

The Turf Store Tips

and gardening

Understanding and Controlling Grubs

White grubs are the larvae of many species of beetles, mainly belonging to one family. Adults differ in color markings, habits and life cycles, but grubs are similar in appearance. Fully grown larvae are 1/2 to 3/4 inch long, white to grayish, with brown heads and six distinct legs. They usually assume a C-shaped position in the soil.

White grubs are among the most common and destructive turfgrass pests, especially in cool-season turf in the transition zone. They damage the turf by feeding on the roots, where they are not readily visible. Severe infestations can destroy most of the roots. Look for localized patches of pale, discolored and dying grass, displaying symptoms of moisture stress. These areas are small at first, but rapidly enlarge as grubs grow and expand their feeding range.

Indirect damage is also prevalent from other animals that damage the turf looking for the insects. Raccoons, skunks, moles and birds often cause this type of damage.

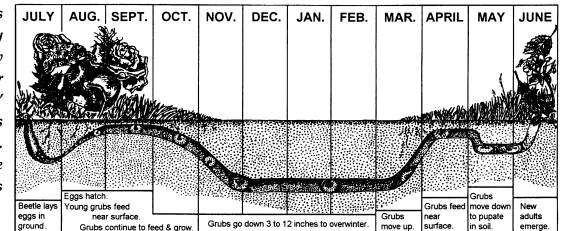
When using most white grub insecticides, you must get the insecticide down to the root zone where the grubs are feeding. To do this, you must irrigate following treatments, or try to time treatments to coincide with rainfall. Thatch also plays an important role in reducing the effectiveness of turf insecticides. If the thatch layer exceeds 1/2 inch, dethatch before treatment. When white grubs are deeper in the soil, treatments can be more effective when you irrigate 48 hours prior to insecticide application. This encourages grubs to move closer to the soil surface.

Safety is a particular concern with insecticides. The label is a good source of information and it should always be read thoroughly before application.

Grub Species:

Because your ability to control insect pests is directly related to how much you know about them, it is important to identify the type of grub your are up against. White grubs are white or cream-colored, have 3 pairs of legs, a brown head and dark areas at the rear end of the body. They characteristically assume a C-shaped position when disturbed and generally range from 1/4-1 inch in length when fully grown. Although they are similar in appearance, grubs can be identified by examining the pattern of "bristly" hairs located on the underside of the rear end of the body. These hairs, called the rasteral pattern, can be seen with a magnifying glass or hand lens. (Fig. C) These insects can also be identified by their adult stage which have very characteristic features:

Grub control efforts can be enhanced by understanding how the time of year impacts the insects' behavior, as illustrated here. Photo: Destructive Turfgrass Insects



- Asiatic Garden Beetle (*Maladera castanea*)**
 1/4" long; chestnut brown; underside covered by short, yellow hairs; life cycle: annual; scattered along Atlantic coast, from Massachusetts to South Carolina.
- Black Turfgrass Ataenius (*Ataenius spretulus*)**
 1/4" long; shiny black in color; life cycle: two generations; larvae much smaller than other species – 1/4 or less in size.
- European Chafer (*Rhizotrogus majalis*)**
 Oval, 1/2" long; light brown or tan color; shallow grooves lengthwise along wing covers; life cycle: annual, though some spend 2 summers as grubs and mature early summer in year 2; common in northeast and parts of midwest.
- Green June Beetle (*Cotinuyus nitida*)**
 About 1" long; metallic green, brownish-yellow wing covers; underside shiny greenish yellow-orange; life cycle: annual; southeastern states north to Long Island and Central Illinois.
- Japanese Beetle (*Popillia japonica*)**
 1/2" long; metallic bronze and green in color; row of five white spots along each body side; life cycle: annual; common in northeastern U.S., midwest and as far south as Georgia; feed on more than 200 different plants including ornamentals and small fruits.
- May Beetles (*Phyllophaga* sp.)**
 Large group of species brown to blackish-brown; 1 to 3 year life cycles; wide geographical distribution; feed on agronomic crops. *Phyllophaga crinita* is the major southwestern U.S. grub problem. This "May/June" beetle has a single generation per year. The adults may fly in July to mid-August with damage appearing in bermudagrass a little later in the season.
- Northern Masked Chafer (*Cyclocephala borealis*)**
 1/2" inch long, light brown; 1 year life cycle; northeastern U.S. south to Alabama.
- Oriental Beetle (*Exomala orientalis*)**
 1/3" to 1/2" long; straw colored to brown; black markings on wing covers and just behind head; life cycle: 1 year; primarily in New York, Connecticut, Massachusetts and New Jersey; feed on ornamental flowers.
- Southern Masked Chafer (*Cyclocephala lurida*)**
 1/2" long; tan; southern states northwest to Nebraska.

Adult Forms of White Grubs



Japanese Beetle

European Chafer

Asiatic Garden Beetle

Oriental Beetle

Masked Chafer

May Beetle

Black Turfgrass Ataenius

June Beetle

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