KANSAS DEPARTMENT OF AGRICULTURE

OFFICIAL CONTROL METHODS FOR LEAFY SPURGE

Euphorbia virgata Waldst. & Kit.

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DESCRIPTION

Leafy spurge is a perennial forb introduced from Europe and Asia. It reproduces by seed and creeping roots that give rise to new roots and shoots every few inches. Stems are bright green, 2/3-2 feet tall branched above the middle, stiff and woody when mature, and usually grow in bunches. Stems are branched at top, very stiff and woody when mature. The stems and leaves emit a milky sap when broken. Leaves are alternate, oblong 1½-3½ inches long, and entire.. Male and female flowers are tiny and borne together in small cup-like structures surrounded by broad greenish-yellow bracts. Groups of flower-bearing cups and their bracts are produced in umbel-like clusters at the ends of the stems. Seeds are borne in three-lobed capsules with 3 seeds per capsule, and are ejected explosively from the capsule to distances up to 20 feet. Flowering May -September and; fruiting June-October.

PREVENTION OF SPREAD

The Noxious Weed Law (K.S.A. 2-1313a et. seq.) requires all landowners to control the spread of and to eradicate leafy spurge on all lands owned or supervised by them. Methods used for control must prevent both the production of viable seed and destroy the plant's ability to reproduce by vegetative means. Infestation sites must be monitored after control methods have been accomplished to ensure that dormant seeds in the seedbank do not germinate and establish new infestations.

LEAFY SPURGE CONTROL PRACTICES

Leafy spurge control means that both the roots and the flowers must be destroyed. Because leafy spurge is a perennial, with the exception of herbicide applications, one or more of the following methods must be used together to control leafy spurge.

Cultural Control

Cultural weed control involves land and vegetation management techniques used to prevent the establishment or control the spread of noxious weeds.

The use of sheep or goats to graze leafy spurge may be used during the vegetative to flowering stage then repeated as necessary to prevent the production of flowers. Repeat grazing each year to deplete the seedbank and provide control.

Frequent surveys of fence lines, roadway, ditches and other susceptible areas for new infestations and the quick removal of any new plants will prevent leafy spurge from becoming established.

Mechanical Control

Mechanical weed control involves the physical removal of all parts or just the reproductive parts of weeds.

As a perennial species, leafy spurge is difficult to control mechanically.

An intensive cultivation program should begin in the spring, two to four weeks after leafy spurge emerges, tilling four inches deep. Cultivation should continue every three weeks until the soil freezes in the fall for at least two growing seasons. The tillage schedule cannot be interrupted because leafy spurge recovers quickly from the effects of cultivation. Pieces of roots as small as 0.5-inch-long and 0.1-inch diameter can produce new shoots and can survive two or three hours of drying in the hot sun.

It is important to clean leafy spurge roots and root fragments from equipment before entering uninfested areas of the field or other fields to prevent the spread of leafy spurge.

Because of the resulting wind and water erosion or loss of income due to no crop returns, it is not practical to cultivate over a two to four-year period.

Chemical Control

The following herbicides may be used for cost-share with landowners. Other products labeled and registered for use on this noxious weed in Kansas may be used in accordance with label directions but are not available for cost-share. Be sure to follow all label directions and precautions. For additional information consult the most recent edition of the KSU publication of "Chemical Weed Control for Field Crops, Pastures, Rangeland, and Noncropland".
Any two or more of the herbicides listed below may be available for cost-share as a pre-mix or a tank mix if allowed on the respective labels. Contact your county weed program for availability.

Herbicide	Mode of Action
2,4-D LV Ester	4
dicamba	4
diflufenzopyr	19
glyphosate	9
imazapic	2
picloram	4

Biological Control

Biological control refers to the deliberate application of a living organism to control the spread of weeds. These agents will not eradicate their host plant, therefore other control methods must be used in addition to the use of biological control agents as part of an integrated pest management strategy. The importation of biological control agents is regulated by USDA-APHIS and is allowed by permit only. The following agents are permitted for use on Leafy Spurge. Other agents may be available for use if the appropriate permit is obtained.

Aphthona abdominalis	minute spurge flea beetle
Aphthona czwalinae	black leafy spurge flea beetle
Aphthona flava	copper leafy spurge flea beetle
Aphthona lacertosa	brown-legged spurge flea beetle
Aphthona nigriscutis	black dot leafy spurge flea beetle
Hyles euphorbiae	spurge hawk-moth
Oberea erythrocephala	red-headed leafy spurge stem borer
Spurgia esulae	shoot tip gall midge