



White Grubs

Pest Note



Photos courtesy of: Henri Goulet, Canadian National Insect Collection; Steven Katovich, USDA Forest Service, Bugwood.org; David Cappaert, Michigan State University, Bugwood.org

White grubs—what are they?

White grubs are the larvae of certain beetles, such as June beetles and chafer. Grubs are one of the most difficult lawn pests to deal with.

Grubs are white or yellowish and have fleshy, wrinkled, C-shaped bodies with tan or brown heads and six spiny legs. They are quite small upon hatching, but at maturity are from 2 to 4 cm (3/4 to 1 1/2 inches), depending on the species.

The most common white grubs infesting turf in Canada are those of the native June beetle or Junebug. Two smaller exotic species, the European chafer and the Japanese beetle have been accidentally introduced into Canada and are found primarily in the Niagara peninsula. The European chafer however, has recently migrated further north and east, and is responsible for much of the lawn damage in recent years in eastern Ontario.

June beetle adults are shiny reddish brown, up to 2.5 cm (1 inch) long. The adult European Chafer is light brown or tan and is about 1.3 cm (0.5 inch) long. The adult Japanese beetle is metallic green and bronze, about 1 cm (less than 0.5 inch) long.

What can they do?

Signs of grub infestation

Grubs feed on the roots of many plants, but prefer the fibrous roots of lawn grass. As the roots are destroyed, turf will wilt and turn brown. They also feed on potatoes and carrots in the garden. They cut the main stems or roots of plants below the soil surface, and tunnel into tubers and freshly rooted plants. Affected areas will feel soft and spongy to walk on, and turf in these spots can be lifted up with ease. Carefully fold back the turf and observe the number of grubs exposed. Damage is most severe in the spring and fall when moisture levels in the soil are high. During drier periods, the eggs may be killed and surviving larvae can be found deeper in the soil. Extremely dry summers destroy many eggs, and newly hatched grubs. Mature grubs can be found near the surface in late summer and early fall.

Often skunks and other small mammals will pull back the turf to feed on grubs in the spring or fall. This secondary damage to your lawn, as well as flocks of starlings and blackbirds feeding on the lawn, are signs of a grub infestation. If you have any of these natural predators digging at your grass, check for white grubs. Many people notice these indicators first.

How can I manage them?

Lawn care

Cultural practices are the best way to ensure the health of your lawn before any problems occur. If you can, dig or till your land one year before you seed it or lay sod. Remove old plants and weeds, rake/thatch your lawn or cultivate the soil thoroughly to expose any grubs to their predators and the weather, to reduce populations.

Healthy, vigorously growing lawns can tolerate more grub feeding than stressed lawns because damage to one root is compensated for by others. Adequate leaf tissue also provides nutrients and energy to repair root damage. Remove excessive thatch, and aerate compacted soil areas to ensure proper drainage. A mechanized soil aerator with spikes or spiked sandals can also help kill some of the grubs.



White grub



June beetle



Japanese beetle



European chafer beetle

Photos: Dr. Henri Goulet, Canadian National Insect Library; E. Bradford Walker, Vermont Department of Forests, Parks and Recreation, Bugwood.org



White grub infested lawn
Photo: M.G. Klein, USDA Agricultural Research Service, Bugwood.org

Responsible Pesticide Use

Before Purchasing a Pesticide

- Identify the pest correctly.
- Use physical control methods and alternatives to pesticides.
- Read the label directions and safety precautions before buying the product. The label must include the name of the pest to be controlled and the treatment location (e.g. indoor, outdoor, garden uses, pet treatment).
- Purchase only the quantity of product needed for the treatment.
- Consider hiring a licensed pest control operator.

Using a Pesticide

- Carefully read all label instructions and precautions before using pesticides.
- Do not drink, eat or smoke while applying pesticides.
- Persons and pets should vacate the area during treatment. Cover or remove aquaria.
- If kitchen area is to be treated, cover or remove food, dishes and utensils.

After Using a Pesticide

- Always wash your hands thoroughly after handling any pesticide product.
- Do not permit persons or pets to contact treated surfaces until residue has dried completely.
- Provide adequate ventilation of treated areas after use.



Beetles prefer to lay eggs in closely cropped lawns, so raise your summer mowing height to 6 to 8 cm (2.5 to 3 inches). Leave lawn clippings after mowing, because their slow release of nitrogen favours the decomposition of thatch by microorganisms. Use fertilizer with high potassium and adequate nitrogen.

If you detect grubs during the warm, dry periods of the growing season, irrigate and fertilize your lawn to maintain the turf vigour and to compensate for the root feeding damage. Apply a top dressing of sand and manure and overseed with grass. Deep, infrequent irrigation encourages deep-rooted drought-tolerant lawns. Water no more than once per week, and water until at least 2 cm (1 inch) of water collects in a container placed on your lawn or for about one hour.

Population control

You can hand pick adult beetles or vacuum them using a small vacuum with a disposable bag. You can also shake beetles from plants and collect them in a cloth, placed directly below the plant. For best results, collect the beetles early in the morning when they are still sluggish. Immersing beetles in soapy water can kill them.

Predators

Beneficial predatory insects such as ants prey on the eggs of Junebugs. Certain parasitic wasps and flies help keep host Junebug or Japanese beetle populations in check. Some of these are specific to a single host, but others will control several pests in an area. Bird houses attract natural predators (starlings, blackbirds), that feed on white grubs.

Resistant varieties of plants

Choose resistant varieties of plants. If reseeding or establishing a lawn, use grasses containing an endophytic fungus such as fescues and ryegrasses. This type of fungus repels the grubs. Companion plants such as larkspur and geranium are toxic to grubs.

Products

There are commercial products available to professional pest control operators and some domestic products, available to homeowners. Before you purchase a pesticide, check the label to make sure the product is registered for this use. Carefully follow all the directions on the product label. For all three grub species, apply a treatment just after the larvae have hatched, in mid- to late-August or in mid-September, when the turf is moist.

Did you know...

It takes the June beetle three years to mature while the European chafer and the Japanese beetle take only a year. On their way to maturity, there are times when they are most active and most damaging to a lawn. Typically, outbreaks of white grubs occur every third year.

White grubs do the most damage at these times:

June beetle grub

Year 1 August through September
Year 2 April through September
Year 3 April through May

European chafer grub

March through April
September through November

Japanese beetle grub

April through June
September through October



Photo: David Cappaert, Michigan State University, Bugwood.org

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A healthy lawn is a great defense against grub damage.



Scoliid wasps feed on Junebug eggs.
Photo: Johnny N. Dell, Bugwood.org



Geraniums are toxic to grubs.



- Wipe clean all surfaces that come in direct contact with food, such as counters, tables and stovetops, including indoor and outdoor surfaces.
- Always store pesticides out of reach of children and pets and away from food and beverages.

Accidental Poisoning

- Call a poison control centre immediately and seek medical attention.
- Take the pesticide container or label with you to the emergency facility or physician.
- Follow first aid statements on the label.
- In case of accidental poisoning of pets seek veterinary attention immediately.
- Report pesticide incidents to manufacturers (phone number on label). They are required to send them to Health Canada.

Disposing of Pesticides

- Do not reuse empty pesticide containers. Wrap and dispose of in household garbage.
- Follow the product label instructions or contact provincial authorities for disposal of pesticides.

Note: These are general recommendations. Consult the label for specific instructions. When in doubt, contact a professional.

Health Canada

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