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## **Response of leafy spurge (*Euphorbia esula* L.) and associated vegetation to PLATEAU<sup>®</sup>**

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Leafy spurge is a competitive exotic perennial weed on rangeland in the northern Great Plains. Experiments were initiated on range sites dominated by sandy soils near Ainsworth and Tilden, Nebraska and Jamestown, North Dakota to determine the response of vegetation on leafy spurge infested rangelands to PLATEAU. PLATEAU was applied in September 1994 and 1995 at 140 g ai ha<sup>-2</sup> (8 oz product per acre), 210 g ai ha<sup>-2</sup> (12 oz product per acre), and 280 g ai ha<sup>-2</sup> (16 oz product per acre) at Ainsworth and Tilden and at 140 and 280 g ai ha<sup>-2</sup> at Jamestown. Picloram at 0.6 kg ai ha<sup>-2</sup> + 2,4-D at 1.1 kg ai ha<sup>-2</sup> were also applied in September 1994 and 1995. PLATEAU was applied again at the Ainsworth and Tilden sites in June 1995 and 1996 to previously non-treated areas and to half of the areas treated in September 1994 and 1995 with PLATEAU. In August 1996, estimates of leafy spurge control on a scale of 0% (no control) to 100% (complete control), leafy spurge density, and dry matter yield of cool-season grasses, warm-season grasses, leafy spurge, and forbs were determined. Application of PLATEAU at 140 g ai ha<sup>-2</sup> or greater rates in the fall of 1994 and again in 1995 provided better than 95% leafy spurge control. Fall applications of picloram + 2,4-D provided less than 50% leafy spurge control. PLATEAU applied only in the spring of 1995 and 1996 provided less than 60% leafy spurge control. Regardless of rate, application of PLATEAU for two consecutive years in the fall and again in the spring resulted in 100% control of leafy spurge and suppressed cool-season grass yields. PLATEAU applied in the fall at 140 g ai ha<sup>-2</sup> for two consecutive years provided excellent control of leafy spurge with little adverse affect on cool- or warm-season forage grasses. Additional research is needed to assess the response of desirable forages and leafy spurge to long-term PLATEAU treatment regimes and efficacy of PLATEAU on sites with fine textured soils.