



Noxious Weed Prevention

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Watch for Invaders

Noxious weeds are non-native plant species that are a concern to South Dakota land owners and managers. They can seriously impact the native plant community by altering or affecting agriculture, recreation, and wildlife. Nearly 4.5 million acres are infested with noxious weeds in South Dakota, causing over \$80 million in losses every year. The acreage and loss will continue to grow until responsible action is taken to control and remove noxious weeds from the land. New plants can be purchased through mail order catalogs. Most of these plants are not a problem child to the native plant community. However,

plants like Salt Cedar, Leafy spurge, and Yellow Toadflax are invasive and can start a mono-culture in your yard and your neighbor's yard before you realize what has happened. Noxious weeds are often nice to look at and that is how it starts. That pretty flower in your mom's flower garden. You take a transplant home. After awhile, it's the only flower in your garden. Be responsible, learn all there is about the plant you are putting in your ground. Web sites, libraries, and your local county extension office can help you.



Leafy spurge in full bloom.



One individual Leafy spurge plant.

Special points of interest:

- What exactly is a noxious weed?
- Why is there so much interest in the control of noxious weeds?
- Is there an alternative to chemical spraying?
- Why are noxious weeds so difficult to control?

Getting help with the weeds.

You are not alone in the fight against noxious weeds. Numerous programs are set aside for the private landowner. An example is the Deerfield/Hill City Weed Management area right in the heart of the Black Hills. The project is a cooperative effort of urban and rural landowners, local govern-

ments, state and federal land management agencies and concerned citizens. These groups have banded together to promote a public awareness program and seek funding for an integrated pest management plan that can be used by all partners in the area. This project received funding through a

"Pulling Together Initiative" grant from the National Fish and Wildlife Foundation. Funds are available for landowners for herbicides and to establish biological control sites. Contact your Pennington County Weed Supervisor Scott Guffey at 605-394-5320 for more information.

Economic Impact

Weeds are expensive. Endangered Species and Biodiversity: One study found that outside a dense patch of Leafy spurge, 11 different native species were found, only three had managed to survive inside the infestation. Noxious weeds alter the soil structure, soil moisture, and organic matter. Land Values and Economic Impacts: The estimated impact of Leafy spurge in Wyoming, Montana, North Dakota, and South Dakota is \$129.5 million. In Ore-

gon, a \$2 million land transaction was reduced by \$200,000 due to the high density of noxious weeds on the property. Breaking up roots by plowing only increases the number of plants. Cultivation will control Leafy spurge in conventional cropland, but the weed can become the dominant species in reduced-till cropland, pastures, and rangeland if not controlled. An integrated control program combining two or more methods will provide a

more successful and cost-effective long-term solution to the Leafy spurge problem than a single method used alone. Herbicides, insects, and grazing can effectively control Leafy spurge. Spraying herbicides over biological control methods at certain times of the year will increase your flea beetle populations. Grazing sheep will cut the seed production; however, seed stock will be there from the past year plants. Timing is everything.



Leafy spurge has taken over some prime pasture land. Immediate control with sheep or goat grazing is needed in this area and an application of chemical treatment should be applied in the fall.

Leafy Spurge Identification

Leafy spurge, *Euphorbia esula*, is on the South Dakota Noxious Weed List. Leafy spurge is a very aggressive plant, perennial by rhizomes and grows to three feet in height. Often a persistent spreading weed in many pastures. The taproot can grow over 21 feet down in the soil. Flower heads are small, yellow-green, and en-

closed by a pair of yellowish-green, heart-shaped leaves (bracts). The stems of the plant are hairless, pale green or blue green. **WARNING:** The stems contain milky sap that may cause skin and eye irritation. Leaves are alternate and narrow, with smooth edges, .25 inch wide, and one to four inches long. Breaking up roots

by plowing only increases the number of plants. The local county weed board commission has also placed this weed on their noxious weed list. The South Dakota Noxious Weed List and ID weed book can be picked up at any county extension office



Leafy spurge

Biological Control for Leafy spurge

Since Leafy spurge is not native to the Americas, it does not have any natural enemies for control. Biological control measures were introduced into the Black Hills in the early 1980's. These flea beetles are used to control, but not eliminate the Leafy spurge. The beetles will only attach to the Leafy spurge. We have four

types of biological control measures on the Hills. Eight species have become established in North Dakota. Five of the species are flea beetles. Applying herbicides as a spring and fall treatment could be costly running from \$21 to \$45 per acre per application. With the use of chemicals and biological control, the cost factor

should decrease from year to year. Using biological agents to control Leafy spurge has become an economical alternative in many locations. Using the flea beetles also has an advantage around wetlands or surface water.



