



*All Natural Land
Care Supplies*

TURF CARE PROGRAM

The philosophy of growing turf (or any thing else) ecologically is simply that a biologically healthy soil grows healthy plants. Natural fertilizers such as Nature's Turf 8-1-9, Pro-Gro 5-3-4, Pro-Start 2-3-3, and Natural No-Phos 6-0-6 contain raw materials meant to stimulate and feed the life in the soil. The apparent low N-P-K analysis (required by law) has relatively little meaning when you are feeding the soil because those numbers refer to plant nutrients not soil nutrients. Synthetic fertilizer ingredients contain very little that will feed the life in the soil. Unfortunately, the benefits of feeding the soil cannot be quantified or qualified on any fertilizer label.

When you feed soil life, those growing populations of organisms begin to accomplish many tasks that now consume great amounts of time, money and energy. For example, microorganisms serve to help: fertilize, by fixing nitrogen from the air, mineralizing soil organic nutrients and dissolving mineral nutrients from rock particles; de-thatch, by decomposing thatch and other organic matter into valuable nutrients and humus; which in turn increase the water and nutrient holding capacity of the soil; provide aeration by encouraging earthworms and biological soil aggregation; and control many insect and disease problems by competition, predation, and biological nutrient management. These are only five examples, derived from a far greater list. It is widely accepted by ecologists that most of the benefits we get from soil life have yet to be discovered.

GETTING STARTED: The first step for installation and/or maintenance of turf is to become acquainted with the condition of the soil. With what type soil are you dealing? How much organic matter is there? Is the base fertility balanced? Does the soil need lime? The best way to answer most of these questions is with a soil test. North Country Organics (NCO) recommends both chemical and biological analysis. Upon request, NCO can provide you with the materials necessary to submit samples (please do not send soil samples to NCO). If you do a lot of testing, NCO strongly suggests investing in one of our durable soil samplers. The sampling probe simplifies the task of drawing up soil samples for analysis.

FERTILIZATION: If the base fertility of the soil is relatively well-balanced, our fertilizer program consists of only 2-4 applications per year, depending on the length of your growing season and the condition of the soil. The program can begin in early to mid-fall with an application of 20 lbs. of Pro-Gro 5-3-4 or 12½ lbs. of Nature's Turf 8-1-9 (or 16½ lbs. of Natural No-Phos where applications of phosphate on turf are prohibited) per 1000-ft.². NOTE: 20-25 lbs of Pro-Start 2-3-3 may be substituted in areas where thickening turf



density is important (and phosphate is not prohibited)—the purpose of Pro-Start 2-3-3 in the fall is to build a thick and invasive root system that will help crowd out weeds and provide a lush, carpet-like appearance in the spring. NOTE: Plant density may not increase sufficiently where clump varieties of grasses, like fescue or ryegrass, are growing. Many customers begin our fertility program in the spring using Pro-Gro, Natural No-Phos or Nature's Turf with equally good results. In the fall, Nature's Turf 8-1-9, Natural No-Phos 6-0-6, or Pro-Gro 5-3-4 increases carbohydrate content in the roots, significantly decreasing winter kill of turfgrass plants. In the spring, we recommend applying 20 lbs. of Pro-Gro, 16½ lbs. of Natural No-Phos or 12½ lbs. of Nature's Turf per 1000-ft.². This application pushes lush top-growth plus tiller and rhizome growth for magnificent looking turf. We suggest applying Pro-Gro, Natural No-Phos, or Nature's Turf early in the spring when the grass first begins to green-up for better weed control. Mowers should be set high to control weeds through the spring and summer. Mid-spring fertilization is better for weed-free turf. In regions where there are longer growing seasons, another application can be made as a late spring fertilizer to sustain color and growth. Common sense is your best tool for determining application times and frequency of Pro-Gro, Natural No-Phos, or Nature's Turf. Heavier applications of Pro-Gro 5-3-4 (25-30 lbs. per 1000-ft.²) are recommended on soils with very low base fertility that are receiving NCO fertilizers for the first time.



MOWING: Mowing practices are as important as soil care in an ecological turf program. Proper mowing is the single most effective way of controlling weeds without herbicides. Mower blades should be sharpened on a regular basis (every 7-8 hrs of mowing time). Dull blades tear and stress the plant inhibiting its natural resistances and aggressive growth. The plant spends more energy recovering from being mowed and less on competing with weeds, insects, and disease. Turf should always be mowed high (2½-3½ inches) and often, rarely if ever removing more than one-third of the total height. Taller plants can photosynthesize energy more easily, shade out low growing weeds such as crabgrass, and develop deeper and more extensive root systems. Clippings should not be collected. Recycled lawn clippings can add up to 2 pounds of nitrogen per 1000-ft.² per year and some organic matter. Areas where large quantities of clippings threaten to smother the turf should either be chopped finely with a mower or gathered for compost and reapplied to the lawn when decomposed. If clippings must be collected, 1 – 2 additional applications of Pro-Gro 5-3-4 or Nature's Turf 8-1-9 per year are recommended.



