

Weed control and crop response in glyphosate-resistant soybean. (Hendrickson and Valenti) The study was conducted at the NDSU Carrington Research Extension Center on a loam soil with a 6.8 pH and 3.4% organic matter. Glyphosate-resistant soybean 'RG200RR' was seeded May 23, 2002 into 30-inch rows at 165,000 seeds/A. Individual plots were 10 ft by 25 ft and arranged in a randomized complete block design with three replications. Herbicide treatments were applied with a CO₂ pressurized hand-held plot sprayer. PRE treatments were applied at 20 gal/A and 20 psi through XR8003 flat fan nozzles. POST treatments were applied at 10 gal/A and 26 psi through XR80015 flat fan nozzles. Valor was applied PRE on May 27 with 63° F, 35% RH, 0% cloud cover, 0 mph wind, and 54° F soil temperature. EPOST herbicides were applied on June 20 with 64° F, 58% RH, 0% cloud cover, 7 mph wind, and 63° F soil temperature to V2 soybean, 2- to 4-inch green and yellow foxtail, 1- to 3-inch redroot pigweed, 2- to 3-inch common lambsquarters, and 1- to 3-inch wild buckwheat. POST herbicides were applied on July 3 with 79° F, 32% RH, 10% cloud cover, 6 mph wind, and 77° F soil temperature to V4 soybean, 6- to 9-inch green and yellow foxtail, 4- to 7-inch redroot pigweed, 5- to 8-inch common lambsquarters, and 4- to 8-inch wild buckwheat. The soybeans were harvested on September 24.

All treatments containing glyphosate gave 83 to 100% control of redroot pigweed, common lambsquarters, and green and yellow foxtail when evaluated July 29. Glyphosate applied EPOST and POST at 0.375 lb ae/A gave greater wild buckwheat control than 0.75 lb ae/A applied POST. With the exception of Amplify applied EPOST, soybean yield for the treatment combinations was better than the untreated control

Table. Weed control and crop response in glyphosate-resistant soybean.

Treatment ^a	Rate lb ai/A	Timing ^d	Weed control ^e												Soybean			Yield Bu/A
			---- AMARE ----			---- CHEAL ----			---- POLCO ----			---- SETSS ----			---- Injury ----			
			6/20	7/12	7/29	6/20	7/12	7/29	6/20	7/12	7/29	6/20	7/12	7/29	6/20	7/12	7/29	
----- % -----																		
Roundup Ultramax+AMS / Roundup Ultramax+AMS	0.375 / 0.375	EP P	-	100	100	-	100	100	-	100	100	-	100	99	-	0	0	30.4
Roundup Ultramax+AMS	0.75	P	-	100	98	-	100	98	-	58	90	-	100	99	-	0	0	26.6
Roundup Ultramax+AMS / Roundup Ultramax+AMS	0.375 / 0.75	EP P	-	97	83	-	98	83	-	93	73	-	63	92	-	0	0	27.6
Extreme+NIS ^b +28%	0.61	P	-	100	100	-	100	98	-	43	77	-	100	99	-	3	0	28.0
Pursuit+NIS ^b	0.047	EP	-	80	80	-	83	72	-	50	53	-	87	80	-	0	0	28.5
Amplify+NIS ^c +28%	0.0157	EP	-	10	0	-	13	0	-	0	0	-	0	0	-	0	0	15.9
Roundup Ultramax+ Amplify+AMS	0.75+ 0.0157	P	-	100	100	-	99	100	-	43	87	-	99	96	-	0	0	30.6
Roundup Original+ Amplify+NIS ^c	0.75 0.0157	P	-	100	100	-	100	100	-	37	73	-	98	96	-	0	0	25.8
Raptor+Roundup Original+ NIS ^c +AMS	0.032+0.75	P	-	100	97	-	100	97	-	10	60	-	99	95	-	0	0	23.8
Roundup Original+AMS / Roundup Original+AMS	0.375 / 0.375	EP P	-	100	100	-	100	100	-	90	93	-	99	94	-	0	0	31.3
Roundup Original+AMS	0.75	P	-	100	100	-	100	100	-	40	67	-	99	96	-	0	0	27.8
MON 78270+AMS	0.375	EP	-	67	57	-	87	57	-	48	23	-	53	32	-	0	0	26.0
MON 78270+AMS	0.375	P	-	100	100	-	98	100	-	23	63	-	98	94	-	0	0	29.2
Valor / Roundup Ultramax+AMS	0.0625 / 0.75	PRE P	100	100	100	97	100	100	96	96	100	73	99	96	7	0	0	31.3
Untreated check	-		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	11.7
LSD (0.05)			0	16	25	4	15	27	4	33	32	29	29	26	NS	2	0	7.1

^aRates for Roundup Ultramax, Roundup Original, and MON78270 are in lb ae/A. AMS=ammonium sulfate at 16.7 lb/100 gal, 28%=urea ammonium nitrate at 1 qt/A.

^bNIS=Nonionic Surfactant=Activator 90 at 0.25% v/v.

^cNIS=Nonionic Surfactant=Activator 90 at 0.125% v/v.

^dEP=EPOST, P=POST.

^eAMARE=redroot pigweed, CHEAL=common lambsquarters, POLCO=wild buckwheat, and SETSS=green and yellow foxtail.