

The European Chafer

A Management Strategy for the Lower Mainland

The European chafer, *Rhizotrogus majalis*, is an introduced insect that has become a serious pest of turf in Eastern North America. It was first discovered in New Westminster in late 2001 and has since spread beyond New Westminster's boundaries.

Description

Adult European chafers are tan or brown beetles resembling June beetles but measure only about 1.5cm in length. The grubs, measuring 2 to 2.5cm, are soft, white and C-shaped with tan-coloured heads and six prominent legs.



Biology and Damage

Chafers complete their life cycle in one year which can lead to rapid population increases. In British Columbia, the adult beetles emerge from the soil in early to late June and mate in swarms at dusk. In June and 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 the roots of turf. Heavy infestations may lead to the turf feeling "spongy" due to grub tunneling. Infested turf will commonly be wilted or dead and be easy to pull back, revealing the feeding larvae. Damage is seen in the fall to early spring when the grubs are full-grown. Feeding continues throughout the winter except during prolonged periods of freezing temperatures. The grubs feed until they pupate in May.

The Threat

The grubs feed on roots of many different plants, but prefer the fibrous roots of turfgrasses. Damage can be masked by abundant moisture in spring and fall but drier weather quickly results in the appearance of brown patches. From fall to early spring, birds, skunks and other predators turn over the lawn in search of the large grubs. The adult beetles seldom cause any significant damage. The short-lived beetles do not bite or sting.

Management

Monitoring:

To monitor, cut 3 sides of a 30 by 30cm square of sod to a depth of 5cm, and fold it back to count the grubs. Cut 5 sections per lawn. Dig through soil beneath grass and count the number of grubs. If more than 5-10 grubs are found per section, chafer control may be necessary.

Prevention:

Keep your turf healthy and vigorous by routine aerating, dethatching, fertilizing, deep watering and high mowing. This will help it tolerate smaller infestations without showing signs of damage. In high traffic areas consider grass replacements such as mulch or paving stones, or use alternative ground covers.

Biological control:

Apply nematodes, *Heterorhabditis bacteriophora*, during the third week of July. Apply at a rate of 70,000 per square foot, or 750,000 per square metre. Approximately 100 million nematodes should cover a 33X45 ft lawn. Water the lawn for 3 hours prior to nematode application and for 3 hours following nematode application. Nematodes should be applied in the evening or on a cloudy day.

Chemical control:

There is no chemical control option allowable under Vancouver's Pesticide By-law (Health By-Law 9535)



For more information about the European chafer, contact your local municipality.

This brochure was produced jointly by Canadian Nursery Landscape Association and Western Canada Turfgrass Association



Canadian Nursery
Landscape Association

Association Canadienne des
Pépinéristes et des Paysagistes



WESTERN CANADA
TURFGRASS ASSOCIATION
RESEARCH EDUCATION DISCUSSION

with the participation of:
City of New Westminster
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European Chafer Management Calendar



Time of Year	January - March	April - June	July	August - September	October - December
Lifecycle and Damage	Large grubs found in soil feeding on turf roots. Raccoons, skunks and birds may be seen tearing the turf apart and turning it over to find the grubs in the soil.	Grubs enter a resting stage (pupa) in May prior to emerging as adults in June. Adults may be seen flying in swarms at dusk in June.	Eggs laid in the soil hatch in July and small grubs begin feeding on turf roots.	Small grubs found in soil feeding on turf roots. Wilted or dead patches in turf may be visible if grub feeding becomes excessive.	Large grubs found in soil feeding on turf roots. Raccoons, skunks and birds may be seen tearing the turf apart and turning it over to find the grubs in the soil.
Lawn Care	<div style="border: 2px solid black; border-radius: 15px; padding: 10px; background-color: #f0f0f0;"> <p style="text-align: center;">Lawn Restoration Tip</p> <p><i>It is not recommended that soils be removed from an infested site as this may accelerate the spread of the European Chafer grubs. In those cases where more extensive yard restoration is warranted, it is recommended that existing soils be first roto-tilled.</i></p> </div>	<p>Repairing Damaged Lawns</p> <ul style="list-style-type: none"> • Lightly rake over damaged turf areas. • Apply a light (¼ to ½ inch depth) topdressing of compost sand mix or lawn topdressing soil mix. • Reseed damaged lawn areas. • Roll the newly seeded area lightly with a roller for good seed/soil contact. • Apply a starter fertilizer. <p>Maintaining Established Lawns</p> <ul style="list-style-type: none"> • Aerate compacted soil with a power aerator. • Apply an organic based lawn fertilizer or a good quality slow release synthetic chemical fertilizer. • Mow once per week, maintaining the grass at a height of 5-6cm. Leave the grass clippings on the lawn if possible. 	<p>Mow once per week, maintaining the grass at a height of 5-6cm. Leave the grass clippings on the lawn if possible.</p> 	<p>Apply slow-release fertilizer to lawn Mow once per week, maintaining the grass at a height of 5-6cm. Leave the grass clippings on the lawn if possible</p>	
Watering		<p>Water newly planted lawns frequently (daily if necessary) to keep the soil surface moist until 50% of the seeds have germinated.</p> <p>Water lawns twice weekly, giving the lawn about 2.5 centimetres of water a week. Lawns should be watered on and off at 30 minute intervals to avoid run-off and allow the water to soak in. Follow local watering restrictions.</p>	<p>Water lawns twice weekly, giving the lawn about 2.5 centimetres of water a week. Lawns should be watered on and off at 30 minute intervals to avoid run-off and allow the water to soak in. Follow local watering restrictions.</p>	<p>Water lawns twice weekly, giving the lawn about 2.5 centimetres of water a week. Lawns should be watered on and off at 30 minute intervals to avoid run-off and allow the water to soak in. Follow local watering restrictions.</p>	
Control	<p>NO CONTROL OF CHAFER AT THIS TIME</p> <p>Assess damage from chafer larvae and chafer predators to lawn:</p> <ul style="list-style-type: none"> • Turn over 1 square foot sections of lawn (5 sections per lawn). • Dig through soil beneath grass, counting number of chafer larvae found. • If more than 5-10 chafer found per square foot section, chafer control may be necessary. Consider nematode application in July. 		<p>TIME TO CONTROL CHAFER</p> <p>Apply nematodes, <i>Heterorhabditis bacteriophora</i>, during the third week of July. Apply at a rate of 70,000 per square foot, or 750,000 per square metre. Approximately 100 million nematodes should cover a 33X45 ft lawn. Water the lawn for 3 hours prior to nematode application and for 3 hours following nematode application. Nematodes should be applied in the evening or on a cloudy day.</p>		<p>NO CONTROL OF CHAFER AT THIS TIME</p> <p>Minimize skunk and crow damage by replacing and patting down clumps of grass immediately after they have been pulled up</p>