

CITY OF BURNABY

ENVIRONMENT COMMITTEE

HIS WORSHIP, THE MAYOR  
AND COUNCILLORS

**RE: EUROPEAN CHAFER BEETLE**

**RECOMMENDATIONS:**

1. **THAT** Council approve the European Chafer Management Plan as noted in Section 3.0 of this report.
2. **THAT** a copy of this report be forwarded to the Parks, Recreation & Culture Commission.

REPORT

The Environment Committee, at its Open meeting held on 2005 April 12, received and adopted the *attached* report outlining the proposed 2005 European Chafer Beetle Management Plan for Burnaby. The Committee noted that the plan includes a comprehensive education, surveillance and treatment strategy to reduce the impact of the Chafer Beetle on lawns.

Respectfully submitted,

Councillor D. Johnston  
Chair

Councillor P. Calendino  
Vice Chair

Councillor C. Redman  
Member

:COPY – CITY MANAGER DIRECTOR PLANNING & BUILDING DIRECTOR ENGINEERING DIRECTOR FINANCE
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**TO:** CHAIRPERSON & MEMBERS  
ENVIRONMENT COMMITTEE

**DATE:** 2005 April 04

**FROM:** DIRECTOR ENGINEERING  
DIRECTOR PARKS, RECREATION  
& CULTURAL SERVICES

**FILE:** 33000-05  
*Reference: European Chafer*

**SUBJECT:** EUROPEAN CHAFER BEETLE

**PURPOSE:** To provide the Committee with an update on various activities undertaken in 2004 relating to the European Chafer Beetle and a proposed European Chafer Management Plan for 2005.

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**RECOMMENDATION:**

1. **THAT** the Committee recommend Council to:
  - a) approve the European Chafer Management Plan as noted in Section 3.0 of this report; and
  - b) forward a copy of this report to the Parks, Recreation & Culture Commission.

**REPORT**

**1.0 INTRODUCTION**

Under the New Business portion of the Environment Committee held on 2005 March 08, the Committee requested updated information regarding European Chafer Beetles in Burnaby.

The following report provides the Committee with an update on various activities undertaken in 2004 relating to the European Chafer Beetle and proposes a European Chafer Management Plan for 2005.

## 2.0 UPDATE ON EUROPEAN CHAFER BEETLE MANAGEMENT ACTIVITIES (2004)

The European Chafer, *Rhizotrogus majalis*, is a beetle that has been introduced into Canada, and which has few natural predators to control it. It is a major pest of turfgrass and within this region, it was first identified in New Westminster in 2001. As an invasive, non-native white grub (larvae), it has since caused considerable damage to lawns, boulevards and medians in New Westminster and westward through Burnaby. The European Chafer completes its life cycle in one year. Eggs hatch in mid-July, and the larvae progress through three instars over the summer and fall. In April, they become pupae, with adults emerging in late May to early June. Damage to turf grass is most severe in fall and spring caused by the feeding of the third-instar chafer larvae on the roots of the grass. Secondary damage to the lawns, boulevards and medians is caused from birds, skunks and racoons digging through the grass to feed on chafer grub (larvae).

Since the European Chafer was discovered in the City in 2004, the City has taken a number of actions to begin managing the European Chafer infestation. These include:

- Participating in a multi-stakeholder advisory group consisting of turf industry and government representatives to gain knowledge of this turf pest and options for its control;
- Consulting with New Westminster Parks Department and Mandeville Garden Centre to develop an educational brochure and web site material for the City residents, which emphasize the need for healthy lawns to prevent or minimize infestation;
- Initiate mapping of public and private lands on which European Chafers have been reported, to better understand the extent of these infestations (see Attachment #1);
- Contributing to a study that evaluated the efficacy of biological treatments for controlling the European Chafer on infested lawns, which will have minimal negative impacts on the environment.
- Engaging the services of a landscape architect to make recommendations for European Chafer-resistant ground covers and other plantings, which will make effective replacements for traditional lawn on public lands; and
- Making presentations and providing information to gardening clubs and to the general public at special events.

