

# Lawn Renovation and Establishment

This information provided by  
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Prior to renovating a lawn it is very important to determine why a lawn has declined. Perhaps modifying and improving lawn care practices will bring a lawn back to good health eliminating the need for renovation. However, if a lawn remains sparse with more than 50% weeds, renovation may be needed. Addressing the underlying problems that have caused a lawn's deterioration is essential for renovation success.

## Possible Problems

- Excessive thatch
- Compacted soil
- Poor drainage
- Increased shade from trees
- Inappropriate grass species for site conditions

## Planning

In Vermont, the optimum time to plant grass seed is Labor Day and no later than the first week in September. The cooler temperatures and more moisture at this time of year are ideal for germination and seedling growth. Fewer warm season weeds are germinating reducing competition. This timing also allows for the necessary 6 to 8 weeks for grass to become well-established before winter. Planting in the spring reduces the chance of success. Developing seedlings are more likely to be stressed by summer temperatures, drought and weed invasion. The focus for a renovation project should be to have the site completely prepared for seeding on Labor Day. Adequate time needs to be allotted for what can be an involved process. It includes eliminating the existing turf and weeds to the bare soil, correcting the underlying problems, properly preparing the site then planting the appropriate seed. In addition, allow time to receive soil test results, purchase materials and rent any needed equipment.

## Soil Test

Before renovating the site, take a soil test of the topsoil to be used in the final grade. This might be the existing soil or topsoil brought to the site. It would be a good idea to request the optional analysis of organic matter content on the soil test. Allow 2 to 3 weeks to receive the results. The report will provide information regarding the condition of the soil tested. If the soil's pH is out of the desirable range of 6.0 to 7.0 for turf, a recommendation is given for the addition of lime or sulfur. In Vermont, most soils will require lime to make them less acid. Recommendations will also be given for how much if any phosphorous (P) or potassium (K) is needed. Phosphorous is essential for root development and seedling establishment. Nitrogen (N) levels are not tested as they are constantly changing. However, a complete fertilizer (N-P-K) recommendation is given based on the amount of nitrogen a lawn needs to become established. If requested, the report will indicate the percent of organic matter content. It should be at least 2% to 3%. Adding organic matter enhances any type of soil. It increases the water retaining capacity of sandy soil and improves the structure of clay soil.

## Removing Vegetation

One method for removing the existing vegetation is to kill the existing turf and weeds using a non-selective herbicide such as glyphosate (like Roundup) or glufosinate (such as Finale). Care should be taken when using these herbicides as they are intended to kill any plant they contact. Do not apply them on a windy day for fear of over spray. Wait until the herbicide dries before walking on the area. Some weeds may take up to a month to control requiring 2 to 3 applications. The treatment is successful when the weeds and turf turn yellow or brown, begin to dry and no new growth has occurred. Because these herbicides have no residual activity in soil and do not kill seeds, they will not affect newly planted grass seed or sod. Once the vegetation is dead, it can be rototilled into the soil. However, if excessive thatch has been an underlying problem, it should be removed. This would require renting special dethatching equipment such as a vertical mower. Several passes with the equipment may be needed to remove the thatch.

## Rough Grading

Now is the time to remedy drainage and slope problems. If extensive grading is required, the existing topsoil should be temporarily removed and stored. Then the subsoil can be graded to a gentle slope removing low areas for proper drainage and maintenance ease. A slope of one to two percent away from buildings (a one to two foot drop per 100 running feet) assures good drainage. If a steep slope cannot be avoided, consider terracing the slope or using low maintenance ground covers. At the time of rough grading, compacted soil should be fractured to promote water drainage through the soil.

## Topsoil, Amendments and Fertilizer

The foundation for a healthy lawn is healthy soil. It is essential to properly prepare and augment the existing soil before seeding or laying sod. Once the sub grading is done, apply at least 4 inches of topsoil. There should be a gradual transition between the topsoil and subsoil to promote good drainage. To do this, till a few inches of topsoil into the subsoil and then apply the remaining topsoil. Into the top few inches of soil, mix in the amount of lime and a starter fertilizer recommended on the soil test. The phosphorous in started fertilizer is important for establishing a healthy lawn. The amount of P should not exceed 1 pound/1000 square feet of lawn. If the soil test is high to optimum for P, 0.5 pounds of P/1000square feet is adequate. At this time, the suggested amount of organic matter such as compost can be incorporated into the top 2 to 4 inches.

