

Annual weed control with glyphosate tank-mixes and soil applied products in soybeans at Lamberton, MN in 2006.

Getting, Jodie K. The objective of this study was to evaluate herbicide combinations and soil applied products for the optimum control of common lambsquarters in soybeans. This study was conducted on a Ves loam soil containing 4.3% organic matter, pH 6.5 and soil test P and K levels of 22 and 320 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 soybeans in 2005 and was fall chiseled. The area was fertilized with 150-100-100 on April 14, 2006. On May 18, 2006, Dairyland 'DSR199' glyphosate resistant/sulfonylurea 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 19	June 8	June 13	July 3
Treatment	PRE	POST I	POST II	POST III
Temperature (F)				
air	57	70	61	72
soil (4 inch)	54	72	70	76
Relative humidity (%)	59	46	59	73
Wind (mph)	S 8	NE 10	S 5	SE 9
Sky	clear	p. cloudy	clear	cloudy
Soil moisture	dry	moist	moist	dry
Soybean				
leaf no.	-	V1	V2	R1
height (inch)	-	5	6	18
Green foxtail				
leaf no.	-	3 to 4	3 to 4	3 to 4
height (inch)	-	3 to 4	4 to 6	4 to 6
no./ft ²	-	3	3	3
Common lambsquarters				
leaf no.	-	3 to 5	4 to 6	4 to 6
height (inch)	-	1 to 3	3 to 5	4 to 6
no./ft ²	-	< 1	1	1
Tall waterhemp				
leaf no.	-	2 to 4	4 to 6	3 to 5
height (inch)	-	1 to 3	3 to 5	3 to 6
no./ft ²	-	3	2	2
Rainfall after application (inch)				
1 week	0.31	1.63	2.84	0.27
2 week	0.09	2.30	1.11	0.88
3 week	4.26	1.11	0.00	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. As a result, there was a heavy flush of new emerging weeds. The subsoil moisture helped carry the crop through a drier than normal July. The growing degree days were slightly below average for May and June but above average for July. The population of common lambsquarters was relatively low and the predominate weed species were green foxtail 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, resulting in decreased weed control prior to POST application. Canopy at 1.08 oz provided 0% green foxtail control. Prowl H₂O, Valor, Prowl H₂O + Valor, and Boundary resulted in 79 to 81%, 61 to 76%, 88, and 73% control, respectively. All of the PRE treatments gave 96% or greater common lambsquarters control. Canopy at 1.08 oz provided 13% tall waterhemp control. Prowl H₂O, Valor, Prowl H₂O + Valor, and Boundary resulted in 71 to 81%, 93 to 95%, 91, and 78% control, respectively. In August, all of the herbicide treatments provided 97% or greater common lambsquarters control. Prowl H₂O PRE followed by Raptor + NIS + AMS gave 20% tall waterhemp control. Roundup Original Max + Raptor + AMS, Roundup Original Max + Basagran + AMS, Roundup Original Max + Harmony GT + AMS, and Roundup Original Max + Resource + AMS resulted in 38, 61, 70, and 75% control, respectively. Valor followed by Roundup Original Max + AMS, Prowl H₂O + Valor followed by Roundup Original Max + AMS, and Roundup Original Max + AMS applied POST II/POST III provided 97, 97, and 98% control, respectively. Soybean yield was reduced in those treatments with poor tall waterhemp control. (Southwest Research and Outreach Center, University of Minnesota, Lamberton).

Table. Annual weed control with glyphosate tank-mixes and soil applied products in soybeans at Lamberton, MN in 2006 (Getting).

Treatment ^a	Rate	Green foxtail				Common lambsquarters				Tall waterhemp				Yield (bu/A) ^b
		6/8	6/19	7/3	8/30	6/8	6/19	7/3	8/30	6/8	6/19	7/3	8/30	
<u>Preemergence/POST I (2 to 4-inch weeds)</u>	(oz/A, pt/A, lb/A or %)	-----(% control)-----												
Valor / Roundup Original Max + AMS	2 oz / 22 oz + 2 lb	61	100	91	90	100	100	100	97	94	100	98	97	53.8
Valor / Roundup Original Max + Raptor + AMS	2 oz / 22 oz + 4 oz + 2 lb	68	100	98	98	100	100	100	98	95	100	96	94	54.6
Valor / Raptor + NIS + AMS	2 oz / 4 oz + 0.25% + 2 lb	76	100	97	97	98	100	100	97	93	95	87	81	47.7
Prowl H ₂ O / Raptor + NIS + AMS	32 oz / 4 oz + 0.25% + 2 lb	81	100	97	95	98	100	100	97	71	56	38	20	18.3
Canopy EX /	1.08 oz /	0	100	87	79	96	100	98	97	13	100	84	76	47.9
Roundup Original Max + Harmony GT + AMS	22 oz + 0.083 oz + 2 lb													
<u>Preemergence/POST II (4 to 6-inch weeds)</u>														
Prowl H ₂ O + Valor /	32 oz + 2 oz /	88	100	97	96	99	100	100	97	91	100	100	97	56.0
Roundup Original Max + AMS	22 oz + 2 lb													
Prowl H ₂ O / Roundup Original Max + AMS	32 oz / 22 oz + 2 lb	79	100	95	92	97	100	100	97	81	100	95	89	55.0
Boundary / Roundup Original Max + AMS	33.5 oz / 22 oz + 2 lb	73	100	96	97	99	100	100	98	78	100	97	94	51.3
<u>POST I (2 to 4-inch weeds)</u>														
Roundup Original Max + Raptor + AMS	22 oz + 4 oz + 2 lb	-	100	95	96	-	100	100	98	-	98	73	38	33.0
Roundup Original Max + Harmony GT + AMS	22 oz + 0.083 oz + 2 lb	-	100	88	87	-	100	100	98	-	99	80	70	38.4
Roundup Original Max + Basagran + AMS	22 oz + 32 oz + 2 lb	-	100	88	88	-	100	100	98	-	81	76	61	31.1
Roundup Original Max + Resource + AMS	22 oz + 8.6 oz + 2 lb	-	100	88	84	-	100	98	98	-	99	84	75	40.8
<u>POST II (4 to 6-inch weeds)/ POST III (regrowth)</u>														
Roundup Original Max + AMS /	22 oz + 2 lb /	-	100	86	98	-	100	99	98	-	100	83	98	57.6
Roundup Original Max + AMS	22 oz + 2 lb													
<u>Check</u>														
Weedy		0	0	0	0	0	0	0	0	0	0	0	0	12.2
	LSD (0.10)	8.2	0.3	4.7	4.2	2.1	ns	2.1	1.0	8.2	5.9	8.0	7.1	6.65

^a AMS = spray grade ammonium sulfate; NIS = nonionic surfactant.

^b Yield adjusted to 13% moisture.