For the Committee's information, a recent study commissioned by the Western Canada Turfgrass Association, the Canadian Nursery Landscape Association and several local municipalities (2005), revealed that biological treatments could be very effective at controlling the European Chafer population, when used in combination with healthy lawn care practices.

According to the study, the most effective biological control measure was the natively-occurring nematode (or microscopic roundworm) *Heterorhabditis bacteriophora*. This nematode is a “cruiser” species that actively infects and kills white grubs, such as the European Chafer grubs. Treatments are most effective if done in late July, after the European Chafer eggs have hatched and when the young grubs are most vulnerable to nematode attack. Nematode products will be readily available for purchase by homeowners from garden centres before July 2005.

While chemical insecticides such as Merit are also now available, care has to be taken that there is no adverse impact to the environment due to its overuse or improper use. Only certified operators are allowed to apply these chemical insecticides.

### 3.0 EUROPEAN CHAFER MANAGEMENT PLAN (2005)

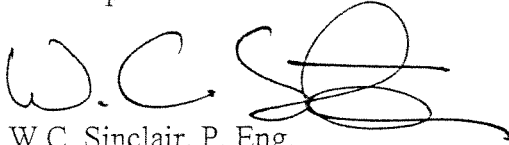
Building up on the work undertaken in 2004 to address the impacts on public and private landscapes from European Chafer activities, the elements of the proposed European Chafer Management Plan for 2005 include the following:

PHASE	ACTIVITY	COMMENTS
<b>Education</b>	General Public	<ul style="list-style-type: none"> <li>▪ Distribute updated pamphlets (see <u>Attachment #2</u>) at all civic facilities;</li> <li>▪ Maintain and regularly update the City Web site to include most current information on European Chafer re-landscaping options available to private land owners and related free workshop(s) available to residents on European Chafer management.</li> <li>▪ Eight workshops are currently being sponsored by the City, and offered through the Burnaby School District;</li> <li>▪ Place advertisements in local newspapers in spring, summer and fall which will provide information on European Chafer and other related issues such as cosmetic herbicide reduction program;</li> <li>▪ Place articles on European Chafer in InfoBurnaby;</li> <li>▪ Consider mailing out brochures to impacted residents;</li> <li>▪ Consider mailing out information through property tax insert.</li> </ul>

	City Staff	<ul style="list-style-type: none"> <li>▪ Provide information to City staff on European Chafer and actions being undertaken by the City to address this issue;</li> <li>▪ Encourage staff to report in on public lands noted to be impacted by European Chafer.</li> </ul>
<b>Surveillance</b>	Public Lands	<ul style="list-style-type: none"> <li>▪ Continue to identify and map public lands impacted by European Chafer;</li> <li>▪ Undertake inventory of the impacted public lands and prioritize areas for treatment through maintenance and/or biological means;</li> </ul>
	Private Lands	<ul style="list-style-type: none"> <li>▪ Verify, where appropriate and or necessary, complaints from residents and business regarding European Chafer impacts on private lands.</li> <li>▪ Maintain an updated map of the private lands that have reported to have been impacted by European Chafer;</li> </ul>
<b>Treatment</b>	Public Lands – Mechanical	<ul style="list-style-type: none"> <li>▪ Through information identified from surveillance phase, undertake removal of dead grass, replacement with top soil and re-seeding of parks, boulevards and medians by Parks staff;</li> <li>▪ Modify boulevard mowing practice in the infected area by creating a separate regime and cycle for the infected area to minimize the spreading of the grub from infected areas to non-infected areas;</li> <li>▪ Undertake post monitoring of re-landscaped sites to determine the need for undertaking biological treatment using natively occurring nematodes (or microscopic roundworms) <i>Heterorhabditis bacteriophora</i>;</li> </ul>
	Public Lands - Biological	<ul style="list-style-type: none"> <li>▪ Through information identified from surveillance phase, select test areas where biological measures would be used to demonstrate treatment effectiveness against European Chafer.</li> </ul>
	Public Lands – Pilot Test to Review Landscape Design	<ul style="list-style-type: none"> <li>▪ Undertake pilot test sites on Southridge Drive to provide information on any future applicable changes to the design and maintenance of public landscapes.</li> </ul>

#### 4.0 CONCLUSION

A number of activities were undertaken by the City in 2004 to respond to the emerging issue of damaged lawns due to European Chafer activity. The comprehensive proposed European Chafer Management Plan will further assist in reducing the impact on lawns on public and private lands. A report on the effectiveness of the actions proposed in 2005 will be provided in the future.

