



Organic Turf: Frequently Asked Questions

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There are many questions today regarding how turf can be managed organically. Let's clear up some common misconceptions concerning best management practices for organic lawn care programs.

How is Organic Lawn Care defined?

The United States Department of Agriculture (USDA) is the governing body which upholds the integrity of the organic program throughout the United States. According to the USDA, organic “is a labeling term that indicates that the food or other agricultural product has been produced through approved methods. These methods integrate cultural, biological, and mechanical practices that foster cycling of resources, promote ecological balance, and conserve biodiversity. Synthetic fertilizers, sewage sludge, irradiation, and genetic engineering may not be used.”

There are currently no standards for organic turf management that a homeowner or turf manager could follow for a lawn area to be considered certified organic.

The Northeast Organic Farming Association (NOFA) does provide voluntary accreditation for professionals in Organic Land Care. NOFA has developed and teaches to their own standards. After passing a competency exam, the applicant is certified as an organic land care professional. The training includes, but is not limited to, organic turf management. More information and a list of professionals in your area can be found on the NOFA Organic Land Care website.

For further discussion in this fact sheet, organic is considered to include any turf management practices that do not include pesticides or synthetic fertilizers. We place an emphasis on using best cultural practices to help prevent and mitigate many common turf issues from the onset.



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What is the difference between a fertilizer and a pesticide?

Many people incorrectly group fertilizers and pesticides. A fertilizer is any substance that contains plant nutrients used to aid and promote plant growth. The USDA defines a pesticide as any product “intended for preventing, destroying, repelling, or mitigating any pest,” which includes insecticides, herbicides, fungicides, rodenticides and many other “cides.” Any product that claims to control pests, whether organic or not, must be registered with the EPA and will have an EPA number on the label. All fertilizers and pesticides must also be registered by the state in which they are sold.

Fertilizer use has the potential to seriously harm the surrounding environment. Proper application can greatly reduce nutrient runoff and minimize threats to water bodies and their ecological systems.

The risk of water quality contamination from pesticides is relatively low if applied only when warranted and the applicator follows the label directions and precautions. However, if applied incorrectly or with no regard to regulations and laws, pesticides can have direct toxic effects, including the applicator and those exposed to drift or residual chemicals. Long-term, chronic exposure to pesticides on turf is of concern to many parents and pet-owners. Recent concern over pollinator protection also warrants attention to what products are used, when and how they are applied and what their potential consequences to non-target organisms might be.

Are organic fertilizers better for my lawn?

Plants cannot differentiate between organic and synthetic sources of nutrients. Organic materials in the soil must decompose into elemental forms of nutrients that plants are able to take up and use. Therefore, the effects of organic fertilizers seem to take longer to notice compared to synthetic products.

Synthetic fertilizers can be applied in soluble forms that plants can use immediately. These products tend to act more quickly and for a shorter amount of time. Synthetic fertilizers can also be formulated in slow-release forms, reducing risk of leaching and environmental contamination. It is recommended to have no less than 25% slow release sources in a fertilizer for home lawns during peak growth periods.

One advantage of synthetic fertilizers is consistency of products. Sources like potassium sulfate or ammonium nitrate are blended to provide formulated ratios to meet turf nutrient requirements and provide a consistent product to the consumer.

Organic fertilizers, such as alfalfa meal or animal manure, may not have a consistent makeup. These products should be tested for their nutrient content before being applied. Without proper analysis, the risk of over application becomes greater and can lead to turf stress

Did You Know?

The current NH Turf Fertilizer Law limits the amount of nitrogen and phosphorus that can be applied to home lawns from any source, synthetic or organic.

For more information on calculating your lawn's fertilizer rates go to:
<http://bit.ly/calc-fertilizer>

and potential contamination. Organic fertilizers with specific formulations may also be difficult to find.

Whether or not turf is fertilized using conventional or organic products, the same standards of application are required. First, there is no need to routinely apply fertilizer if a soil test does not indicate a need, and the aesthetics and health of the lawn meet the standard of those involved in its use and care. Second, even organic fertilizers can do harm when not properly applied. Read the instructions on the product carefully, and only apply what is necessary. The current NH Turf Fertilizer Law limits the amount of nitrogen and phosphorus that can be applied to home lawns from any source, synthetic or organic. Using an entire bag of fertilizer when unnecessary is expensive and can have extensive environmental ramifications. Consult your local Extension specialist if you have questions regarding application rates and types of products to use.

I have grubs in my lawn, what are my organic options for control?

Grubs are the larval stages of beetles. The two most common species whose grubs affect New Hampshire lawns are the European chafer and the Japanese beetle. Grub control should only be used when the threshold of grub infestation has been reached. Depending on the type of grub, the threshold level can range from three (European chafer) to 15 (Japanese beetle) larvae per square foot. After checking the lawn for grubs by removing a square foot piece of sod and counting the grubs present, it can be determined whether intervention is necessary. Replace the sod and lightly water it after checking the area.

