

Preventing and controlling pests

Of course, you may still encounter problems with an organic lawn. In any case, take the time to identify the source of the problem. The damage may simply be the result of poor growing conditions, like compacted soil, close mowing, thatch build up, deicing salt or even dog urine, and not due to insect pests or disease at all. In most cases, changing your growing methods is usually enough to allow your plants to adapt to the various stresses in their environment.

Moreover, a healthy lawn can usually tolerate some parasites without too much trouble. So be patient and take action only if insect pests or disease truly threaten the health of your lawn. This will give natural predators and parasites a chance to step in and do the job for you.

The Botanical Garden Website contains all kinds of information about controlling pests and disease. Take a moment to read the information and learn about the tools available to you.

Useful reading

Available at the Botanical Garden library:

Franklin, Stuart. 1988. *Building a healthy lawn - a safe and natural approach*. Garden Way Publ-Storey Communications.

Rubin, Carole. 1991. *Pelouses et jardins sans produits chimiques*. Éditions Broquet.

Smeesters, Édith. 2000. *Pelouses et couvre-sols*. Éditions Broquet.

What is thatch?

Thatch is essentially a layer of partially decomposed stems, rhizomes and roots that forms a brownish mat on the soil surface. It is not caused by lawn clippings left on the lawn, because they are very high in water content and break down rapidly.

A thin thatch layer acts as a sort of cushion by absorbing the weight of foot traffic, holds water and protects the soil from sudden temperature changes. A thick (more than 1 cm) layer of thatch, however, can prevent water and air from reaching the soil. It also tends to harbour some kinds of insects and promote disease.

Mechanical dethatchers with vertical blades are often recommended. After dethatching, the lawn should be aerated, reseeded and topdressed, to encourage it to grow back quickly before weeds can take over. Dethatching is very labour intensive, however, and badly damages a lawn's root system. For this reason, it is best to encourage thatch to decompose gradually by aerating, reseeding and topdressing your lawn. With organic lawn care, once you have renovated your lawn, thatch shouldn't be a problem anymore.

Online:

www.ville.montreal.qc.ca/jardin/en/biblio/carnet

www.cap-quebec.com

www.healthylawns.net/english

www.hc-sc.gc.ca/pmra-arla

Reminder

Spring

- Rake the lawn
- Seed any areas with winter damage
- For the first mowing, set the height to 5 cm. Afterward, set it to 7.5 cm
- Fertilize with a 100% natural product

Summer

- Set your lawnmower blades to leave the grass as long as possible. Don't mow too frequently
- Allow the lawn to go dormant or water deeply when the top 5 cm of soil is dry

Late summer

(late August – early September)

- Check pH and apply lime, if necessary
- Aerate and topdress, if necessary
- Reapply fertilizer, if necessary
- Seed any areas with drought or insect damage
- Renovate sparse lawn (aerate, topdress and reseed)

Fall

- Use your mower to chop up dead leaves as they fall on your lawn. If the layer of leaves is too thick, rake them up and compost them.
- For the last mowing, set the height to 5 cm.

	April *	May	June	July	August	September	October
Clean and rake							
Aerate							
Topdress							
Seed							
Lime							
Fertilize							
Mow							
Water							

■ Possible ■ Best * Do not walk on waterlogged areas



JARDIN BOTANIQUE
DE MONTRÉAL

ORGANIC LAWN CARE GUIDE

Maintaining a lawn is like growing many, many small plants. In this case, they happen to be grasses! For best results, you have to look after your lawn just as you do the other perennials in your garden, by providing the right environment and growing conditions.

In light of the new by-law (04-041) prohibiting the use of pesticides anywhere in Montréal, this leaflet contains all the information you need to help you grow a healthy lawn without using any chemicals. If you choose organic lawn care, you won't need pesticides anymore—lush, dense grass is less susceptible to weeds and more resistant to insect pests and disease.

Mow high, mow often and leave the clippings on the lawn

We tend to cut our lawns too short and this makes them vulnerable to drought and weeds. The ideal mowing height is about 7.5 cm. Only the first mowing in spring and the last one in fall should be shorter. Mowing your lawn to 5 cm at the start of the season will stimulate growth; at the end of the season, it will help prevent disease.

It is important to mow regularly, never removing more than 1/3 of the total blade length at one time. To keep your lawn at a height of 7.5 cm, you should mow it when the grass is about 11 to 12 cm long. That means mowing it every 5 to 7 days when it is growing actively. In summer, however, once every two weeks is usually enough.

You don't need to pick up your grass clippings; in fact, leaving them on the lawn is good for it. They will release their nutrients as they are broken down by the micro-organisms in the soil. To speed up the decomposition process, use a mulching mower or run a regular lawnmower back and forth over the clippings.

Your lawn will look better, will be more resistant to diseases and will grow better if you keep your lawnmower blades sharpened, because a cleaner cut heals more easily. As a general rule, a dull lawnmower will cause a lawn to turn greyish-green, as some blades of grass turn brown at the tips. Avoid mowing your lawn when it is wet—it will cut more cleanly and the clippings will be better distributed over the entire lawn if you wait until it is dry. Finally, mow in a different pattern each week so that the clippings don't form clumps.

