

## Herbicide performance in soybeans at Lamberton, MN in 2010.

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The objective of this study was to evaluate soybean herbicide combinations for annual grass and annual broadleaf weed control in glyphosate-resistant soybeans. This study was conducted on a Normania loam soil containing 3.8% organic matter, pH 6.1 and soil test P and K levels of 64 and 296 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 corn in 2009 and was fall chiseled. On May 18, 2010, Asgrow 'AG2108' glyphosate-resistant soybeans were planted in 30-inch rows at a seeding rate of 160,000 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 18	June 16	June 18	July 8
Treatment	PRE	POST I	POST II	POST III
Temperature (F)				
air	76	75	66	79
soil (4 inch)	64	76	68	78
Relative humidity (%)	31	50	49	48
Wind (mph)	calm	calm	S 10	W 6
Sky	clear	clear	cloudy	clear
Soil moisture	moist	moist	dry	dry
Soybean				
leaf no.	-	V2	V2	V8, R1
height (inch)	-	6	7	18
Yellow foxtail				
leaf no.	-	2 to 4	3 to 4	3 to 4
height (inch)	-	3 to 5	5 to 6	3 to 6
no./ft <sup>2</sup>	-	15	22	7
Common lambsquarters				
leaf no.	-	4 to 6	4 to 6	-
height (inch)	-	3 to 4	4 to 5	-
no./ft <sup>2</sup>	-	1	1	-
Tall waterhemp				
leaf no.	-	2 to 4	3 to 5	2 to 4
height (inch)	-	2 to 4	3 to 5	2 to 4
no./ft <sup>2</sup>	-	3	4	2
Rainfall after application (inch)				
1 week	0.20	1.44	1.45	0.15
2 week	0.02	2.23	2.22	1.26
3 week	0.79	0.70	0.70	1.61

