



Home & Garden Pest Management Guide For British Columbia

2019 Edition

Chapter 17 Pests of Lawns



Pests of Lawns

This chapter describes common insect and disease problems of residential turfgrass. Management information describes preventative and cultural measures that may control the pest. Try these first. Sometimes the management information also mentions pesticides. When more than one pesticide is mentioned, the least toxic pesticide is listed first. Before using a pesticide read and follow label directions. See the “Pesticide Table” in Appendix I for information on available home garden pesticides. Also read Chapter 8 "Using Pesticides to Manage Pests". It contains important safety information.

Guidelines for a Healthy Lawn

- You should not remove more than one-third of the leaf surface each time you mow. Keep ordinary lawns at a height of 6 to 8 cm (2 ½ to 3 inches), and bentgrass lawns at 1-2 cm. Lawns kept at the ideal height will develop deep, extensive root systems, and the soil retains moisture better.
- Use a mulching mower. Clippings can be mulched and left on the lawn to help to recycle nutrients back to the lawn.
- Water deeply and infrequently to promote deep rooting. Apply 2.5 cm (1 inch) of water, once or twice a week to the lawn. Put a container on your lawn to measure how much you have watered. Applying too much water can promote diseases and starves the roots of oxygen. Frequent, light watering is not good for the lawn and will promote shallow rooted plants that are less able to survive stressful periods.
- A healthy lawn can survive several weeks in a dormant state. During extended hot dry periods, a lawn may turn brown and become dormant. Common grass varieties like Kentucky bluegrass and fescues will turn green again when regular moisture conditions return. If the lawn has gone dormant due to a lack of water, do not water unless you know it will not dry out again. This would cause significant stress on the new growth.
- It is better to water early in the morning so the leaves can dry during the day. Many fungi require wet leaves to infect the plant tissue and cause diseases.
- Maintain good soil fertility throughout the growing season by using a balanced fertilizer. Fertilizers with a slow-release form of nitrogen are preferred because they release nutrients uniformly and there is less risk that excess fertilizer will leach away from the root zone.
- Apply compost at any time of the season. Compost acts as a fertilizer and improves soil structure. Mix it into the soil before seeding or laying sod, or spread it in a thin layer raked over the existing lawn.
- Choose the appropriate type of grass seed for the site. Grass will not grow in heavy shade. Choose another type of plant for these areas or prune trees and shrubs to provide adequate light penetration. If there are bare patches, re-seed in the spring or fall.
- Consider replacing grass with paving stones or mulch in heavy traffic areas.
- Prevent thatch build-up, especially in bentgrass lawns, by avoiding excessive fertilizer applications. Power rake in the early spring if thatch is more than 1 cm thick.
- Apply light applications of ground limestone every year or two on acid soils, especially if clippings are removed. Never use hydrated lime on lawns. Do not add lime if the soil pH is over 6.

- Restrict traffic on frozen or dormant grass. Pressure from wheels or feet will damage the grass causing these areas to turn brown when growth resumes.

Endophyte-Enhanced Turfgrass

Many turf seed and sod mixtures for home lawns contain endophyte-enhanced ryegrass or fescue. Endophytes are beneficial fungi that live inside the plants and enhance growth and help protect the turf from insects. However, high levels of endophytes can be toxic to livestock or other animals that eat the grass. Do not use endophyte-enhanced turf in areas that may be used for grazing animals or food for pets.

Diagnosis of Lawn Problems

Most lawns have few pest or disease problems if they were laid or seeded on a properly prepared soil and are properly managed. When the lawn appears unhealthy, observe the distribution of symptoms to determine if a disease or insect is present or if the problem is a result of poor root growth or an unsuitable environment.

Most diseases appear as numerous round patches, or rings. These generally range in size from a few centimeters to 30 cm in diameter, although some are larger. If the entire lawn or large sections are uniformly affected it is likely the result of environmental problems.

If pest or disease problems arise in spite of proper lawn maintenance, it is advisable to contact a professional lawn care company for proper diagnosis and treatment. There are few effective insecticide and fungicide products available to home gardeners. Certified applicators have access to more effective products and the training and equipment to apply them properly.



