5 soybeans)</b>																
Valor SX + Roundup Powermax + AMS / MON 63410 + Roundup Powermax + AMS/	1 oz + 22 oz + 3 qt / 3 pt + 22 oz + 3 qt	99 a	80 b	97 a	99 a	99 a	97 ab	84 c	99 a	99 a	99 a	98 a	99 a	99 a	99 a	52.8 a-d
Valor SX + Roundup Powermax + AMS / MON 63410 + Roundup Powermax + AMS/	2 oz + 22 oz + 3 qt / 3 pt + 22 oz + 3 qt	99 a	85 a	98 a	99 a	99 a	97 ab	91 a	99 a	99 a	99 a	98 a	99 a	99 a	99 a	53.7 a-c
<b>Checks</b>																
Weedy Check	-	0 b	0 c	0 e	0 d	0 d	0 c	0 d	0 c	0 d	0 d	0 c	0 e	0 d	0 d	3.5 g
	LSD (0.10)	ns	1.9	2.6	5.5	3.9	2.2	4.5	5.3	6.5	3.4	1.8	1.2	0.2	1.2	3.74

<sup>a</sup> AMS = spray grade ammonium sulfate.

<sup>b</sup> Yield adjusted to 13% moisture.

**Table. Crop injury with MON 63410 in soybeans at Lamberton, MN in 2009 (Getting).**

Treatment <sup>a</sup>	Rate (oz/A, pt/A, qt/A)	Crop injury <sup>b</sup>				
		Jun 22	Jul 1	Jul 8	Jul 13	Sep 17
		------(%)-----				
<b><u>Burndown/POST I (V2 soybeans)</u></b>						
Valor SX + Roundup Powermax + AMS / MON 63410 + Roundup Powermax + AMS	1 oz + 22 oz + 3 qt / 3 pt + 22 oz + 3 qt	0 d	0 c	0 c	0 b	0 a
Valor SX + Roundup Powermax + AMS / MON 63410 + Roundup Powermax + AMS	2 oz + 22 oz + 3 qt / 3 pt + 22 oz + 3 qt	4 c	0 c	0 c	0 b	0 a
Valor SX + Roundup Powermax + AMS / MON 63410 + Roundup Powermax + AMS	1 oz + 22 oz + 3 qt / 4 pt + 22 oz + 3 qt	0 d	0 c	0 c	0 b	0 a
Valor SX + Roundup Powermax + AMS / Dual II Magnum + Roundup Powermax + AMS	1 oz + 22 oz + 3 qt / 1.31 pt + 22 oz + 3 qt	15 b	4 b	1 c	0 b	0 a
Valor SX + Roundup Powermax + AMS / Dual II Magnum + Roundup Powermax + AMS	2 oz + 22 oz + 3 qt / 1.31 pt + 22 oz + 3 qt	26 a	5 a	2 c	0 b	0 a
<b><u>Burndown/POST II (V5 soybeans)</u></b>						
Valor SX + Roundup Powermax + AMS / MON 63410 + Roundup Powermax + AMS	1 oz + 22 oz + 3 qt / 3 pt + 22 oz + 3 qt	0 d	0 c	0 c	0 b	0 a
Valor SX + Roundup Powermax + AMS / MON 63410 + Roundup Powermax + AMS	2 oz + 22 oz + 3 qt / 3 pt + 22 oz + 3 qt	0 d	0 c	0 c	0 b	0 a
Valor SX + Roundup Powermax + AMS / MON 63410 + Roundup Powermax + AMS	2 oz + 22 oz + 3 qt / 4 pt + 22 oz + 3 qt	0 d	0 c	0 c	0 b	0 a
Valor SX + Roundup Powermax + AMS / Cobra + COC	2 oz + 22 oz + 3 qt / 12.5 oz + 0.25%	0 d	0 c	15 b	5 a	0 a
Valor SX + Roundup Powermax + AMS / Cobra + COC + MON 63410	2 oz + 22 oz + 3 qt / 12.5 oz + 0.25% + 3 pt	0 d	0 c	19 a	5 a	0 a
<b><u>Burndown/POST I (V2 soybeans)/POST II (V5 soybeans)</u></b>						
Valor SX + Roundup Powermax + AMS / MON 63410 + Roundup Powermax + AMS/ MON 63410 + Roundup Powermax + AMS	1 oz + 22 oz + 3 qt / 3 pt + 22 oz + 3 qt / 3 pt + 22 oz + 3 qt	0 d	0 c	0 c	0 b	0 a
Valor SX + Roundup Powermax + AMS / MON 63410 + Roundup Powermax + AMS/ MON 63410 + Roundup Powermax + AMS	2 oz + 22 oz + 3 qt / 3 pt + 22 oz + 3 qt / 3 pt + 22 oz + 3 qt	4 c	0 c	0 c	0 b	0 a
<b><u>Checks</u></b>						
Weedy Check	-	0 d	0 c	0 c	0 b	0 a
	LSD (0.10)	1.8	0.5	1.7	1.3	ns

<sup>a</sup> AMS = spray grade ammonium sulfate.

<sup>b</sup> Visual crop injury, symptoms include leaf puckering and necrosis.