



# COOPERATIVE EXTENSION

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## Managing Goatsrue

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Goatsrue (*Galega officinalis* L.) was intentionally introduced to the United States from the Middle East in 1891. It was tested for several years as feed for livestock in Utah, but was found unpalatable and deadly to sheep. Goatsrue has since infested 60 square miles in one county in Utah, and is found in cropland, ditch banks, irrigation waterways, pastures, fence lines, roadways, and wet, marshy areas. Any area subject to disturbance may have goatsrue become established. This noxious weed is capable of spreading throughout Nevada and dislodging native and desirable plants. Though goatsrue has generally been contained to an area in northern Utah, sightings were reported in Washington and action must be taken to prevent further infestation. Nevada Administrative Code has listed goatsrue as a noxious weed. It is the responsibility of the property owner, public or private, to eradicate this weed when found. Fortunately, there are no herbarium records or reports of goatsrue in Nevada.

### Identification

Goatsrue, a perennial herb, is a member of the pea family and usually grows to about 3 feet tall. It has multiple stems from a vigorous crown and a deep, cylindrical or tubular taproot that is hollow. The mature leaves are odd-pinnate (arranged on each side of a common axis with a single leaf at the apex) with 6 to 10 pairs of narrow leaflets. Each leaflet has a small, hair-like appendage at its tip.

The flowers are purple, blue, or white, and bloom in clusters at the end of the stems (Fig. 1). They are present from June until fall frost. Goatsrue produces one to nine seeds per pod, with a single plant capable of

generating 15,000 pods or more. The seedpods are round, narrow, and slightly more than one inch long (Fig. 1). The bean-shaped seeds are dull yellow and about 2 ½ times larger than alfalfa seeds.

When goatsrue reaches maturity, the seeds drop from the pods. Seeds are spread mostly by flowing waters, irrigation or runoff, but can also spread via farm equipment, animal manure, and the movement of contaminated soil.



Figure 1. Goatsrue flower and goatsrue seedpods.

Goatsrue may be confused with wild licorice (*Glycyrrhiza lepidota*) because of their physical resemblance. One distinguishing feature between them is that wild licorice has solid stems, unlike the hollow stems of goatsrue. As well, its shorter, burr-like pods have hooked bristles, while goatsrue produces narrow, round, smooth pods over an inch long.

### Weed Management Options

There are several different ways to control goatsrue. The most effective method depends on the size and location of the invasion. All treatments require follow-up work over several years.



Figure 2. Goatsrue plant in flower.

Testing the longevity of the seeds continues, but it is likely that the seeds remain viable in the soil for five to ten years.

**Mechanical Control:** For small infestations, shallow cultivation, mowing, clipping, and cutting can be performed, but are not recommended. The plant will flower and produce seed even when cut short, so mowing, clipping and cutting are not very effective.

**Cultural Control:** In agricultural fields, alternate cropping and row crops will usually effectively interrupt the natural life cycle of goatsrue due to the cultivation involved. Changes in irrigation and fertilizer management have not proved to effectively reduce competition from goatsrue.

**Biological Control:** There are currently no biological controls known for goatsrue. Grazing is not recommended. The leaves and stems of the plant contain the alkaloid galegin, which is toxic to livestock when eaten in quantity. Animals generally avoid goatsrue and graze competing species. This contributes to the spread of this noxious weed by making it easier for the weed to overrun competing species, especially when they are selectively overgrazed.

**Chemical Control:** Selective herbicides are considered the most successful in controlling goatsrue for large infestations.

Dicamba, 2,4-D, or a combination of those has produced effective results. One pound of 2,4-D per acre in addition to 3/8 to 1/2 pound of dicamba is recommended. To control goatsrue using only dicamba, 1/2 to 3/4 pound per acre should be used. Applying one pound of 2,4-D in the summer, preferably during bud stage and before flowering, and again in the fall for two years usually provides complete control of existing goatsrue infestations. Using a nonionic surfactant may improve the effectiveness of the herbicide application. If seeds have dispersed then monitor the area for several years and kill any goatsrue seedlings encountered.

Read all herbicide labels before application and ensure all guidelines are followed.

## References

1. Whitson, T.D., ed., L.C. Burrill, S.A. Dewey, D.W. Cudney, B.E. Nelson, R.D. Lee, and R. Parker. *Weeds of the West*. Jackson, Wyoming: Pioneer of Jackson Hole, 1992. pp. 326-327.
2. Evans, J.O. *Goatsrue*. Utah State University. 27 Mar 2003. <<http://cc.usu.edu>>.
3. *Goatsrue*. Washington State Noxious Weed Control Board. 27 Mar 2003. <<http://www.nwcb.wa.gov/>>.

Pictures courtesy *Weeds of the West*.

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