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Evaluation of spring vs. fall original/retreatment herbicide combinations affecting leafy spurge live shoot regrowth

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This field study located near Lander, Wyo. was established for accumulation of original/retreatment and fall vs. spring application data on leafy spurge. Six successive years of data have been collected since the study was established in the spring of 1980.

Original spring and fall treatments were made May 23, and September 14, 1980. Liquid formulations were applied with a 21.5-foot boom, 13 nozzle truck mounted spray unit equipped with Teejet HSS8004 nozzles delivering 25 gpa water carrier. The granular formulations were applied with a hand operated centrifugal granular spreader. Plot size for the original treatments was 21.5 feet by 258 feet with one replication.

Retreatments were applied across the original treatments creating a split-block design and were made May 29 and September 12, 1981, May 24 and September 17, 1982, May 29 and September 15, 1983, May 31 and September 18, 1984, and May 22 and September 10, 1985. Retreatment plots were 21.5 feet by 21.5 feet with two replications. The retreatments were 2,4-D amine at 2.0 lb ai/A, dicamba at 2.0 lb ai/A, picloram at 0.5 and 1.0 lb ai/A, 2,4-D amine (spring and fall applied) at 2.0 lb ai/A, and an untreated check. The retreatments of picloram at 0.5 and 1.0 lb ai/A were terminated with the 1981 treatment. The leafy spurge was in the bud to flower stage-of-growth and 4 to 18 inches in height during the spring retreatments and was mature and had shed most of its seed when fall retreatments were made. Retreatments were applied with the truck-mounted sprayer used to apply the original treatments. The soil at the study site was a sandy loam (73% sand, 15% silt and 12% clay) with 1.3% organic matter and pH of 7.6.

The area has been flood irrigated since application of original treatments. However, irrigation was not uniform in the study area. There was poor grass cover on May 1980 when plots were established. By September 1981 grass was 20 to 24 inches in height and still green in treatment areas. Good grass cover has been maintained in treatment areas from 1982 through 1986.

Percent shoot control is based on reduction of live leafy spurge shoots per square foot recorded from treatment plots as compared to the untreated (check) plots. The percent leafy spurge shoot control has decreased in most of the original treatment plots over the six year period. There appears to be little difference in the effectiveness of the original treatments whether spring or fall applied. However, better shoot control has been maintained in the original treatments where picloram was applied regardless of rate or formulation. The reduction in shoot control is also apparent since the retreatments of picloram were terminated with the 1981 application. The 2,4-D amine retreatment applied both in

the spring and fall (S & F) was more effective than only the one yearly treatment applied either in the spring or fall. Retreatment areas have maintained better shoot control than single treatment applications. When picloram 1.0 lb ai/A was used as a retreatment on previously treated picloram areas in the spring study no advantage was found. This is probably due to leaching of the picloram out of the shallow soil in this area. There is also considerable variation in percent leafy spurge shoot control between other treatments and rates of application which may also indicate variation in soil and leaching of the herbicide out of the shallow soil profile. (Wyoming Agric. Exp. Sta., Laramie, WY 82071, SR____.)