

Glyphosate: spray volume and nozzles. Ramsdale, Brad K. and Calvin G. Messersmith. The experiment was conducted to examine the influence of spray volume and nozzle type on glyphosate efficacy. The experiment was established on fallow ground with a heavy infestation of common lambsquarters and wild buckwheat. Plots were 12 ft wide by 25 ft long. Treatments were applied on June 3 with an all-terrain vehicle equipped with a four-nozzle boom (20-inch spacing). Conditions at application were 65 F, 42% RH, wind 10 to 15 mph, and 80% clouds, and wild buckwheat and common lambsquarters were 3 to 8 inches tall. Experimental design was a randomized complete block with four replicates. Weed control was evaluated visually where 0 equaled no visible injury and 100 equaled complete control.

Glyphosate applied at 0.19 lb/A with Turbo TeeJet nozzles in 20 gpa spray volume provided the lowest control of wild buckwheat and common lambsquarters. Similarly, glyphosate efficacy at 0.19 lb/A when applied with AirMix nozzles decreased as spray volume increased from 10 to 20 gpa. The lower rate of glyphosate was generally maximized by application in 5 gpa with the two drift-reducing nozzles. Glyphosate at 0.38 lb/A was more effective in 5 or 10 gpa than in 20 gpa spray volume when applied with XR or Turbo TeeJet nozzles. However, glyphosate at 0.38 lb/A applied with AirMix nozzles was equally effective at all three spray volumes. Overall, these data indicate that glyphosate efficacy increases as spray volume decreases, which is in agreement with many previous experiments. These data also suggest the new AirMix venturi nozzle was more effective than the XR or Turbo TeeJet nozzles in maintaining glyphosate efficacy over varying treatment conditions. (Dept. of Plant Sciences, North Dakota State University, Fargo)

Table. Glyphosate: spray volume and nozzles. (Ramsdale and Messersmith)

Treatment ^a	Rate	Volume	Tip ^b	June 17		July 1	
				Wild buckwheat	Common lambsquarters	Wild buckwheat	Common lambsquarters
	(lb/A)	(gpa)		(%)	(%)	(%)	(%)
Glyphosate	0.19	5	XR 11001	25	58	36	59
Glyphosate	0.19	5	TT 11001	55	81	60	84
Glyphosate	0.19	5	AM 11001	48	77	59	81
Glyphosate	0.19	10	XR 11002	26	55	36	58
Glyphosate	0.19	10	TT 11002	33	59	39	61
Glyphosate	0.19	10	AM 11002	45	74	54	78
Glyphosate	0.19	20	XR 11004	29	60	33	53
Glyphosate	0.19	20	TT 11004	16	31	15	41
Glyphosate	0.19	20	AM 11004	28	54	29	48
Glyphosate	0.38	5	XR 11001	66	88	61	92
Glyphosate	0.38	5	TT 11001	70	91	66	93
Glyphosate	0.38	5	AM 11001	66	89	65	91
Glyphosate	0.38	10	XR 11002	60	86	70	94
Glyphosate	0.38	10	TT 11002	53	81	63	91
Glyphosate	0.38	10	AM 11002	71	92	79	97
Glyphosate	0.38	20	XR 11004	41	71	48	75
Glyphosate	0.38	20	TT 11004	39	70	48	76
Glyphosate	0.38	20	AM 11004	64	86	65	94
LSD (5%)				14	12	14	11

^a Glyphosate = Roundup UltraMax®, isopropylamine salt.

^b XR = Extended Range and TT = Turbo TeeJet nozzles by Spraying Systems Co.; AM = AirMix nozzles by Greenleaf Technologies. Treatments were applied at 28 psi and 5 mph.