

# Aerating



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Compacted soil prevents adequate water retention and air circulation – two elements that plant roots require for optimum health. To check your soil, push something like a screwdriver into the ground. If it goes in easily, your soil is okay. If you have to push very hard, your soil may be compacted. Some causes of compacted soil are heavy traffic and an insufficient amount of soil organisms – critters especially designed to break down organic matter and improve soil structure and aeration, allowing more nutrients to be available to plants.



To aerate your soil, encourage organisms (earthworms and microbes) with a thin layer of [compost](#) and avoid pesticides and chemical fertilizers, especially the quick-release ones. Leave your [grass clippings](#) on the lawn.

Another means of aeration is to remove plugs from the soil, approximately 5 cm (2 inches) deep throughout your lawn. This is generally not recommended as too much air can speed decomposition of organic matter, leading to increased compaction.



Plants require nutrients to grow and be healthy. Fertilizers are wonderful allies when used correctly and in a manner that suits the nature of the plant in question.

While synthetic fertilizers can give you a good show, they usually aren't worth the money in the long run. Many release their nutrients too quickly for the plant and much gets washed away in the rain, polluting our waterways. Quick-release chemical fertilizers, with their high nitrogen content, stimulate excessive top growth without sufficient root development. The grass becomes weak and susceptible to a variety of [weed](#), disease, and [insect problems](#). It also needs to be mowed more frequently. Thatch can be another result of chemical lawn care that boosts growth and slows down the decomposition of dead roots. Thatch can hinder water and air from reaching roots and can encourage damaging insects and disease.

Organic fertilizers are typically both safer and more beneficial than chemical ones. They nourish the soil with macro and micro nutrients without harming important soil organisms and release nutrients slowly and steadily. Organic fertilizers, like compost, also add organic material to the soil, which is important for air

circulation, good water retention, drainage, and healthy populations of important soil organisms. Examples of [organic fertilizers](#) include compost, old manure, fish emulsion, and grass and leaf clippings left on the surface for organisms to break up.

If you use manure from farm animals, let it sit for a few months before adding it to your lawn, as fresh manure can burn roots. [Compost](#) has multiple benefits as it can be made at home without cost and reduces the amount of waste going to landfills. If you buy organic fertilizer, look for a 3-1-2 ratio of nitrogen-phosphorous-potassium.

As to when and how much, many lawn experts feel the best time to fertilize your lawn is in the fall. Apply about a 0.6 cm ( $\frac{1}{4}$  inch) or more with a shovel and rake.

It is also helpful to provide a small amount of nitrogen during the year; leaving grass clippings is the perfect way to do this. Also known as grasscycling, it is simple to do and it doesn't require any special equipment. After mowing the lawn, leave grass clippings where they lie to decompose. Grass clippings are broken down quickly by soil organisms, providing free nutrients to your lawn. You'll save time you would have spent gathering clippings and reduce waste simultaneously. Instead of being hauled away in a garbage bag, your yard will benefit from this easy fertilizer.

The clippings are hardly noticeable and will disappear after a couple of days. Thatch from clippings is usually a problem only if your soil is very low in microbial activity or you've just cut extremely long grass. If you do get large clumps, mow again to break them up. If you need to encourage more soil organisms, avoid pesticides – both chemical and organic – and chemical fertilizers. Instead, apply good [rich compost](#) to the earth to increase their numbers quickly.

Tips for successful grasscycling:

- Cut your grass every five days or so
- Keep your mower blade sharp and at a height around 7 cm
- Try not to cut more than 2.5 cm of the grass blade at a time
- Avoid mowing when the grass is wet
- Avoid mowing during a period of drought

If you don't want to keep your clippings on your lawn, rake them up and put them on your compost pile or use as [mulch](#) in your garden beds.





