

WEED CONTROL

Crop competition from weeds can make a considerable difference in the amount of crop harvested or pasture available to animals. Research investigating appropriate weed control in crops and pastures is essential for profitable production.

Sugarbeet Micro-Rate Herbicide Application



Based on 2004 statistics, an estimated **\$24 million** in savings annually can be achieved in eastern North Dakota and western Minnesota through micro-rate application of herbicide in sugarbeet.

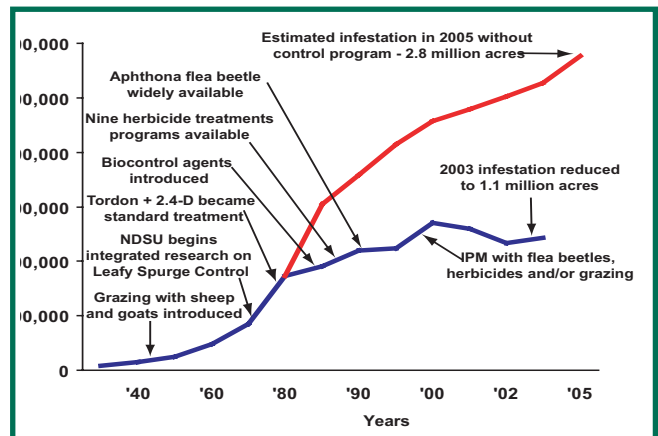
Through research cooperation between the NDAES, University of Minnesota and the sugarbeet industry, a micro-rate application of herbicides has been developed and has shown large savings to sugarbeet producers. This combination of four herbicides and an oil adjuvant dramatically reduces the amount of herbicide required to be applied for weed control in sugarbeet. The mix of different modes of herbicide action slows the build-up of resistance in weeds that can happen with the repeated use of the same herbicide mode of action. Oil adjuvant increases the effectiveness of each herbicide decreasing the amount required by 66-75 percent. Three to five weekly applications of the micro-rate are generally required compared to two to four using conventional herbicide rates.

- **Added benefit** is the **reduced environmental impact** from less herbicide moving into soils and waterways.

Leafy Spurge Control

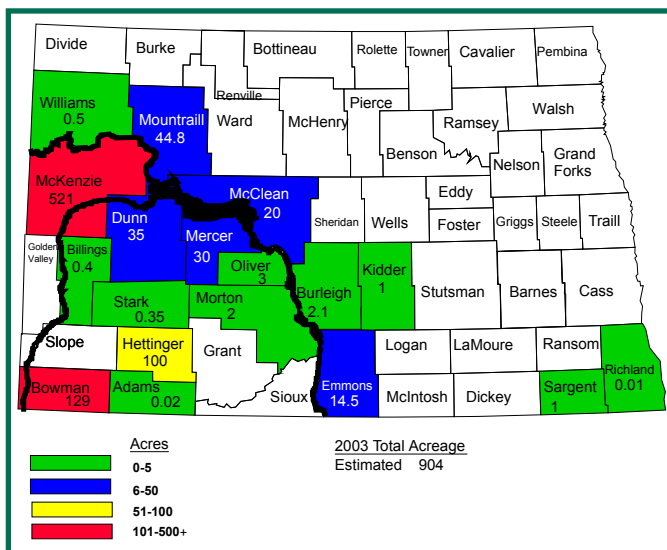
More than **\$86 million** in livestock sales is lost annually due to land infested with Leafy Spurge. Leafy Spurge competes with crops and pasture for water and nutrition.

Leafy Spurge control has been an ongoing research effort in North Dakota. The Departments of Plant Science, Animal and Ranges Sciences and Entomology, with cooperation from government departments, have successfully implemented management practices that assist in control and decrease in some areas. The graph shows the gradual increase and current control of Leafy Spurge and its estimated increase had research efforts not been undertaken to control the spread of this weed. Different areas in the state respond to different practices. For example:



- **Insect control** via the Crucifer Flea beetle has proved effective in areas of the state with loam type soils where the spurge roots are assessable to the flea beetle larvae, the damaging stage.
- **Herbicide control** remains effective if it is applied continuously.
- **Grazing control** is effective in the grazing areas of the state. The Department of Animal and Range Sciences conducted research that found sheep and goats readily graze on Leafy Spurge while beef cattle will not eat it.
- A **disease pathogen** was located but was not suitable as its alternative host was the more important alfalfa crop.

Salt Cedar Tree Control



An added benefit of the research into Leafy Spurge was the development of an early weed detection system. This enabled early detection of the Salt Cedar tree in Sargent and Richland counties and will prevent the spread of this tree along the Red River. Even though it is established the Salt Cedar tree infestation along the Missouri River, is controllable.

The Salt Cedar tree uses 200-300 gallons of water per day and the resulting transpiration through its leaves results in heavy amounts of salt accumulating on the leaf which then falls to the ground making the soil high in salinity and unsuitable to other plants which creates a monoculture along riverbanks. It has caused a high level of environmental destruction in the southwest of the United States, causing whole lakes to dry up in New Mexico.

Early detection **will save millions** of dollars in control measures and preservation of our rivers.