TLC for Healthy Lawns

For the Atlantic region

Mowing

- Raise the mower height — 6.5–7.5cm (2.5 to 3")
- 1/3 rule — cut not more than 1/3 of the grass blade in any one mowing
- Keep the blade sharp — sharpen 1–2 x per season; be safe: (disconnect sparkplug, use gloves)!!!

Rationale: These simple mowing steps will create stronger grass with deeper roots. This means less watering, better insect resistance, and improved weed suppression. It is also easier on your mower, will produce less grass clippings (that can be left on the lawn) and save fuel.

Leave the clippings

- Do not remove grass clippings from the lawn

Rationale: Lawn clippings are Nature’s perfectly balanced, slow release, non-polluting lawn fertilizer. Leaving them on the lawn conserves fuel, labor, landfill capacity, and improves the soil structure and health. They can reduce purchased fertilizer needs by up to 50%.

Liming

- Soil pH of 6.5 is ideal
- Have soil tested (every 3 years once pH is known)
- Apply lime anytime during growing season
- Maintenance (0.5 kg lime required for each 0.5 kg fertilizer applied)

Rationale: Lime conditions the soil and will improve turf growth, health and vigor. Grass plants grow better in a more neutral pH because of improved soil microbial activity (Nature’s food processing factory) and fertilizer efficiency (better uptake by plants). At the correct pH there is less potential loss of added nutrients and thatch is reduced. Lime is a completely natural product (crushed limestone). Pellet forms are more easily applied and faster acting. Nitrogen fertilizers decrease soil pH and create the need for additional lime. Once the soil pH is adjusted to 6.5, it can be maintained by adding 1 pound (0.5 kg) of lime for every 1 pound (0.5 kg) of fertilizer applied.

Feeding and Fertilizers

- Feed only when the grass is actively growing
- Ideal application timing is, first, September and second, mid-June
- Use controlled-release, organic based or true organic fertilizers
- Nitrogen applied at 0.5kg/100 sq. meters (1.0 lb/1000 sq. ft) per season is adequate

Rationale: Easy does it! Nitrogen, the first number on the fertilizer bag is the growth throttle for turf (the more you feed, the faster the grass grows!). Every lawn needs some Nitrogen added annually. Often just 1 pound (.5 kg) per 1000 sq. ft (100 sq m) is enough per season for a healthy lawn that is growing on a good soil base. Turf on a poor soil base (less than 18” — 45cm) will require more fertilizer — up to 3 lb (1.5 kg) per 1000 sq. ft (100 sq. meters).

What about the other 2 fertilizer components, phosphate (P) and potash (K), the 2nd and 3rd numbers on the fertilizer bag? They stay in the soil and are recycled unless removed with clippings. Medium levels (as determined by soil tests) have proven effective for healthy lawn growth. As such most lawn fertilizers have only low levels of P and K in the formulation. A ratio of 4-1-1 is ideal. Caution should be used to apply fertilizer only on the grass. Fertilizer splashed onto streets, sidewalks and driveways is wasteful and can contaminate streams and rivers.

Controlled-release, organic based and true organic fertilizers are better for balanced and sustainable turf growth. They are also more environmentally friendly with less risk of volatilization (escaping into the air) and leaching into the groundwater.

Small white clover plants evenly dispersed in a lawn provide enough nitrogen to feed a lawn naturally, if the clippings are recycled. As a specialized legume type plant, clover has the ability to capture nitrogen from the air, manufacture it and release it into the soil.
Mid-September is the ideal time for feeding the lawn. At this time, most of the applied nutrients are utilized for building healthy roots, crowns and overall stronger plants. Stored nutrients and energy will then be utilized more efficiently in the spring and provide quicker green-up without excessive top-growth. Mid-June, after the spring growth flush tapers off, is the second most effective feeding window.

Early spring, mid-summer and late fall feeding can actually waste nitrogen — allowing it to leach beyond the roots or evaporate (volatilize) into the air. Early spring feeding also increases mowing frequency, creates excessive clippings, wastes energy, and can actually weaken the turf.

From an environmental perspective, application timing is less critical with completely organic products, because the nitrogen component is released only when the grass is growing — so the grass captures it all.

**Watering**

- Not necessary on healthy, sustainable lawns
- 1.5–2.5 cm (⅜ – 1 inch) per week
- Keep it on the grass, not streets or sidewalks!

*Rationale:* Properly constructed lawns (with a deep, unrestricted soil base) stay green without additional watering. Lawns that turn brown in mid-summer are OK. They will recover in the fall unless added stress occurs (summer fertilizing, low mowing).

The most environmentally sensitive approach is to not water the lawn. The moderately conservation-minded will water enough to keep a green appearance (1.25cm or ⅞ per week, in one application so it soaks in deeply) if natural rainfall does not occur. This can be easily measured by using an empty sardine can and placing it half way out in the sprinkler pattern. Applying 2.5cm or 1” of water per week (use a tuna can) will keep a lawn growing vigorously in our climate. If Nature provides natural rainfall, reduce the applied water accordingly.

Application in early morning will reduce loss of water from evaporation. And try to keep the water on the grass — not on the street, sidewalks or driveways. It is a valuable resource – use it efficiently!

**Aeration**

If required:

- Once per year
- Full depth tine penetration gives best results

*Rationale:* Aeration is not normally required in healthy lawns. It can help relieve problems, such as helping to break down a heavy thatch layer by bringing some soil to the surface. It can also help to improve the results of overseeding and topdressing by getting seed and organic matter into the root zone.

