

ALFALFA RESPONSE TO TRIBENURON. Lisa M. Dahl, Kirk A. Howatt, and Dwain W. Meyer, Graduate Assistant, Assistant Professor, and Professor, Department of Plant Sciences, North Dakota State University, Fargo, ND 58105-5051.

Field research was conducted in Fargo and Leonard, ND, in 2004 to determine the effect of tribenuron application rate and timing on established alfalfa (*Medicago sativa* L.). Tribenuron, a sulfonylurea herbicide that inhibits acetolactate synthase in the branched-chain amino acid synthesis pathway, is not registered for use in alfalfa. However, tribenuron is used in cereal crops to control broadleaf weeds such as Canada thistle, dandelion, and Russian thistle. Treatments were applied with a CO₂-pressurized backpack sprayer delivering 80 L/ha to the center 2 m width of 3- by 9-m plots. To evaluate tribenuron use rates, tribenuron was applied at 4.2, 8.4, 17, 34, and 68 g ai/ha with 0.25% v/v NIS to 4 to 5 cm of alfalfa growth after dormancy break and to 4 to 5 cm of regrowth after first harvest. Imazamox was applied at 35 g ai/ha with 1.7 L/ha methylated seed oil and 2.3 L/ha urea and ammonium nitrate solution as a commercial standard, and an untreated control was included. At both locations, the first tribenuron application resulted in as much as 23% chlorosis. The lowest tribenuron rate, 4.2 g/ha, resulted in 10% chlorosis. The second tribenuron application caused similar injury symptoms ranging from 10% chlorosis at 4.2 g/ha to 25% chlorosis at 68 g/ha. At the Leonard location, first harvest alfalfa yields were reduced 40 to 67% after tribenuron application. The Fargo location showed 37 to 80% reduction of first harvest yields after tribenuron application. Second harvest yield reduction ranged from 67 to 87% at Leonard and 64 to 93% at Fargo. To evaluate application timing, tribenuron at 8.4 and 17 g/ha was applied to 0, 2, 5, and 10 cm of regrowth after first harvest. Imazamox and an untreated control were included as previously described. Tribenuron at 8.4 g/ha resulted in as much as 18% and 15% chlorosis at Leonard and Fargo, respectively. Depending on application rate and time of application, first harvest yields were reduced 59 to 77%. Second harvest yields were reduced 31%. All combinations of tribenuron rate and application timing resulted in substantial yield loss for the harvest following tribenuron application.