

Herbicide performance in soybeans at Lamberton, MN in 2012.

Getting, Jodie K., Jeffrey L. Gunsolus, and Thomas R. Hoverstad.

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 4.3% organic matter, pH 5.2 and soil test P and K levels of 72 and 358 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 2011 and was moldboard plowed. On May 21, 2012, Asgrow 'AG1931' 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 21	June 15	June 25	July 5
Treatment	PRE	POST I	POST II	POST III
Treatment number	1-16	17-22	1-16	18-22
Temperature (F)				
air	70	77	64	81
soil (4 inch)	72	78	76	84
Relative humidity (%)	40	44	60	74
Wind (mph)	SW 5	N 5	E 12	N 13
Sky	clear	p. cloudy	clear	p. cloudy
Soil moisture	dry	dry	dry	dry
Soybean				
leaf no.	-	V2	V4	V6
height (inch)	-	5	10	16
Yellow foxtail				
leaf no.	-	1 to 3	3 to 4	2 to 4
height (inch)	-	1 to 3	3 to 4	4 to 6
no./ft ²	-	4	2	< 1
Common lambsquarters				
leaf no.	-	1 to 2	2 to 3	-
height (inch)	-	1 to 2	1 to 2	-
no./ft ²	-	< 1	< 1	-
Tall waterhemp				
leaf no.	-	1 to 3	2 to 3	2 to 4
height (inch)	-	1 to 2	1 to 2	2 to 4
no./ft ²	-	3	< 1	< 1
Rainfall after application (inch)				
1 week	4.54	0.72	0.00	0.09
2 week	0.47	0.01	0.09	0.12
3 week	0.45	0.00	0.06	0.32

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

Table. Herbicide performance in soybeans at Lamberton, MN in 2012 (Getting, Gunsolus and Hoverstad).

