

Evaluation of glyphosate programs in soybeans. Abendroth, Julie A., Alex R. Martin, and Kevin T. Horky. A field study was conducted to evaluate the efficacy and crop response of PRE alone, PRE+POST, and POST alone herbicide programs in conventionally-tilled, glyphosate-tolerant soybeans. A randomized complete block design with three replications per treatment was utilized. The study was conducted on a Sharpsburg/Crete silty clay loam with 2.9% organic matter and a pH of 6.7. Seedbed preparation consisted of disking prior to planting and one field cultivation the day of planting. Individual plots consisted of six 30-inch rows, each 30 feet long. 'Asgrow AG2703RR' soybeans were planted May 28 at a population of 131,600 seeds/acre. F2 glyphosate-tolerant corn was seeded to mimic volunteer corn. Treatments were applied with a tractor-mounted sprayer traveling 3.0 mph. Application, crop, weed, and environmental data are presented:

Date	May 28	June 25
Treatment	PRE	MPOST
Sprayer		
gpa	15	15
psi	30	30
Temperature (°F)		
Air	86	67
Soil (4 inch)	72	75
Soil Moisture	Adequate	Adequate
Wind (mph)	7	7
Sky (% cloudy)	45	100
Relative Humidity (%)	19	77
Precip. after appl.		
Week 1 (inch)	0.52	1.54
Week 2 (inch)	0.36	0.12
Soybeans		
Leaf no.	--	3
Height (inch)	--	9
Velvetleaf		
Leaf no.	--	7
Height (inch)	--	4-7
Infestation (m ²)	--	49-60
Pigweed species		
Leaf no.	--	8-13
Height (inch)	--	3-8
Infestation (m ²)	--	1-145
Common sunflower		
Leaf no.	--	8-9
Height (inch)	--	3-8
Infestation (m ²)	--	2-6
Annual grasses		
Leaf no.	--	4
Height (inch)	--	5-7
Infestation (m ²)	--	7-25
Volunteer corn		
Leaf no.	--	4
Height (inch)	--	11
Infestation (m ²)	--	105

Summary comments: Moisture was adequate throughout May and June; July and August saw limited amounts, with 1.03" and 1.31" respectively. The majority of Amaranthus species, AMASS, were Palmer amaranth with some waterhemp. Annual grasses, GGGAN, were primarily green and giant foxtail. On June 30 (5 DAT), 22% necrosis was seen with the MPOST alone treatment of carfentrazone and glyphosate. On July 7, treatments including carfentrazone or lactofen exhibited 10-14% necrosis, whereas all other crop injury was negligible. Efficacy data was recorded for glyphosate-tolerant volunteer corn; the difference in efficacy of PRE + MPOST treatments containing sulfentrazone plus glyphosate POST, with and without quizalofop-P, was investigated. Control of the volunteer corn was 93% and 19% with and without quizalofop-P, respectively (data not included). Overall, efficacy was good with all treatments. Results of the study are summarized in the following table. (Dept. of Agronomy and Horticulture, University of Nebraska-Lincoln)

Table. Evaluation of glyphosate programs in soybeans (Abendroth, Martin, and Horky).

Treatment	Application		injury 7/7 (%)	-----ABUTH-----			-----AMASS ^a -----			-----HELAN-----			-----GGGAN ^b -----		
	Rate (lb/A)	Timing		6/25	7/7	8/22	6/25	7/7	8/22	6/25	7/7	8/22	6/25	7/7	8/22
-----% weed control-----															
Flumioxazin+ cloransulam/ lactofen+ cloransulam+ clethodim+ NIS ^c + AMS ^d	0.047 0.016 0.125 0.016 0.125 0.25% 2	PRE/ MPOST	10	86	98	95	94	100	100	81	99	100	84	94	95
Flumioxazin+ cloransulam/ lactofen+ clethodim+ NIS+ AMS	0.078 0.032 0.125 0.094 0.25% 2	PRE/ MPOST	14	93	97	93	100	100	100	95	96	84	93	97	96
Flumioxazin+ flumetsulam/ glyphosate ^e + AMS	0.064 0.05 1 2	PRE/ MPOST	1	91	98	97	100	100	99	85	100	100	90	100	99
Carfentrazone+ glyphosate ^e + AMS	0.0032 1.03 2.5	MPOST	13	---	95	84	---	98	89	---	99	100	---	98	91
Flumioxazin+ cloransulam/ glyphosate ^f + AMS	0.048 0.016 0.75 2.5	PRE/ MPOST	0	89	98	93	95	99	96	78	99	100	85	100	99
Flumioxazin+ cloransulam/ glyphosate ^f + AMS	0.064 0.021 0.75 2.5	PRE/ MPOST	1	90	98	92	99	98	95	90	100	100	97	100	100
Flumetsulam+ flumioxazin/ glyphosate ^f + AMS	0.033 0.048 0.375 2.5	PRE/ MPOST	1	91	98	93	98	100	99	57	100	100	95	100	99
Cloransulam+ flumetsulam/ glyphosate ^f + AMS	0.021 0.025 0.75 2.5	PRE/ MPOST	0	87	98	97	91	99	99	80	100	100	60	99	96
Pendimethalin/ cloransulam+ glyphosate ^f + AMS	1.24 0.016 0.75 2.5	PRE/ MPOST	0	55	98	96	85	99	99	17	100	100	91	100	99
Glyphosate ^f + AMS	1 2.5	MPOST	0	---	96	88	---	95	92	---	99	98	---	97	93
Glyphosate ^g + AMS	1.01 2.5	MPOST	0	---	97	86	---	97	88	---	100	98	---	98	86
Sulfentrazone+ chlorimuron/ glyphosate ^e + AMS	0.12 0.023 0.95 2.5	PRE/ MPOST	0	65	98	97	97	100	99	12	100	97	72	100	98

(continued)

Table. Evaluation of glyphosate programs in soybeans (Abendroth, Martin, and Horky), continued.

Treatment	Application		injury 7/7 (%)	-----ABUTH-----			-----AMASS ^a -----			-----HELAN-----		-----GGGAN ^b -----			
	Rate (lb/A)	Timing		6/25	7/7	8/22	6/25	7/7	8/22	6/25	7/7	8/22	6/25	7/7	8/22
-----% weed control-----															
Sulfentrazone/ glyphosate ^e + quizalofop-P+ NIS+ AMS	0.19 0.95 0.034 0.25% 2.5	PRE/ MPOST	1	72	98	96	95	99	98	0	100	98	95	100	98
Sulfentrazone/ glyphosate ^e + NIS+ AMS	0.19 0.95 0.25% 2.5	PRE/ MPOST	0	73	98	100	92	100	100	0	100	100	99	100	100
Check			0	0	0	0	0	0	0	0	0	0	0	0	0
LSD (P=.05)			2	13	2	4	5	3	7	12	1	3	9	2	4

^aAMASS = primarily composed of Palmer amaranth, with some waterhemp

^bGGGAN = majority was green and giant foxtail, with some fall panicum

^cNIS = Preference by Agrilience

^dAMS = N Pa-K by Agrilience

^eglyphosate = Roundup WeatherMAX

^fglyphosate = Glyphomax Plus

^gglyphosate = GF-887