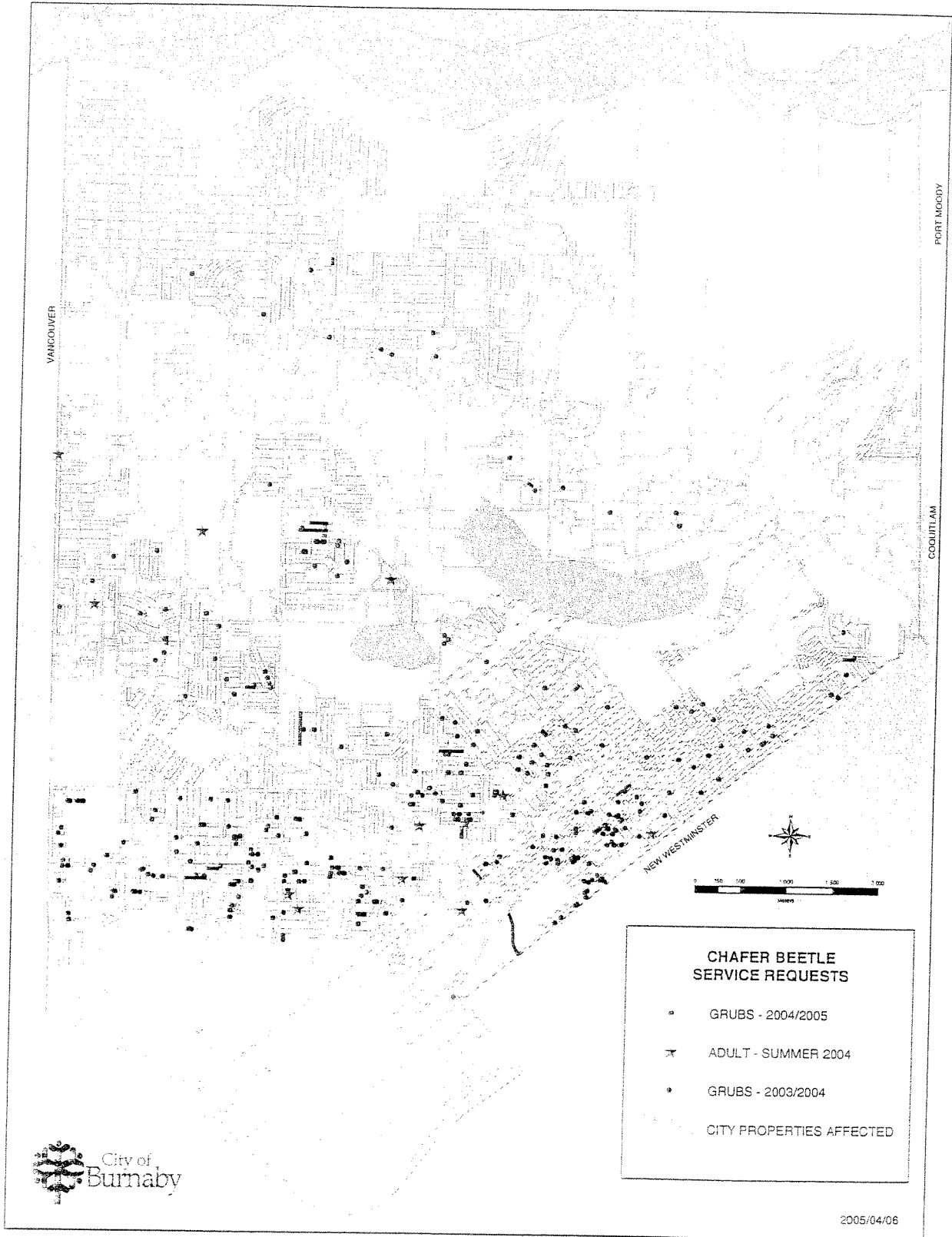
  
W.C. Sinclair, P. Eng.  
DIRECTOR ENGINEERING

  
K. Friars  
DIRECTOR PARKS, RECREATION  
AND CULTURAL SERVICES

DD:

