

Range and Pasture XIX-4

White Grubs

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White grub larva.

Field Biology

There are over 200 species of June beetles which give rise to white grubs. The life cycle of the insect lasts from one to four years with the majority lasting three years. Eggs are most often deposited in wet meadow areas. However, there have been outbreaks where several thousand acres of rangeland grasses have been destroyed. The grubs feed primarily on the roots of grasses; where high numbers of grubs are present, the grass can be rolled back as if a sod cutter had been used. In wet meadow areas, grub damage is intensified because of rodent damage from skunks and other vertebrate predators tearing up the sod to find grubs which are used as a source of food.

Identification (Life Cycle/Seasonal History)

White grubs are white and shaped like a C. Adults feed on foliage of broadleaf and coniferous trees and bushes but the larvae feed on grass roots. June beetles deposit eggs in the spring in pastures or in grassy areas adjacent to fields (or in lawns, golf greens, etc.). Eggs hatch in two to three weeks and the larvae feed on decaying organic matter or grass roots at depths of one to four inches below the soil surface. As soil temperatures decline, the grubs move deeper until they are below the frost line where they remain dormant until spring. Except for annual grubs, this process is repeated for two to three years. The greatest damage to grasses occurs in the second year of the life cycle. When growth is completed, grubs prepare an earthen cell where they pupate. Pupation takes about two weeks but the adult remains in the cell until the following spring. Species differentiation is accomplished primarily from setae (slender hair-like or bristlelike structures) number and arrangement on the rear segment.

Management Approaches

Cultural Methods

Generally, maintaining the grass in a healthy state (including fertilizing high value grass) is the only cultural practice utilized.

Host Plant Resistance

There is nothing in the literature indicating resistance can be obtained to reduce damage from white grubs.

Biological Control

Considerable research has been done with the endotoxin-producing *Basillus popilliae*, a bacterium on the larvae of the Japanese beetle and other scarab beetles that produce white grubs. The pathogenic condition from this organism is termed Japanese beetle milky-disease. Various strains of *B. Thuringiensis* have also been evaluated for grubs. None of these have been proven effective enough (although available commercially) to be used as a control agent on rangeland. As already mentioned, some vertebrates feed on white grubs but do not effectively control a grub infestation.

Chemical Control

Although there are insecticides available which would control grubs they are generally too expensive for use on white grubs in low value grassland.

Categories: Range, Insects, Pasture, White grubs

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