European chafer in your lawn

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How to prevent and control white grub infestations.

What are European chafer beetles?

Description and identification

Adult European chafers are tan or brown beetles resembling June beetles and measuring approximately 1.5 cm in length. The chafer grubs (larvae), which cause most of the lawn damage, measure approximately 2 to 2.5 cm, are soft, white and C-shaped with tan-coloured heads and six prominent legs.

Biology and life cycle

The European chafer beetles (Rhizotrogus majalis) complete their life cycle in one year which can lead to rapid population increases. Adult beetles emerge from the soil in June and mate in swarms at dusk. In July, females lay up to 20 to 30 eggs in the soil. The eggs hatch in about 2 weeks and the small grubs begin to feed on grass roots. Feeding continues throughout the winter until they pupate in May, except during prolonged periods of freezing temperatures, when it would be later.

What happened to my lawn?

The chafer beetles are an introduced insect to BC that has become a serious lawn pest in Metro Vancouver. Since it was first discovered in 2001, the geographic range of the pest has grown substantially, particularly here in Richmond. The chafer grubs damage lawns and boulevards by feeding on the roots of turf grass, resulting in the appearance of yellow (dead) grass patches in affected lawns. Turf will commonly be wilted or dead and easy to pull back, revealing the feeding larvae. Infested lawns may feel "spongy" due to the grubs tunneling below.

How do you control them?

A healthy lawn is the best protection against chafer grub damage.

Minimize lawn damage caused by chafer grubs by keeping your turf healthy and thick with proper lawn care practices.

Maintain strong grass

- Promote deep roots by watering for no more than one hour, once a week.
- Mow high (2–3 inches) and leave clippings on your lawn to give your grass 50% of the required nutrients.
- Overseed your lawn annually with a grass seed mix to maintain a dense, healthy and weed-free lawn.

Build healthy soil

- Top dress your lawn with compost to build a soil base that holds moisture and feeds pest-resistant grass.
- Lime your lawn in the fall and spring to counteract the soil's natural acidity. Acidic soil prevents grass from taking up key nutrients necessary for its optimal growth and health.

The major damage to lawns occurs when crows, skunks and other animals dig up the lawn in search of these large, chafer grubs between fall and early spring.

Monitor your lawn for chafer grubs by cutting a 30 by 30 cm square of sod and fold back to count the chafer grubs underneath. Cut 5 sections per lawn. Search through soil beneath the grass. Chafer control is recommended if you find more than 5-10 grubs per section.

Use barriers even if the grass is dead, to cover the affected areas of lawns with netting, fencing or chicken wire to prevent further damage to the lawn from foraging animals.

Reduce exterior lighting on your property, particularly during the mating and egg-laying season in June and July. This can help reduce the number of chafer grubs in your lawn.

Use alternative groundcovers that are low maintenance such as kinnikinnick, salal, creeping thyme, ornamental grasses, Dutch white clover or other sustainable turf alternatives.

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Engineering and Public Works | Environmental Sustainability | Tel. 604-276-4398 | www.richmond.ca/chafer

Register for free workshops on European Chafer Beetle during the Spring and Summer:
www.richmond.ca/register

Biological control

Apply nematodes during the third week of July.

The application of nematodes has proven to be the most effective approach in managing the European chafer. Products containing the Heterorhabditis bacteriophora nematodes for chafer control are available at local garden supply stores. These specific nematodes are only effective from July 15 to July 31 when chafer grubs are small and most vulnerable. Check with your local garden centre as some require advanced ordering for the nematodes in the spring.