Water deeply and only when necessary

A lawn goes into dormancy when it doesn't get enough water—in other words, it stops growing. The grass leaves and stems die and turn brown, but the underground parts (rhizomes and roots) are still alive, just waiting for rain. Generally speaking, a well-maintained lawn can survive a summer drought without watering. However, it will stay lush and green all summer long, and stand up better to trampling, weeds and insect pests, if watered properly.

There is usually no need to water a lawn before late June. After that, you should do so fairly regularly, allowing yourself to be guided by how dry the soil is. When you do water your lawn, be sure to water it deeply. If there is no rain, give it 2.5 cm of water a week—that means running a sprinkler for a few hours. A good way to tell whether you're using the right amount of water is to place four or five similarly sized containers around the lawn; turn off the sprinkler when there is 2.5 cm of water in the containers.

Usually, a lawn grown on sandy soil needs to be watered for less time (the water penetrates more easily) but more often (the soil dries out more quickly) than a lawn grown on clay soil. To soak the soil thoroughly, it is best to use a fine, light spray, especially on clay soil or steep slopes, which can't absorb too much water at one time. If you notice any runoff, stop watering for a while and start again later.

Avoid watering around midday on hot days, because up to 50% of the water will evaporate before it soaks into the ground. It is best to water your lawn in the morning or, failing that, in early evening. The blades of grass need time to dry before nighttime or they will be susceptible to fungal disease.

Improve soil structure and fertility

Most soil in Quebec is rich in clay or sand. In general, clay soil (more than 25% clay) is a rich environment that retains water and nutrients well. However, it is often poorly aerated and drained. This type of soil is difficult to work, warms up slowly in spring and compacts easily. Sandy soil, containing mostly coarse sand, is easy to work and warms up quickly in spring. It is well aerated and drained, but prone to leaching water and mineral salts. This type of soil also tends to be acidic and lacking in nutrients. Whether you have clay or sandy soil, you can amend it by aerating it if it is compacted, topdressing it with compost to improve its structure, correcting the pH and fertilizing it as needed.

Aerate compacted soil

Aerating involves making holes in your lawn with a tool that removes small plugs of soil to allow a better flow of air, water and nutrients to the roots. This stimulates root growth and prevents thatch (see sidebar) build-up. You need to aerate when the ground becomes hard and compacted. Try to poke a pencil 10 to 15 cm into a moist lawn. You'll know that your lawn needs to be aerated if you meet much resistance.

If your lawn is small, you can use a manual aerator, a fork with hollow tines that you plunge into the lawn to remove plugs of soil. If you have a large property, it is better to rent a mechanical aerator or to hire a landscape professional. Drench the lawn the previous evening to make it easier for the tines to reach deeply into the soil. You can expect good results if you make holes about 15 cm deep, removing from 45 to 90 soil plugs per square metre. Work across the lawn in a criss-cross pattern. Go back and forth in one direction, then at right angles. Leave the soil plugs on the lawn and rake the surface to break them up and distribute them evenly. The micro-organisms they contain will help break down any thatch.

Because aerating creates quite a few openings in the lawn, it is best done from mid-August to mid-September, when lawns are less susceptible to weeds and the ground is moist without being drenched. You can also aerate in spring when the ground is cool but not waterlogged.

After using organic lawn care for a while, you will find that you need to aerate less frequently, because earthworms are good aerators. Play and foot traffic areas will probably still need to be aerated once or twice a year.

Topdress with compost

Compost is both the best soil amendment and the best fertilizer. It adds micro-organisms to the soil, giving them both shelter and nutrients, in addition to improving the soil structure, balancing the pH and supplying essential nutrients for plant growth. You should apply a layer of compost once every three or four years in spring or early fall, when the lawn is in active growth.

Use mature compost (rich, loose and dark), that is finely textured and doesn't contain any weeds. Avoid compost with large amounts of topsoil or peat moss, both of which decompose too slowly. Some professionals prefer to use a blend of 60% compost and 40% coarse sand—because it is heavier than pure compost, it will move more easily through the grass to the soil.

After aerating, apply a thin (0.5 cm) layer of compost, about 50 kg/100 m². Use a leaf rake to spread it evenly across the lawn and work it in. Once you're finished, the grass should be standing up through the compost, not bent over or buried.

Apply lime, if necessary

Soil acidity (pH) affects the availability of nutrients. When the soil is too acidic or alkaline, plants can't absorb all the nutrients they need, even if they are present in the soil. Some elements, like aluminum, iron, zinc and manganese, can even become toxic. Improper pH levels also affect the structural stability of the soil, promote fungal disease and can decrease the population of beneficial organisms.

Most types of grass seed grow best in relatively neutral soil (pH of 6.5 to 7), typical of most of the clay soil in the St. Lawrence Valley, where it is not usually necessary to correct acidity levels. Elsewhere in Quebec, soil tends to be too acidic and needs to be amended with horticultural lime in spring or fall. To find out how much lime to apply, have your soil analyzed. This will tell you how much calcium it needs.

