

Efficacy of glyphosate salt formulations. Abendroth, Julie A., Alex R. Martin, and Jess J. Spotanski. A field study was conducted to evaluate the efficacy and crop response of alternate glyphosate salt formulations 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 silty clay loam with 3.2% organic matter and a pH of 6.6. 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 3003 RR' soybeans were planted May 30 at a population of 150,000 seeds/acre.

Treatments were applied POST on June 27th with a tractor-mounted sprayer at 10 gpa, 3.0 mph, and a pressure of 30 psi. Air and soil temperatures were 82 and 79 °F, respectively, and soil moisture was below normal. Relative humidity was 44%, with a wind speed of 5 mph and 0% cloud cover. No rainfall occurred within the two weeks prior to application or within the first week following; 0.4 inch fell on July 6th. The soybeans were 10 inches tall, at the 3rd trifoliolate leaf. Velvetleaf were 9-10 inches tall, 7 leaf, with a density of 22 per square meter. Amaranthus species, AMASS, were primarily composed of Palmer amaranth with some waterhemp. They were 10-11 inches tall, with a density of 22 per square meter. Common sunflower were 4-5 inches tall, 6 leaf, with a density of less than 1 per square meter. The majority of annual grasses, GGGAN, were green and giant foxtail with some large crabgrass. The grass species were 7-8 inches tall, 6 leaf, with a density of 10 per square meter; however, the pressure was erratic across the study.

Results of the study are summarized in the following table. The amount of precipitation received this summer was far below normal, with 3 inches during April, 4.8 inches in May, 0.08 inches in June and 0.6 inches during July. Although rainfall was inadequate, efficacy was good for all the treatments. Differences between the salt formulations and rates were greatest on the first rating, July 10th. Without the addition of AMS, Roundup UltraMAX tended to have the lowest control among the glyphosates overall. MON 78270 and MON 78460 were comparable in their control of amaranth and grass species. However, MON 78460 controlled velvetleaf significantly better than MON 78270. With respect to common sunflower, MON 78270 appeared to act faster, as it was significantly better on July 10th and 16th. There was no crop injury seen with any of the treatments. (Dept. of Agronomy and Horticulture, University of Nebraska-Lincoln)

Table. Efficacy of glyphosate salt formulations (Abendroth, Martin, and Spotanski).

Treatment	Application Rate (lb ae/A)	-----ABUTH-----			-----AMASS ^a -----			-----GGGAN ^b -----			-----HELAN-----		
		7/10	7/16	8/13	7/10	7/16	8/13	7/10	7/16	8/13	7/10	7/16	8/13
		-----% weed control-----											
glyphosate ^c	0.38	50	63	76	87	91	97	85	88	95	28	94	95
glyphosate ^c	0.56	84	86	90	98	98	100	97	98	96	97	98	99
glyphosate ^c	0.75	95	95	97	100	99	99	98	97	98	100	100	97
glyphosate ^d	0.38	62	63	78	93	91	96	91	92	92	97	90	96
glyphosate ^d	0.56	79	83	92	98	99	99	99	98	97	98	98	100
glyphosate ^d	0.75	89	92	94	100	99	100	98	99	99	100	97	99
glyphosate ^e	0.38	72	76	88	90	94	95	89	93	96	23	65	95
glyphosate ^e	0.56	90	93	96	98	98	98	98	99	99	95	95	93
glyphosate ^e	0.75	97	97	99	98	99	99	100	100	100	98	100	100
glyphosate ^c	0.75	98	99	100	100	100	100	99	99	100	100	100	100
AMS ^f	1.7												
glyphosate ^d	0.75	98	100	100	99	99	100	100	100	100	100	99	99
AMS	1.7												
glyphosate ^e	0.75	97	98	100	99	99	100	99	100	100	100	100	100
AMS	1.7												
Check		0	0	0	0	0	0	0	0	0	0	0	0
LSD (P=.05)		13	10	7	5	6	3	4	3	7	8	8	6

^aAMASS = mostly Palmer amaranth, with some waterhemp

^bGGGAN = green and giant foxtail, with some large crabgrass

^cglyphosate = Roundup UltraMAX

^dglyphosate = MON 78270

^eglyphosate = MON 78460

^fAMS = N Pa-K by Agrilliance