

## JUNIPER CONTROL

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Increasing densities of juniper trees in woodland areas and encroachment of juniper into open grasslands are well documented. Treatment possibilities, including mechanical, chemical and fire have been studied. In this trial a chemical maintenance treatment was applied to reduce juniper stand density and encroachment while minimizing the understory component of the vegetation. The maintenance treatments were applied to existing grazing treatments to concentrate the influence of grazing management on the understory response.

An aerial application of tebuthiuron pellets at the rate of 1.2 lbs/ac were applied to 2400 acres of juniper woodland in late September, 1995. The application was applied in a manner to treat one of the winter grazing pastures, two of the continuously grazed summer pastures and the two rotationally grazed summer grazed pastures. Pastures were selected so as to provide a mosaic of treated and untreated pastures. Pastures and treatments are identified on the pasture map of the ranch. This mosaic was developed to provide blocks of juniper for deer cover and potential feed. The mosaic of treated pastures is within a larger block of juniper woodland on the ranch.

The tebuthiuron pellets were applied in the fall. One light shower occurred two weeks following the application. No appreciable snow occurred during the winter, and no rain

occurred until July 1996. These dry conditions resulted in a delay of the effectiveness of the tebuthiuron on the juniper. Little response of the juniper trees to the tebuthiuron was observed until early spring 1997. Classical repeated needle fall has been delayed and limited, and only now are trees showing a strong impact to the chemical. Preliminary mortality data are being collected on the juniper trees in the treated pastures at this time.

Juniper tree density is variable through the different pastures, but preliminary data indicates averages of over 165 trees per acre. Approximately 70% of the trees were over 8 feet in height. Approximately 80% of the trees currently show some effect from the herbicide. Preliminary data indicate that 50% of the trees have 25%, or less dead material in the crown, and just over 25% of the trees showed more than 75% dead canopy. While casual observation appears to show more young trees affected, initial results show the rate of kill is not substantially different for mature and juvenile trees. Tree mortality and understory vegetation response will continue to be monitored.

An understanding of undisturbed understory following juniper density reduction will allow for better interpretation of ecological opportunities for the grassland community, and how it may be managed.