

Herbicide performance in soybeans at Lamberton, MN in 2011.

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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 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 corn in 2010 and was moldboard plowed. On June 7, 2011, Asgrow 'AG 1931' glyphosate-resistant soybeans were planted in 30-inch rows at a seeding rate of 160,000 seeds/A. On August 2, 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 and rainfall data are listed below:

Date	June 9	July 3	July 5	July 8	July 25
Treatment	PRE	POST I	POST II	POST III	POST IV
Temperature (F)					
air	55	72	81	79	81
soil (4 inch)	66	76	84	82	80
Relative humidity (%)	63	69	70	65	62
Wind (mph)	NE 10	calm	calm	calm	W 6
Sky	clear	p. cloudy	clear	clear	clear
Soil moisture	dry	moist	dry	dry	dry
Soybean					
leaf no.	-	V2	V3	V4	R2
height (inch)	-	6	8	11	22
Yellow foxtail					
leaf no.	-	2 to 4	2 to 4	2 to 4	4 to 6
height (inch)	-	4 to 6	4 to 7	4 to 6	6 to 9
no./ft ²	-	11	12	< 1	7
Common lambsquarters					
leaf no.	-	4 to 6	5 to 7	-	-
height (inch)	-	1 to 3	3 to 4	-	-
no./ft ²	-	1	2	-	-
Tall waterhemp					
leaf no.	-	2 to 4	3 to 5	3 to 5	4 to 6
height (inch)	-	1 to 3	2 to 4	2 to 4	3 to 5
no./ft ²	-	3	3	< 1	
Rainfall after application (inch)					
1 week	5.04	0.23	1.15	1.91	0.87
2 week	2.94	2.02	1.09	0.33	0.00
3 week	0.46	0.00	0.00	0.87	0.31

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

Table. Herbicide performance in soybeans at Lamberton, MN in 2011 (Getting, Gunsolus and Hoverstad).

