The utilization of *Oberea erythrocephala* as an additional bio-control agent on leafy spurge in the Little Missouri River basin, and in southeast and north central North Dakota

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Abstract:

Leafy spurge inhabits a wide range of different environmental habitats. Leafy spurge placement in the soil appears to limit the success of *Aphthona* spp. to only a particular range of environmental conditions. The beneficial cerambycid beetle, *Oberea erythrocephala*, has a different reproductive and feeding behavior and therefore, may be better suited for successful establishment in the environmental habitats where *Aphthona* flea beetles are less than satisfactory. The successful establishment of *Oberea* will support the efforts of managing leafy spurge with another bio-control agent. *Oberea erythrocephala* was released at four sites in the little Missouri River basin, and five sites in southeast and one site in north central North Dakota. Each site was examined for the presence of *Oberea* population development and activity (stem girdling and oviposition punctures). At all the sites (not including north central North Dakota) *Oberea* was present the following year after release. An average of 3.7 adults per sweep and 8.5 adults were collected two and three years after release in southeast North Dakota. An average of 5.7% and 4.9% of the spurge plants were damaged by *Oberea* among the release sites in the Little Missouri River basin during the initial release year and one year following release. Leafy spurge stand counts were reduced an average of 4.22 stems/m\(^2\) at two of these locations and increased by 4.6 stems/m\(^2\) at one location. This study indicates that *O. erythrocephala* will establish under different environmental conditions that vary in annual temperature and precipitation, soil composition, and landscape.