

Cross Pollination

Diagnosing Lawn Issues - Let's Start with Insects!

by Halton MGs Cathy Kavassalis & Claudette Sims

Can someone tell me how to fix this lawn? Over a short period, the grass has died in spots. Nancy Z

There are several possibilities including environmental issues, pests and diseases. In this article, we'll concentrate on pests.

Treatment options for pests can be cultural, mechanical or chemical and will depend on what insect is causing the damage as well as the actual number of insects found in the lawn.



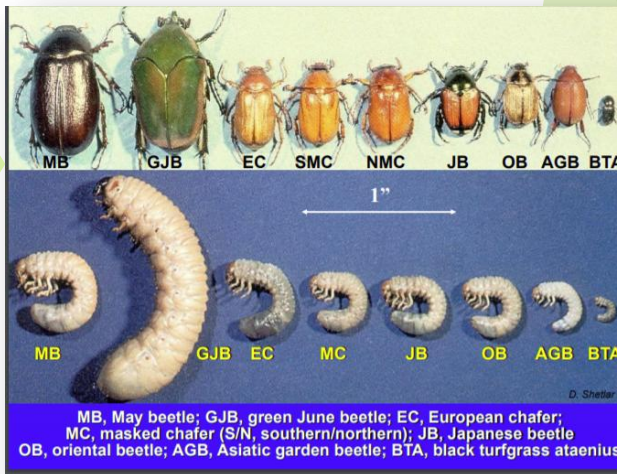
Start by going out to the lawn and lifting a square of sod about 30 cm (1ft) square and 10 cm (4 inches) deep). Place it on a sheet of newspaper and look for insects and in particular white grubs - the larvae of a number of beetles.

Try and identify the type and numbers of larvae that you see on the newspaper. Here are some of the beetle larvae that feed on lawn grass roots. The 1st three are the most common in Ontario

- **June beetles** (*Phyllophaga anxia*)
- **Japanese beetle** (*Popillia japonica*)
- **European chafer** (*Rhizotrogus majalis*)
- **Northern masked chafer** (*Cyclocephala borealis*)
- **Black turfgrass ataenius** (*Ataenius spretulus*)
- **Green June beetle** (*Cotinis nitida*)

This slide shows a number of different beetle larvae that feed on lawn grass roots. Control is based on numbers & the timing of the insect's life cycle. Identification of larvae may include close examination of insect anatomy.

Image: Rutgers New Jersey Agricultural Experiment Station



MB, May beetle; GJB, green June beetle; EC, European chafer; MC, masked chafer (S/N, southern/northern); JB, Japanese beetle; OB, oriental beetle; AGB, Asiatic garden beetle; BTA, black turfgrass ataenius



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Next, check for cutworm and army worm caterpillars. Pour soapy water on a damaged area of the lawn, wait 10 minutes & watch for cutworms to emerge.



Left: Cutworm eggs laid on grass can be removed by mowing

Right: Black cutworm larvae are green-gray to almost black, with a lighter gray underside and a broad stripe of lighter gray or brown down the middle of the back. Larvae are 1.5 to 2 inches long.

Images & Text [Purdue Extension](#)

Finally, look for “[Leatherjackets](#)”, the larvae of the European Crane Fly. At night, they feed at or below the surface in the thatch. Skunks & starlings can further damage lawns digging for the larvae. Peak damage usually occurs in May when skunks are feeding their young. The adult crane fly is fairly common and looks like a giant mosquito!

Dig out a section of grass about 4 inches across and tear it up looking for “leatherjackets” in grass or soil.

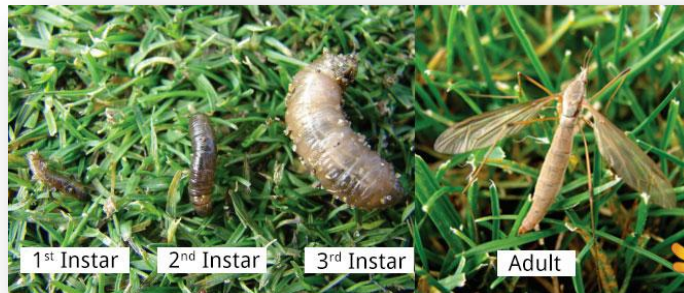


Image: [Nutrilawn.com](#)

Hopefully this process has helped you to identify the type and numbers of insects in your lawn. Now you need to decide if further action is warranted.

If grubs exceed damage thresholds, then some cultural or chemical action may be needed (see slide to the right), e.g. more than 3-4 May beetles per square foot may require action. But *Black turfgrass ataenius* numbers in spring need to exceed 30-80 for action.

