

Frequently Asked Questions

How do I get *Aphthona* beetles?

You can call the Colorado Department of Agriculture Insectary in Palisade at (970) 464-7916 or toll free at (866) 324-2963 and get on the request list.

When are the insects available?

We collect and distribute adult beetles in June and July.

How long will it take for them to control my leafy spurge?

You can usually see some damage at the point of release the following year, but it typically takes three to ten years to get widespread control.

What else do the beetles feed on?

The beetles will feed on leafy spurge and cypress spurge. They were held in quarantine and tested to ensure they would not feed on other plants before they were imported and released in North America

What makes the best release site?

A warm dry location with moderate leafy spurge growth is best. For example; a south facing slope out of the trees. The beetles will establish in less than optimal sites, but it usually takes longer.

How do I release them?

After you select a site, simply open the bag/container and release all the beetles in one area. They will disperse themselves.

About the Palisade Insectary

Mission Statement

We are striving to develop new, effective ways to control non-native species of plants and insects that have invaded Colorado. We are doing this through the use of biological controls which are natural, non-toxic, and environmentally friendly.

The Leafy Spurge Program In Palisade

The Insectary has been working on leafy spurge bio-control since 1988. Root feeding flea beetles are readily available for release in early summer. Three other insect species have been released and populations are growing with the potential for future distribution. All of the leafy spurge feeding insects are maintained in field colonies. Additional research is underway to explore the potential use of soilborne plant pathogens as biocontrol agents.



For more information on the Leafy Spurge biocontrol program at the Insectary, please write or call:

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Biological Control of Leafy Spurge



Division of Conservation Services
Biological Pest Control Division

Palisade Insectary

What is Leafy Spurge?

Leafy spurge, *Euphorbia esula*, is thought to have originated in Asia and was discovered in Massachusetts in 1827. Currently, leafy spurge is found in every northern state with severe infestations in Colorado where it is a prohibited, perennial, noxious weed. The white, milky latex that



Leafy spurge

is present in all parts of the plant causes severe irritation of the mouth and digestive tract in cattle. Because of this, cattle avoid grazing where leafy spurge is present. Leafy spurge can reproduce from seeds or vegetatively from buds on its extensive root system. The seeds are contained in capsules that explode when dry - projecting them as far as fifteen feet from the plant. These seeds can remain viable for up to seven years in the soil.

A 1990 study conducted by North Dakota State University estimated the direct annual financial impact in North Dakota, South Dakota, Montana, and Wyoming to be \$40.5 million. The most effective herbicides for controlling leafy spurge are very expensive and require repeated application to effectively control leafy spurge. In addition, these herbicides have restricted use due to the detrimental effects they have on the environment.



Hillside infested with leafy spurge

Biological Control of Leafy Spurge

To help control leafy spurge, the Colorado Department of Agriculture initiated a biological control program using a number of plant feeding insects. The most effective of these are five species of flea beetles; *Aphthona nigriscutis*, *Aphthona czwalinae*, *Aphthona lacertosa*, *Aphthona flava*, and *Aphthona cyparissiae*. As larvae, the flea beetles feed on the roots; as adults they feed on the leaves. Heavy larval feeding damage is sufficient to kill the plant.



A species of flea beetle

Aphthona Flea Beetle Life Cycle

Egg laying adult *Aphthona* beetles are collected from infested plants in June and July and released in uninfested patches of leafy



A large collection of beetles



A leafy spurge covered with beetles

finally emerge as adults in June and July.

spurge. The adults lay their eggs on or near the crown of the plant. After the eggs hatch the larvae move into the soil to feed on the root hairs and small roots. The larvae overwinter in the soil. The following spring the larvae finish feeding then migrate to the crown of the plants to pupate and

Release Success

The leafy spurge project has had much success in its efforts to control the leafy spurge throughout Colorado. The *Aphthona* beetles are great examples of how biological control can work. To date there have been thousands of successful release sites and over a million acres reclaimed. Research on this system is ongoing, not only to ensure continued success, but to increase the success rate and reclaim more of Colorado's agricultural and recreational areas.



Leafy spurge site in Rio Blanco County before beetle release (1989)



Leafy spurge site in Rio Blanco County after beetle release (1999)