Treatment ^a	Rate	Injury ^b			Yellow foxtail			Common lambsquarters			Tall waterhemp			Yield
		Jun 18	Jun 22	Jul 5	Jun 22	Jul 5	Sept 10	Jun 22	Jul 5	Sept 10	Jun 22	Jul 5	Sept 10	
Preemergence/POST II (4-inch weeds)	(oz/A, pt/A, qt/A or %)	-----(% control)-----											(bu/A) ^c	
Authority First / Roundup PowerMax + AMS	6.4 oz / 22 oz + 3qt	0 e	0 e	0 c	80 hi	99 ab	99 b	99 a	99 b	99 b	99 ab	99 ab	99 b	44.5 a-d
Authority Assist / Roundup PowerMax + AMS	9 oz / 22 oz + 3qt	0 e	0 e	0 c	89 ef	99 ab	99 b	99 a	99 b	99 b	99 ab	99 ab	99 b	43.1 b-d
Prefix / Touchdown Total + AMS	1qt / 24 oz + 3qt	0 e	0 e	0 c	98 a-c	99 ab	99 b	99 a	99 b	99 b	99 ab	99 ab	99 b	43.9 a-d
Boundary / Touchdown Total + AMS	1.5pt / 24 oz + 3qt	0 e	0 e	0 c	95 b-d	99 ab	99 b	99 a	99 b	99 b	99 ab	99 ab	99 b	45.1 a-d
Boundary / Flexstar GT + MSO + AMS	1.5pt / 3.5 pt + 0.5% + 3qt	0 e	0 e	0 c	92 d-f	99 ab	99 b	99 a	99 b	99 b	97 bc	99 ab	99 b	45.3 a-c
Fierce / Roundup PowerMax + AMS	3 oz / 22 oz + 3qt	0 e	0 e	0 c	93 d-f	99 ab	99 b	99 a	99 b	99 b	99 ab	99 ab	99 b	46.3 ab
Valor SX / Roundup PowerMax + AMS	3 oz / 22 oz + 3qt	0 e	0 e	0 c	79 hi	99 ab	99 b	99 a	99 b	99 b	99 ab	99 ab	99 b	45.5 a-c
Fierce + Classic / Roundup PowerMax + AMS	3 oz + 0.33 oz / 22 oz + 3qt	0 e	0 e	0 c	88 fg	99 ab	99 b	97 b	99 b	99 b	99 ab	99 ab	99 b	45.8 a-c
Optill + Outlook / Roundup PowerMax + NIS + AMS	2 oz + 10 oz / 22 oz + 0.25% + 3qt	0 e	0 e	0 c	94 c-e	99 ab	99 b	99 a	99 b	99 b	99 ab	99 ab	99 b	45.0 a-d
Verdict + Outlook / Roundup PowerMax + NIS + AMS	5 oz + 10 oz / 22 oz + 0.25% + 3qt	0 e	0 e	0 c	94 c-e	99 ab	99 b	98 ab	99 b	99 b	99 ab	99 ab	99 b	44.7 a-d
Zidua + Verdict / Roundup PowerMax + NIS + AMS	2 oz + 5 oz / 22 oz + 0.25% + 3qt	0 e	0 e	0 c	96 a-d	99 ab	99 b	99 a	99 b	99 b	99 ab	99 ab	99 b	43.8 a-d
Sonic / Durango DMA + AMS	3 oz / 24 oz + 3qt	0 e	0 e	0 c	76 i	99 ab	99 b	99 a	99 b	99 b	99 ab	99 ab	99 b	45.5 a-c
Enlite / Abundit S + AMS	2.83 oz / 32 oz + 3qt	0 e	0 e	0 c	81 hi	99 ab	99 b	99 a	99 b	99 b	99 ab	99 ab	99 b	46.4 a
Enlite / Abundit S + Harmony SG + AMS	2.83 oz / 32 oz + 0.125 oz + 3qt	0 e	0 e	0 c	78 hi	99 ab	99 b	98 ab	99 b	99 b	97 bc	99 ab	99 b	43.8 a-d
Warrant / Roundup Weathermax + AMS	3 pt / 22 oz + 3 qt	0 e	0 e	0 c	80 hi	99 ab	99 b	91 c	99 b	99 b	95 cd	99 ab	99 b	42.7 cd
Valor SX / Warrant + Roundup Weathermax + AMS	2 oz / 3 pt + 22 oz + 3 qt	0 e	0 e	0 e	83 gh	99 ab	99 b	97 b	99 b	99 b	98 ab	99 ab	99 b	45.3 a-c
POST I (2-inch weeds)														
F9324 + Roundup PowerMax + NIS + AMS	7 oz + 22 oz + 0.25% + 3qt	23 b	24 b	4 b	99 ab	98 bc	99 b	99 a	99 b	99 b	99 ab	99 ab	99 b	42.1 d
POST I (2-inch weeds)/POST III (re-growth)														
Roundup Weathermax + AMS / Roundup Weathermax + AMS	22 oz + 3 qt / 22 oz + 3 qt	0 e	0 e	0 c	99 ab	97 cd	99 b	99 a	99 b	99 b	94 d	96 c	99 b	44.6 a-c
Durango DMA + FirstRate + AMS / Durango DMA + AMS	24 oz + 0.3 oz + 3 qt / 24 oz + 3 qt	4 d	0 e	0 c	99 ab	98 bc	99 b	99 a	99 b	99 b	98 ab	95 c	98 c	43.6 a-d
Flexstar GT + MSO + AMS / Touchdown Total + AMS	3.5 pt + 0.5% + 3 qt / 24 oz + 3 qt	11 c	11 c	0 c	99 ab	99 ab	99 b	99 a	99 b	99 b	99 ab	98 b	99 b	44.4 a-d
Synchrony + Abundit S + AMS / Abundit S + AMS	0.375 oz + 32 oz + 3 qt / + 32 oz + 3 qt	1 e	1 d	0 c	99 ab	98 bc	99 b	99 a	99 b	99 b	99 ab	98 b	99 b	43.9 a-d
Roundup PowerMax + Cobra + COC + AMS / Roundup PowerMax + AMS	22 oz + 12.5 oz + 1 pt + 3 qt / 22 oz + 3 qt	29 a	30 a	9 a	99 ab	96 d	99 b	99 a	99 b	99 b	99 ab	99 ab	99 b	42.0 d
Checks														
Weedy Check	-	0 e	0 e	0 c	0 j	0 e	0 c	0 d	0 c	0 c	0 e	0 d	0 d	37.8 e
Weed-free check	-	0 e	0 e	0 c	100 a	100 a	100 a	100 a	100 a	100 a	100 a	100 a	100 a	46.2 ab
	LSD (0.10)	1.3	1.0	0.9	5.2	1.1	ns	2.2	ns	ns	2.3	1.7	0.5	3.21

^a COC = crop oil concentrate; MSO = methylated seed oil; NIS = nonionic surfactant; AMS = liquid spray grade ammonium sulfate.