Compaction is not a problem in home lawns in most of Atlantic Canada due to our winters. Nature’s freeze-thaw cycle does an excellent job at relieving compaction — if we stay off the lawn until it dries out (the sour smell and squishy feel is gone). This is the reason we get big bumps in the road and have highway weight restrictions! Earthworms and soil microbes also assist with keeping the soil opened up.

**Managing Thatch**

- Correct the soil pH to 6.5
- Reduce fertilizer applications (0.5–1.0 kg Nitrogen per 100 sq. meters, 1–2 lbs per 1000 sq ft) per season
- Topdress with good compost
- Reduce pesticide applications

*Rationale:* Thatch occurs from the breakdown of coarse grass plant parts (stems), and is a natural part of the nutrient cycle. (The dark layer on top of the soil in the picture at the right is thatch.) Leaf clippings break down rapidly, and do not normally add to thatch. Too much thatch — over ¾” (1.75cm) — is a caused by poor management or construction practices that suppress the soil life and natural breakdown of thatch.

Contributing factors are low pH, high rates of fertilizer, frequent insecticide applications, poor drainage and compaction. If the first three are the problem, correcting them has been shown to solve the problem over two or three years. Topdressing with good, biologically active compost also helps. The valuable nutrients and organic matter in the thatch are broken down by the compost and returned to the soil.
Managing weeds

- Some weeds are OK
- Hand weeding is effective (and good exercise!)
- Healthy turf can reduce weeds

Rationale: A weed-free lawn is an artificial concept in nature, and requires significant energy to maintain. Research has shown that most people consider a lawn to be weed-free when it actually contains up to 10% of finer-leaved broadleaved plants (clover, chickweed). Even 50% broadleaf content (biodiversity) is attractive if kept neat by regular mowing.

These photos, taken at Windsor Castle, show the attractive uniform colour typical of European turf. The lighter green is the result of minimal fertilization. The right photo shows the biodiversity present at the location of the hat in the center photo — 30% or more broadleaf content, mostly white clover.

A biodiverse turf requires less watering to stay green in summer, takes less fertilizer, and tolerates higher chinch bug populations without visible damage.

If turf health is improved (correct pH, correct mowing) the grass plants become denser and more aggressive. They are able to crowd out unacceptable weeds and prevent new ones from germinating. Occasional spot herbicide applications will keep a lawn practically weed-free. In this photo, the healthy turf on the left remains nearly weed-free three years after installation — the thick grass helps keep the weed seeds from germinating.

If herbicides are used for undesirable weeds, application timing is important. They work best when the turf — and weeds — are actively growing in the spring and fall. Apply to plants before they flower and set seed (especially dandelions — spraying after the flowers appear guarantees a repeat crop!). Hand weeding with simple tools has been shown to be as cost effective as herbicides for removing large weeds like dandelions if they are less than 10% cover in the lawn.

Managing Insects

- Bio-diverse lawns resist insects better
- Reduce the amount of fertilizer used
- Water dry areas — June and July
- Chinch bugs — spot-treat with insecticide, if required, from mid-July to mid-August

Rationale: Most insects are beneficial in a balanced, healthy ecosystem. They help to recycle organic matter, return it to the soil, and in turn, feed the plants. Chinch bugs, the most prevalent lawn pest in Atlantic Canada, are unfortunately not very helpful and sometimes cause significant injury. A healthy, bio-diverse lawn however can tolerate a lot of chinch bugs (counts up to 1200 per sq ft or 0.1 sq m have been recorded without visible damage!). This is well above the number historically considered to be damaging to turf. Older lawns, established prior to 1940 (pre-WW2) have been observed to be less affected by chinch feeding. This is thought to be due to more available moisture from a deeper and undisturbed root zone which keeps grass from getting stressed.

Chinch bugs are known to congregate in “hot spots” — dry, sunny areas and sunny slopes. Keeping these sensitive areas moist from mid-June to mid-July will suppress insect feeding damage, by improving turf health and encouraging natural fungal pathogens.
Over-fertilized lawns are more attractive to Chinch bugs and more vulnerable to damage.

If insecticide control is required, the best time to apply is when the chinch bug is in the immature stage (immature nymphs are orange-red in color) before they turn into adults. In the Atlantic region, this stage occurs from mid July to mid August.

**Topdressing and overseeding**

- Compost will help reduce thatch
- Seed will help to fill bare and thin areas
- Seed must contact soil to get established
- Mechanical seeders and aeration can be helpful

*Rationale:* Topdressing refers to the application of a layer of compost and/or soil to an existing lawn; overseeding means spreading seed onto an existing lawn. These practices can help to increase grass cover in thin areas and introduce new plant varieties to a lawn.

Topdressing with a good compost is beneficial. Composts must be uniform, dry or in a pellet form to apply effectively with conventional mechanical spreaders. If not, hand application and raking-in is required. Composts and topdressing may be applied any time during the season.

Overseeding must place the seed in contact with the underlying soil to allow germination and rooting. Consistent moisture is essential for 6–8 weeks until the grass is established. Early spring or early fall timing is recommended to take advantage of natural rainfall. Commercial equipment such as a slitting seeder helps to correctly place the seed in contact with the soil. A mechanical aerator can also help improve seed-to-soil contact. Hand tools like a garden fork are effective for small areas.

Seeds must have good soil contact and consistent moisture in order to survive and grow.

The common permanent grass species used in the Atlantic region for lawns are Kentucky Bluegrass and Creeping Red Fescue. Perennial ryegrass is generally not hardy will die out after a few years. It does germinate quickly however and is used as a “nurse” grass for the permanent species and for a quick cover.

In good growing conditions, established grasses will spread rapidly (with side shoots and stolons) to fill in small bare spots and often eliminate any need for overseeding. In poorer soils, overseeding provides only a temporary repair.