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***Aphthona abdominalis* (Coleoptera: Chrysomelidae): A candidate biological control agent for the leafy spurge (*Euphorbia esula*) “Complex” control in the U.S.A.**

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Abstract:

Leafy spurge (*Euphorbia esula* “complex”; Euphorbiaceae) is a noxious weed in north-central USA. It is present in 26 States from coast to coast, infesting over three million hectares in the USA and Canada. *Aphthona abdominalis* (Coleoptera: Chrysomelidae) is a promising candidate for the biological control of leafy spurge. The life history of this flea beetle was investigated and its host-specificity was studied, under no-choice and choice conditions, both in the laboratory and in the field. The adults used in these experiments came from a wild Italian population. Eggs from the same population were collected to obtain larvae for use in the larval survival tests. Fifty-four plant species in 22 families were tested. This flea beetle has several generations/year, depending on climatic conditions. Adults feed on leafy spurge, but larvae produce the main damage to plants, attacking roots, root buds and shoots. In this way plants are weakened and many potential new stems are destroyed. Under no-choice conditions adults showed a wide feeding spectrum, but they oviposited exclusively on leafy spurge and on *Euphorbia maculata*. *A. abdominalis* was not able to complete development on *E. maculata*. Larval survival tests were conducted on the plants on which feeding occurred under no-choice conditions, but the flea beetle completed development only on plants within the genus *Euphorbia*. Field testing results were positive, since this insect accepted American biotypes of leafy spurge and only marginal feeding occurred on *Euphorbia supina* and *E. maculata*. Development was completed only on leafy spurge. A petition is being prepared for introduction of *A. abdominalis* into quarantine in the U.S.A. for further testing.