Insects

Black Turfgrass Ataenius

(*Ataenius spretulus*)

The larvae or grubs are whitish C-shaped larvae up to 5 mm long, with brown heads. The adult beetles are relatively small (5 mm) and shiny black. The larvae feed on all types of grasses, favouring areas high in organic matter. Damaged turf becomes yellow in mid to late June in B.C.'s interior and in mid July on the coast. If pest numbers are high, patches of grass can die. Damaged sod can easily be pulled loose from the soil. Adults overwinter under trees in duff, emerging in spring to lay eggs in turf. Larvae feed until August, and then pupate. There is one generation per year.

Aphodius granarius is another small beetle that can infest turf in B.C., however it is not common. The adults and larvae are similar in size and appearance. Management is the same as for *Ataenius*.

Management:

Lush moist turf is most attractive to egg-laying beetles, but poorly maintained turf can also be attacked. Outbreaks naturally subside after 3-4 years likely due to naturally occurring biological control agents. Crows and other birds and mammals can dig up turf looking for larvae on which to feed. This damages turf, but does decrease the pest numbers. If turf damage is occurring, cut a 30 x 30 cm square of turf and fold back to look for larvae. If there are 100 larvae per sample, pesticide application may be warranted. For optimal results, treat in early summer when larvae are small.

Chinch Bug

(*Blissus* sp.)

These 5 mm long bugs are uncommon in B.C., and only have occurred in notable numbers in western parts of Vancouver. Healthy well irrigated turf is unlikely to be damaged by chinch bugs. Grass growing under moderate to severe drought stress is more prone to damage. Grass enhanced with endophytic fungi is tolerant to chinch bugs.

Cutworms

Species include *Actebia fennica* (black army cutworm) and *Peridroma saucia* (variegated cutworm). A species that is becoming more prevalent is *Noctua pronuba* (European cutworm). Cutworms are thick bodied, dull coloured, hairless caterpillars that feed on grass stems. They are more active at night, and rest in the soil during the day. They curl into a tight C-shape when disturbed. The adults are large heavy bodied moths, that fly at night. Damage is similar for all species. Small patches of damaged turf may be noticed, which can expand quickly if populations are high.



Cutworms

Management:

Significant turf damage by cutworms is relatively rare in B.C. However the European cutworm is increasing and is impacting turf and gardens particularly in localized areas in the Fraser Valley.

To measure caterpillar populations, apply a soap solution (30 ml liquid detergent in 8 litres of water per m²) to force the caterpillars to the surface for counting. If 5 or more caterpillars are counted per square meter, treatment may be warranted. Beneficial insect-parasitic nematodes can be applied as described under European chafer.

European Chafer

(*Rhizotrogus majalis*)



European chafer adult



European chafer grub

This new pest to B.C. was first identified in 2001 in New Westminster. It is slowly spreading and is now present throughout Vancouver, Burnaby, and Coquitlam. It has been confirmed in east Richmond, Delta and Surrey, and is spreading in these regions. European chafer is a close relative of June beetles, but smaller. Unlike June beetles, chafer completes a generation in one

year, allowing for large population increases. Adults appear in early summer, mate, and lay eggs. The larvae hatch and feed through the summer, doing the most damage in late summer (August) and early spring.

Management:

This is a serious new pest to B.C. If you find it, an aggressive control approach is warranted. Healthy, vigorous turf can withstand low levels of grub feeding. Crows and other birds and mammals can dig up turf looking for larvae on which to feed. This significantly damages turf, but does decrease the pest numbers to some extent. If turf damage is occurring and larvae are suspected, cut a 30 x 30 cm square of turf and fold back to look for larvae. If there are 5-10 larvae per sample, control may be warranted. Beneficial nematodes are available for management of chafers. Local studies show that *Heterorhabditis bacteriophora* is the best choice (one trade name is Nemasys G). Application should occur in late July when larvae are small. This nematode is a "cruiser" species that actively seeks out white grubs such as the European Chafer, and quickly destroys them from the inside-out. Limited synthetic pesticides are registered for chafer management. For optimal results, treat in mid to late summer (July) when larvae are small. Some limited control may be achieved with application of insecticides to non-frozen turf in the fall and early spring. Before applying either nematodes or pesticides, remove excessive thatch and irrigate if the soil is dry to bring the grubs to the surface. After application, water the treated area to move the nematodes or pesticide into the root zone. Control is best done by commercial lawn care companies, as they have access to more effective pesticides and can implement a year round management program for chafers.

