

White Grubs

Many lawns in Quebec have fallen victim to the white grub in recent years. Infestations are particularly common in areas with sandy soils. But despite the prevalence of clay soils in Rosemère, our town is far from immune to attack.



Photo: Caroline Roy

White grubs are actually the larvae of certain beetles. June beetles, commonly referred to as June bugs, are native to Canada, while European chafers and Japanese beetles were introduced into our ecosystem from other locales. The appearance of the three grubs is so similar that it takes a magnifying glass or a microscope to tell them apart. Studies have shown that the European chafer is responsible for the most damage in the greater

Montreal area. They generally feed on the roots of grasses, deciduous and coniferous trees, and other plants, but lawn grass roots are their preferred form of sustenance. Over time, they can leave large patches of dead grass in their wake. It is interesting to note that the number of grubs per square metre is not directly proportionate to the extent of the damage. Factors such as the type of soil, the initial length of the grass roots, the presence of predators and the biodiversity of the surrounding area can all have an impact on the process. In other words, if you happen across a few grubs in your soil while you are gardening, there is no immediate cause for alarm.

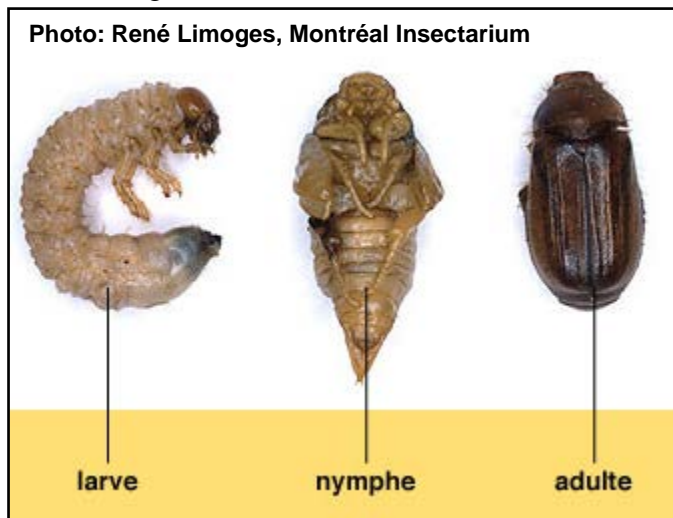
Lifecycle

In Quebec, adult European chafers come out of the ground in early to mid-June, when catalpas are in full bloom, and mate at dusk (around 8 p.m. to 10 p.m.). The female lays 20 to 50 eggs in the ground, about 10 centimetres under the surface of the soil. These eggs hatch in July, and the C-shaped larvae nourish themselves on the roots of the surrounding grass. They then develop through three stages of larval growth, with the second stage starting in late August and the third in October. The larger they become, the more damage they can do.



Before the first frost, the grubs dig deeper into the ground to hibernate for the winter. The following spring, when the soil warms up, the Stage 3 larvae move back toward the surface and resume feeding. Now much bigger, they are particularly appetizing to skunks, raccoons and crows. Around the middle of May, they burrow back down into the soil to transform into a pupa for about a month and emerge as a fully grown adult. The cycle then starts again as the new adult prepares to mate.

What Can You Do About White Grubs?



If you spot white grub damage **in late fall or early spring**, wait until **May** to reseed and proceed as soon as the weather cooperates. But don't wait until the end of the month: weeds will get to your bare patches before you do. You can repair your lawn with an eco-friendly mix of various types of grass seed (hard fescue, chewings fescue, red fescue, Kentucky bluegrass, perennial ryegrass, etc.) to increase biodiversity. Some mixes also include a small amount of white clover. Others may contain endophytes, symbiotic fungi that are hard for European chafers and other pests to digest. Adding high-quality compost (forest compost, vegetable compost, etc.) to your soil and seed mix is also a great way to get a new lawn off to a good start. Be sure to talk to your local garden centre for more information.