Damage from one type of Flea Beetle.

Leafy spurge Photos



Leafy spurge. This photo was taken one week after the Battle Creek Fire. If left uncontrolled, this plant can colonize an area three to six acres in diameter in two or three years. (See next photo).



This is what happens when left unchecked. This area must be treated on the outer edges first to prevent further infestation. Goats or sheep could be brought in to cut down the old growth and then use chemical treatment.



Leafy spurge seeds were once sold as an ornamental flower. Once established, these flowers would take over your flower garden and probably the lawn and your neighbor's lawn. It is extremely poisonous to horses and cattle.

SOME FACTS ABOUT THE LEAFY SPURGE

Leafy spurge has a number of biological characteristics, which make it difficult to control with herbicides. Infestations generally occur in remote areas often consisting of comparatively low-value land. This is why biological control is envisioned as a potentially valuable spurge management tool. Leafy spurge forms monocultures that often displace native plants and degrade wildlife habitats. It is a serious pest across the northern Great Plains where it displaces desirable grasses and forbs normally consumed by foraging cattle.

Biological Control Photos



Aphthona czwalinae adult emerge from the soil throughout the summer, and begin feeding on Leafy spurge leaves and flowering structures



Aphthona nigriscutis adult (2-4 mm) typically hop rather than fly when disturbed. Larvae are found in the soil, on or near leafy spurge roots.



Oberea erythrocephala adults are 10-12 mm in length, with long, dark antennae. They are active fliers, and may be seen moving above the Leafy spurge canopy.

Adult flea beetles emerge from the soil in late spring to early summer. Following emergence, adults feed on Leafy spurge leaf tissue and mate. Females begin laying egg clusters of three to 15 eggs. Females produce an average of 220 to 280 eggs over a lifetime. Larvae emerge from eggs in 12 to 19 days. Adults live 1.5 to 2 months in the field. The most damage to Leafy spurge is done in the root system by the larvae.

Other Methods of Control

Multiple strategies are recommended in the treatment and control of Leafy spurge. Chemicals with biological and mechanical methods should be considered if funds and time allow. Herbicides containing picloram, 2,4-D, or imazapic effectively control Leafy spurge. All applications should

be in accordance with the labels of each product. Effective treatment is not to drown the plant in liquid, but to lightly mist the plant. The plant must absorb the chemical into the root system for proper control measures. In this case, less is better. Some chemicals require a license by the state before

you can purchase them. Goats and/or sheep can also be used for control; however, they should not be used as a cure all. Any questions may be answered at the local chemical company or the county weed and pest supervisor.



With the water so close to the Leafy spurge, biological control would be a plus.

USDA Forest Service

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This could be your pasture once Leafy spurge gets established. Not the green you want.

This photo was taken after biological control was used for multiple years.

The Mystic Ranger District totals over 320,000 acres and is basically in the “middle” of the Black Hills. The Black Hills area consistently rates as one of the top five tourists destinations in the nation. The Black Hills have had some major fires in the past few years which have complicated the efforts of controlling noxious weeds within these particular areas. Fire can enhance the growth of noxious weeds by opening up the canopy to light and removing the vegetation. Ideal situation for noxious weeds, light, no competition, and enhanced soils. In addition, people traveling on or off roads continually spread the noxious weed seeds. If you notice that your yard has developed new species of plants, think where you rinse off your car or trailer. Even hiking or walking the friendly dog, boots and pets can carry the weed seeds.

Bibliography: South Dakota State University, College of Agriculture & Biological Sciences, Cooperative Extension Service, South Dakota Department of Agriculture, U.S. Department of Agriculture, Montana State University, North Dakota State University.

Local Contacts:



One new plant with gray colored old growth Leafy spurge.

When you do have questions about noxious weeds or even about your flower garden, make sure you contact the proper person for the correct answer. If on private lands, please contact your local weed and pest supervisor. In Pennington County, it's Scott Guffey, 605-394-5320 or National Forest System lands for the Mystic Ranger District, it's Gene Bolka, 605-343-1567. These people can point you in the right direction if there are questions about noxious weeds. There is also the South Dakota Department of Agriculture, Ron Moehring or Shannon Kulseth at 605-773-3796. Numerous web sites are also available for your quest for information. Just try typing in on your search engine “Leafy spurge” for the plant and, “Aphthona” for the biological control. The web sites should have most of the information you need about Leafy spurge. Many more noxious weeds are out there. We will try and keep you informed of what is going on in the Mystic District, Black Hills and the State of South Dakota with noxious weed updates.

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