Enclosures

Copied to: City Manager  
Director Planning and Building  
Director Finance



## What control options are available?

### 1. Cultural Control

Maintaining a healthy lawn is your first line of defense against grubs. Healthy, vigorously growing lawns can tolerate more grub feeding, because they generally have more extensive root systems. (See the *Lawn Care and European Chaler Management Calendar*).

Some residents are also considering the use of alternative ground covers on selected areas of their lawn.



Groundcovers can be chosen to be aesthetically pleasing year-round and to require minimal maintenance. Mulch or paving stones can also be considered in high traffic areas.

Dutch White Clover (*Trifolium repens*) is one example of a low-growing plant that will form a green, durable ground cover that is easy to maintain. It also produces tiny white or pale pink flowers that may attract bees and other beneficial insects to your yard.

### 2. Physical/Barrier Controls

Raise your mowing height to 6 to 9 cm (2.5 to 3 in), since beetles prefer laying eggs on closely cropped lawns. Higher grass blades will also help to protect the soil surface from water loss during the summer, and encourage deeper root growth.

In chlar infested areas, some residents have had success with the

use of Remay cloth, plastic sheeting, or landscape fabric to cover their lawns before dusk (approximately 9 pm). In June and July when the adult beetles are most active, a cover may prevent mated females from laying eggs in your turf and repeating the cycle. (Note that some covers may need removal each morning).

### 3. Biological Control

A recent study commissioned by the Western Canada Turfgrass Association, the Canadian Nursery Landscape Association, and several local municipalities (2005), revealed that biological treatments could be very effective at controlling the European chlar population, when used in combination with healthy lawn care practices.

According to the study, the most effective biological control measure was the naturally-occurring nematode (or microscopic roundworm) *Heterodiditis bacteriophora*.

The *H. bacteriophora* nematode is a "cruiser" species that actively infects and kills white grubs, such as the European chlar grubs.

**The 2005 study revealed that *H. bacteriophora*, when used at a rate of up to 3 billion nematodes per acre, can provide significant control of young (1st instar) European chlar grubs in the ground.**



Treatments are most effective if done in late July, after the European chlar eggs have hatched and when the young grubs are most vulnerable to nematode attack.

Nematode products will be readily available for purchase by homeowners before July 2005.

### 4. Chemical Control

Chemical insecticides are also available from garden centres and lawn care companies, however these products are not appropriate for use in the late fall or spring. If you see European chlar damage, it may be too late to apply any form of treatment. Save your money, and focus on preventative lawn care until it's the right time of year to plan for your treatment.

Before you purchase a chemical insecticide or hire a lawn care company to do the work, remember that many insecticides are harmful to beneficial insects (such as bees), harmful to aquatic organisms (via storm drains), and have longer-term effects in the soil or groundwater.

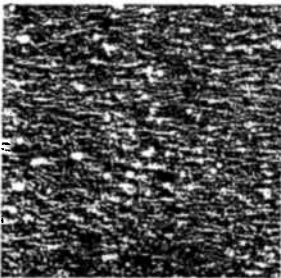
Chemical treatments should only be considered as a last resort. The City recommends that healthy lawn care practices, alternative ground covers, and biological treatments be considered as the preferred approach.

Visit your local gardening centre for other suggestions or advice on maintaining your lawn, or replacing it with alternative groundcovers.



## What is the City doing?

In 2005, the City is intending to experiment with the use of Dutch White Clover and varying soil depths in newly constructed medians and boulevards along Southridge Drive.