If your lawn has already endured several years of damage, or if you have good reason to believe there are chafer eggs in your soil, you can check for larva in **August**. Lift several pieces of turf around your yard and check around the roots to see if you have any unwelcome guests. But look closely: at this stage in their development, they are only a few millimetres long.

In the event you discover a high concentration of white grubs, you may want to consider an organic nematode treatment for your grass. You can find nematodes at most garden centres and treat your lawn anywhere between **early August and mid-September**. You can also call upon the services of a lawn care specialist if you prefer. Note, however, that there are a few basic guidelines to follow to ensure the results are satisfactory:

- Nematodes must be stored at cooler temperatures (never leave them in the sun or near a source of heat).
- The treatment should be applied late in the day or when the weather is cool and overcast.
- Be sure to use the right type of sprayer (no filter, large nozzle opening).
- Shake the hose or spray nozzle regularly during application to ensure enough oxygen gets into the nematode solution.
- It is very important to water the soil 24 hours before application and for 10 straight days afterward. You'll need to obtain a free temporary watering permit from Public Works



(receipt for your nematode treatment purchase required). Note that permits may not be issued when watering bans are in place.

Important: Nematodes work best in ideal application conditions: 10 days of watering, sufficiently loose soil and soil temperatures between 15°C and 22°C. Your results may differ dramatically if any of these conditions are not met. However you choose to proceed, follow the instructions to the letter. If you have any concerns or questions, contact the Public Works Department's eco-consultant.

Prevention remains the best solution, and that means doing everything you can to maintain a healthy lawn. European chafers tend to lay their eggs where grass is sparse and closely cropped. One way around this is to cut your lawn to a height of 8 centimetres throughout the summer. And remember that healthy grass has longer roots, which means it can support a certain number of white grubs without dying out.

What About Pesticides?

For years, Merit brand insecticide was approved for use in many Canadian provinces to treat white grubs. But as of **March 2019**, imidacloprid, the active ingredient in Merit, is prohibited for use in lawn maintenance in Quebec (except in golf courses), given the role that imidacloprid and other neonicotinoids has been found to play in the decline of bee populations.

Other pesticides, such as Acelepryn and Arena, may be used at certain times of year, but they are much more efficient when applied before the end of July, when larvae are small and damages are not yet visible.

In Quebec, the use of chemical pesticides to treat white grubs is regulated by municipal by-law. In Rosemère, a temporary permit is required before applying any form of pesticide, and it must be done by a contractor that has registered with the Town at the beginning of the season.

One last thing: if you are currently looking into solutions for treating a white grub infestation, be sure to start by contacting the Town's eco-consultant **in the fall or early spring** to show them the extent of the damage. You will be asked to prove (e.g., provide receipts) that you have exhausted other avenues, such as improved lawn maintenance and the application of nematodes. After the situation has been reviewed, the decision will be made as to whether the conditions have been met and whether to issue a permit.

Further reading

Boucher, Stéphanie. 2006. *Les Insectes de nos jardins*. Éditions Broquet.*

Lévesque, Micheline, 2010. *Les vers blancs*. Bertrand Dumont Éditeur Inc.*

Lévesque, Micheline, 2008. *L'écopelouse – Pour une pelouse vraiment écologique*. Bertrand Dumont Éditeur Inc.*



Lévesque, Micheline, 2005. *Le guide complet des pesticides à faible impact et autres solutions naturelles*. Isabelle Quentin Éditeur.*

Montréal Insectarium website:

<http://espacepourlavie.ca/en/insects-and-other-arthropods>

Montréal Insectarium website, fact sheet on European chafers:

<http://espacepourlavie.ca/en/insects-arthropods/european-chafers>

Ministère du Développement durable, de l'Environnement et des Parcs du Québec website, document on product toxicity:

<http://www.mddep.gouv.qc.ca/pesticides/commercial.pdf>*

Health Canada website:

<http://www.hc-sc.gc.ca>

<https://www.caaquebec.com/en/at-home/guides/guide-to-insect-pests/white-grubs/>