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Update on Wyoming's leafy spurge research program

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The control of leafy spurge with initial and retreatments of picloram

This research was conducted near Devil's Tower, Wyoming to compare the efficacy of various rates of picloram for leafy spurge control. Plots were retreated to maintain or attain 80% control with light rates of picloram or picloram/2,4-D tankmixes. Initial treatments were 0.25 lb picloram to 2.0 lb picloram in 0.25 lb increments and 0.25 lb picloram + 1.0 lb 2,4-D. Retreatments were 0.25 or 0.5 lb picloram or 0.25 lb picloram + 1.0 lb 2,4-D. The initial treatment of 0.25 lb picloram was retreated only with 0.25 lb picloram and the initial treatment of 0.25 lb picloram + 1.0 lb 2,4-D was retreated only with 0.25 lb picloram + 1.0 lb 2,4-D. Plots were 10 by 27 feet. with four replications arranged in a randomized complete block. The initial herbicide treatments were applied May 24, 1989. Retreatments were applied June 6, 1990; June 13, 1991; June 10, 1992; September 22, 1993; and September 19, 1994. The soil was a silt loam (22% sand, 58% silt, and 20% clay) with 1.8% organic matter and a 6.3 pH. Leafy spurge was in full bloom and 12 to 14 inches in height for the initial treatments and in full bloom, 12 to 20 inches in height, for spring retreatments and 16 to 24 inches in height for fall retreatments. Infestations were heavy throughout the experimental area. Visual weed control evaluations were made June 6, 1990; June 13, 1991; June 10, 1992; June 21, 1993; June 15, 1994; June 27, 1995; June 18, 1996 and; June 19, 1997.

Plots with initial treatments of 1.25 lb picloram or greater in 1989 provided 80% or better leafy spurge control and did not require retreatment in 1990. Initial treatments maintaining 80% control or better in 1991 were 1.5, 1.75 and 2.0 lb picloram treatments. Initial treatments of 2.0 lb picloram were the only treatments maintaining 80% control or better in 1992. The only 1990 retreatment attaining 80% control or better in 1991 was 0.5 lb picloram over an initial 1.0 lb of picloram. None of the retreatments applied in 1991 attained 80% control in 1992. None of the retreatments applied in 1992 attained 80% control in 1993. All 0.5 picloram retreatments applied in the fall of 1993 attained 80% control or better in 1994. One 0.25 picloram + 1.0 2,4-D retreatment applied over an ini-

tial treatment of 1.5 picloram attained 80% control in 1994. None of the 2.0 lb picloram treatments have maintained 80% since 1993. No retreatments maintained 80% in 1995, 1996, or 1997 and control is declining. Spring retreatments of picloram at 0.25 or 0.5 have not been effective in attaining or maintaining 80% control. Spring retreatments of 0.25 lb picloram + 1.0 lb 2,4-D appear to be as effective as spring retreatments 0.5 lb picloram. However, spring retreatments of 0.25 lb picloram + 1.0 lb 2,4-D have not attained or maintained 80% control. Fall retreatments of 0.5 lb picloram or 0.25 lb picloram + 1.0 lb 2,4-D may be effective in attaining or maintaining 80% control. However, no 1994 fall retreatment attained 80% control in 1995. The most effective long-term treatment for control of leafy spurge was 2.0 lb picloram.

The control of leafy spurge with imazameth

The objective of this study was to compare the efficacy of imazameth for leafy spurge control. The plots were 10 by 27 feet in a randomized complete block design with four replications. Treatments were imazameth at one, two and 4 oz ai/a with or without a crop oil concentrate and picloram at 0.5 lb ai/a. Treatments were applied with a hand-held CO₂-pressurized six-nozzle sprayer (20' spacing) delivering 20 gpa at 40 psi. Treatments were applied September 26, 1995 and evaluated June 18 and Sept. 17, 1996 and June 12, 1997. Leafy spurge was mature and 16 to 24 inches tall. The soil was a silt loam with 22% sand, 58% silt, 20% clay; with 1.8% organic matter and pH 6.3. Depth to parent material is approximately 27 inches.

Imazameth at 4 oz ai/a plus a crop oil concentrate provided the best control (87%). Without the crop oil concentrate control was only 69%. The addition of a crop oil concentrate greatly improved leafy spurge control. No other treatments provided satisfactory control. There was little or no grass damage when imazameth was applied after grasses were mature in mid September. However, control had dropped to 0 by June 1997 for all treatments. It appears that imazameth may have potential fit for control of leafy spurge.

The control of leafy spurge with initial and retreatments of picloram and 2,4-D

This research was conducted near Devil's Tower, Wyoming to compare the efficacy of retreatments of picloram and 2,4-D low volatile ester (LVE) on the control of leafy spurge. The initial herbicide treatments (picloram at 0.25 through 2.0 at 0.25 lb ai/a increments; picloram at 0.25 + 2,4-D LVE at 1.0 lb ai/a; and 2,4-D LVE at 1.0 and 2.0 lb ai/a) were applied May 28, 1987. Initial treatments with less than 80% control were retreated with picloram at 0.5 lb, except for picloram at 0.25 lb, picloram at 0.25 + 2,4-D LVE at 1.0 lb, and 2,4-D LVE at 1.0 and 2.0 lb which were retreated with the original rates. Retreatments were applied July 6, 1988, June 6, 1989, June 6, 1990, June 13, 1991, June 10, 1992, Sept. 22, 1993, and Sept. 14, 1994. Visual weed control evaluations were taken on June 8, 1988, May 25, 1989, June 6, 1990, June 12, 1991, June 9, 1992, June 21, 1993, June 15, 1994, June 27, and Sept. 26, 1995, June 18, 1996, and June 19, 1997.

Plots with initial treatments of 1.25 lb picloram or greater in 1987 provided 80% or better leafy spurge control and did not require retreatment in 1988. The only initial treatment maintaining 80% control or better in 1989 and 1990 was picloram at 2.0 lb. This treatment maintained 80% control or better for three years. None of the 1988 retreatments attained 80% control in 1989. Retreatments of picloram at 0.25 have not been effective in attaining or maintaining 80% control. All of the 1989 picloram 0.5 lb retreatments attained 80% control or better in 1990. Subsequent fall retreatments at 0.5 lb have been effective when the initial picloram rate was 1.25 lb or greater. The 1989 picloram 0.25 lb + 2,4-D 1.0 lb retreatment attained 92% control in 1990 and maintained 85% control the following year. One or 2.0 lb 2,4-D LVE retreatments attained 80% control or better and maintained control for 2 to 3 years. Leafy spurge control has not been maintained and has dropped to 40% or less in 1997. The most effective long-term treatment for control of leafy spurge was 2.0 lb picloram. Retreatments of 0.5 lb picloram also appear to be effective when applied over initial rates of 1.25 lb or greater. Retreatments of 0.25 lb picloram + 1.0 lb 2,4-D did not maintain 80% control but were very close at 76, 79, and 78% control for 1995, 1996 and 1997, respectively.