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Imazapic for leafy spurge control

DENISE M. MARKLE and RODNEY G. LYM

Graduate Student and Professor, Department of Plant Sciences, North Dakota State University, Fargo, ND 58105.

Abstract:

Imazapic has shown promise for leafy spurge control in North Dakota, but some injury to grasses has been observed. The objectives of this research were: a) to determine the effect of various adjuvants in combination with imazapic to maximize leafy spurge control and minimize grass injury, b) to determine the most cost-effective rate of imazapic for leafy spurge control when applied alone or with various adjuvants, c) to determine the most effective timing of imazapic application in the fall to maximize leafy spurge control and herbage production, and d) to evaluate the combined effect of imazapic and biological control agents on leafy spurge control. Imazapic applied alone or with various adjuvants injured grasses in greenhouse studies; however, imazapic did not decrease herbage production in field studies. Imazapic provided similar or better leafy spurge control than the standard treatment of picloram plus 2,4-D in the field. Imazapic at 0.14 kg/ha applied with a methylated seed oil (MSO) alone or with 28% N averaged 72% leafy spurge control 12 months after treatment (MAT) compared to 40% control with picloram plus 2,4-D. Imazapic provided maximum leafy spurge control when applied at 0.14 kg/ha with a MSO either alone or with 28% N. Imazapic applied with a MSO in mid-September provided the best leafy spurge control 12 MAT compared to application in August or October. For instance, imazapic at 0.14kg/ha applied with a MSO in mid September provided nearly 70% leafy spurge control 12 MAT compared to 50% or less leafy spurge control when applied in August or October. Imazapic applied over *Aphthona* spp. biological control agents improved leafy spurge control compared to the insects alone, but reduced *Aphthona* density from 25 or 35 adults/m² by picloram plus 2,4-D or the control, respectively, to 15 to 20 adults/m² by imazapic. These results are based only on one location and one year; further research needs to be conducted to determine if imazapic has a detrimental effect on *Aphthona* spp. flea beetle population. Imazapic will be a useful addition to a long-term leafy spurge control program.