June Beetles



June beetle grub



June beetles

Other beetle larvae can infest turf in B.C., such as various June beetles (*Phyllophaga* and *Polyphylla* spp.), however, their presence is sporadic and significant damage is rarely a problem.

Japanese Beetle

(Popillia japonica)

This pest was detected in B.C. for the first time in 2017 in Vancouver, where eradication measures are underway. Japanese beetles are a serious pest of turf and many other crops. Please see page 3-8 in the Invasive Species section for more information.



Japanese beetle adult

Lawn Moths (Sod Webworm)

Feeding by small white caterpillars 1.5 to 2.0 cm long causes irregular brown patches in the lawn where grass blades have been chewed off at ground level. Look for silk webbing, which is produced by the feeding larvae. These sod webworm larvae live in the turf, and are relatively hard to find. They develop into pale beige moths, which are active at dusk. During the day, moths will fly up from the grass if disturbed. These pests will move in from nearby infested grassy areas.



Sod webworm adult. Photo courtesy of Gillette Collection, California State University

Management:

Healthy lawns are less affected by these pests and will grow out of the damage. Larvae can be detected by examining the lawn from March to April, and again from late August to early September. This insect is common, however, there is high natural mortality of small larvae so it does not often cause severe turf damage. Damage becomes most apparent in July when temperatures are warmer and turf is moisture stressed.

There is no need for treatment unless larvae are found to be present and are causing severe damage. Insect parasitic nematodes (*Steinernema* spp.) can be helpful to suppress webworm larvae, and are best applied when larvae are still small.

Leatherjackets (Crane Fly)

Tipula palludosa, *Tipula oleracea*



Crane fly (leatherjacket) larvae



Crane fly (leatherjacket) adult

Larvae of these insects prefer grass roots, but may also destroy young flower or vegetable seedlings and transplants. Irregular brown patches appear in the lawn. Look for leathery, grey, segmented, maggots up to 3.8 cm long, at or just below the soil surface. The adults are known as crane flies and look like very large clumsy mosquitoes with 5 cm long legs. Crows and other birds and mammals can dig up turf looking for leatherjackets on which to feed. This damages turf, but does decrease the pest numbers. If the two species are present, larvae can be found all year round.

Management:

Healthy lawns are less susceptible to leatherjacket damage. To determine leatherjacket population, make up a solution of 1/4 to 1/2 cup of dish washing liquid in a pail of water. Soak this solution into each of four 30 x 30 cm areas on the lawn. After about 30 minutes, the leatherjackets will wriggle to the surface where you can count them. If more than 20 larvae are found per 1000 cm² of turf, treatment with insecticides by a certified applicator may be worthwhile. Treatment is best applied once in early spring, before the end of May, when the ground is not frozen. Fall sprays are generally not required because many leatherjackets die or are eaten by starlings over the winter. Keep children and pets off grass after treatment until the next day.

Diseases

Brown Patch/Yellow Patch

(*Rhizoctonia* spp.)

Circular patches that are brown (brown patch) or yellow (yellow patch) develop in the lawn. Affected areas range in size from a few centimeters to a meter in diameter. Brown patch develops during summer when humidity is high and the temperature is above 16 °C at night and above 27 °C during the day. Yellow patch is limited to periods when the environment is moist and cool (10-20 °C). In early mornings during humid weather, you may see the cobweb-like fungus in the diseased area of the lawn.

Management:

Avoid heavy applications of fertilizer, especially nitrogen, in the spring and summer. Excess shade and poor growing conditions can worsen the disease. Avoid watering late in the day. The only “domestic” registered fungicide available for control of these turf diseases is polyoxin D zinc salt. If the problem persists, contact a lawn care professional for application of commercial fungicides.

