

Effect of adjuvants tank-mixed with glyphosate on weed control in soybeans at Lamberton, MN in 2005.
 Getting, Jodie K. The objective of this study was to evaluate the effect of adjuvants tank-mixed with glyphosate for annual grass and broadleaf weed control in soybean. This study was conducted on a Normania loam soil containing 4.7% organic matter, pH 6.3 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 2004 and was fall chiseled. On May 24, 2005, Asgrow 'AG2107' glyphosate resistant soybean was planted in 30-inch rows at a seeding rate of 160,000 seeds/A. On July 29, all plots were treated with lambda-cyhalothrin (Warrior) 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	June 21
Treatment	POST II
Temperature (F)	
air	70
soil (4 inch)	70
Relative humidity (%)	87
Wind (mph)	NNE 5
Sky	p. cloudy
Soil moisture	dry
Soybean	
leaf no.	V3
height (inch)	6
Yellow foxtail	
leaf no.	2 to 4
height (inch)	4 to 6
no./ft ²	46
Common lambsquarters	
leaf no.	3 to 5
height (inch)	3 to 5
no./ft ²	3
Tall waterhemp	
leaf no.	2 to 4
height (inch)	2 to 4
no./ft ²	4
Pennsylvania smartweed	
leaf no.	1 to 3
height (inch)	1 to 3
no./ft ²	<1
Rainfall after application (inch)	
1 week	0.22
2 week	0.81
3 week	1.13

None of the herbicide treatments caused visible crop injury. All treatments provided excellent yellow foxtail, common lambsquarters, and tall waterhemp control. Differences were observed in Pennsylvania smartweed control, however, pressure was light and efficacy ratings were taken on a few plants in each plot. Observations on these plants were made on the existing plants and summarized below. A more consistent stand of smartweed would be necessary to make sound conclusions. On July 6, Roundup Original Max applied alone gave 63% Pennsylvania smartweed control. Roundup Original Max tank mixed with Cornbelt N-Tense at 3 pt/100 gallons and 6 pt/100 gallons resulted in 45% control. Roundup Original Max + Cornbelt N-Tense + Cornbelt Gardian gave 53% control. Roundup Original Max tank mixed with Premium AMS, Premier 90 + Premium AMS, or One-Ap XL gave 76, 79, and 76%, respectively. Extreme tank mixed with Premier 90 + Premium AMS, Cornbelt N-Tense, One-AP XL, or Cornbelt N-Tense + Cornbelt Gardian resulted in 73, 70, 69, and 71% control, respectively. (Southwest Research and Outreach Center, University of Minnesota, Lamberton).

Table. Effect of adjuvants tank-mixed with glyphosate on weed control in soybeans at Lamberton, MN in 2005 (Getting).

Treatment ^a	Rate	Yellow foxtail		Common lambsquarters		Tall waterhemp		Pennsylvania smartweed	
		6/29	7/6	6/29	7/6	6/29	7/6	6/29	7/6
POST (4-inch weeds)	(oz/A or lb/A or %)	-----(% control)-----							
Roundup Original Max	11 oz	98	98	98	98	98	98	53	63
Roundup Original Max + Premium AMS	11 oz + 8.5 lb/100 gal	98	98	98	98	98	98	69	76
Roundup Original Max + Premier 90 + Premium AMS	11 oz + 2 qt/100 gal + 8.5 lb/100 gal	98	98	98	98	98	98	65	79
Roundup Original Max + One-Ap XL	11 oz + 9 lb/100 gal	98	98	98	98	98	98	71	76
Roundup Original Max + Cornbelt N-Tense	11 oz + 3 pt/100 gal	98	98	98	98	98	98	50	45
Roundup Original Max + Cornbelt N-Tense + Cornbelt Gardian	11 oz + 1 qt/100 gal + 1 qt/100 gal	98	98	98	98	98	98	49	53
Roundup Original Max + Cornbelt N-Tense	11 oz + 6 pt/100 gal	98	98	98	98	98	98	65	45
Extreme + Premier 90 + Premium AMS	16 oz + 1 qt/100 gal + 8.5 lb/100 gal	98	98	98	98	98	98	68	73
Extreme + Cornbelt N-Tense	16 oz + 6 pt/100 gal	98	98	98	98	98	98	69	70
Extreme + One-Ap XL	16 oz + 9 lb/100 gal	98	98	98	98	98	98	66	69
Extreme + Cornbelt N-Tense + Cornbelt Gardian	16 oz + 1 qt/100 gal + 1 qt/100 gal	98	98	98	98	98	98	58	71
<u>Checks</u>									
Weedy Check	-	0	0	0	0	0	0	0	0
	LSD (0.10)	ns	ns	ns	ns	ns	ns	12.9	13.9

^a Premier 90 = nonionic surfactant; Premium AMS = spray grade ammonium sulfate fertilizer; One-Ap XL; spray grade ammonium sulfate fertilizer + surfactant + deposition + defoamer; Cornbelt Dri-Gard = spray grade ammonium sulfate fertilizer + deposition + defoamer; Cornbelt Gardian = spray grade ammonium sulfate fertilizer + deposition; Cornbelt N-Tense = water conditioning agent/pH adjuster.