Dolomitic lime is usually recommended because it contains magnesium. If you need to apply more than 20 kg/100 m², it is best to do so in two stages, once in fall and again in spring. If possible, aerate before applying the lime, so that it will penetrate deeper into the soil.

Fertilize in moderation, with a natural product

Unlike a wild meadow, which is self-sufficient, a lawn is a plant community that is subject to very difficult growing conditions: for one thing it is constantly mown and trampled. Moreover, we often tend to expect our lawns to be greener and lusher than the soil can support. In most cases, this means that we need to fertilize.

Natural fertilizer may be either organic (plant or animal waste) or mineral (crushed stone), but either way it has not been chemically processed. In order to release its nutrients, most natural fertilizer has to be broken down by organisms living in the soil. In addition to feeding the plants, it will promote biological life in the soil. In addition, it is not as likely to leach out or to burn the roots. Most natural fertilizer is slow acting and remains available over time in the soil.

Natural lawn fertilizer contains the three essential nutrients your grass needs: nitrogen (N), phosphorous (P) and potassium (K). The three numbers on the packaging indicate the percentage of each element. For instance, fertilizer marked 8-2-4 contains 8% nitrogen, 2% phosphorous and 4% potassium. You also need to consider the ratio between the three elements. You can figure it out by dividing each number by the smallest number. For example, fertilizer marked 8-2-4 has a 4:1:2 ratio. Lawns need large amounts of nitrogen, so it is best to use a fertilizer with an N-P-K ratio ranging from 3:1:2 to 5:1:2.

As a general rule, you can go by the amount of nitrogen your lawn needs in deciding how much fertilizer to apply. If you are using organic lawn care, you will need to reduce the dosage recommended for conventional techniques to 0.75 to 1.0 kg of nitrogen per 100 m² per year. The usual dosage is 10 kg fertilizer/100 m²/year—this corresponds to 0.8 to 1.0 kg of nitrogen, for most commercially available natural fertilizers. Reduce the dosage for a shaded lawn or one containing grass that doesn't feed as heavily as Kentucky bluegrass (the most common grass), but increase it for a lawn established on poor soil or for one used as a play area.

Fertilizer is usually applied once or twice each year. If you are applying it only once, do so in spring, around mid-May. Otherwise, fertilize once in May and again in mid-August. Never exceed 10 kg of fertilizer/100 m² (1.0 kg nitrogen) in a single application.

Reseed bare patches

Reseed any dead spots quickly before weeds can get established in the bare soil. May and the period from mid-August to mid-September are good times to sow seed. For best results, you need to be able to count on 6 to 8 weeks of relatively warm (15 to 25°C) and humid weather after seeding.

Before seeding, take a careful look at your site and ask yourself about its limitations and how you intend to use it: Is it in the shade or the sun? Will it be used as a play area or be walked on frequently? These considerations will help you decide what mixture to use (see sidebar).

When you go to buy your seed, check the label to be sure you get the right mixture and germination percentage (at least 75%). Choose certified seed (Canada No. 1), to avoid growing weeds. Don't try to keep seed from one year to the next, as old seed is less likely to germinate.

For best results:

- 1 Remove any weeds and lightly rake the soil surface to loosen it.
- 2 Sow the seed (by hand or using a broadcast spreader) as evenly as possible. The ideal density is 6 to 8 seeds per cm².
- 3 Lightly rake the surface (in one direction) to shallowly cover the seeds with 1 cm of soil.
- 4 Gently firm the soil, by going over it with a lawn roller half-filled with water or by walking on it, to ensure that the seed adheres to the soil.
- 5 Water the surface with a fine spray so as not to uncover the seed. Water frequently but in small amounts. Keep the soil moist for the first 2 to 3 weeks. Gradually increase the amount of water and reduce the frequency of watering as the roots grow. Avoid walking on the new grass.
- 6 Once the grass is 5 cm high, it should be lightly rolled to even out the soil.
- 7 Mow the lawn for the first time once the grass is 8 cm high. Cut it back only to 5 cm (no shorter).

Renovating a sparse lawn

You can renovate a sparse or heavily thatched lawn. Just remove any weeds, aerate the soil, reseed using an appropriate seed mixture and topdress with compost. If more than 50% of the lawn is weeds, there is little organic material, the soil is very poorly drained or compacted to a depth of over 6 cm, it is better to remove the sod, work the soil deeply, amend the existing soil and reseed (or lay new sod).



Some good seed mixtures

Sunny lawns

The standard mixture is Kentucky bluegrass (40 to 50%), creeping red fescue (30 to 40%) and perennial ryegrass (20%).

Shaded lawns

For dry sites, choose a mixture containing large amounts of creeping red fescue (60 to 65%), Kentucky bluegrass (20 to 25%) and perennial ryegrass (15 to 20%). For wet sites, replace the fescue with rough bluegrass (*Poa trivialis*). Grass is not suitable for heavily shaded areas (less than 4 hours' sun a day), and you should consider other types of groundcover instead.

Play and foot traffic areas

Lay sod and reseed frequently with perennial ryegrass. Consider laying concrete slabs or natural stone instead in heavy traffic areas.