Longer Blades Mean Longer Roots

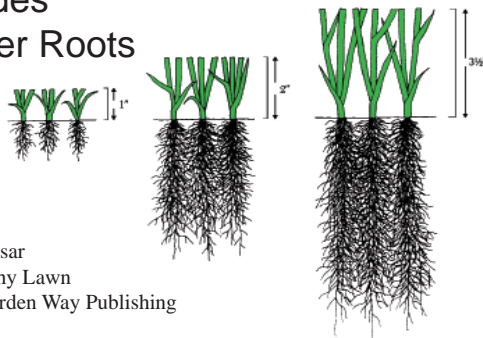


Illustration by A. Kolesar
from *Building a Healthy Lawn*
by Stuart Franklin, Garden Way Publishing

WATERING: In most cases, leaving the responsibility of irrigation to mother nature is better than entrusting it to an automatic system, especially one that is activated by a timing device. Too much or too little water can stress turf plants and lower their resistances to other problems, such as insect or disease attack. Over-watering reduces the amount of oxygen in the soil, causing stress to roots and to microorganisms. Anaerobic soil conditions can cause many other problems. Too little water can be even worse, causing severe stress to plants and soil organisms. Recent research suggests that low volume - high frequency irrigation may be best for mitigating stress to turf; other experts disagree, opting for deep and infrequent watering. The trick is to avoid the extremes. Soils rich in organic matter can buffer turf from those extremes by absorbing more water during wet periods, building greater reserves for periods of drought.

WEED CONTROL: A weed is a misplaced plant. Millions of dollars worth of so-called weeds are sold each year as ground covers, perennials, herbs and wild flowers. However, most people don't want them in their lawns. Weeds are effectively controlled in an ecological program in some of the following ways: Turf grown in healthy soil is a very aggressive plant that can crowd out or smother most weeds when fed and mowed properly. Some university studies indicate that good mowing practices (mentioned above) can control certain weeds as well or better than herbicides. A diverse mixture of turf grasses is also important. A monoculture of only one or two species of turf plants in a lawn does not compete as well against weeds. If conditions arise that one or two cultivars cannot tolerate, weeds may begin to dominate the opened spaces. Once weeds gain the upper hand, they become much more difficult to control. A genetically diverse turf is more able to survive, thrive and compete against weeds under most conditions. Where weeds are already well entrenched, corn gluten, a natural organic pre-emergent herbicide, can be used. Corn gluten breaks down into allelochemicals that inhibit root development on the germinating seeds of crabgrass, dandelion and many other common annual lawn weeds. Regular over-seeding is also a very effective means of mitigating weed problems.

NEW INSTALLATIONS: Choice of seed is very important when renovating or installing a lawn. Our turfgrass consultants have spent over thirty years developing a blend of grass seed that we have appropriately named Eco-Blend. Eco-Blend is a genetically diverse seed blend that will grow well in almost any conditions. It has mostly deep rooted varieties to locate water and nutrient more easily and is endophytically enhanced (endophytically enhanced grasses contain natural endophyte fungi living symbiotically with the cells of the plant and found to be insecticidal to foliar feeding insects) to repel foliar feeding insects. The mix is specifically

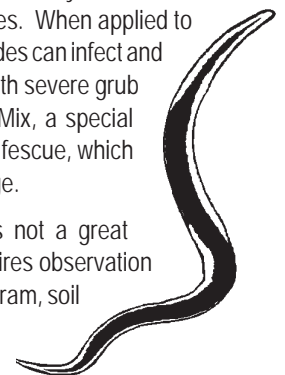
designed for great looks and a long life-span with a minimum of inputs needed. A soil test is always recommended before a new seeding or renovation of an old lawn that hasn't been tested in the past 3 years. Soil amendments such as lime, greensand, rock phosphate or compost may be recommended, depending upon the outcome of the soil test. Under normal conditions, apply 20 lbs. of Pro-Start 2-3-3 per 1000-ft.² and lightly work into the surface of the soil before seeding down 5-7 lbs. of Eco-Blend per 1000-ft.². Early fall is the best time of year to install permanent lawns from seed. NCO offers several other blends of endophytically enhanced seed.

AERATION AND DE-THATCHING: With organic turf care practices, aeration and de-thatching can quickly become obsolete and unnecessary activities. The populations of microbes, earthworms, and other beneficial organisms that thrive in a healthy soil decompose thatch and clippings faster than they can be produced. That digested organic matter plus the recycled bodies of the bacteria themselves create humus which expands and contracts within the soil by the varying levels of moisture content, creating air and water passages, relaxing soil compaction, and improving the crumb structure of the soil. Earthworms that thrive on organic matter dig deep and extensive tunnels through which air and water can travel and microorganisms are constantly aggregating soil particles. Turf areas subjected to regular heavy traffic often require additional mechanical aeration.

DISEASE CONTROL: Many of these beneficial bacteria and fungi whose populations explode in healthy soil also compete antagonistically with pathogenic fungi. Studies noted in the Cornell University Turfgrass Times warn that soils with low organic matter content managed with high levels of pesticides are much more susceptible to devastating turf diseases. Organically maintained turf rarely has problems with plant pathogens. When problems do arise, they are usually less severe. Re-establishing colonies of antagonistic organisms can often be accomplished with applications of compost, compost tea, and STRESS-X (seaweed extract).

INSECT PROBLEMS: Plants that are grown in healthy soil are less susceptible to insect attack just by virtue of natural selection. Insects that cull out weaker plants are doing the plant species a favor by allowing only the strongest and healthiest to reproduce. However, when a whole lawn is planted in unhealthy and infertile soil, disaster can strike. Moreover, a balanced soil ecosystem contains many predator and parasitic organisms that can help with pest insect control. Other controls—such as good cultural practices and endophytically enhanced seed—help tip the scale in the turf's favor. Grubs can be controlled in many circumstances by using Grub-Guard beneficial nematodes. When applied to thoroughly moist soil Grub-Guard nematodes can infect and kill most species of lawn grubs. Lawns with severe grub damage can be renovated with Grub-R Mix, a special blend containing a high percentage of tall fescue, which has proven to be resistant to grub damage.

A FINAL NOTE: Ecological turf care is not a great mystery. It is a different system that requires observation and common sense. In an ecological program, soil life ends up doing most of the work.



REV 01/15