White grub damage thresholds*

Species	grubs/ft ²
- May beetles	3-4
- European chafer	3-8
- oriental beetle, Japanese beetle, green June beetle, masked chafers	6-20
- Asiatic garden beetle	12-20
- Black turfgrass ataenius, spring	30-80
“ “ “ , summer	15-40

*values vary greatly with turfgrass type and condition. Healthy, vigorous turfgrass can tolerate higher densities.



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If you've determined that there are not an appreciable number of larvae, then it's time to check for chinch bugs. Cut the bottom out of a coffee can or large juice can and force it 5 cm (two inches) into the turf surface. Fill the can with soapy water, adding more water if the level recedes. Wait five to 10 minutes. If you have chinch bugs, they will float to the top of the can. These are quite small- about 4 mm in length.



Above: Using a juice can to find chinch bugs.
Right: Chinch bug adults & nymph with white band across the abdomen (far right)
Images OMAFRA

Control Options

Chinch bugs

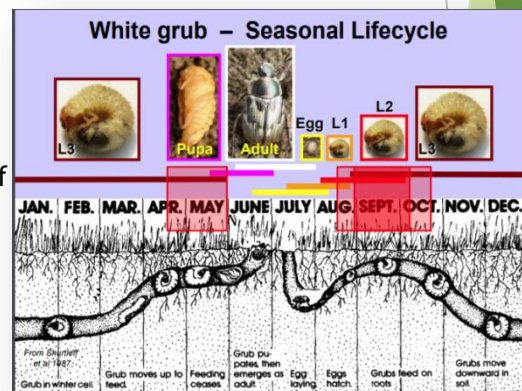
• Check for chinch bug infestations in the second week of July or when the bird's foot trefoil is in full bloom. If cultural controls (aeration, dethatching) are not effective, use insecticidal soap in affected areas.

White grubs, e.g. June Beetles, Japanese Beetles, European Chafer

- Hand pick or vacuum adults to reduce numbers
- Beneficial nematodes can be used to fight large numbers. Application is best when the grubs are small & near the surface of the soil (May or early June -see image on right).

Cutworms & Army Worms

- "Reduce [thatch](#) and eliminate soggy areas. Larvae have some natural enemies, such as [braconid wasps](#) and [tachinid flies](#). If more than 5 larvae per square yard are present, you may need to treat. [Beneficial nematodes](#) or an application of *Bacillus thuringiensis* (Bt) may be effective against young caterpillars." [UC IPM](#)



White Grub Control

Applications of beneficial nematodes need to occur when the larvae are small and near the surface of the soil. Keep in mind that nematodes will also kill non-target larvae such as fireflies which spend part of their life cycle in soil.

Image: [Purdue Extension](#)

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Cultural Control - Your Best Option!

Your very best option when controlling insects is to promote a healthy lawn. Healthy, vigorously growing lawns can tolerate more grub feeding than stressed lawns because damage to one root is made up for by others. Here are some suggestions from the Government of Canada on [White Grubs](#).

- *“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 encourages micro-organisms to break down the thatch. Use fertilizer with high potassium and enough nitrogen.*
- *If you notice grubs during the warm, dry periods of the growing season, water and fertilize your lawn to strengthen it and make up for the root feeding damage. Apply a top dressing of sand and manure and overseed with grass.*
- *Deep, infrequent watering encourages deep-rooted, drought-tolerant lawns. Water no more than once a 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.*
- ***Predators:** Beneficial insects like ants prey on the eggs of June bugs. Certain parasitic wasps and flies also help keep June bug or Japanese beetle populations in check. Some of these are specific to a single insect, but others will control several pests in an area. Bird houses attract natural predators (like starlings and 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 like fescues and ryegrasses. This type of fungus keeps grubs away. Companion plants like larkspur and geranium are toxic to grubs.”*

Lawns grow best in sunny well drained areas. Consider alternatives for areas where there is heavy shade or compacted soil, e.g. pavers or mulched walkways, replacing turf with shrubs or alternative groundcovers (see [Cross Pollination April 2021](#) page 6 for native groundcover suggestions.)

Read all about it!

(Note: Insecticides mentioned in U.S. links may not be available or allowed under the Ontario Pesticide Act)

- [Grubs in Lawns](#) - OMAFRA
- [Hairy Chinch Bugs in Lawns](#) OMAFRA
- [European Crane Fly](#) - OMAFRA
- [What can I do about Japanese Beetles?](#) - Halton MG Cathy Kavassalis
- [Chinch Bugs](#) - CBC News
- [Chinch Bugs](#) - Government of Canada
- [Insects](#) - Professional Lawn Care Association of Ontario
- [White Grubs](#) - Government of Canada
- [Managing Turfgrass Insects of the Northeast Part 2: Root-infesting insect pests](#)
- [TURFGRASS INSECTS MANAGING BLACK CUTWORMS IN TURFGRASS](#) Purdue University Extension
- [The UC Guide to Healthy Lawns](#) - University of California Integrated Pest Management



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