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Leafy spurge control in a wooded area of the Sheyenne National Grasslands[1]

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Leafy spurge is a major problem in wooded areas, shelterbelts, and around homes. The purpose of this experiment was to evaluate the controlled droplet applicator (CDA) for application of picloram, dicamba, and glyphosate to leafy spurge growing under trees.

The experiment was established in a wooded area of the Sheyenne National Grasslands near McLeod, ND, on September 21, 1982. The leafy spurge was 28 to 34 inches tall with slight frost injury. The trees were *Populus* spp. (cottonwood and aspen) and ranged from 6 to 16 inches in diameter with some saplings intermixed. The weather was clear, 69º F, 42% relative humidity, and the soil was moist. The plots were 25 by 50 ft and replicated four times in a randomized complete block design. The treatments were applied with single coverage at walking speed, except some overlap occurred as the applicator tried to prevent skipped areas while walking around trees. Approximately 0.8 gal/A of herbicide solution was applied. Evaluations were based on visual estimates of percent stand reduction as compared to the control.

Herbicide	Herbicide concentration	Control				
		1983		1984		1985
		June	August	June	August	June
	(lb/gal)	(%)				
Picloram	0.25	92	60	49	48	5
Picloram	0.5	97	69	56	35	0
Picloram	0.67	100	77	57	49	31
Picloram+2,4-D	0.2+0.4	92	48	28	42	5
Dicamba	1.33	92	75	60	30	1
Glyphosate	1.5	93	76	72	43	44
LSD (0.05)		9	35	38	16	26

All treatments provided 92% or better leafy spurge control when evaluated in June 1983 but control declined rapidly thereafter. The addition of 2,4-D to picloram did not improve leafy spurge control compared to picloram applied alone. Glyphosate at 1.5

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lb/gal and picloram at 0.67 lb/gal provided the best long-term control, but retreatment would have been necessary for both treatments by 1984. Leafy spurge control was better from all treatments than would have been expected if similar treatments had been applied in an open field. Reinfestation from seedlings was minimal even in the glyphosate treated plots. Grass injury was still very evident in plots treated with glyphosate 24 months following application. No visible tree injury resulted from any treatment.