If the threshold for grubs and grub damage has been met, and treatment is deemed necessary, it is crucial to understand the grub lifecycle to deal with the infestation. Certain chemical controls can be applied preventatively (where infestation has been known to occur in the past) in the early summer before the beetle lays its eggs, or curatively in August and September before the grub burrows below the frost line for the winter.

Two organic control products currently being marketed for grub control are milky spore and parasitic nematodes. Milky spore is a bacterial disease that only controls the Japanese beetle grub, but research indicates that it is not a reliable solution for grub control here in northern New England. Nematodes can affect a broader spectrum of grub species, and are an option for organic control, but have a hard time penetrating the soil and can dry out very quickly in non-irrigated turf. Nematodes need to be applied when young grubs are active and the lawn must be kept moist. Prone to high mortality if kept for too long, nematodes must be applied the same year they were purchased and stored in a refrigerator.



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photo by: David Cappaert - Bugwood.org

Did You Know?

Only after an accurate pest identification is it possible to determine an insect's lifecycle, favorable environmental conditions and best control strategies.

For more information on collecting and submitting samples for identification, visit Extension's Insect Identification Services webpage at: <https://extension.unh.edu/programs/insect-identification-services>

A third organic option is using the bacteria *Bacillus thuringiensis galleriae*. With success in many university trials, it has been in high demand, making the cost somewhat prohibitive and the supply very limited.

The best defense against grub damage is dense, healthy turf with proper fertility, although even the healthiest lawns can fall prey to an infestation. Monitor during the spring for larvae damage as well as damage left by larger species, like skunks, who feed on grubs as they return to the soil surface. Reseed damaged areas as necessary. Keep mowing heights high to maintain the physical evidence of grub damage to a minimum. Most turf can recover from minimal grub damage over the course of the growing season.

What about other insects?

Chinch bugs are another common turf pest that can cause serious damage, particularly to ryegrass and fescues. Appearing mostly in sunny dry spots on lawns that drain quickly, Chinch bugs suck juice out of plant tissue, causing stress and creating irregular patches of dead grasses, often misidentified as drought. Chinch bugs can often be seen when monitoring for pests by checking the outer edges of damaged areas. Chemical control is not always necessary, especially on regularly irrigated lawns. If there is enough rain, the grass itself will outgrow any visible damage done by the insect. Dethatching reduces the thatch layer and helps prevent chinch bug infestation. Choosing endophytic grass varieties can also help prevent chinch bug issues as well as other common turf pests.

The Oriental beetle is also on the rise as a threat to turf as well as ornamentals and vegetables. The beetle itself does not do much damage, but the larvae can be very harmful.

How can I control lawn diseases without the use of non-organic chemicals?

Like all plant diseases, four things must be present and favorable for turf diseases to develop: proper environmental conditions; a host plant, the presence of a pathogen (such as a fungus), and enough time for disease development. Managing these four factors is the best way of avoiding turf diseases in an organic system.

Proper irrigation practices can help reduce or prevent many common turf diseases. Most established home lawns do not need regular irrigation except in drought conditions, or during new seed germination. Over irrigating, irrigating at the wrong times and allowing water to pool will allow pathogens to infect turf roots or leaves. Minimizing the amount of time that turf is wet will reduce turf diseases from growing and spreading. Irrigate between 3 and 6 a.m. so that turf dries quickly as the sun rises. If irrigation is necessary during the day, allow the turf to completely dry out before sunset.



Chinch bug damage.

photo by: David Shetlar, The Ohio State University - Bugwood.org

Did You Know?

Endophytic grasses are turfgrass varieties infected with a non-disease-causing fungus that can increase pest resistance and potentially lower the need for extensive pest control needs. Endophytic grasses are a good variety choice for organic lawn programs.

Aside from water management, turf in full sun with little to no compaction that is maintained with clean, sharp lawnmower blades will rarely suffer from disease problems. Creating an unfavorable environment for disease is the best defense against the use of non-organic chemical remedies. Soil tests should be used to indicate any need for fertilization or lime applications as excess or deficiencies can lead to stress and disease.

What are methods of organic weed control?

Weed management is one of the biggest challenges in organic lawn care. Low maintenance lawns can tolerate a certain proportion of weeds. Mowing regularly will help keep broadleaf weeds at bay, except perhaps dandelions and clovers. Consider that these flowering weeds provide valuable resources for pollinators early in the spring when little else is in bloom. Clover, a legume, captures nitrogen from the atmosphere, so including up to ten percent clover in a low-maintenance lawn seed mix can help reduce fertilizer requirements. Microclover, a new small-leafed type of clover, is now available that may be less aggressive than traditional Dutch white clover.

Weed management for a high-end athletic field would look quite different from a home lawn. Goals and use requirements need to be established and agreed upon by all stakeholders before making any kind of weed control guidelines. Most high-end turf (including organically maintained turf) requires intensive management with frequent aeration and over seeding in order to minimize weeds.

Cultural methods to reduce weed pressure include managing nearby weeds elsewhere on a property, preventing weeds from seeding, mowing grass as high as possible (to shade out germinating and low-growing weeds) and taking care not to introduce new soil amendments that may contain weed seeds.