# Mowing

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Cut the grass at a height of seven to ten centimetres (three to four inches), removing no more than one-third of the grass length at each cutting. What most homeowners don't realize is that the height of the grass is proportional to the depth of its roots. You need healthy roots and leaves to have a healthy lawn. Grass growing in shade requires a particularly long leaf blade for greater sunlight gathering and therefore food production. If you cut the grass too short you work against the plant by:

- Reducing its ability to make its own food through reduced collection of sunlight and carbon dioxide from leaves.
- Decreasing the plant's ability to get water and nutrients from the soil because of shallower roots.
- Increasing recovery time after periods of drought and dormancy.
- Weakening the grass and making it more susceptible to weed and insect problems.
- Allowing more sunlight to the soil, which can cause sensitive roots to burn, weakening or killing the plant and allowing weeds to move in.
- Letting moisture evaporate more quickly, requiring more time and money to water the lawn.

Be sure to keep the lawn-mower blades sharp to minimize stress on the plants. Paul Sacks, author of *Handbook of Successful Ecological Lawn Care*, recommends getting blades sharpened after eight hours of cutting. Check with the local hardware store to see if it offers this service.

Leave grass clippings where they lie. Grass clippings are decomposed quickly by soil organisms, providing free nutrients to your lawn. (see [Lawn Care - Fertilizing](#) for details) Thatch from clippings is usually a problem only if your soil is very low in microbial activity or you've just cut extremely long grass. If you do get large clumps, mow again to break them up. If you need to encourage more soil organisms, avoid pesticides – both chemical and organic – and chemical fertilizers. Instead, apply good rich [compost](#) to the earth to increase their numbers quickly.

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# Selecting, sowing and overseeding



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Before buying your grass seed, make sure you match it to the conditions of your property, such as the amount of light and moisture available. You may need to buy more than one type of grass seed to cater to the different areas of your lawn. Mixing different kinds of grasses and ensuring that the mix suits lawn conditions discourages weed growth and improves your lawn's chances of withstanding insects and disease.

In keeping with Canada's cool climate, choose cool-season grasses, such as perennial rye grass and fine fescues. They germinate quickly and grow well in the spring and fall. Fine fescue grass often has the added benefit of internal fungus that provides insect resistance. Tolerant of cooler conditions, these grasses tend to grow more in spring and fall and go dormant during the hot mid-summer.

Kentucky bluegrass is a common choice for lawns for its aesthetic appeal. However, it is a higher maintenance choice that requires full sun, well-drained soil, and more water and nitrogen inputs than some other grasses. If you want to grow it, mix it with other grasses for improved strength. See your local nursery to determine the best mix for your garden.

Adding additional grass seed each year helps to keep your lawn lush enough to out-compete any weeds trying to establish themselves. Overseed in early spring or late summer/early fall to give the young plants about six weeks to establish themselves before the onset of the extreme conditions of summer or winter. Apply 900 grams (two pounds) per 1,000 square feet, or more if the lawn is thin (up to 1.8, kg or three to four pounds). You can increase the chances of these seeds germinating by giving the area a light raking to remove any barriers to the soil. Keep seeds and seedlings moist until established (about three to four weeks). Remove [weeds](#) by hand.



# Watering



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Before you water, consider if you can do without. We are seeing more and more municipalities prohibiting or limiting watering lawns in response to water shortages due to dry weather, polluted water or simply the long task of replacing water pipes. Grass typically goes dormant in dry weather, returning to green once the rains return. Help your grass survive these times by amending the soil with [compost](#) to retain moisture, letting [grass grow a bit higher](#) and overseeding to keep the lawn dense enough to provide shade for the soil which helps keep roots healthy and retains moisture.



If you do water, keep in mind that how you water your lawn seriously affects its health. Shallow watering causes the roots to grow upwards towards the water. This makes them susceptible to scorching from the sun and causes them to exist in the upper level of the soil, where water evaporates quickly. To promote a lush lawn with deep roots that better resist weed, drought, and insect damage, water deeply: 2 to 3 cm (½ to 1 inch) once a week. If you have a very sandy soil, however, you may need to water more often until you can build up the soil with compost applications. You may also need to water more where your grass grows under large trees. (A better solution would be to replace the grass with [mulch](#) under trees and shrubs at least out to the drip line.)

