

**Category A—High**

# Leafy spurge (*Euphorbia esula*)

**Navajo Name**

Chí'il abcí tsoh

**Origin**

Native to southern Europe

**Description**

Leafy spurge is an erect perennial forb that grows in clumps from an extensive root system that uses adventitious buds to form new stems. Stems and leaves are glabrous with numerous alternate thin leaves and stems that ooze a milky sap. The sap contains a toxic compound, ingenol, which can cause severe diarrhea and skin irritation in livestock. Leafy spurge flowers have showy large greenish-yellow bracts and small flowers without petals or sepals. Flowers have a three-chambered seed capsules .

**Biology**

Leafy spurge can reproduce either through seed dispersal or from adventitious buds and root fragments. Seeds begin germination in early spring, but can germinate throughout the growing season. Seeds can also survive for 8 or more years in the field. Mature seeds are released when the seed capsules explode, projecting seeds up to 15 feet from the parent plant. They form large clonal colonies, displacing native vegetation. Leafy spurge can grow in a wide range of soils and habitats

**Locations**

No known populations have been documented on the Navajo Nation, but some populations have been found near Mormon Lake in Flagstaff, AZ

**Ecological Threat and Management Concerns**

Leafy spurge can establish quickly either through root fragments or from seeds, and grows in dense clumps with an extensive root network. These clumps can quickly displace native vegetation above and below ground. The milky sap is irritating and harmful to livestock if consumed. It can cause severe diarrhea and weakness in cattle and horses as well as blistering and irritation in humans and other animals.



Photo credit: L.L. Berry



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**Key ID Tips**

- Flowers have large showy greenish-yellow bracts while flowers have no petals or sepals.
- Extensive root system with adventitious buds but no taproot.
- Grows in clumps with erect stems.

## Leafy spurge (*Euphorbia esula*)

Additional safety measures and limitations may apply to each method. Refer to the [Navajo Nation Integrated Weed Management Plan](#) for more information.

### Mechanical/Manual Removal

Hand pulling, hoeing, and grubbing can be used on small patches before seeds form but must be repeated over 2 to 3 weeks and gloves should be worn to reduce irritation. Mowing is not effective due to resprouting but can help herbicide applications and should be done every 2 to 4 weeks. Tilling can be helpful at a depth of 4 inches and repeated for 2 to 3 years. Cultivation should be done every 2 to 3 weeks in the late summer and fall.

### Biological

Six biological control organisms are available for use on the Navajo Nation. All are variations of the flea beetle (*Aphthona* spp.) which deposits its eggs at the base of the plant so the larvae can feed on the roots.

### Cultural Control

Goats and sheep are less sensitive to spurge sap but should graze in the early spring when it first emerges. Grazing will not eradicate spurge, but can reduce seed production and allow native plants to grow. Fire is not effective at controlling leafy spurge and can stimulate regrowth.

### Chemical

Use of herbicides can be effective. Refer to the product labels for application rates, timing, and approved application methods.

Recommended herbicides include:

- 2,4-D
- Dichlobenil
- Glyphosate
- Imazapic
- Picloram\*

\*Restricted Use by U.S. EPA

### References

DiTomaso, J.M., G.B. Kyser et al. 2013. *Weed Control in Natural Areas in the Western United States*. Weed Research and Information Center. University of California. 544 pp.

St. John, L., D. Tilley. 2014. Plant guide for leafy spurge (*Euphorbia esula*). USDA Natural Resources Conservation Service, Plant Materials Center. Aberdeen, Idaho 83210. 4 pp.

USDA, NRCS. 2023. PLANTS Database. Available at <https://plants.sc.egov.usda.gov/>. National Plant Data Team, Greensboro, NC 27401-4901 USA



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