There are few organic herbicides that can be used on turf. Corn gluten meal is a product sometimes used as a pre-emergent, but its weed control efficacy is unreliable. According to University of Connecticut guidelines for organic athletic fields, “clove oil, citric acid, and/or acetic acid are ingredients used most frequently in minimum risk products considered to have post-emergent weed control activity.” However, “Overseeding (discussed below) is currently the most effective pesticide-free method for reducing weed populations.”

I need to renovate my lawn; can I do this organically?

Renovating a lawn area with no consideration for the existing conditions can lead to more costly and time-consuming efforts. A soil test is crucial to better understand the area being renovated. For a small fee, Cooperative Extension can test your soil and provide recommendations for adjusting pH and nutrient levels. Incorporating

Did You Know?

A pre-emergent herbicide (typically used to control crabgrass in lawns) is used before weed seeds have germinated. A post-emergent herbicide is used directly on existing weeds.



photo by: Whitney Cranshaw, Colorado State University - Bugwood.org

**Visit our website
for more information
on soil testing**

extension.unh.edu/soil

any needed amendments is easiest and most effective before seeding or renovating.

Consider these four cultural practices to help reduce the need for synthetic interventions: proper base prep (based on soil test); timing; seed selection and post-planting care practices. Late summer is the best time of year to seed or renovate a lawn. Turf grows best when air temperatures range between 65 degrees and 75 degrees Fahrenheit, and soil temperatures are between 55 degrees and 65 degrees Fahrenheit. If late summer is not an option for seeding, then spring is the second best option.

There are many cool season grasses suitable for New Hampshire lawns. It is best to seed a lawn with a mix of different types of turf grasses to increase species diversity and turf resiliency.

After planting, adequate moisture is required through germination. First, water frequently for short intervals. As the grass grows, water less frequently for longer intervals. Once established, turf should only need watering during drought conditions. Early mowing promotes horizontal growth and density while the lawn establishes. Mow the new planting as soon as it grows 1/3 higher than the desired height.

Should I topdress my lawn with compost?

Many organic turf management programs (and organic gardening practices in general) rely heavily on soil that is high in organic matter (OM) content. Some of the benefits of building sufficient OM are improved soil structure, increased biological activities, water holding capacity and efficient nutrient management. A good target for soil OM content is around 5%. Consult a soil test or reach out to a local Extension specialist when determining if additional OM is necessary and to find an appropriate source of compost or other amendments.

Topdressing is a good way to increase organic matter, raise depressed lawn areas, stimulate microbial activity and increase nutrient content of the soil. Topdressing after aeration is a good way to incorporate the new amendment. Spread a thin layer of compost (up to 1/4") over the surface, filling in low spots and raking evenly throughout.

Take special care to consider the source of the compost when topdressing. Composts made from animal manure can contain high levels of phosphorus which may not be necessary, as many soils in New Hampshire are already high in phosphorus. Do not apply composts or fertilizer with phosphorus unless indicated first by a soil test.

What role do aeration and overseeding have in organic lawn care?

Many home lawns may never need cultivation practices like aeration and overseeding. For high-end, high-use and high-maintenance lawns, however, these practices can help turf to thrive throughout the growing season. Core aeration, or the removal of cores of turf roots

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and soil, can have many benefits including improving water infiltration, reducing the thatch layer, increasing decomposition and microbial activity and efficient nutrient management. The best times for aeration are during rapid growth periods in early spring and early fall. While it is important to give the turf time to recover, a lawn can be aerated up to six times a year depending on its use. Aeration can be coordinated with topdressing, fertilizing and liming for better infiltration.

Overseeding is used to renew low density grass areas, filling in space that may otherwise be colonized by weeds. Perennial ryegrass is used for most overseeding projects due to its ability to establish quickly, but a mixture of both perennial ryegrass and Kentucky bluegrass (KB) will promote species diversity in the lawn if desired. Aggressive overseeding, or applying seed at rates higher than the recommended amount, will help to maintain a lush and healthy lawn capable of outcompeting weed pressure, disease and insect problems and high traffic compaction. For more information on aeration, overseeding and the equipment needed for both, watch our Lawn Renovation video.

How will thatch affect my organic lawn?

Thatch is a layer of living and dead stems, leaves and roots which accumulates between the grass and the soil layer. A healthy soil contains microorganisms that break down and recycle organic matter, preventing thatch buildup. Clippings left behind from a lawn mower do not contribute to the thatch layer in a healthy lawn.

Thatch layers are most common in high maintenance turf species, not limited to Kentucky bluegrass and bentgrass species. It is crucial to control thatch in these lawns to increase microbial activity, water penetration and compaction issues. Managing thatch through cultivation practices like aeration will reduce these common turf issues and reduce the need for of intervention in regard to pest or disease problems. Without access to large equipment, hand raking can eliminate thatch build up.

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Thatch Layer.

photo by: Dave Kellam, University of New Hampshire

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