Use an empty tin to track how much rain falls each week and to determine how much water you need to add, if any. To know if you are watering deeply enough, dig about 15 cm (6 inches) down to see how dry or moist the soil is. If it is bone dry right after a watering, you need to add more water.

Let the soil dry out between waterings to prevent disease and allow for good air circulation. Early morning is the best time for watering to reduce evaporation. During times of dormancy, such as in the heat of mid-summer, refrain from watering the lawn to make it harder for germinating weed seeds to survive. This also discourages the eggs and grubs of [lawn pests](#) such as the Japanese and June beetles.

# Dealing with Furry Visitors



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Raccoons, skunks, and moles can damage your lawn by digging. Chances are, however, that they are digging to get at the grubs in the soil. Eliminate the grubs (see [Insects](#)) and you will deter these furry critters and improve the health of your lawn.

While bothersome, the damage from raccoons, skunks, and moles may be far easier and cheaper to manage than dealing with the grubs alone. When these mammals have finished their feast, they will likely move on to another good feeding area.



If moles do hang around, they may provide other benefits such as mixing up the soil, which creates a natural [aeration](#) as well as bringing mineral-rich soil up to your lawn's roots.

If you really can't live with moles in your garden, try burying a pop bottle in the ground near a hole to their tunnel, with the open top of the bottle sticking out. Passing breezes will catch the lip of the open bottle, producing a sound that will encourage moles to move their homes to the bottom of your garden or beyond.



# Dealing with Insects



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Extensive insect damage is often a sign of an unhealthy lawn. Apply the methods outlined for [mowing](#), [watering](#), [fertilizing](#), and general maintenance. Your encounters with problem insects should lessen to an acceptable level.

## INVITE INSECT-EATERS TO YOUR GARDEN

- Many [birds](#) feast on adult beetles and/or beetle larvae.
- [Bats](#) are invaluable because of their voracious appetite for insects, many of which are considered pests especially in their larval form, such as the cutworm. In fact, bats are the primary predator of night-flying insects such as moths, beetles, and mosquitoes. A single bat can catch hundreds of insects in just one hour, consuming from 30 to 50 percent of its body weight in insects each night.
- Insect-eating bugs like ground beetles, dragonflies, and some non-stinging wasps are also beneficial in keeping a healthy balance in the garden
- Toads are another creature that gardeners are wise to attract. One toad can eat more than 1,000 earwigs in a summer.

## LARGE INFESTATIONS

If an infestation does occur and you need to act quickly, the following tips will help you identify the problem pest accurately and use appropriate organic controls:

### CHINCH BUGS

These small red bugs with a white band across their backs can damage lawns by sucking the juice from grass. The black and white winged adults may also do damage. A sign of their presence is brown or yellow grass next to healthy grass or pavement. To determine if chinch bugs are the cause of your lawn woes, take a can with both ends cut out or some wide tubing, push it into the soil where you suspect the chinch bugs are feeding and fill with water. Chinch bugs will float up within minutes.

### Eliminating chinch bugs

- Follow the above guidelines for a healthy lawn and you will significantly decrease the chances of chinch bug infestations. Pay special attention to fertilizing because too much nitrogen can cause excessive green growth and weaken the plant.



- Chinch bugs like dry conditions so water deeply in the spring, the time when they lay their eggs and the young hatch. The moist soil, according to Rodale Organic Gardening Basics: Lawns, will help a “naturally occurring fungus keep chinch bugs under control.”
- Keep compacted soil and thatch to a minimum to decrease places for these bugs to find shelter. A normal layer of thatch is not considered a problem when you have [healthy soil](#) full of beneficial micro-organisms. If you happen to cut very long grass and end up with a thick layer of thatch, you may wish to mow again to break up the thatch, or rake it to put on your compost pile, to deter these bugs from sheltering in it
- The Environment Canada fact sheet Alternatives to Pesticides — Answers to lawn care problems suggests spraying the problem area “with soapy water once a day for 10 to 14 days, or with a solution of a handful of wood ash and lime in eight litres of water.” Spread a flannel sheet over the treated area and, in less than half an hour, you should find bugs attached to the sheet, ready for disposal.