Downy Mildew

(*Sclerophthora* species)

Downy mildew causes yellowing or purpling of infected leaves during winter and spring. Annual bluegrass and bent grass are most commonly affected. The disease is most visible during wet conditions, in areas with poor drainage, or if the grass is nitrogen-deficient.

Management:

Aerate grass to improve drainage, encourage root growth, and improve plant health. Avoid nutrient deficiencies. No fungicides are available for this disease.

Fairy Ring and Mushrooms

(*Marasmius* spp. and other fungi)

Semi-circles or rings of dark-green grass appear in the lawn. Turf within this ring is yellow or dead. Mushrooms may grow within the ring, generally appearing during warm, wet weather in spring and fall. Damage to the turf is caused by the build-up of hydrophobic mushroom mycelium in the soil which prevents water infiltration. Mushrooms may also appear in lawns without being associated with fairy rings.



Fairy ring (mushrooms) on turfgrass

Management:

Application of nitrogen and ample irrigation during the growing season may mask fairy ring symptoms, but will not eliminate the problem. Discourage thatch build-up. Aerate the soil by spiking the ring area to permit better water penetration. Eradication can be attempted only by complete renovation of the lawn and removal of organic matter that is acting as the food source for the mushrooms. This is not always successful and may be costly. Control of fairy rings with fungicides is difficult since the fungal mycelium is deep in the soil. The only “domestic” registered fungicide available for suppression of fairy ring is polyoxin D zinc salt, which is best used preventatively or at first sign of symptoms. Commercial applicators have access to more effective fungicides.

Caution: Never eat a mushroom unless it has been identified by an expert.

Pink Snow Mold

(*Microdochium nivale*)

Pink snow mold (*Microdochium* patch) causes circular brown patches, less than 5 cm in diameter. The colour of the patches change rapidly from orange brown to dark brown, and light gray to tan. The outer margin of the patches may have a water-soaked, grey black margin. Under prolonged humid conditions, you may notice white or pinkish fungal growth on the patches. Patches can grow together affecting large areas. It is common from September to May in cool, wet weather. Where there is snow cover, the fungus grows under the snow and appears as the snow melts.



Pink snow mold on turfgrass. Photo courtesy of S. Fushitey, Agriculture and Agri-Food Canada

Management:

Avoid excessive applications of nitrogen fertilizer in late summer and fall. Provide good air circulation and soil drainage. The only “domestic” registered fungicide available for control of these turf diseases is polyoxin D zinc salt. If the problem persists, contact a lawn care professional for application of commercial fungicides.

Grey Snow Mold

(*Typhula* sp.)

Grey snow mold is common in the Interior Valleys and Peace River region but rare in coastal areas. The fungus becomes active in the fall and grows on grass covered by snow. The disease is most severe on long grass and under snow that has fallen on unfrozen ground. As the snow melts in the spring, small, circular bleached areas of grass appear. These areas may eventually reach 60 cm in diameter. A grey halo of fungus is often produced at the margins. Small (a few millimeters), round, grey to reddish-brown sclerotia of the fungus may be seen in diseased leaves.



Grey (Typhula) snow mold

Management:

Do not apply high rates of nitrogen fertilizer in the late summer and fall. Ensure air circulation and soil drainage are good. Keep thatch levels low. Keep grass cut until snowfall and remove clippings. The only “domestic” registered fungicide available for control of these turf diseases is polyoxin D zinc salt. If the problem persists, contact a lawn care professional for application of commercial fungicides.

Melting-out of Kentucky Bluegrass

(*Drechslera poae*)

Leaf spot and melting out are common on Kentucky bluegrass in Southern B.C. during the fall, winter and spring. Purplish-red spots with tan centers appear on leaves during cool, moist periods when the grass is growing slowly. The leaf surface must be wet for the fungus to infect it. In severe melting-out, the entire plant is affected by a reddish-brown decay that eventually becomes dark brown. Rough bluegrass and *Poa annua* are usually only slightly affected.

