

Reprinted with permission from: *Summary of Research: Low Volume Herbicide Application Methods for Leafy Spurge Control*. 1982. p. 23.

Published by: Department of Agronomy, North Dakota State University, Fargo, ND.

## Leafy spurge control by glyphosate using three application techniques

RODNEY G. LYM and CALVIN G. MESSERSMITH

An experiment to evaluate leafy spurge control by glyphosate applied by three techniques was established near Walcott, ND on August 1, 1980. The leafy spurge was 18 to 20 inches tall and had begun new fall growth. The temperature was 83° F, 66% relative humidity, the sky was overcast, and the soil temperature at 1 inch was 81° F. Glyphosate was applied with a tractor mounted sprayer that delivered 8.5 gpa at 35 psi, a controlled droplet applicator (CDA) which delivered approximately 0.85 gpa and with a pipe wick applicator which delivered approximately 2.25 gpa depending upon stand density. The plots were 10 by 30 feet in a randomized complete block design with three replications. Evaluations were based on stand reduction as compared to the control.

Method	Solution		Control		
	Ratio lb/A		May 1981	Aug. 1981	June 1982
Broadcast	1:11	(2.0)	98	88	8
Broadcast	1:23	(1.0)	98	83	10
Broadcast	1:31	(0.75)	95	78	12
CDA	1:11	(0.2)	78	55	0
CDA	1:23	(0.1)	31	28	0
CDA	1:31	(0.075)	56	25	0
Wick	1:11	(0.5)	85	79	13
Wick	1:23	(0.25)	80	40	0
Wick	1:31	(0.125)	69	8	2
LSD(0.05)			33	38	7

<sup>a</sup>Glyphosate (Roundup):water (v:v).

Glyphosate at 0.75, 1.0 and 2.0 lb/A broadcast applied provided 95, 98, and 98%, leafy spurge control, respectively, when evaluated in May 1981. The perennial plants in these plots had been killed and a thick mat of leafy spurge seedlings had developed. Most of the seedlings died by August 19, but enough seedlings survived so that the overall control declined 10 to 17%. By June of 1982 there was essentially no leafy spurge control at any rate or method of application.

Glyphosate provided better leafy spurge control when broadcast than CDA or wick applied. However, the grass in these plots was not severely damaged and provided competition for emerging seedlings. Although the glyphosate rate actually applied had been reduced approximately 90 and 25% with the CDA and wick applicators, respectively, leafy spurge control was not decreased by a similar magnitude. A follow-up treatment is

needed to control leafy spurge seedlings regardless of the glyphosate application technique.