

Herbicide performance in soybeans at Lamberton, MN in 2006. 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/sulfonylurea tolerant soybeans. This study was conducted on a Normania loam soil containing 4.2% organic matter, pH 6.5 and soil test P and K levels of 34 and 370 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 2005 and was fall chiseled. The area was fertilized with 39-100-100 on April 14, 2006. On May 18, 2006 preplant incorporated treatments were applied and tilled twice with a field cultivator set to till 3 to 4 inches deep and operated at 5 to 6 mph. The same day Dairyland 'DSR 199 RR/STS' glyphosate-resistant/sulfonylurea tolerant soybeans were planted in 30-inch rows at a seeding rate of 160,000 seeds/A. On July 28, all plots were treated with Warrior (lambda-cyhalothrin) for soybean aphid 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	May 18	May 19	June 5	June 8	July 3
Treatment	PPI	PRE	POST I	POST II	POST III
Temperature (F)					
air	57	57	72	61	72
soil (4 inch)	56	54	72	70	76
Relative humidity (%)	41	59	57	59	73
Wind (mph)	NW 8	S 8	S 10	N 7	SE 9
Sky	cloudy	clear	clear	cloudy	cloudy
Soil moisture	dry	dry	dry	moist	dry
Soybean					
leaf no.	-	-	V2	V2	R1
height (inch)	-	-	4	6	18
Yellow foxtail					
leaf no.	-	-	3 to 5	3 to 5	3 to 5
height (inch)	-	-	3 to 4	5 to 6	4 to 6
no./ft <sup>2</sup>	-	-	22	19	12
Common lambsquarters					
leaf no.	-	-	4 to 6	4 to 6	6 to 8
height (inch)	-	-	1 to 3	2 to 4	4 to 6
no./ft <sup>2</sup>	-	-	<1	1	<1
Tall waterhemp					
leaf no.	-	-	2 to 4	3 to 6	3 to 5
height (inch)	-	-	1 to 3	2 to 4	3 to 5
no./ft <sup>2</sup>	-	-	4	2	3
Rainfall after application (inch)					
1 week	0.31	0.31	5.35	1.63	0.27
2 week	0.09	0.09	2.38	2.30	0.88
3 week	4.26	4.26	1.39	1.11	0.48

May precipitation totaled 2.44 inches compared to the long-term average of 3.34 inches. Above normal precipitation in June resulted in 9.39 inches compared to the long-term average of 3.77 inches. The trial received 4.26 inches of rain and hail 1 day after POST I application. As a result, there was a heavy flush of new emerging weeds. The growing degree days were slightly below average for May and June but above average for July. The predominate weed species were yellow foxtail, common lambsquarters, and tall waterhemp. None of the herbicide treatments caused visible crop injury. The PRE treatments received only 0.40 inches of rain within the first two weeks of application. On June 5, the PPI treatments gave 95% or greater control of yellow foxtail, common lambsquarters, and tall waterhemp. The PRE treatments gave 0 to 71%, 80 to 99%, and 35 to 99% control of these weeds, respectively. On June 19, after POST herbicide application, all treatments had 94% or greater control of these weeds. In September, the treatments without residual control had a few weed escapes; however, the escapes had little impact on soybean yield. All of the treatment soybean yields were statistically equal to the weed-free check. (Southwest Research and Outreach Center, University of Minnesota, Lamberton).

Table. Herbicide performance in soybeans at Lamberton, MN in 2006 (Getting, Gunsolus and Hoverstad).