^b June 18 and 22 injury reported as percent soybean leaf burn, July 15 injury reported as percent soybean plant height reduction.

^c Yield adjusted to 13% moisture.

2012 Soybean Herbicide Evaluation - Lambertton

Herbicide	Rate	Yeft	Colq	Tawh	Yield	returns
<u>Preemergence/ POST II (4-inch weeds)</u>	<u>(Product/A)</u>					
Authority First / Roundup PowerMax + AMS	6.4 oz / 22 oz + 3 qt	99	99	99	44.5	604
Authority Assist / Roundup PowerMax + AMS	9 oz / 22 oz + 3 qt	99	99	99	43.1	570
Prefix / Touchdown Total + AMS	2 pt / 24 oz + 3 qt	99	99	99	43.9	611
Boundary / Touchdown Total + AMS	1.5 pt / 24 oz + 3 qt	99	99	99	45.1	628
Boundary / Flexstar GT 3.5 + MSO + AMS	1.5 pt / 24 oz + 3 qt	99	99	99	45.3	617
Fierce / Roundup PowerMax + AMS	3 oz / 22 oz + 3 qt	99	99	99	46.3	
Valor SX / Roundup PowerMax + AMS	2 oz / 22 oz + 3 qt	99	99	99	45.5	632
Fierce + Classic / Roundup PowerMax + AMS	3 oz + .33 oz / 22 oz + 3 qt	99	99	99	45.8	
Optill Pro / Roundup PowerMax + NIS + AMS	10 oz / 22 oz + .25% + 3 qt	99	99	99	45.0	613
Verdict + Outlook / Roundup PowerMax + NIS + AMS	5 oz + 10 oz / 22 oz + 0.25% + 3 qt	99	99	99	44.7	613
Zidua + Verdict / Roundup PowerMax + NIS + AMS	2 oz + 5 oz / 22 oz + 0.25% + 3 qt	99	99	99	43.8	
Sonic / Durango DMA + AMS	3 oz / 24 oz + 3 qt	99	99	99	45.5	635
Enlite / Abundit S + AMS	2.8 oz / 32 oz + 3 qt	99	99	99	46.4	647
Enlite / Abundit S + Harmony SG + AMS	2.8 oz / 32 oz + 0.125 oz + 3 qt	99	99	99	43.8	604
Warrant / Roundup WeatherMax + AMS	3 pt + 22 oz + 3 qt	99	99	99	42.7	593
<u>Preemergence/ POST I (2-inch weeds)</u>						
Valor SX / Warrant + Roundup PowerMax + AMS	2 oz / 3 pt + 22 oz + 3 qt	99	99	99	45.3	616
<u>POST I (2-inch weeds)</u>						
F 9324 + Roundup PowerMax + NIS + AMS	7 oz + 22 oz + 0.25% + 3 qt	99	99	99	42.1	
<u>POST I (2-inch weeds)/POST III(Canopy)</u>						
Roundup WeatherMax + AMS / Roundup WeatherMax + AMS	22 oz + 3 qt / 22 oz + 3 qt	99	99	99	44.6	624
Durango DMA + First Rate + AMS / Durango DMA + AMS	24 oz + 0.3 oz + 3 qt / 24 oz + 3 qt	99	99	98	43.6	599
Flexstar GT 3.5 + MSO + AMS / Touchdown Total + AMS	3.5 pt + 0.5% + 3 qt / 24 oz + 3 qt	99	99	99	44.4	608
Synchrony + Abundit S + AMS / Abundit S + AMS	0.375 oz + 32 oz + 3 qt / 32 oz + 3 qt	99	99	99	44.0	613
Roundup PowerMax + Cobra + COC + AMS / Roundup PowerMax + AMS	22 oz + 12.5 oz + 1 pt + 3 qt / 22 oz 3 qt	99	99	99	42.0	568
<u>Checks</u>						
Weedy Check	-	0	0	0	37.8	567
Weed Free	-	100	100	100	46.2	693
	LSD(0.10)	0	0	1	3.2	49

Returns calculated on \$15 soybean and retail prices for seed, herbicide and application