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Published by GPC-14: Leafy Spurge Control in the Great Plains.

Sulfometuron for leafy spurge control

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Two field experiments were conducted at Chaffee and Dickinson, North Dakota to evaluate the effect of sulfometuron alone and in combination with 2,4-D, dicamba, and picloram for leafy spurge control. Sulfometuron at 70 and 140 g/ha spring- or fall-applied provided an average of 12 and 41% leafy spurge control, respectively. Grass injury from sulfometuron averaged 9 and 24% from spring and fall application, respectively.

Sulfometuron in combination with picloram generally provided better leafy spurge control than sulfometuron alone or applied with dicamba or 2,4-D regardless of the application date. Sulfometuron at 70 g/ha plus picloram at 0.56 kg/ha provided 83% leafy spurge control 9 MAT and was similar to picloram at 2.2 kg/ha. Leafy spurge control did not improve following sulfometuron retreatments but grass injury increased an average of 37% compared to a single application.

Sulfometuron at comparatively low application rates (18 and 35 g/ha) in combination with an auxin herbicide provided an average of less than 31% leafy spurge control. Grass injury from all treatments was 4% or less. Retreatments 12 MAT generally did not increase leafy spurge control compared to the original treatments.

The effect of sulfometuron spring- and fall-applied on pasture and rangeland forage production was determined at Fargo and Manning, North Dakota. Spring-applied sulfometuron alone or in combination with an auxin herbicide tended to injure bluegrass spp. and reduce yield 3 but not 12 MAT. In contrast, smooth brome production was similar to the control 3 MAT for all sulfometuron treatments but tended to be less than the control 12 MAT following sulfometuron at 140 g/ha and sulfometuron plus picloram at 70 + 560 g/ha.

Fall-applied sulfometuron alone and in combination with an auxin herbicide did not reduce bluegrass spp. production. However, smooth brome yield was reduced an average of 52% compared to the control 9 MAT. Bluegrass spp., smooth brome, green needlegrass, and wheatgrass spp. production was not affected by sulfometuron alone at 70 g/ha or in combination with 2,4-D or dicamba. Sulfometuron at 140 g/ha or at 70 g/ha in combination with picloram tended to reduce combined bluegrass, green needlegrass and wheatgrass production.

The lateral movement of sulfometuron from slopes to non-target areas was evaluated at Valley City and New England, North Dakota. Sulfometuron was not found more than 120 cm down-slope from the treated area on 2, 8, or 16% slopes. The highest sulfometuron concentration found down-slope from the treated area was less than 1 ppbw regardless of the slope.

Sulfometuron soil movement was similar in Fairdale silty loam, Felor loam, and Barnes stony loam when leached for 48 hours and was detected the entire column length (65 cm) for all soils. Sulfometuron was detected 50 cm deep in Fairdale silty loam and 35 cm deep in Barnes stony loam and Felor loam, respectively, when leached for 9 weeks.