

PRE and POST herbicide tankmixes in soybean. Zollinger, Richard K. and Jerry L. Ries. An experiment was conducted near Fargo, ND, to evaluate tankmixes in soybean. Asgrow 'AG0801' soybean was planted on May 17, 2002. PRE treatments were applied on May 20 at 1:00 pm with 62 F air, 50 F subsoil at a depth of 4 inches, 16% relative humidity, 5% clouds, 7 mph S wind, dry soil surface, and moist subsoil. EPOST (early post emergence) treatments were applied on June 14 at 3:00 pm with 76 F, 80 F soil surface, 38% relative humidity, 100% clouds, 1 to 2 mph NW wind, moist soil surface, moist subsoil, good crop vigor and no dew present to unifoliate soybean. Weed species present were: 1 to 3 inch (20 to 100/ft<sup>2</sup>) yellow foxtail; 1 to 3 inch (1 to 5/yd<sup>2</sup>) common lambsquarters, and 1 to 3 inch (5 to 15/ft<sup>2</sup>) wild buckwheat. Post treatments were applied on June 26 at 12:00 pm with 80 F air, 83 F soil surface, 54% relative humidity, 0% clouds, 6 mph NW wind, wet soil surface, wet subsoil, good crop vigor, and no dew present to V2 to V3 soybean. Weed species present were: 4 to 10 inch (20 to 50/ft<sup>2</sup>) yellow foxtail; 6 to 10 inch (1 to 5/yd<sup>2</sup>) common lambsquarters; and 3 to 8 inch vining (5 to 15/ft<sup>2</sup>) wild buckwheat. Treatments were applied to the center 6.67 feet of the 10 by 40 foot plots with a bicycle-wheel-type plot sprayer delivering 17 gpa at 40 psi through 8002 flat fan nozzles for PRE treatments and 8.5 gpa at 40 psi through 8001 flat fan nozzles for EPOST and POST treatments. The experiment had a randomized complete block design with three replicates per treatment.

All PRE and EPOST treatments were evaluated prior to POST herbicide application (data not shown). There was no evidence of phytotoxicity from any PRE activity (thifensulfuron, sulfentrazone, or flumioxazin) on yellow foxtail, wild mustard, redroot pigweed, common lambsquarters, wild buckwheat, dandelion, or Canada thistle. All EPOST glyphosate treatments gave 100% control of weeds mentioned above. Imazethapyr applied EPOST controlled yellow foxtail and redroot pigweed and gave 70% common lambsquarters, 50% wild buckwheat, 30% dandelion, and 50% Canada thistle control. Cloransulam gave less than 20% control of all annual weeds listed above and dandelion but gave 70% Canada thistle control. At July 3 and 10, except for cloransulam, all treatments gave 99% control of yellow foxtail, redroot pigweed, common lambsquarters, and wild mustard. Cloransulam gave 0% control of before mentioned weeds but 100% wild mustard control. Soybean injury (stunting) was observed only at July 31 (35 DAT). However, stunting was dramatic. Soybean height in unaffected plots was 36 inches or greater but soybean height in plots with 25-30% stunting was 20 to 25 inches. Glyphosate or other herbicides applied alone did not stunt soybean. Glyphosate applied with thifensulfuron, cloransulam, imazethapyr, or imazamox caused soybean stunting. Stunting did appear to reduced yield. Treatments with no glyphosate or only one POST application of glyphosate had the lowest yields because of poor weed control or subsequent weed flushes after application. All glyphosate treatments controlled all annual and perennial weeds at the final evaluation (July 31). Moisture at time of cleaning and weighing was 11.4%. (Dept. of Plant Sciences, North Dakota State University, Fargo).

Table. PRE and POST herbicide tankmixes in soybean (Zollinger and Ries).

