



LAWN MAINTENANCE AND RENOVATION

URI COLLEGE OF THE ENVIRONMENT AND LIFE SCIENCES (CELS) OUTREACH CENTER

3 East Alumni Avenue
Kingston, Rhode Island 02881

For more information:

Call:

In RI: URI MGA Hotline
1-800-448-1011

In MA and CT: 401-874-2900

Outside New England please contact Cooperative Extension in your county.

Website:

URI Master Gardener Association
www.urimga.org

A healthy, established lawn is able to compete with many weeds and resist a certain amount of disease and insect attack, as well as drought. You can maintain a healthy lawn with proper fertilizing, liming, watering, and mowing techniques.

Fertilizer

Fertilizer applications should be based on soil tests. Use a fertilizer with percentages of nitrogen, phosphorus, and potassium in a ratio to correspond to your soil test results. Generally, a 3-1-2 or 4-1-2 is recommended for established lawns. The ratio need not be exactly 3-1-2, 4-1-2 or 5-1-2. For example, 24-6-6 analysis approaches a 4-1-2 ratio, and a 10-3-7 grade is close to a 3-1-2 ratio. Substitutions of this type can be made without concern.

Amount: The amount of fertilizer to apply is based on the percentage of nitrogen, the first number in the analysis. For example, a 100 pound bag of 10-5-5 fertilizer contains 10 lbs of nitrogen (10% x 100), 5 lbs of phosphorus (5% x 100), and 5 lbs of potassium (5% x 100). No more than 3 to 4 lbs. of nitrogen (total amount of nitrogen actually in the fertilizer) should be applied to 1000 square feet of most lawns in a given year. Less should be used if clippings are left on the lawn. Excess nitrogen promotes lush, tender growth that is susceptible to disease, and results in higher maintenance needs.

Applying: Calibrate your spreader to apply the proper amount of fertilizer. Do not apply fertilizer when grass leaves are wet. Water the lawn immediately after fertilizing to wash the fertilizer off the foliage and to prevent 'burning' the plants (unless the directions on the bag state otherwise).

Timing: Fertilizing at the wrong time of year can lead to problems. For the best lawn health and appearance, three applications of 1 pound of nitrogen per 1000 square feet is recommended. The first application should be in April or May, even as late as Mother's Day – but wait until after the first mowing. A second application should be around Labor Day to get the lawn growing again for the fall, and a third application in October (no later than October 15) will keep roots healthy through winter and result in early spring greenup. If you want to use less fertilizer, try only the first and third applications or just the first. Older, established lawns may need only one application, or perhaps fertilizer applications on less than an annual basis.

PESTICIDES ARE POISONOUS!! Read and follow all safety precautions on labels. Handle carefully and store in original containers out of reach of children, pets, or livestock. Dispose of empty containers immediately, in a safe manner and place. Pesticides should never be stored with foods or in areas where people eat.

When trade names are used for identification, no product endorsement is implied, nor is discrimination intended against similar materials. Be sure that the pesticide that you wish to use is registered for the state of use.

The user of this information assumes all risk for personal injury or property damage.

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Rhode Island Cooperative Extension provides equal program and employment opportunities. U.S. Department of Agriculture cooperating.

Note: The Hotline is open Monday—Thursday, 9:00 a.m.—2:00 p.m. from March 1 to November 1.



Types: How do you choose between products with the same nutrient content? The big choice is between fast and slow release of the nitrogen fraction. The percentage of the total nitrogen that is not water soluble and that which is water soluble usually is listed on the fertilizer bag. In the water soluble form the nitrogen is available quickly, and in the insoluble form it is available slowly. A good turf fertilizer contains some of each kind of nitrogen. The slow release portion provides nitrogen over a period of time but is not available to the plant during cool weather. The soluble fraction, or fast release, will provide nitrogen almost immediately after application and during cool weather. Something approaching 30 percent to 50 percent insoluble or slow release (time released) nitrogen is suggested.

Lime

Ground limestone may be applied at any time of year, though late summer to early fall is the best time. There is no waiting period necessary between liming and fertilizing. Most soils in Rhode Island are slightly acidic and can usually benefit from a general maintenance application of lime – usually 40 lbs. per 1000 square feet – but a soil pH test tells you exactly how much you need. Unless your soil is really acidic, a lime application every few years should be adequate.

Watering

Unless watered regularly, a well-established lawn may naturally go into a dormant 'brown' period during hot summer months. This is not a problem: the lawn is not dead and will become green again in the fall when conditions are cooler and damper, unless the drought is prolonged. However, allowing the lawn to go dormant may mask insect and disease problems – dead areas may be evident when greening does occur.