The City will also be considering the replacement and biological treatment of turf on high priority public areas. The City will be evaluating the success of these control methods over time, and reporting back on their ability to prevent European chlar damage.

## Contact Us

For other inquiries, or to report the European chlar:

City of Burnaby, Engineering Department  
[www.city.burnaby.bc.ca](http://www.city.burnaby.bc.ca)  
 Tel: 604-294-7460  
 Fax: 604-294-7425  
[englineering@city.burnaby.bc.ca](mailto:englineering@city.burnaby.bc.ca)

## Information on the

# European Chlar Turf Pest

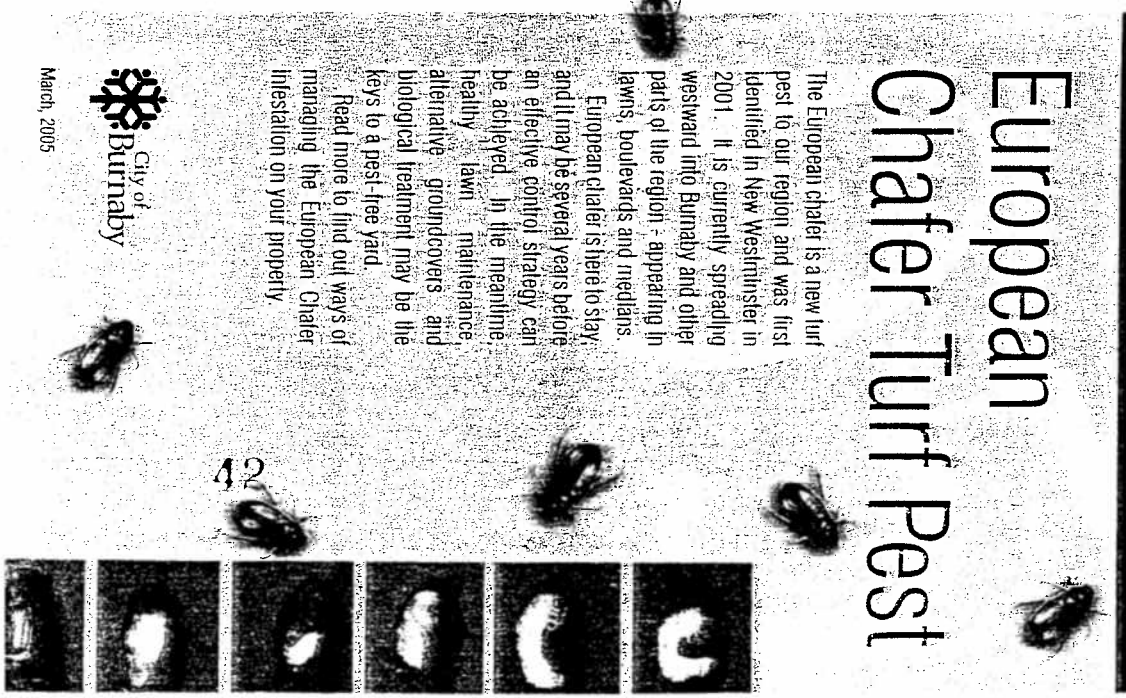
The European chlar is a new turf pest to our region and was first identified in New Westminster in 2001. It is currently spreading westward into Burnaby and other parts of the region - appearing in lawns, boulevards and medians.

European chlar is here to stay, and it may be several years before an effective control strategy can be achieved. In the meantime, healthy lawn maintenance, alternative groundcovers, and biological treatment may be the keys to a pest-free yard.

Read more to find out ways of managing the European Chlar infestation on your property.



March, 2005





## What is the European chafar?

The European chafar, *Rhizotrogus majalis* is a beetle that has been introduced into Canada, and which has few natural predators to control it.

The larval stage of the European chafar is a grub that feeds on the roots of many plants, but prefers the fibrous roots of turf grasses. Grubs (larvae) have a soft, white, C-shaped bodies with tan or brown heads and three pairs of long legs.



The adult stage of the European chafar is a tan coloured beetle, that measures approximately 1.3 cm (0.5 in) in length.