## WHITE GRUBS

These are the larvae of scarab beetles (Japanese, June, and Chafer beetles to name a few), which feed on the roots of grass and other plants. While a few in your lawn is normal, you know you have a problem when you find big yellow or brown patches of grass and a spongy sensation when walking on it. If you were to dig the area, it would lift up easily because the roots have been chewed up, and several white grubs with dark heads curved into a “c” shape would be apparent. If you find 10 or more grubs per square foot (108 per square metre), you could have a white grub infestation.

### Eliminating white grubs

- Parasitic nematodes are living organisms of microscopic scale that will kill the unwanted grubs. Because the nematodes are alive, they must be handled with care. Read the instructions on the package very carefully. As a general rule, keep them cool at all times until they are moistened just before application. Do not let them sit in water and do not expose them to light (UV). Water the grass before application and then spray the nematodes on the lawn with a sprayer on an overcast day, or in the evening when the temperature is at least 15°C, and keep the soil moist. Nematodes need to be placed where the grubs are and should be applied across the whole lawn, rather than in spot applications. You will have more success if the nematodes are applied when the grubs are small. This is often in the spring and late summer, but double check the grub you are dealing with and its life cycle to be sure.
- Strengthen grass roots to better resist grubs. Overfertilizing, as with quick-release fertilizers, can create soft, weak roots. Use natural fertilizer for slower, steadier growth all year. Mowing the grass to a higher level (don’t cut it too short) will also encourage a deep strong root system, as will deep infrequent watering. Avoid fertilizing in the summer because it could stress the plant at a time when lawns in most parts of Canada tend to go dormant or semi-dormant.
- Avoid over-watering the lawn in the spring when female adults are looking for moist grassy areas to lay eggs. If you do water, remember to water deeply and infrequently, which encourages the water to go deeper into the earth and allows the top layer to dry out in between waterings. Also, refrain from watering in the summer after the grass has gone dormant to reduce the survival of eggs and larvae.

## SOD WEBWORMS

Signs of these insects are dead patches of lawn appearing in the late spring and on into the summer. Earlier in the spring, you can also watch for white moths that fly over the lawn preparing to lay eggs. The larvae live in underground tunnels and come out at night. You may spot them at night with a flashlight as they go about cutting grass blades and bringing them into their tunnels.

### Eliminating sod webworms

- Try pouring a soapy solution on the affected area—about 30 millilitres (two tablespoons) of liquid detergent to 3.75 litres (one gallon) of water, according to Rodale Organic Gardening Basics: Lawns. This should bring the insects out of their tunnels to be collected and disposed of.
- Another recognized method is applying *Bacillus thuringiensis* (BT) two weeks after spotting adult moths hovering above your lawn.
- As with other pests mentioned, you should eliminate compacted soil and thatch where the pests can shelter and bare spots where the pests can flourish.



# Dealing with Weeds



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Weeds are a good indicator of what you can do to improve your soil and your lawn's health. Even a garden full of dandelions can be radically improved without resorting to chemicals. Try these ideas to help achieve a tolerable balance between lawn and weeds.