## Final Grading

Rake the area level removing any debris and correct irregularities. The area can be lightly rolled with a water roller to firm the soil and show any low spots. This also prevents indentations in the soil when seeding.

## Lawn Grasses

There are three cool-season lawn grasses that make good perennial turf in Vermont. Within each of these species, there are several varieties. Each grass has its own attributes and limitations. Because a lawn has varying conditions throughout, it is advisable to use mixtures and blends of grass seed. A mixture is two or more grass species, like Kentucky bluegrass and fine fescue. A blend is three or more varieties of the same species. By increasing a lawn's genetic diversity, its ability to thrive improves by making it more adaptable to different conditions and more resistant to stress and pests.

### SPECIES:

- **Kentucky Bluegrass** produces a high-quality lawn with a blue-green color and medium leaf texture. Because it spreads by rhizomes (underground lateral stems), Kentucky bluegrass readily forms desirable dense sod and recuperates well from traffic damage. It does best in an open sunny site with well-drained soil and does not grow well in shade. Bluegrass requires more nitrogen fertilizer than other turf grasses and should be regularly mowed to 2 1/2 to 3 1/2 inches. Watering is also required to avoid dormancy during hot and dry periods. Compared to other grasses, Kentucky blue grass is more susceptible to disease and surface and root feeding insects. It requires 14 to 21 days for seed germination and over 6 to 8 weeks to establish dense sod.
- **Fine Fescues** are a group of grasses that includes creeping red fescue, chewing fescue, hard fescue and sheep fescue. They are narrow-leaved and dark to medium green in color. With the exception of creeping red fescue, fine fescues are considered bunch-type grasses that do not produce lateral growth like rhizomes. Because of this characteristic, they are not suited for high traffic areas as they are slow to fill in damaged spaces leaving open spots. They are also very slow growing with a desired mowing height of 2 inches or more. These grasses adapt well to less than ideal conditions and require little to no fertilization. They tolerate lower fertility, acidic soils and partial shade. However, fine fescues need well draining soil and do not do well in wet conditions. They are prone to excessive thatch build up and are susceptible to white grubs. Fine fescues seeds germinate in 7 to 14 days and become established in 21 to 50 days.
- **Perennial Rye Grass** is a deep green grass with medium textured blades. Because it is a bunch-type grass like fine fescues, it does not recover well from damage in high traffic areas. Weeds often fill in open spots before perennial rye can reestablish. It flourishes in full sun, well-drained fertile soil and when mowed at 2 to 2 1/2 inches. Perennial rye grass does poorly in shade and in very dry conditions. Its principal advantage is that it establishes quickly protecting soil while other grasses in a seed mix have yet to germinate. This is especially important on a slope. Fungal diseases can be a problem especially when the grass is stressed from low fertility. Perennial rye grass germinates in just 2 to 4 days and forms a lawn in 2 weeks.

**SEED MIXTURES:** When purchasing a grass seed, check the label for the germination test date, which should be within the last nine months. A germination rate of at least 80% or better is preferable. The label will indicate the percentages of the grass species in the mix. There should never be more than 15% to 20% of perennial rye grass seed in a mix because of its quick germination. If there is more than this amount, perennial rye grass will overtake the area hindering the germination and growth of other species. Avoid a mixture that contains Annual or Italian ryegrass. These are sometimes added because they germinate very quickly and the seeds are cheaper than perennial turf varieties. However, they can be aggressive as seedlings and usually die out in the winter. A seeding rate will be given recommending the number of pounds of seed that should be spread over 1000 square feet. For example: Seed at 3 to 4 pounds per 1000 square feet. Select a mixture that is best suited for the site and use.

- What is the desired lawn quality?
- Is the area in sun, shade or both?
- Is this a high traffic or play area?
- Is the site subject to drought?
- Is there a slope?
- How much time is allotted for maintenance?

#### EXAMPLES OF TYPICAL SEED MIXTURES:

##### Shade

100% fine fescue blend

##### Sunny Site with Medium to High Maintenance

65% Kentucky bluegrass blend

20% fine fescues

15% perennial rye grasses

##### Sunny Site with Low Maintenance

20% Kentucky bluegrass blend

65% fine fescues

15% perennial rye grasses

## Grass in Shade

Grasses require at least 4 hour of direct sun and minimum of 6 hours in high traffic areas. With anything less than this, grass becomes weak and more susceptible to disease. If the shade has occurred because of an encroaching tree canopy, consider thinning and pruning trees to allow in more light. In areas with marginally acceptable light, fine fescues are more apt to tolerate the conditions. Because grass grows more slowly in shady areas, less water and fertilizer are required. The grass should not be cut any closer than 3 inches. Alternatives to planting grass would be mulching around trees, planting shade-loving ground covers or establishing a woodland garden.