Management:

Avoid short mowing heights. Water thoroughly and infrequently rather than lightly and frequently. Allow time for the leaves to dry by watering in the morning. Remove excess thatch in the early spring and aerate if necessary to ensure good air movement and drainage. Use balanced fertilizer and avoid heavy applications of soluble nitrogen fertilizers during hot weather.

Necrotic Ring Spot

(*Leptosphaeria korrae*)

Bluegrass and fine fescue in the Okanagan area may be infected by this fungus. It seems to be more common on 3-5 years old lawns established from sod but can also occur on seeded lawns. The disease was first diagnosed in Canada in Kelowna in 1987. Symptoms are similar to take-all patch except that take-all mainly infects bent grass.

Infected areas start out as yellow patches. These develop into brown rings or arcs from 15 cm to over 30 cm wide, which appear during cool weather in the spring and fall. Rings may disappear during the summer and show up again in the fall. Infected turf can be pulled out easily because the roots and crowns have been destroyed. Necrotic ring spot can be confused with fusarium patch or yellow patch symptoms. The disease tends to be more common on over watered, over-fertilized and compacted turf.



Necrotic ring spot on turfgrass

Management:

Necrotic ring spot is difficult to control. Provide good growing conditions for the lawn. Use a balanced fertilizer that includes ammonium sulfate. Lawns normally require deep (to 15 cm), infrequent watering. However, when lawns are infected with necrotic ring spot, they should be watered more frequently as their root systems are diseased and cannot obtain water as easily as before. Re-seed with perennial ryegrass or if the patches are small, cut them out and re-sod. In severe cases, lawns should be completely renovated. There are no fungicides registered for control of this disease in Canada.

Powdery Mildew

(*Erysiphe graminis*)

Powdery mildew is common especially in shady areas. It appears as a grey to white powder on leaf blades. Large areas of turf may take on a dull-white appearance. Infected leaves will turn yellow, tan and then brown. Infections start in late spring to early summer and continue through the season. Powdery mildew weakens plants, but does not kill them.

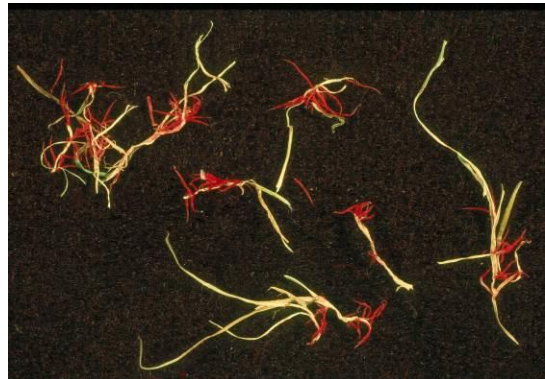
Management:

Improve air movement and reduce shading of the affected areas. Water in the morning so the lawn will dry before evening. Mow frequently at the highest recommended height in mildew-prone areas. Fungicides are rarely necessary.

Red Thread

(*Laetisaria fuciformis*)

Red thread is very common, especially in fescues and ryegrasses. It does not usually cause serious damage. Irregular patches, from 5 to 20 cm, occur in late fall, winter and early spring when conditions are cool and moist. Initially, leaf blades are brown and the tops are bound together with a light pink web of fungus. Later, pink or red horns of the fungus protrude from the leaf blades. The fungus can grow between 0°C and 30°C with the optimal growth between 16°C to 21°C.



Red Thread on turfgrass

Management:

Lawns established on poor soil with low or unbalanced nutrition are more susceptible to red thread. Apply moderate amounts of a balanced fertilizer. Avoid prolonged leaf wetness by watering early in the day and promoting good air movement. Mow regularly when the disease is active. Test soil pH and ensure it is suitable (in the range of 6.0 to 6.5 for most turf). Fungicides are not usually considered necessary for home lawns.

Rust

(*Puccinia* spp.)

Rust is common on Kentucky bluegrass, especially ‘Merion’, and perennial ryegrass in late summer. Close examination of the leaf blades reveals yellow to brown powdery spots all over. In severe cases, the entire lawn appears yellow.

Management:

Rust is unsightly but will not usually kill the grass. Maintain vigour with adequate nitrogen fertility and watering in the summer. Mow regularly. Don’t cut grass too low. There are no “domestic” fungicides registered for control of this disease in Canada.