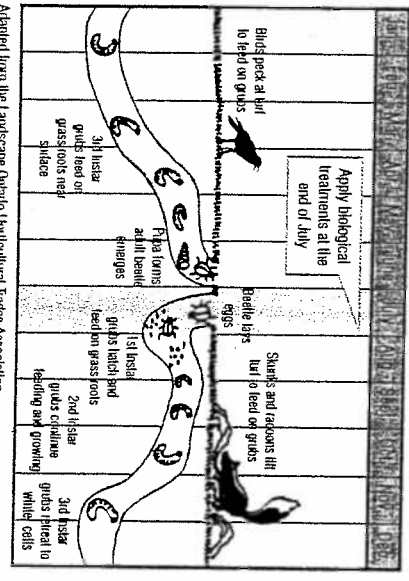


If you have observed the European chafar, please contact the City of Burnaby Engineering Department to report its location. Phone: 604-294-7460 or e-mail: [engineering@city.burnaby.bc.ca](mailto:engineering@city.burnaby.bc.ca)

## What is the life cycle of the European chafar?

The European chafar completes its life cycle in one year. The adult chafars swarm in mating flights on warm evenings in June and July. The beetles usually fly to tall, vertical structures to mate. The European chafar does not generally cause damage to lawns or other vegetation at this time. The mated females return to grassy areas to deposit their eggs below the soil.

Eggs hatch in June to early August and the larvae or grubs begin feeding on turf roots. From mid-May to early June of the following year, the larvae stop feeding and pupate (undergo metamorphosis), and the adult beetles emerge two weeks later.



Adapted from the Landscape Ontario Horticultural Trades Association

## How do I know if I have European chafar grubs in my lawn?

The only way to be sure if you have the European chafar in your lawn is to dig up several test sections in both affected and unaffected areas of your lawn.

Using a garden shovel or spade, cut three sides of a 12-inch square. Grasp the open edges and peel back the turf like a carpet, towards the attached side. Look for the white, C-shaped grubs in the soil, and just underneath the newly-exposed turf roots. If you count 5 or more grubs per square foot, control measures may be warranted.

Often, birds and small mammals will peck or pull back the turf in search of a meal of grubs. Damage is most severe in the fall and the spring when the grubs are increasing in size rapidly and feeding near the surface.

## Lawn Care and European Chafar Management Calendar

- January - March**
  - If more than 5 chafars are found per test section of lawn, consider using a biological (nematode) treatment at the end of July.
  - No treatment methods are successful at this time of year.
- April**
  - Aerate compacted soil with a power aerator.
- May**
  - Lightly rake over damaged areas of turf.
  - Apply a topdressing of compost or topsoil to damaged areas of the lawn. Reseed with a deep-rooting grass mixture, such as perennial ryegrass and fescue.
- June**
  - Water newly planted lawns daily.
  - Water established lawns once or twice weekly, giving them a total of 2.5 cm (1 in).
  - 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 5-6 cm (3-4 in). Leave the grass clippings on the lawn.
- July**
  - Water lawn once or twice weekly, giving it a total of 2.5 cm (1 in) per week (following watering restrictions).
- August**
  - Mow once per week, maintaining the grass at a height of 5-6 cm (3-4 in). Leave clippings on the lawn.
  - Water lawn once or twice weekly, giving it a total of 2.5 cm (1 in) per week (following watering restrictions).
  - Mow once per week, maintaining the grass at a height of 5-6 cm (3-4 in). Leave clippings on the lawn.
- September**
  - Apply an organic lawn fertilizer or a good quality slow release synthetic chemical fertilizer.
  - Water lawn once or twice weekly, giving it a total of 2.5 cm (1 in) per week (following watering restrictions).
  - Mow once per week, maintaining the grass at a height of 5-6 cm (3-4 in). Leave clippings on the lawn.
- October - November**
  - Monitor for European chafar grubs in test sections of your lawn.
  - Minimize any skunk and crow damage by replacing and stomping down clumps of grass immediately after they have been pulled up.
- December**
  - No maintenance required.