## Seeding

Seeding a small area can be done by hand or by using a hand-held seeder. For large areas use a drop spreader or rotary spreader. Calibrate the spreader used to half the recommended rate. Apply half the seed in one direction and the remainder at right angles to the first. This will promote even distribution. Adhering to the seeding rate is important. Light seeding will result in thin and weedy turf. Heavy seeding creates excessive competition between emerging seeds resulting in overcrowding, poor rooting and disease problems. When seeds are evenly spread, there should be about 15 to 20 seeds per square inch.

Lightly rake the soil so the seed is covered with no more than 1/4 to 3/8 of an inch of soil. Gently roll the seed area with a roller or tamp down the soil with a rake to promote good seed-to-soil contact.

## Mulching

Mulch the newly seeded area with weed free straw so the soil surface can be seen through the mulch. This is about 1 bale per 1000 square feet. Mulching helps keep the soil moist, hastens germination, prevents erosion and protects seedlings.

## Watering

Newly planted grass seed requires constant moisture to stimulate germination and sustain emerging seedlings. Without it, seedlings quickly die. The goal is to keep the seedbed moist to a 1 to 2 inch depth, but never saturated or to the point of runoff. This may mean several light waterings a day are required especially in dry and windy conditions. Once the seedlings reach about 2 inches, gradually reduce watering frequency to encourage deeper roots. The soil surface can be allowed to dry before watering when there is 60% coverage.

## Post-emergence Fertilizing

When the seedlings have been up for 2 to 3 weeks, fertilize with 1 pound of nitrogen per 1000 square feet. This is to promote shoot density and disease resistance. The grass plants will also use this fall fertilizer application to store energy to survive winter and for healthy spring growth.

## Mowing

The first mowing is done when 60% of the grass reaches the preferred mowing height of 2 1/2 to 3 1/2 inches. This will encourage lateral growth increasing lawn density, which discourages weed invasion. Mowing should be done following the One-Third Rule. Never remove more than one-third of the grass blade when mowing. The mower blade should be sharp to prevent seedlings being pulled out by a dull blade.

## Sodding

Sod can be laid almost any time as long as the ground is not frozen, the site is properly prepared and there is an adequate water supply. It will provide instant turf cover, which is desirable on slopes to prevent erosion. Most sod is comprised of Kentucky bluegrass blends because its rhizomes form a strongly knit sod. This also limits its use to conditions suitable for Kentucky bluegrass. When laying sod, it is important to keep it moist especially on hot days. Prior to putting it down, moisten the prepared site. Lay the sod staggering the ends in a brick-like fashion. To prevent drying, butt the edges closely together, but do not overlap them. On a slope, the sod should be laid perpendicular to the slope and pinned down. Water the sod immediately after installing. It takes about 2 to 3 weeks to root requiring daily watering to encourage good root growth.

## Seed vs. Sod

	SEEDING	SODDING
ADVANTAGES	<ul style="list-style-type: none"> <li>• More varieties to choose from</li> <li>• Less expensive</li> <li>• Initial stronger root system</li> </ul>	<ul style="list-style-type: none"> <li>• Rapid establishment</li> <li>• Good for slopes</li> <li>• Can be laid anytime in the growing season as long as there is adequate water</li> </ul>
DISADVANTAGES	<ul style="list-style-type: none"> <li>• Longer initial establishment</li> <li>• One optimum time to seed</li> <li>• Frequent watering is vital for seedlings</li> </ul>	<ul style="list-style-type: none"> <li>• Expensive</li> <li>• Limited grass selection</li> <li>• Not suited for low maintenance areas</li> </ul>

## Lawn Care

After a lawn has been renovated and grass has been established, follow good lawn management practices for a healthy and vigorous lawn.

*This information was derived from: the Extension Services of Cornell University, University of Maryland, University of Minnesota, University of Missouri, Penn State and Rutgers University. Reviewed and edited in April 2005*

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**Warning! All pesticides are poisons. Use them only as a last resort!**

**Before using any insecticide, herbicide, or fungicide:** 1) Know your problem. Positively identify the insect or disease. 2) Monitor the problem. Is treatment necessary? 3) Use non-chemical cultural controls first. 4) If you must use a chemical control, *carefully follow all directions and safety precautions on the label!*

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