

Leafy spurge control improved with picloram (Tordon) mixtures

Research at North Dakota State University has shown that herbicide mixtures can provide improved leafy spurge control compared to a single herbicide alone. The long-term standard treatment in the state has been Tordon at 1 pint plus 2,4-D at 1 quart/A. This treatment provides control similar to Tordon at 1 quart/A alone and is more cost-effective. Recently, research has shown that mixtures of some newer herbicides labeled for leafy spurge can increase long-term control compared to the Tordon plus 2,4-D treatment.

For instance, leafy spurge control is dramatically improved when diflufenzopyr is applied with picloram (Tordon). Diflufenzopyr is an anti-auxin that seems to increase translocation of auxin and auxin-like herbicides such as Tordon and Banvel (dicamba) in perennial weeds, which results in increased root kill. Diflufenzopyr is only available to land managers in a combination with dicamba in a product called Overdrive.

In general, the addition of Overdrive to Tordon has doubled leafy spurge control compared to Tordon applied alone. For instance, leafy spurge control 12 MAT (months after treatment) averaged 95% with picloram at 4 oz/A (1 pint/A Tordon) plus Overdrive at 4 oz/A compared to only 40% to 60% control with picloram at 4 oz/A applied with 2,4-D at 1 qt/A. With picloram at 6 oz/A (1.5 pints/A Tordon) plus Overdrive at 4 oz/A, leafy spurge control averaged 99% 12 MAT. In contrast, picloram at 8 oz/A (1 qt/A Tordon) alone averaged 60% control 12 MAT. Tordon plus Overdrive at 1 pint plus 4 oz/A should be applied with a methylated seed oil (MSO) or non-ionic surfactant and costs approximately \$25/A, so land managers need to consider both the increased cost and the improved control gained from this combination treatment.

A herbicide mixture, which has become popularly known in the state as the ANorth Dakota three-way@ is an alternative to Tordon plus 2,4-D applied in spring and early summer. The treatment includes the long-term standard of Tordon at 1 pint plus 2,4-D at 1 quart/A combined with Plateau at 4 oz/A plus a MSO. This three-way mixture averaged 98% leafy spurge control 12 MAT and 73% control 24 MAT, compared to Tordon plus 2,4-D which only provided 81 and 45% control, respectively. The three-way treatment costs approximately \$23/A compared to \$12/A for Tordon at 1 pint plus 2,4-D at 1 quart/A.

Tordon applied either alone or with 2,4-D has been the most widely used herbicide treatment for leafy spurge control in North Dakota for many years. However, combinations of Tordon with Overdrive or Plateau have shown improved long-term leafy spurge control compared to Tordon or Tordon plus 2,4-D alone. Also, the combination treatments may reduce the number of herbicide applications required to maintain satisfactory control and should be considered in a long-term management program.

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