- Keep your lawn dense. Open areas, caused by unhealthy weak grass, [insect problems](#), or adverse weather conditions, are an invitation for weeds. Overseed to make it harder for weed seeds to germinate.
- Check the pH of your soil. While many weeds are opportunists and can tolerate a variety of conditions, most grasses find a pH of 7.5 a little high. Check your local garden centre to get a soil testing kit and natural products such as lime to help balance the pH. Many gardeners find that sprinkling and gently raking in [compost](#) is a great way to improve the soil. Try leaving grass clippings on the lawn, too.
- Get your mower moving. Mow your grass at approximately 7.5 centimetres (three inches) to keep it healthy. Time the mowing with when your weeds are in flower so you can cut them before they have time to go to seed. If need be, mow more frequently to keep cutting off the tops of the weeds. After a couple of years, you will notice a big improvement. When you do spot the odd dandelion, remember that it's helpful to [beneficial insects](#), such as [butterflies and bees](#), that need nourishment in the early spring and fall when there are fewer flowers.
- Water wisely. Water deeply and infrequently to strengthen your grass plants, preferably 2.5 centimetres a week, in periods of minimal rain. (You can measure how much you have watered by placing an empty tin can (tuna cans work well) on your lawn before you water.)
- Do a little digging when out for a garden stroll. Hand-digging takes time but it's very effective because you can remove the root. There are devices made to make the job quicker and easier on your back, such as a Dandelion Digger sold by Lee Valley Tools



([www.leevalley.com](http://www.leevalley.com)). If you have a big problem area, enlist the help of some friends or family members for a morning or afternoon.

- Depending on how many weeds you have, applying vinegar to the leaves (with a small brush) may be an effective option. The white vinegar sold in grocery stores is likely a 5 or 10 percent solution. Older, more established plants may require repeated applications or perhaps even higher concentrations of vinegar such as 20 percent. Remember that the strength of the vinegar may harm beneficial insects, so apply directly on the weed leaves with a brush to prevent dispersing into the soil. Visit [www.ars.usda.gov/is/pr/2002/020515.htm](http://www.ars.usda.gov/is/pr/2002/020515.htm) to find out how researchers dealt with some problem weeds.
- To stop weed seeds from germinating, try an organic pre-emergent, which inhibits the growth of newly sprouting seeds, killing the plant before it becomes a problem. An example of this is corn gluten meal (CGM), which releases a protein whenever it is moistened, inhibiting the growth of plant roots and cutting off supply of water and nutrients. CGM is used mainly for dandelions and crabgrass, as well as curly dock, plantain, lamb's quarters, pigweed, and knotweed.
- CGM is also used as a fertilizer and (assuming a product is mainly CGM) is an all-natural product that will not burn your lawn.

**Where to get it:** CGM is also used as livestock feed, so look for it at a farm feed store near you. Some health food stores now also stock it. This product may be more costly than other methods for killing weeds, but it is reputed to be very effective if used correctly, and it has a cumulative effect over time. Meanwhile, you are also providing a natural fertilizer that will help create a lush green lawn.

**What kind to buy:** There are powdered, granular, and pellet forms of CGM. The powder or granules may be better, as the pellets might be eaten by hungry birds and other critters. The powder, on the other hand, can blow away or get caked up. If you use the powder, water it with a fine mist spray and, if it cakes up, rake it in a bit. Make sure that the product you buy is mainly corn gluten meal, because some products have added nutrients that may enhance the fertilizer effect, but reduce the ability to inhibit weed seeds.

**When to apply:** Use CGM when seeds are likely to germinate. Do not apply too early because the soil organisms will break it down, rendering it ineffective as weed control, although it will still work as a fertilizer. CGM will work on all seeds so do not apply on a windy day in case it travels to areas where you have seeds that you do not want to sprout. Also, don't apply at the same time that you apply grass seed.

**How to apply:** Apply five to 10 kilograms to an area of 100 square metres, and more on bare ground because there will be more light and less competition for weeds to thrive. You may find it easier to apply the CGM with a seed or fertilizer spreader. Water it in with a gentle spray to prevent it from scattering and to help work it into the soil. Let it dry but if it is very dry in the days following, you may wish to water it one more time.

Research indicates many weeds can be eliminated in the first year, and the percentage rises with each successive year CGM is used. Store any unused CGM in a dry place, as moisture will break it down.