If you water during the summer, do so regularly using the following guidelines: (1) Water your lawn slowly and thoroughly, enough to wet to a depth of 4 to 6 inches. One inch of water (or rainfall) every week is sufficient. Light, frequent waterings are undesirable (except when establishing a lawn from seed) because they encourage shallow root systems. (2) When grass blades turn a dry, bluish green, the edges of the blades curl, or a 'foot print' is left after walking, it is past the time to water – water as soon as possible. (3) Watering is best done in early morning to reduce waste and also to reduce the chance of disease (foliage that is wet all night is more subject to disease).

Mowing

A good rule of thumb is to keep the lawn at a height of about 2 ½ to 3 inches. Also, mow frequently enough that you do not remove more than one third of the leaf blade at one time. During the summer, the lawn should be cut to no less than 3 inches. Fescues and shade grasses are grown a little longer than bluegrass. There is a direct relationship between grass length and rooting depth, so grass kept too short is less able to withstand drought and stress and will make the lawn more susceptible to weed and insect problems, as well.

It is not necessary to remove clippings from a lawn if it is mowed frequently. Do not let the lawn grow very high and then cut it back all at once; this can be a shock to the grass and can severely weaken it. This will also require the removal of the clippings so that they do not smother the lawn. If the lawn has become very long, shorten it gradually with a series of successively mowings.

Use a sharp mower; the cut should be clean with no shredding or tearing of the plants. Do not mow or work on a lawn when it is frozen or very muddy. These practices can damage a lawn.

Renovation

Lawns sometimes deteriorate over a period of years to the point where they cannot be nurtured back to an acceptable level of quality using standard cultural practices such as fertilizing, proper watering, etc. The lawn may be in poor condition because improper grasses were used initially or because they have become "out of balance." Overuse, neglect, extensive thatch accumulation, disease, insect and/or mechanical damage, or a heavy infestation of weeds are other reasons to renovate. Renovation consists of eliminating whatever factors cause poor quality followed by reseeding without completely tilling under the lawn. The process of renovating may be as basic as simply reseeding bare spots, or as involved as killing all vegetation using a nonselective herbicide followed by reseeding the entire lawn.

Timing: Renovation during late summer (August 15 - September 15) generally yields the best results because there is minimal weed competition as well as cooler temperatures and ample rainfall to provide a favorable environment

for new seedlings. Late summer seeding must be accomplished early enough to allow the grass to become well established before the onset of cold weather in order to enhance winter survival. Renovation should be attempted during spring only if absolutely necessary. As late spring approaches, extensive weed competition coupled with summer drought and heat stress reduce the probability of success.

Procedure: The following procedure is designed for renovation of large areas of lawn or entire lawns. If only a few small spots require reseeding, Steps (2) and (3) may be eliminated.

1. Correct whatever factors caused the lawn to deteriorate to the point of needing renovation because renovation will only yield temporary improvement unless the original cause of poor quality is remedied. For example, recontour the lawn if necessary, improve drainage, eliminate excessive shade, etc.
2. Control all weeds. Most broadleaf weeds can be selectively eliminated by using a broadleaf weed killer. Some weeds and small infestations of bunch-type (non-spreading) weedy grasses can be removed by digging. Remove the weed, grass, and soil to a depth of about 2 to 3 inches. Remove soil for a distance of about 2 to 3 inches outside of the clump to ensure the removal of all parts of the undesirable plant.

Perennial weeds that spread via underground stems (rhizomes) or above ground runners (stolons) cannot be controlled by digging. Spreading perennial grasses, such as quackgrass and bentgrass, should be controlled using a broadleaf weed killer. It may be advisable to permit the lawn to grow slightly higher than normal prior to weed control to allow the weeds to grow larger, thus producing more leaf area for better herbicide uptake. Wait at least 10 to 14 days following herbicide application before proceeding with renovation in order to allow for complete herbicide uptake and allow any chemical residues in the soil to dissipate. Always follow label recommendations when using herbicides for specific information concerning rate of application, weeds controlled, and waiting period before reseeding.

3. Mow the entire area as low as possible ($\frac{1}{2}$ to $\frac{3}{4}$ inch) and remove all debris. If there is an appreciable accumulation of thatch (more than $\frac{1}{2}$ inch), remove it using a dethatcher. A dethatcher is a power-driven machine similar to a lawn mower, but with a series of vertical blades or tines which rotate on a horizontal shaft to remove surface debris and thatch. Several passes over the area may be needed to achieve desired results. Remove all debris created by this operation.
4. Cultivate the soil in order to assure good seed-to-soil contact. This is an important step, since seed broadcast onto a lawn without proper cultivation will not survive. Cultivate to a depth of about $\frac{1}{4}$ inch. On small areas, a garden rake can be used to loosen soil to the proper depth.
5. Fertilize and lime (if necessary) at this time. Proper soil fertility and pH are essential for successful renovation. Base application rates of these materials on soil test results. If soil test recommendations are unavailable, approximately 2 lbs of phosphorus and potassium per 1000 sq. ft and approximately 1 lb of nitrogen per 1000 sq. ft should be worked into the soil to promote seedling growth. "Starter" fertilizers containing substantial phosphorous can be purchased for this purpose.
6. Seed of a species similar to that existing in the lawn should be used unless improper species selection was the original cause of poor quality. Apply seed uniformly over the area to be renovated. Use a seeding rate for a new lawn if a herbicide was used on the entire area, or one half the rate for a new lawn if 50 percent of the turf is still present. In order to insure uniform coverage, apply the seed in two directions at right angles to each other.
7. Rake lightly following seeding (a leaf rake works well), or drag with a steel mat or door mat to work the seed into the soil to a depth of about $\frac{1}{4}$ inch. The area should then be rolled to ensure good seed-to-soil contact. If the area being renovated is on a slope, apply a weed-free mulch to prevent erosion.
8. Water lightly and frequently, two to three times per day, to keep the seed bed damp during the