Take-all Patch

(*Gaeumannomyces graminis* var. *avenae*)

This disease is common and damaging on bentgrass lawns at the Coast. Slowly enlarging, depressed circular patches of bronzed grass appear, usually in the spring and/or fall. As the grass is killed out, the centre of the patch fills in with weeds and coarse grass, resulting in a doughnut pattern. The disease may appear on old bent grass lawns after liming with hydrated lime.

Management:

Use ground limestone rather than hydrated lime if liming is required. Apply ammonium sulphate (21-0-0) as the main source of nitrogen but keep fertilizer applications balanced. Re-seed dead patches or cut them out and re-sod. Keep soil pH between 5.0 to 5.5. Two applications of wettable sulphur at 600 g/100 m² in early spring, one month apart, may help.

Other Pests

Algae

Algae are found in shady areas or where moisture levels are high. They appear as dark green to black growths on soil, plant crowns, and leaves. These can appear slimy or as crusts several millimeters thick. Grass is not killed but algae impair growth and indicate the site is too wet or humid.

Management:

Improve soil drainage and air circulation. Reduce shading of the lawn by trees and shrubs. Do not make heavy applications of nitrogen fertilizer. Top-dress affected areas with coarse sand. Application of copper spray at 6mL/L of water will help to control algae. Repeat as necessary.

Earthworms (Dew Worms, Night Crawlers)

Earthworms are beneficial to lawns, and are an indicator of healthy soil with a high level of organic material. They provide many benefits including soil aeration, breaking down the thatch and creating available nitrogen. However, large numbers of earthworms may cause an excessive number of mound-shaped castings that may be a nuisance in some soils.

Management:

No pesticides are registered for control of earthworms. However cultural practices can help to reduce visible damage caused by worm castings. Water deeply and less often to discourage worms from staying at the surface. Rake the nutrient-rich worm castings across the lawn when they are dry. Hide castings by increasing the mower height. This also helps to prevent scalping bumpy spots in the lawn. If the lawn is becoming bumpy due to worm castings, top dressing and overseeding can help to even it out. Rolling and aerating the lawn or power raking may also be helpful.

Moss

Moss makes a great ground cover in shady areas and does not have to be mowed. It is also a common invader of turf in high rainfall and shady areas. It does not compete well with a vigorous, healthy lawn grown in full sun. Where shade is quite heavy, it may be better to plant a shade tolerant ground cover rather than trying to grow grass. In wet, shady lawns, many gardeners learn to accept moss as a regular lawn component. It requires less mowing and care and provides a “soft” look that many people enjoy. To these gardeners, moss is not considered to be a weed that needs to be controlled.

Management:

In the shade, chemical treatment using moss killers provides only temporary control. Growing conditions must be improved to prevent the re-establishment of moss.

Conditions that favor the growth of moss include poor soil aeration, poor drainage, low fertility, compacted soil, acidity (low pH) and heavy shade. Alter these conditions to help prevent the re-establishment of moss and encourage grass vigour. If necessary, treat mossy areas with moss killers containing iron sulphate following label rates and directions or ammonium sulphate fertilizer at 5 kg/100m² (do not water but allow the fertilizer to burn out the moss); or ferrous sulphate applied in a solution of 100g/10L water to cover 10 m² (apply with a plastic watering can). About 2 weeks after treatment remove dead moss by raking. Apply ground limestone if the soil is acid (less than pH 6). If grass is thin or bare patches are present, overseed with an appropriate grass mixture. Use shade tolerant grass (fescue) for shady areas.

Slime Molds

Slime molds are fungal-like organisms (protists) that do not infect the grass but grow on top of it producing an unsightly slimy mass on soil and leaves. Large, irregular patches of white or yellow masses or blue-gray pinhead-sized globular bodies appear during or after periods of wet weather. Infections show up usually in the fall, sometimes in the spring.

Management:

Slime molds will disappear with the onset of dry weather. Brushing, raking or mowing may be required to break up clumps if weather remains humid.

Lawn Weed Control

See Chapter 21, “Integrated Weed Management”.