Treatment <sup>1</sup>	Rate	July 3				July 10				July 31				Soybean	
		POLCO	TAROF	CIRAR	SONAR	POLCO	TAROF	CIRAR	SONAR	Soybean injury	POLCO	TAROF	CIRAR	Yield	
	(lb/A)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(Test wt)	(bu/A)
<b>PRE/POST</b>															
Glyphosate <sup>2</sup> +thifensulfuron+NIS+AMS/gyt <sup>2</sup> +AMS	0.37+0.0094/ 0.37	60	53	50	50	95	73	70	73	20	93	99	99	56.6	40.4
Glyt <sup>2</sup> +thif+NIS+AMS/gyt <sup>2</sup> +AMS	0.37+0.014/ 0.37	67	80	77	77	97	90	88	92	20	99	99	99	57.3	47.3
Glyt <sup>2</sup> +thif+sulfentrazone+AMS/gyt <sup>2</sup> +AMS	0.37+0.0094+ 0.0187/0.37	62	63	50	50	95	83	75	73	13	99	99	99	57.2	44.6
Glyt <sup>2</sup> +thif+suen+NIS+AMS/gyt <sup>2</sup> +AMS	0.37+0.014+ 0.0187/0.37	70	82	80	80	97	96	90	90	15	99	99	99	57.7	44.2
Flumioxazin/gyt <sup>2</sup> +AMS	0.064/0.74	86	83	83	83	99	95	93	93	0	99	99	99	57.1	46.5
<b>EPOST</b>															
Imazethapyr+NIS+28-0-0	0.047	30	30	30	30	40	43	43	43	0	50	90	48	57.6	36.5
Cloransulam+NIS+28-0-0	0.0157	10	10	17	17	40	40	87	73	0	40	80	30	56.7	34.2
Glyt <sup>3</sup> +AMS	0.387	99	99	99	99	99	99	99	99	0	99	99	99	57.6	35.2
<b>EPOST/POST</b>															
Glyt <sup>2</sup> +AMS/gyt <sup>2</sup> +AMS	0.8/0.37	99	99	99	99	99	99	99	99	0	99	99	99	57.8	39.4
Glyt <sup>2</sup> +AMS/gyt <sup>2</sup> +AMS	0.37/0.74	99	99	99	99	99	99	99	99	0	99	99	99	57.4	40.4
Glyt <sup>4</sup> +AMS/Glyt <sup>4</sup> +AMS	0.375/0.375	99	99	99	99	99	99	99	99	0	99	99	99	57.2	38.7
<b>POST</b>															
Glyt <sup>2</sup> +thif+NIS+AMS	0.37+0.0039	63	60	60	57	85	90	87	83	17	99	99	99	57.4	37.6
Glyt <sup>5</sup> +thif+AMS	0.75+0.0039	60	63	63	63	88	93	88	88	22	99	99	99	57.4	39.6
Glyt <sup>2</sup> +AMS	0.74	70	75	80	80	83	90	95	95	0	99	99	99	56.7	41.0
Imazethapyr&glyt+NIS+28-0-0	0.048&0.56	57	57	53	53	67	70	72	72	22	99	99	99	57.1	42.2
Glyt <sup>2</sup> +clsm+AMS	0.74+0.0157	67	70	73	73	73	78	73	73	28	70	95	95	58.0	42.7
Glyt <sup>4</sup> +clsm+NIS	0.75+0.0157	80	80	82	83	80	88	80	77	23	92	99	99	57.1	42.5
Glyt <sup>4</sup> +imazamox+NIS+AMS	0.75+0.0312	75	73	68	68	93	88	87	85	23	92	99	99	57.4	42.4
Glyt <sup>4</sup> +AMS	0.75	63	70	70	70	73	73	90	70	4	99	99	99	56.9	44.8
Glyt <sup>3</sup> +AMS	0.387	63	63	63	63	77	85	85	85	3	99	99	99	57.4	43.8
LSD (0.05)		12	14	16	16	8	7	9	10	4	6	4	8	0.9	9.1

<sup>1</sup>NIS = nonionic surfactant = Activator 90 at 0.25% v/v; AMS = ammonium sulfate at 2% w/w; 28-0-0 = urea ammonium nitrate at 1 qt/A.<sup>2</sup>Glyt = Roundup UltraMax.<sup>3</sup>Glyt = Roundup WeatherMax.<sup>4</sup>Glyt = Roundup Original.<sup>5</sup>Glyt = Touchdown.