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# Leafy spurge control with chemical and mechanical treatments

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A study to test the effects of chemical (picloram) and mechanical (mowing) treatments on leafy spurge in rangeland was started in 1984 at the Dickinson Experiment Station. The test plots were located on private property in Golden Valley County, North Dakota. The plots were 22 x 30 foot arranged in a randomized block design with two replications. The soil was Havrelon silt loam. The vegetation on the site was predominantly leafy spurge with a thin understory of Kentucky bluegrass (*Poa pratenais*), prairie-sandreed (*Calamovilfa longifolia*) and needleandthread (*Stipa comata*).

The treatments were; in early June, mowing, mowing plus picloram, and picloram; in early July, mowing, mowing plus picloram and picloram; in mid August, picloram; and annually mowing in June, and in June and July. A control of no treatment was included in each replication. No retreatment has been made to these plots except the annual mow in June and in June and July plots. The early June, early July and mid August periods of treatment coincided with pre-flower, post flower (seed development) and early regrowth phenological stages of development for the leafy spurge plants, respectively. The mowing treatments were conducted with a sickle bar mower and the herbage was raked off the plots. The chemical treatment was applied at a rate of 2 lbs ai/acre of picloram in the form of 2K granules with a hand held whirlybird spreader. The data that were collected from these plots were; above ground herbage production, leafy spurge stem densities, and mean weight per leafy spurge stem collected monthly through the growing season. The only data included in this report will be the pretreatment stem densities collected in early June and the percent change in stem densities per foot squared compared to the control plots taken in early June of years following treatment (Table 1).

Single mowing treatments in June or July appear to increase stem densities one and two years after treatment. Annually repeated moving in June and in June and July appear to have some reduction in stem densities. Mowing plus chemical treatment has some effect on the stem density and has some added effect compared to chemical alone one year after treatment, June applied and two years after treatment, July applied. The effects of the treatments on these plots will be monitored one additional year.

**Table 1. Percent change in stem density compared to control one and two years after treatment.**

| Treatment | 1984 | 1985 | 1986 |
|---|---|---|---|
| | #/ft$^2$ | % of control | |
| Control | 33.6 | --- | --- |
| June | 38.7 | +20.0 | +59.4 |
| July | 31.1 | +27.9 | +17.6 |
| June annually | 37.3 | +17.2 | -59.5 |
| June + July mow annually | 39.4 | -39.1 | -53.8 |
| June mow + picloram | 25.6 | -74.7 | -58.7 |
| July mow + picloram | 25.5 | -98.2 | -76.0 |
| June picloram | 28.7 | -62.2 | -94.7 |
| July picloram | 38.8 | -98.1 | -67.2 |
| Aug. picloram | 40.8 | -98.2 | -96.3 |