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

**Table. Herbicide performance in soybeans at Lamberton, MN in 2010 (Getting, Gunsolus and Hoverstad).**

Treatment <sup>a</sup>	Rate	Injury Jun 22 (%)	Yellow foxtail				Common lambsquarters				Tall waterhemp				Yield (bu/A) <sup>c</sup>	
			Jun 15	Jun 28	Jul 13	Sep 27	Jun 15	Jun 28	Jul 13	Sep 27	Jun 15	Jun 28	Jul 13	Sep 27		
<b>Preemergence/POST I (4-inch weeds)</b>		(oz/A, pt/A, lb/A or %)	----- (% control) -----													
Boundary / Flexstar + Fusion + Harmony GT + MSO + 28%N	1.5pt / 16oz + 8oz + 0.125oz + 1.0% + 2.5%	26 a	63 c-e	92 e	89 g	89 h	91 b	99 b	98 b	97 d	69 g	99 c	97 b	98 a-c	58.1 ab	
Authority First / Flexstar + Select + COC + 28%N	6.4 oz / 16 oz + 6 oz + 1% + 2.5%	19 b	64 c-e	97 cc	95 de	98 b-d	89 bc	99 b	98 b	99 b	69 g	99 c	98 b	99 ab	59.1 ab	
Gangster V + Gangster FR / Raptor + Select + COC + 28%N	2.5 oz + 0.5 oz / 4 oz + 6 oz + 1% + 2.5%	16 bc	63 c-e	96 d	95 e	96 ef	90 b	99 b	98 b	99 b	91 b	99 c	98 b	99 ab	59.4 ab	
<b>Preemergence/POST II (6-inch weeds)</b>																
Authority First / Roundup Original Max + AMS	3.2 oz / 22 oz + 3qt	0 g	50 f	99 ab	95 e	91 g	80 e	99 b	98 b	99 b	68 g	99 b	97 b	99 ab	60.3 ab	
Authority Assist / Roundup Original Max + AMS	5 oz / 22 oz + 3qt	0 g	60 c-e	99 b	97 cc	96 c-f	89 bc	99 b	98 b	98 c	79 de	99 b	97 b	97 c	61.8 a	
Gangster V + Gangster FR / Roundup Original Max + AMS	2 oz + 0.4 oz / 22oz + 3qt	0 g	60 c-e	99 ab	97 bc	97 b-e	85 cc	98 c	98 b	99 b	85 c	99 b	98 b	99 ab	59.8 ab	
Prefix / Touchdown Total + AMS	1qt / 24 oz + 3qt	0 g	74 b	99 ab	98 b	99 ab	90 b	99 b	98 b	99 b	84 cc	99 b	98 b	99 ab	60.8 ab	
Boundary / Touchdown Total + AMS	1.5pt / 24 oz + 3qt	0 g	66 b-d	99 ab	98 b	99 ab	90 b	99 b	98 b	99 b	85 c	99 b	98 b	99 ab	60.7 ab	
Fierce / Roundup Original Max + AMS	3 oz / 22 oz + 3qt	0 g	68 bc	99 ab	98 b	98 a-c	90 b	99 b	98 b	99 b	88 bc	99 b	98 b	99 ab	58.4 ab	
Valor SX / Roundup Original Max + AMS	2 oz / 22 oz + 3qt	0 g	64 c-e	99 ab	97 cc	95 ef	85 cc	99 b	98 b	99 b	78 e	99 b	98 b	99 ab	60.3 ab	
Optill / Roundup Original Max + AMS	2 oz / 22 oz + 3qt	0 g	55 ef	99 ab	98 b	98 a-c	83 de	99 b	98 b	99 b	71 fg	99 b	98 b	99 ab	60.5 ab	
Sonic / Durango DMA + AMS	3 oz / 24 oz + 3qt	0 g	63 c-e	99 ab	96 de	95 f	90 b	99 b	98 b	99 b	75 ef	99 b	98 b	99 ab	59.8 ab	
Enlite / Abundit Extra + AMS	2.83 oz / 32 oz + 3qt	0 g	58 d-f	99 ab	95 e	96 d-f	90 b	99 b	98 b	98 cc	78 e	99 b	98 b	98 bc	58.9 ab	
Enlite / Abundit Extra + Harmony + AMS	2.83oz / 32oz + 0.125 oz + 3qt	15 c	68 bc	98 bc	96 de	96 c-f	85 cc	99 b	98 b	99 b	88 bc	99 b	98 b	99 ab	61.5 a	
<b>POST I (4-inch weeds)</b>																
MON 63410 + Roundup Weathermax + AMS	3 pt + 22 oz + 3 qt	0 g	0 g	99 ab	98 b	98 a-c	0 f	99 b	98 b	99 b	0 h	99 b	98 b	99 ab	58.4 ab	
<b>POST I (4-inch weeds)/POST III (re-growth)</b>																
Roundup Weathermax + AMS / Roundup Weathermax + AMS	22 oz + 3 qt / 22 oz + 3 qt	0 g	0 g	99 ab	98 b	99 ab	0 f	99 b	98 b	99 b	0 h	99 b	98 b	99 ab	61.0 ab	
Durango DMA + FirstRate + AMS / Durango DMA + AMS	24 oz + 0.3 oz + 3 qt / 24 oz + 3 qt	0 g	0 g	99 ab	98 b	99 ab	0 f	99 b	98 b	99 b	0 h	99 b	98 b	99 ab	61.3 a	
Flexstar GT + AMS / Touchdown Total + AMS	3 pt + 3 qt / 24 oz + 3 qt	8 e	0 g	99 ab	98 b	99 ab	0 f	99 b	98 b	99 b	0 h	99 b	98 b	99 ab	59.0 ab	
Synchrony + Abundit Extra + AMS / Abundit Extra + AMS	0.375 oz + 32 oz + 3 qt / + 32 oz + 3 qt	11 d	0 g	99 ab	98 b	99 ab	0 f	99 b	98 b	99 b	0 h	99 b	98 b	99 ab	58.8 ab	
Roundup Original Max + Resource + NIS + AMS / Roundup Original Max + AMS	22 oz + 2 oz + 0.25% + 3 qt / 22 oz + 3 qt	4 f	0 g	99 ab	98 b	99 ab	0 f	99 b	98 b	99 b	0 h	99 b	98 b	99 ab	58.9 ab	
Roundup Original Max + Cadet + NIS + AMS / Roundup Original Max + AMS	22 oz + 0.5 oz + 0.25% + 3 qt / 22 oz + 3 qt	10 de	0 g	99 ab	98 b	99 ab	0 f	99 b	98 b	99 b	0 h	99 b	98 b	99 ab	57.3 b	
<b>POST II (6-inch weeds)</b>																
Roundup Weathermax + AMS	22 oz + 3 qt	0 g	0 g	99 ab	91 f	88 h	0 f	99 b	95 c	90 e	0 h	99 b	85 c	86 d	59.5 ab	
<b>Checks</b>																
Weedy Check	-	0 g	0 g	0 f	0 h	0 i	0 f	0 d	0 d	0 f	0 h	0 d	0 d	0 e	41.6 c	
Weed-free check	-	0 g	100 a	100 a	100 a	100 a	100 a	100 a	100 a	100 a	100 a	100 a	100 a	100 a	59.2 ab	
	LSD (0.10)	2.5	9.7	1.4	1.5	2.2	4.6	0.5	0.3	0.9	5.5	0.2	1.2	2.2	3.92	

<sup>a</sup> COC = crop oil concentrate; MSO = methylated seed oil; NIS = nonionic surfactant; AMS = liquid spray grade ammonium sulfate; 28%N = an aqueous solution of urea and ammonium nitrate.

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