Treatment ^a	Rate	Injury			Yellow foxtail			Common lambsquarters			Tall waterhemp			Yield
		Jun 27	Jul 7	Jul 14	Jul 7	Jul 25	Sep 19	Jul 7	Jul 25	Sep 19	Jul 7	Jul 25	Sep 19	
	(oz/A, pt/A, qt/A or %)	Injury (%)			Yellow foxtail (% control)			Common lambsquarters (% control)			Tall waterhemp (% control)			(bu/A) ^c
Preemergence/POST III (6-inch weeds)														
Boundary / Flexstar + Fusion + Harmony GT + MSO + 28%N	1.5pt / 16oz + 8oz + 0.125oz + 1.0% + 2.5%	1 e-g	0 e	29 a	93 ef	97 bc	98 b	98 b	98 b	98 b	98 b	98 ab	98 b	48.4 a
Authority First / Roundup PowerMax + AMS	6.4 oz / 22 oz + 3qt	1 fg	0 e	0 e	91 fg	97 cc	98 b	98 b	98 b	98 b	98 b	98 ab	98 b	50.6 a
Anthem / Roundup PowerMax + AMS	10 oz / 22 oz + 3qt	3 c-e	0 e	0 e	95 cc	98 b	98 b	98 b	98 b	98 b	98 b	98 ab	98 b	50.9 a
Prefix / Touchdown Total + AMS	1qt / 24 oz + 3qt	2 d-f	0 e	1 e	96 bc	98 b	98 b	98 b	98 b	98 b	98 b	98 ab	98 b	51.2 a
Boundary / Touchdown Total + AMS	1.5pt / 24 oz + 3qt	2 d-f	0 e	1 e	97 bc	98 b	98 b	98 b	98 b	98 b	98 b	98 ab	98 b	51.1 a
Fierce / Roundup PowerMax + AMS	3 oz / 22 oz + 3qt	9 a	1 e	0 e	97 bc	98 b	98 b	98 b	98 b	98 b	98 b	98 ab	98 b	50.2 a
Valor SX / Roundup PowerMax + AMS	2 oz / 22 oz + 3qt	5 b	0 e	0 e	87 h	97 bc	98 b	98 b	98 b	98 b	98 b	98 ab	98 b	50.1 a
Fierce + Classic / Roundup PowerMax + AMS	3 oz + 0.33 oz / 22 oz + 3qt	10 a	2 e	0 e	95 cc	98 b	98 b	98 b	98 b	98 b	98 b	98 ab	98 b	50.3 a
Optill / Roundup PowerMax + NIS + AMS	2 oz / 22 oz + 0.25% + 3qt	1 fg	0 e	0 e	86 h	96 d	98 b	98 b	98 b	98 b	98 b	98 ab	98 b	50.4 a
Verdict + Outlook / Roundup PowerMax + NIS + AMS	5 oz + 10 oz / 22 oz + 0.25% + 3qt	4 bc	0 e	0 e	97 bc	98 b	98 b	98 b	98 b	98 b	98 b	98 ab	98 b	49.9 a
Zidua + Verdict / Roundup PowerMax + NIS + AMS	2 oz + 5 oz / 22 oz + 0.25% + 3qt	2 d-f	0 e	1 e	93 de	98 b	98 b	98 b	98 b	98 b	98 b	98 ab	98 b	49.6 a
Sonic / Durango DMA + AMS	3 oz / 24 oz + 3qt	1 fg	0 e	1 e	85 h	96 d	98 b	98 b	98 b	98 b	98 b	98 ab	98 b	49.2 a
Enlite / Abundit S + AMS	2.83 oz / 32 oz + 3qt	4 bc	0 e	0 e	90 g	97 bc	98 b	98 b	98 b	98 b	98 b	98 ab	98 b	50.3 a
Enlite / Abundit S + Harmony SG + AMS	2.83 oz / 32 oz + 0.125 oz + 3qt	4 b-d	0 e	16 b	90 g	96 d	98 b	98 b	98 b	98 b	98 b	98 ab	98 b	48.2 a
POST I (4-inch weeds)														
Anthem + Roundup PowerMax + NIS + AMS	8 oz + 22 oz + 0.25% + 3qt	0 g	21 a	10 c	97 bc	97 bc	97 b	98 b	98 b	98 b	98 b	98 ab	98 b	48.5 a
Warrant + Roundup Weathermax + AMS	3 pt + 22 oz + 3 qt		1 e	0 e	97 bc	98 b	98 b	98 b	98 b	98 b	98 b	98 ab	98 b	48.4 a
POST I (4-inch weeds)/POST IV (re-growth)														
Roundup Weathermax + AMS / Roundup Weathermax + AMS	22 oz + 3 qt / 22 oz + 3 qt	0 g	0 e	0 e	98 ab	90 fg	98 b	98 b	98 b	98 b	98 b	94 cc	98 b	48.8 a
Durango DMA + FirstRate + AMS / Durango DMA + AMS	24 oz + 0.3 oz + 3 qt / 24 oz + 3 qt	0 g	4 d	0 e	98 ab	90 fg	98 b	98 b	98 b	98 b	98 b	96 bc	98 b	48.7 a
Flexstar GT + AMS / Touchdown Total + AMS	3.5 pt + 3 qt / 24 oz + 3 qt	0 g	13 b	5 d	97 bc	91 f	98 b	98 b	98 b	98 b	98 b	98 ab	98 b	49.8 a
Synchrony + Abundit S + AMS / Abundit S + AMS	0.375 oz + 32 oz + 3 qt / + 32 oz + 3 qt	0 g	6 c	0 e	98 ab	89 g	97 b	98 b	98 b	98 b	97 c	92 d	98 b	48.4 a
Roundup PowerMax + Resource + AMS / Roundup PowerMax + AMS	22 oz + 2 oz + 3 qt / 22 oz + 3 qt	0 g	8 c	0 e	98 ab	90 fg	98 b	98 b	98 b	98 b	98 b	93 d	98 b	50.7 a
POST II (7-inch weeds)														
Roundup Weathermax + AMS	22 oz + 3 qt	0 g	0 e	0 e	-	93 e	93 c	-	98 b	98 b	-	97 b	97 c	49.8 a
Checks														
Weedy Check	-	0 g	0 e	0 e	0 i	0 h	0 d	0 c	0 c	0 c	0 d	0 e	0 d	24.1 b
Weed-free check	-	0 g	0 e	0 e	100 a	100 a	100 a	100 a	100 a	100 a	100 a	100 a	100 a	48.9 a
	LSD (0.10)	1.5	1.5	1.5	2.5	1.4	0.9	ns	ns	ns	0.4	2.3	0.4	3.18

^a 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.

^b Yield adjusted to 13% moisture.