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Evaluation of season-long mechanical and low herbicide input treatments for leafy spurge suppression

C. M. SCHOLLES and S. A. CLAY

Plant Science Dept., South Dakota State University.

Conventional management of leafy spurge may be inappropriate in certain situations. Other control options are needed for spurge patches in trees or along waterways. Four alternative control strategies were studied for leafy spurge suppression effectiveness. The methods tested were continuous black plastic smother, mowing at 2 and 4 week intervals, and 0.11 kg/ha⁻¹ of 2,4-D (0.1 X rate) applied at 2 week intervals 10 times during the season. These control methods were compared to control (no treatment) and a 1 X rate (1.12 kg/ha⁻¹) of 2,4-D. In 1992 treatments were applied to 12m x 12m plots. In 1993 plots were split so that half were treated and half were untreated. Plots were sampled at least once every 4 weeks and treatments were applied after each sampling date, as appropriate. Sampling occurred from late May to early October and included determination of leafy spurge stem density, leafy spurge biomass, and associated vegetation biomass.

Table 1. Leafy spurge density and biomass, and associated plant biomass on three sampling dates in 1992.

Treatment	EPHES Density (stems m ⁻²)			EPHES Biomass (g m ⁻²)			Associated Plant Biomass (g m ⁻²)**		
	5-28*	7-23	9-17	5-28*	7-23	9-17	5-28*	7-23	9-17
Control	227	318	203	96	136	122	49	118	173
2,4-D 1X	232	223	150	101	31	41	56	104	192
Smother	230	138	88	87	40	27	62	51	tr
Mow 2wk	315	225	62	104	19	13	66	36	34
Mow 4wk	241	341	73	96	31	5	43	34	52
2,4-D 2wk	140	71	43	78	25	6	67	238	206
Isd (0.05)	ns	153	99	ns	38	42	ns	58	47

*Sampling prior to treatment

**predominantly *Bromus inermis* and *Poa pratensis*

In 1992, all treatments reduced leafy spurge density and biomass (Table 1). Smother and mowing treatments decreased associated plant biomass while the 2,4-D 2-week treatment had increased associated plant biomass production. No treatment had an affect on stem density that carried over into 1993. However, all treatments had less leafy spurge biomass than the control when evaluated in May 1993. All treatments prevented seed production the year of treatment. The best treatment was 2,4-D 2-week because of good leafy spurge suppression and grass production.