period of germination and establishment. The duration of germination and establishment will vary among grass species, with perennial ryegrass being the fastest species to establish and Kentucky bluegrass the slowest. Continue to mow the lawn on a regular basis during renovation.

9. Apply a balanced fertilizer to provide ½ to 1 lb of nitrogen per 1000 sq. ft when seedlings are about 2 inches high. This will enhance growth and hasten recovery of the lawn to the desired quality.

Growing Grass Under Shaded Conditions

The most obvious impact of shade is a reduction in the amount of light available to the grass. If a plant does not receive enough sunlight to manufacture sufficient "food" (carbohydrates), its vigor and growth will be reduced. In addition to reducing the total amount of light available, tree (or building) shade also severely limits the amount of useful light reaching the grass: the majority of light reaching shaded turf is likely to be light which has filtered through a tree canopy and is low in the wavelengths most valuable in photosynthesis and carbohydrate production.

Site Renovation: Aside from altering light reaching the grass, some trees produce surface roots that compete with grass for nutrients and water. This further inhibits the ability of the grass to grow and it becomes very difficult to maintain a lawn of desirable quality. Exclusion of rainfall by tree canopies can also dispose shaded grass to drought stress. Increased relative humidity and decreased air circulation in wooded areas favor development of lawn grass diseases, such as powdery mildew, as well as encouraging moss and algae problems.

To minimize shade problems for grass consider removing trees and shrubs that do not contribute meaningfully to the landscape design. Pruning tree limbs that grow at heights below eight to ten feet can often substantially improve the amount of morning and afternoon sunlight reaching the lawn. Selective thinning of the tree canopy itself will also allow more photosynthetically useful light to penetrate to the turf. Planting of shallow-rooted trees such as willow, maple, cottonwood, and sweetgum should be avoided, if possible, in order to reduce nutrient and water deficits due to root competition and to avoid future impediments to mowing.

Shade-Tolerant Grasses: When establishing a lawn under shaded conditions, species and cultivars possessing good shade tolerance should be chosen. The fine-leaved fescues (hard, sheep, and Chewings fescue, and creeping red fescue) are, as a group, generally well-adapted to shaded conditions. Although widely used throughout the northeastern U.S., only a limited number of Kentucky bluegrass cultivars possess adequate shade tolerance to provide a quality turf under shade. Rough bluegrass is highly shade tolerant – there is no better grass for use under a shade tree – and prefers moist soils.

Lawn Management Under Trees: Avoid excessive nitrogen fertilization. Apply fertilizer in shady areas in the fall just as leaves begin to drop. Rake and remove leaves before they accumulate. If fall fertilization was missed, fertilize in early spring, about a month before trees begin to leaf out.

Keep grass long (2 ½ to 3 inches) to allow maximum interception of reduced light. Avoid scalping turf.

Irrigate only enough to avoid droughty soil conditions during summer months. Water infrequently and deeply; frequent irrigation can lead to increased humidity and disease. Irrigate in the early morning to allow maximum time for drying. Above all, do not overwater turf in shade. Dry conditions are always preferable to wet conditions for fescues growing in shade.

Limit traffic and aerate compacted areas that receive heavy traffic.

Avoid using herbicides if weed problems do not exist. Many weeds, especially crabgrass, will not grow in shade.

Adapted from the University of Massachusetts and Ohio State University, 1999 2006

Useful Websites

The Home Lawn: Controlling Insects (University of Minnesota Extension)

<http://www.extension.umn.edu/distribution/horticulture/components/DG04881.html>

The Homeowners Lawn Care Water Quality Almanac (Cornell University Cooperative Extension)

<http://www.gardening.cornell.edu/lawn/almanac/index.html>

Penn State Turfgrass Management <http://turfgrassmanagement.psu.edu/homelawns.cfm>

Spring and Summer Lawn Management Considerations for Cool-Season Turfgrasses (Virginia Tech Cooperative Extension)

<http://www.ext.vt.edu/pubs/turf/430-532/430-532.html>

Turf Program, University of Massachusetts Extension <http://www.umasturf.org/>