

May or June Beetles (*Phyllophaga* spp.)

Introduced: True white grubs are the larvae of May or June beetles (*Phyllophaga* spp.). There are 18 species in south Florida of which some are native. Larvae of other types of scarab beetles are also sometimes called white grubs.

Current Infestation: May or June beetles are found throughout Florida, the U.S. and Canada. A common species in south Florida is the Cuban May Beetle.

Description/Biology: The life cycle of May or June beetles varies from one to four years depending on the species. Eggs are laid in the soil. The larvae will move up and down in the soil as temperatures change. Warm soil temperatures bring the larvae closer to the surface to feed and cool soil temperatures drive the larvae deeper in the soil where they remain relatively inactive. Adults typically emerge from the soil in May or June to feed, mate, and lay eggs.

Larvae vary in length from $\frac{3}{4}$ to $1\frac{3}{4}$ inches (20 to 45 mm) depending on species and age.



Larvae are white with a C-shape body, brown head, and three pairs of legs. The hind portion of the abdomen is slightly enlarged and darkened. Larvae are found in the soil where they feed on roots and decaying vegetation. Larvae pupate in the soil. Pupae are white to yellow or brown and about $\frac{3}{4}$ inch (20 mm) in length.

Adults are often yellow to dark brownish red, robust, shiny beetles that are $\frac{1}{2}$ to 1 inch (12 to 25 mm) long.



Seasonality: Adults are most active during the rainy season, especially in the early portion (May - June) and are commonly attracted to lights. Larvae feed all year, however, they are less active when soil temperatures are cold.

Hosts: Larvae feed on the roots of numerous crops which include ornamental plants and grasses. Adults feed on the foliage of various ornamental plants, fruit trees, agricultural crops, and weeds.

Importance: Adult feeding on tree foliage can cause concern but does not typically harm the plant. Insecticides are generally not warranted. Larvae, however, are considered a major pest of turfgrass and pastures. Control measures for turfgrass or sod farms are sometimes required.

Damage: Larvae feed on grass roots about an inch below the soil surface. Damaged grass turns yellow and then brown. The damage may first appear as spots only a few inches in diameter, but these spots will gradually become larger as feeding continues. Heavy infestations completely destroy the roots, and the grass can be rolled back like a carpet. Turf will feel spongy when walked upon.

Adults feed on the foliage of numerous ornamental trees and shrubs with a preference for young, tender foliage. This type of damage is similar to feeding damage of several other leaf-feeding insects.



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Management: Over-watered and over-fertilized lawns are susceptible to white grub damage. Frequent irrigation during the adult flight season may attract egg-laying females. Good lawn maintenance is the best defense. During late spring and early summer, monitor areas with lights at night for presence of adult beetles. To inspect for grubs, cut three sides of a one-foot piece of sod in several areas that are not thriving, two-inches deep with a shovel or spade under the grass, and lay it back. Count the number of grubs found. If an average of three or more are found per square foot, management may be warranted. The most effective time to control this pest is summer or early fall when the larvae are still small. Larger grubs are difficult to control.

There are numerous natural enemies and diseases of white grubs. Mammals and birds, especially ibis, feed on white grubs. The digging done by these animals is usually minor and the lawn will quickly repair itself. Toads and frogs feed on adult beetles.

There are also several parasites (flies and wasps), nematodes and diseases that can kill larvae. Entomopathogenic nematodes have been one of the more common commercial biological products for management of white grubs. Under the appropriate conditions, these nematodes have contributed to the control of these grubs.



Homeowner—To catch and remove adult beetles, place white buckets containing a few inches of water (add a couple drops of liquid soap) under infested trees in the evening. Leave over night.



If the number of grubs found in the lawn dictate that an insecticide is necessary, there

are products labeled for grub control. Remove as much thatch as possible before treatment to allow the insecticide to come in contact with the insect. Spot treat when damage is first noticed and when areas are still small. Treat the off-color spots and a surrounding 10-foot area. If damage is widespread, the entire yard should be treated. In areas with a history of grub problems, insecticides containing imidacloprid or halofenozide need to be applied in early summer as a preventative. If grubs continue to be a problem in the fall, other insecticides (trichlorfon, bifenthrin, or carbaryl) can be used as a curative.

Professional and Grower — Determine that the grass or plant damage is due to this particular pest before applying an insecticide. The insecticides and methods listed above can be used to manage white grubs in turf. Insecticides that can be used in ornamentals include bifenthrin, carbaryl, and imidacloprid. If adult control is warranted, pyrethroids such as bifenthrin, cyfluthrin, deltamethrin, acephate, or imidacloprid can be used.

Websites:

<http://creatures.ifas.ufl.edu>

<http://edis.ifas.ufl.edu/LH037>

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