

INTEGRATED WEED MANAGEMENT OF LEAFY SPURGE



Spurge invading open space



Spurge sprout in spring

DOUGLAS COUNTY WEED DIVISION

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Spurge in bud stage late March

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No single control method should be used in managing weeds. A combination of methods (IPM) should be used. An integrated pest management plan deals with prevention as well as control. Eradication of weed species is not usually a practical goal but reducing infestation to manageable levels should be the objective.

LEAFY SPURGE

(*Euphorbia esula*) is a perennial, up to 3 feet tall; reproducing by vigorous rootstalks and seeds. Leaves are alternate, narrow, 1-4 inches long. Stems are thickly clustered. Flowers are yellowish-green, very small, arranged in numerous small clusters. Roots are brown, containing numerous pink buds which may produce new shoots or roots. The entire plant contains a caustic milky sap, which has been known to cause dermatitis. Seeds are oblong, grayish to purple, contained in a three-celled capsule, each cell with a single seed.

Cultural

Plant competition is an effective way to prevent the invasion of leafy spurge. Proper management of perennial grasses will inhibit the establishment of this weed.

Overgrazing is a major cause of perennial weed invasion. In Douglas County, one horse requires 35 to 40 acres of pasture land if no supplemental feed is provided. Residents should consider the above facts when planning recreational or hobby activities as it pertains to horses. A general rule of thumb to prevent overgrazing is the take-half, leave-half principle.

A stand of grass will maintain or even improve its condition if no more than one-half of its annual production is used. In other words, animals could graze until, on average, fifty percent of the grass has been utilized. Animals would then be removed until the vegetation recovers its original height.

Other cultural methods include:

- fertilization when necessary
(A soil test is the best way to determine fertilization on a site. Contact the Douglas County Extension Office for soil test kits.)
- water management
- where the perennial vegetation has been depleted, reseeding adapted varieties is recommended (good competition is given by: pubescent wheatgrass and Russian wildrye)
- disturbed areas should be revegetated as soon as possible to prevent weed invasions

Biological

Insects are being utilized as a means for long-term management of weeds. In Colorado, insects have been released on an experimental basis to control leafy spurge. At this time, they are available to the general public from Biological Control of Weeds of Bozeman, Montana. There are several flea beetle species, a long horned beetle, and a shoot-tip gall midge(fly) is also available. All should be released in June and/or July.

The use of sheep and goats is an option to consider. Studies in Wyoming and Montana have indicated that concentrated grazing of these animals will deplete spurge infestations. Angora and Cashmere goats are the most effective.

Mechanical

Mowing is a means of weakening the leafy spurge plant. Mowing interrupts the plant's normal growth cycle, and causes spurge to flower at a shorter height at the expense of its root reserves. Mowing, however, will not kill the plant but does make spurge more susceptible to herbicide treatments in the fall or slow the plant down until just before an insect release.

Tillage and/or spading creates similar behavior as mowing by causing the plant to regrow from its root reserves. These methods must be done about every 10-14 days if use alone until no regrowth occurs in the fall.

A new seedling must be dug by the 7th day or it can regrow from the root!

Herbicidal Treatments

Leafy spurge is difficult to control with herbicides. Herbicides are most effective when used in conjunction with other management techniques.

Homeowners should treat with extra care so as to prevent contamination of water sources and off-target damage (gardens, or desirable trees).

The following are some options for chemical treatments of leafy spurge by homeowners:

- 2,4-D amine @ 3 tablespoons/1000 sq ft. (spring @ flower and in the fall) during the off year of the following treatment.
- 2,4-D (amine) at 5 teaspoons /gal sqft. + Roundup @ 4 teaspoons /gal/1000 sqft. @ early bud stage-spring
- Roundup @ 3 fluid ounces/gal/1000 sqft. in the spring at the bloom stage. It will kill grass and may require reseeding or resodding.
- Banvel can be used if treatments are at least 2.5x the height from a tree trunk and the daily high temp. is less than 85°F for the next three days. Mix @ 3tbs/ gal/1000 sqft. at the same timing as the 2,4-D.
- 2,4-D (amine) at 5 teaspoons /gal sqft. + Drive (new from BASF) @ .367dry oz /gal/1000 sqft. @ early bud stage-spring.

Ranchers and large lot owners

Areas adjacent to water, in root zone of desirable trees & shallow water table: 2,4-D @ 2#/acre spring (1st year) followed in fall by an application of Plateau 12 oz/ acre annually 3 years.

Marshy areas: Rodeo @ 7.5 pt/acre or 2,4-D @ 2#/acre (2x per year).

Non- sensitive rangeland and roadside areas: 1 qt of Tordon 22K/acre (RUP) or 2 qts of Banvel/acre.

Small Grains: 1pt+1pt of Tordon 22K and Banvel/acre or 1-2 qts of Banvel/acre (between crops) or 2,4-D @ 1#/acre + Tordon 22K .5-1pt/acre.

Always read and follow the label!

All treatments will require at least 3-5 years of repetition at lower inputs each of the 3rd-5th years!

Proper calibration with a handsprayer can be done by:

1. Filling the sprayer with water to a marked level.
2. Uniformly spray an area 10ft x 10ft.
3. Refill the sprayer to the marked level with a measuring device. The amount collected times 10 equals the amount of spray mix per 1000 sqft. Add the above amounts of herbicide to this much water for your spraying task.

Example: if homeowner Jones collects back into his sprayer 10oz after spraying the 10 x10 spot, then $10 \times 10\text{oz} = 100\text{oz} / 1000\text{sqft}$. For every 100oz of spray mix he needs to add 3 tablespoons of 2,4-D to his tank adding the remainder in water.

Other products are in the development stage at this time.