For successful nematode application:

1. Irrigate infested lawn for approximately 2 hours before nematode application.
2. Mix and apply product according to label directions. It is recommended to apply in the evening or on a cloudy day to maximize success.
3. Irrigate infested lawn for 2 hours after application and continue to irrigate twice per week for 3 weeks. A watering exemption permit is required to sprinkle outside Stage 1, 2 and 3 water restrictions. Permits are only issued under Stage 1 and 2 water restrictions. Permits issued under Stage 2 water restrictions will remain valid under Stage 3 water restrictions. All permits expire immediately if Stage 4 water restrictions are declared. **Permits and related information are available at the front service counter at Richmond City Hall, 6911 No. 3 Road.**

Chemical insecticides

Currently, there are no insecticides allowed for use on chafer grubs under the City's Pesticide Use Control Bylaw No. 8514. Check the permitted pesticide list on the City's website for allowed pesticide products and natural alternatives www.richmond.ca/pesticides.

How can I repair my lawn?

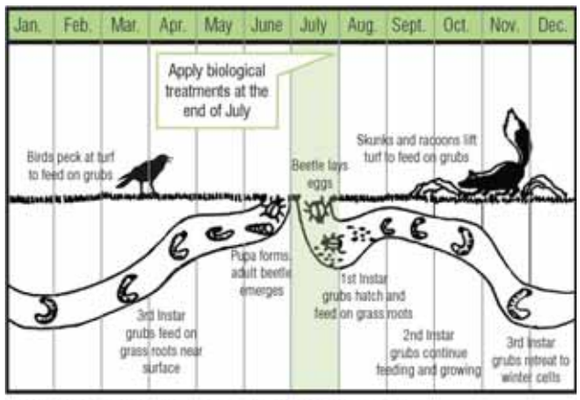
It is best to renovate or repair damaged lawns in late spring, when the chafer beetles pupate and animals stop ravaging affected lawns. Removal of soils from a site infested with chafer grubs is not recommended, as this may accelerate the spread of the European chafer in the region.

To repair damaged lawns:

- Lightly rake over damaged turf areas to remove the thatch and debris.
- Top dress with 1–2 cm of compost or lawn topdressing soil mix.
- Overseed damaged lawn areas.
- Lightly rake seeded area for good seed/soil contact.
- Water the seeded area frequently ensuring that it remains moist until 50% of the seeds have germinated.

Boulevards

On boulevards immediately fronting an owner's property, under the City's Boulevard Maintenance Regulation Bylaw No.7174, the property owner is responsible for the maintenance of turf grass.



Adapted from the Landscape Ontario Horticultural Trades Association

Time of Year*	Life Stages and Damages	Best Management Practices
January–March	Large grubs found in soil feeding on turf roots.	**NO CONTROL RECOMMENDED AT THIS TIME** Protect yellow, dead and thin grass areas with netting to diminish damages from animals feeding on grubs underneath. Apply lime to lawn.
April–June	Grubs enter a resting stage (pupa) in May prior to emerging as adults in June. Turf Damages Stop.	**NO CONTROL RECOMMENDED AT THIS TIME** Repair damaged lawns. Top dress and overseed with grass seed mix. Maintain a mowing height of 8–10 cm. Water your lawn deeply (2 to 3 cm/week).
July	Eggs are laid in the soil and small grubs begin feeding on turf roots No apparent damage.	**TIME TO CONTROL CHAFER BEETLE GRUBS** Apply nematodes, Heterorhabditis bacteriophora, during the third week of July. Maintain a mowing height of 8–10 cm. Water your lawn deeply (2 to 3 cm/ week).
August–September	Small grubs found in soil feeding on turf roots. Wilted or dead patches in turf appear, caused by white grubs feeding on grass roots.	**NO CONTROL RECOMMENDED AT THIS TIME** Apply organic, slow release fertilizer. Overseed with grass seed mix. Maintain a mowing height of 8–10 cm. Water your lawn deeply (2 to 3 cm / week).
October–December	Large grubs found in soil feeding on turf roots. Raccoons, skunks and birds turn over turf to eat the white grubs underneath.	**NO CONTROL RECOMMENDED AT THIS TIME** Protect yellow, dead and thin grass areas with netting to diminish damages from animals feeding on grubs underneath. Apply lime to lawn.

*Approximate, based on Summer weather conditions.

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