

IMPACT



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Noxious Weed Grazing By Goats Demonstration Project

The Situation

Thousands of acres in Lemhi County are infested with noxious weeds. Wildlife habitat and acres of agriculture ground are lost every year to spotted knapweed. Herbicides and biological control have been utilized as the major management tools. In some areas, herbicides are not an option due to desirable plant species, terrain, or acreages involved. Due to climatic conditions, not all biological agents can be established in the county. This means that in some areas of the county, weed management is minimal.

Previous research shows grazing by small ruminants on mature plants will reduce the plant's ability to compete with neighboring plants. Small ruminants will remove seed heads, minimizing seed production for that year. Grazing for short durations and repeated grazing have been shown to reduce seedlings and rosettes of spotted knapweed without affecting the associated grasses. Karen Launchbaugh and John Hendrickson at the U.S. Sheep Experiment Station in Dubois, Idaho are conducting studies to determine if grazing with sheep can be effective for managing spotted knapweed. Density of young spotted knapweed plants was lower in cells that were grazed by sheep when compared to ungrazed controls. Previous research shows that goats will graze leafy spurge and provide control, but research on grazing spotted knapweed is limited.

Our Response

Based on work by Brett Olson, Launchbaugh and Hendrickson, we implemented a trial to demonstrate that goats can be used effectively to manage spotted knapweed in areas where other methods are not feasible. We designed the demonstration to answer the following questions about the best way to utilize goats and grazing in spotted knapweed management. Questions to be answered from the demonstration were: 1. At what stage of plant growth will grazing reduce spotted knapweed canopy cover? 2. At what stage of plant growth will grazing decrease seed head production? 3. At what stages of growth will goats consume spotted knapweed?

The demonstration was established on the University of Idaho Nancy M. Cummings Research, Extension and Education Center in Carmen, Idaho. Four treatments were evaluated. They were: a) grazing early, rosette to bolt stage; b) late grazing, bud to bloom stage; c) grazing twice, rosette to bolt stage and after seed set, and d) ungrazed control. Each treatment was replicated three times. Treatment cells were 0.9 acres with five goats in each cell.

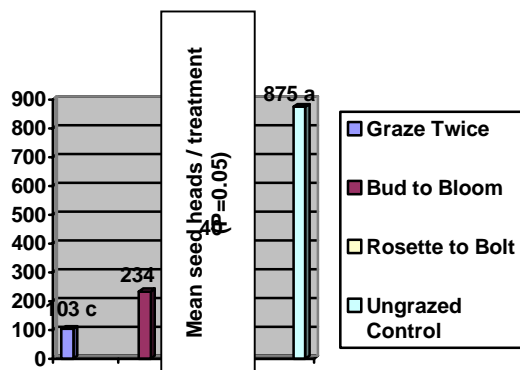
Program Outcomes

Treatment A took place while the spotted knapweed was at the bolt stage. Goats readily consumed the spotted knapweed, grazing it from the stem down to the rosette but leaving the rosette. Treatment B was implemented while the plant was at the bud to bloom

stage. Goats stripped the leaves from the stalk and consumed the rosettes. Treatment C was grazed twice, once when the spotted knapweed was at the early stage, rosette to bolt, and again after the seed heads had formed. Goats grazed from the stem down to the rosette during the first grazing, and consumed the seed head and green leaf tissue in the second grazing.

To determine if seed head production was reduced by any of the treatments, seed heads were counted in three areas within each cell. Grazing significantly reduced seed head production in all treatments compared to the ungrazed control. Treatments A and B were not statistically different from each other. Seed head production in treatment C was significantly lower than all other treatments.

Table 1: Average Seed Production After Grazing Treatments, Fall, 2001



Citizens of Lemhi County are very interested in this demonstration. There have been 3 different tours to the site to discuss the demonstration. With the Cummings Center Dedication, 150 people from around the state visited the demonstration site. The Lemhi Soil and Water Conservation District included the demonstration with their spring tour that drew 30 local producers. The fall tour of the Lemhi Cooperative Weed Management Area had 40 people participate in their twilight tour that focused on grazing as a noxious weed management tool. The demonstration layout was discussed and an overview of what questions would be answered was given. Interested parties are waiting for the data collection

to be completed to determine the effectiveness of the grazing treatments and the optimum timing of grazing to suppress spotted knapweed.

Federal land managers, Forest Service and Bureau of Land Management, are beginning to recognize grazing by small ruminants as an effective weed management tool. Three small landowners have purchased goats to utilize for weed management on their own private property.

This year's data confirm that grazing is an effective tool in reducing seed head production. In 2002, data can be collected to confirm or deny that it reduces canopy cover. This program will continue for two more years to determine if plant canopy cover can be reduced as well.

Funding and Resources

This demonstration area was funded by Critical Issues grant, mini-SARE grant and a District III mini grant. Funds were utilized for fencing, an intern to assist with project set-up and data collection, and livestock rental. Personnel involved in this project included Shannon Williams, Extension Educator; Jim Logan, intern; Donna Barsalou, office manager; and Stan and Bonnie Jensen, owners of Salmon River Cashmere.

For More Information

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