

Glyphosate tank-mixes with sulfonyleurea in sulfonyleurea tolerant soybean (STS). Zollinger, Richard K. and Jerry L. Ries. An experiment was conducted near Fargo, ND, to evaluate STS soybean response and weed control from glyphosate with sulfonyleurea tank-mixes. Glyphosate-resistant canola seed was spread throughout the study and incorporated with a field cultivator, followed by planting of Dairyland 'DM5-64' STS soybean May 5, 2005. POST treatments were applied June 20 at 5:30 pm with 87 F air, 82 F soil surface, 45% relative humidity, 25% clouds, 2 to 4 mph W wind, moist soil surface and subsoil, and no dew present to 6 to 10 inch soybean. Weeds species present were: 4 to 8 inch (10 to 50/ft<sup>2</sup>) yellow foxtail, 1 inch to blossoming (10 to 20/yard<sup>2</sup>) volunteer canola, and 1 to 8 inch (vining) (10 to 20/yard<sup>2</sup>) wild buckwheat. Treatments were applied to the center 6.7 feet of the 10 by 40 foot plots with a backpack-type plot sprayer delivering 8.5 gpa at 40 psi through 11001 Turbo TeeJet flat-fan nozzles. The experiment had a randomized complete block design with three replicates per treatment.

Thifensulfuron used in glyphosate-resistant plus sulfonyleurea tolerant soybean (STS) soybean will control weeds that are less tolerant to glyphosate and may control mustard species, including volunteer glyphosate-resistant canola. Thifensulfuron provides control of common lambsquarters, wild buckwheat, and annual smartweed. Dense volunteer glyphosate-resistant canola and weed infestation caused soybean plants to be extremely stressed, stunted, and chlorotic from water and space competition, and determining herbicide phytotoxicity was difficult. Pyriithobac clearly caused 28 to 33% soybean injury beyond injury caused by weed competition. Only treatments containing pyriithobac exhibited injury from herbicides. All treatments completely controlled yellow foxtail. Volunteer canola was emerging to bloom stage at application. Volunteer canola control did not exceed 60%. All volunteer canola in the pre-bolt stage was controlled. Plants that were bolting to flower stage were not controlled and were responsible for the poor control ratings. The wild buckwheat infestation was severe with 10 to 20 plants per square yard. All herbicides applied with glyphosate improved wild buckwheat control compared to glyphosate applied alone. Oil adjuvants increased wild buckwheat control from thifensulfuron plus chlorimuron at 14 DAT. All treatments gave greater than 92% wild buckwheat control at 28 DAT. (Dept. of Plant Sciences, North Dakota State University, Fargo).

Table. Glyphosate tank-mixes with sulfonylurea in sulfonylurea tolerant soybean (STS) (Zollinger and Ries).

Treatment <sup>1</sup>	Rate (lb/A)	14 DAT				28 DAT			
		injury (%)	SETLU (%)	BRSRO (%)	POLCO (%)	injury (%)	SETLU (%)	BRSRO (%)	POLCO (%)
Glyphosate+	0.77+								
AMS	17lb/100gal	0	99	0	63	0	99	0	95
Thifensulfuron+AMS	0.004+17lb/100gal	0	99	37	84	0	99	38	99
Thif+AMS	0.008+17lb/100gal	0	99	32	75	0	99	40	99
Thif+AMS	0.016+17lb/100gal	0	99	28	79	0	99	33	99
Chlorimuron+AMS	0.005+17lb/100gal	3	99	47	82	0	99	60	99
Thif+Clim+AMS	0.016+0.005+17lb/100gal	0	99	50	78	0	99	55	99
Thif+Clim+AMS	0.002+0.005+17lb/100gal	0	99	50	75	0	99	50	99
Thif+Clim+Clethodim+ PO+AMS	0.016+0.005+0.125+ 1% v/v+17lb/100gal	0	99	50	87	0	99	47	92
Thif+Quizalofop+ Superb HC+AMS	0.016+0.034+ 1pt+17lb/100gal	0	99	25	87	0	99	32	99
Thif+Clim+Qufp+ Superb HC+AMS	0.016+0.005+0.034+ 1pt+17lb/100gal	2	99	60	89	0	99	60	97
Thif+Imazamox+ NIS+AMS	0.016+0.008+ 0.25% v/v+17lb/100gal	0	99	35	91	0	99	53	94
Thif+Imazethapyr+ NIS+AMS	0.016+0.031+ 0.25% v/v+17lb/100gal	0	99	35	78	0	99	50	99
Pyrithiobac+AMS	0.064+17lb/100gal	28	99	30	89	0	99	60	99
Thif+Pyrithiobac+AMS	0.016+0.064+17lb/100gal	33	99	40	94	0	99	57	99
LSD (0.05)		4	0	8	5	0	0	12	4

<sup>1</sup>Glyphosate = Roundup UltraMax II; AMS = ammonium sulfate; PO = petroleum oil = Herbimax; Superb HC = petroleum oil concentrate; NIS = nonionic surfactant = R-11.