Treatment <sup>a</sup>	Rate (oz/A, pt/A, lb/A or %)	Yellow foxtail				Common lambsquarters				Tall waterhemp				Yield (bu/A) <sup>b</sup>
		6/5	6/19	7/3	9/19	6/5	6/19	7/3	9/19	6/5	6/19	7/3	9/19	
-----(% control)-----														
<u>Preplant incorporate 2X/POST I (4-inch weeds)</u>														
Prowl H <sub>2</sub> O /	43 oz /	95	97	97	98	99	100	100	98	97	100	96	92	55.2
Raptor + FirstRate + NIS + AMS	4 oz + 0.3 oz + 0.25% + 3 qt	95	94	92	95	100	100	100	97	98	96	91	87	57.2
Pursuit Plus /	2.5 pt /													
FirstRate + NIS + AMS	0.3 oz + 0.25% + 3 qt													
Prowl H <sub>2</sub> O / Extreme + NIS + AMS	43 oz / 3 pt + 0.125% + 3 qt	95	99	99	97	100	100	100	98	99	100	98	95	57.7
<u>Preemergence/POST I (4-inch weeds)</u>														
Gangster V + Gangster FR / FirstRate	2.5 oz + 0.5 oz / 0.3 oz	28	97	95	95	99	100	98	98	99	100	100	98	56.1
+ Phoenix + Select Max + NIS + AMS	+ 8 oz + 9 oz + 0.25% + 3 qt													
Gangster V + Gangster FR / FirstRate	2.5 oz + 0.5 oz / 0.3 oz	35	98	95	97	98	100	98	98	97	100	99	97	56.2
+ Cobra + Select Max + NIS + AMS	+ 8 oz + 9 oz + 0.25% + 3 qt													
Boundary / Flexstar + Fusion	1.5 pt / 16 oz + 8 oz	71	98	94	93	99	100	100	98	96	100	100	98	55.5
+ Harmony GT + MSO + 28%N	+ 0.125 oz + 1.0% + 2.5%													
<u>Preemergence/POST II (6-inch weeds)</u>														
Intrro / Roundup Weathermax + AMS	2 qt / 22 oz + 3 qt	66	98	93	95	88	100	100	98	73	100	97	97	57.2
Prowl H <sub>2</sub> O + Outlook /	1 pt + 12.6 oz /	75	98	94	95	96	100	98	98	74	100	98	95	58.0
Roundup Weathermax + AMS	22 oz + 3 qt													
Gangster V + Gangster FR /	1.5 oz + 0.3 oz /	3	99	92	93	85	100	100	98	50	100	100	98	59.4
Roundup Weathermax + AMS	22 oz + 3 qt													
A14972A / Touchdown Total + AMS	1 qt / 24 oz + 3 qt	58	98	97	97	95	100	100	98	86	100	100	98	59.1
Boundary / Touchdown Total + AMS	1.5 pt / 24 oz + 3 qt	70	97	95	97	93	100	100	98	80	100	100	97	61.0
Valor SX /	2 oz /	30	95	89	88	95	100	100	97	78	100	99	97	60.2
Roundup Original Max + AMS	22 oz + 3 qt													
Valor SX + Python /	1.5 oz + 0.5 oz /	28	97	90	88	98	100	100	98	91	100	99	98	62.2
Roundup Original Max + AMS	22 oz + 3 qt													
Valor SX + Sencor /	1.5 oz + 3 oz /	43	97	88	85	98	100	100	97	51	100	95	96	57.2
Roundup Original Max + AMS	22 oz + 3 qt													
Python / Glyphomax XRT + AMS	0.5 oz / 24 oz + 3 qt	0	97	86	83	88	100	100	95	40	100	89	86	58.5
Python / Glyphomax XRT + AMS	0.8 oz / 24 oz + 3 qt	0	96	86	83	80	100	100	95	35	100	88	84	60.0
FirstRate / Glyphomax XRT + AMS	0.3 oz / 24 oz + 3 qt	0	97	90	93	93	100	99	97	53	100	89	86	58.0
<u>POST II (4-inch weeds)/POST III (soybean canopy)</u>														
Roundup Weathermax + AMS /	22 oz + 3 qt /	-	95	79	98	-	100	95	98	-	100	80	98	59.3
Roundup Weathermax + AMS	22 oz + 3 qt													
GF-1280 + AMS /	24 oz + 3 qt /	-	95	80	98	-	100	93	98	-	100	86	98	58.8
GF-1280 + AMS	24 oz + 3 qt													
<u>POST II (6-inch weeds)</u>														
Harmony GT	0.5 oz	-	95	87	84	-	100	100	97	-	100	88	87	58.3
+ Roundup Original Max + NIS + AMS	+ 22 oz + 0.25 % + 3 qt													
Harmony GT + Classic	0.5 oz + 0.33 oz	-	97	90	85	-	100	100	95	-	100	85	85	58.1
+ Roundup Original Max + NIS + AMS	+ 22 oz + 0.25 % + 3 qt													
Roundup Weathermax + AMS	22 oz + 3 qt	-	96	83	78	-	100	99	95	-	100	80	73	56.7
<u>Checks</u>														
Weedy Check	-	0	0	0	0	0	0	0	0	0	0	0	0	18.5
Weed-free check	-	100	100	100	100	100	100	100	100	100	100	100	100	57.1
	LSD (0.10)	10.2	1.7	2.6	4.3	9.6	ns	2.1	1.8	17.3	1.2	5.1	5.8	4.43

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

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