

MAR 28 1990

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# LAWN RENOVATION

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Where lawn quality is unacceptable, renovation may be necessary. Renovation involves planting grass seed into an existing lawn area, often adding new grass varieties to repair damage or increase tolerance to drought, shade, or wear. Renovation usually isn't necessary until approximately 20-25 percent of the lawn is bare or covered with weeds.

Renovation alone will not be sufficient if problems are too severe. Starting a new lawn may be the best option where removal of the existing turf, tilling, adding topsoil, or changing the soil grade are needed. The following conditions may warrant starting over:

- an excessively compacted soil
- greater than 50 percent weeds or bare soil
- a thatch problem (discussed later) that isn't corrected by renovation efforts

For information on starting a new lawn, refer to "The Home Lawn," University of Minnesota Extension Service publication AG-MI-0488.

Renovation should be considered if any of the following conditions exist in your lawn:

- Approximately 20-40 percent of the lawn is dead or has very sparse growth. This may be due to a variety of factors such as low soil fertility, drought and heat, insect damage, poor mowing practices, disease, moderate soil compaction, or increasing shade and competition from growing trees.

- The lawn is soft and spongy when walking across it and responds poorly to regular watering and fertilizer applications. This condition usually indicates excessive thatch (greater than 1/2 inch). *Thatch* is a layer of partially decomposed grass stems, roots, and rhizomes (not leaves) at the soil surface but below the green vegetation.

- Broadleaved weeds such as dandelion, plantain, and knotweed, or grassy weeds such as crabgrass cover about 20-40 percent of the lawn area.

## Before You Begin

There are several things to consider before beginning a lawn renovation project. First, it is valuable to determine why the lawn deteriorated so that corrective measures can be initiated during the renovation process. For example, if the lawn is thinning due to an expanding tree canopy that shades the lawn and competes for water and fertilizer, you should select shade-tolerant grass varieties. Also consider pruning some of the tree limbs so more light and rainfall can reach the lawn.

Knowing the cause for lawn failure can also make you aware of changes in cultural practices such as mowing, watering, and fertilizing that may be necessary. For more information on lawn care, refer to "The Home Lawn." A soil test is always recommended before starting a renovation project (check with your county extension office for information on how to conduct a soil test).

Second, decide whether to do the renovation yourself or hire a professional to do all or part of it for you. There are several steps to lawn renovation (see basic steps, page 3) and some of them are best accomplished using specialized equipment available through rental outlets. You may decide, for example, to prepare the site yourself but hire a professional to seed the lawn using a slit seeder. Check with lawn and landscape companies providing this service.

Early fall is the best time of year for lawn renovation because environmental conditions are favorable and weed competition is much lower than in spring. In Minnesota, the best time for seeding is between mid-August and mid-September. Reseeding then allows the lawn to establish before winter arrives.

Finally, you need to determine the types of grasses to use. Kentucky bluegrass, fine fescue grasses, and turf-type perennial ryegrass are the most suitable lawn grasses for Minnesota. Many varieties for each of these species are available. Grasses *not recommended* for lawns in Minnesota include

annual ryegrass, creeping bentgrass, tall fescue, and zoysia-grass.

Lawns are intended to meet a range of expectations, based on input levels of time and expense as well as environmental conditions at the renovation site. In selecting grass types you should determine the following category that most closely matches your situation.

### **Category 1: Minimum Input, Sunny Location**

- Generally will not be watered.
- Will be fertilized once per year or less.
- Will be mowed no more than once per week.
- Where a more drought-tolerant lawn is desired.

Grass Mix: Mixture of 50 to 60% common type Kentucky bluegrasses and 40 to 50% fine fescue. Include at least two varieties from Aquila, Monopoly, Nassau, Newport, Nugget, Park, Ram I, Rugby, South Dakota Certified, Sydsport, Touchdown, or other common Kentucky bluegrass. One or two varieties of fine fescue (sometimes listed on the seed label as creeping red fescue or hard fescue) should also be included.

### **Category 2: Minimum Input, Shady Location**

- Inputs as in Category 1.

Grass Mix: Seed with mixture of about 60% fine fescue grasses and 40% shade tolerant Kentucky bluegrass. Some of the better shade tolerant Kentucky bluegrass varieties for Minnesota include Touchdown, Ram I, Nugget, and Sydsport.

### **Category 3: Moderate to High Input, Sunny Location**

- Will be well-watered throughout growing season.
- Will be well-fertilized (2 to 4 applications of  $\frac{3}{4}$  to 1 pound of nitrogen for every 1000 square feet of lawn).
- Will be mowed properly (determined by how fast the lawn is growing, removing no more than  $\frac{1}{3}$  of the vertical height with each mowing).

Grass Mix: Seed with a blend of improved Kentucky bluegrass varieties or a Kentucky bluegrass/perennial ryegrass (turf-type) mixture. Most named varieties not listed under Category 1 are improved Kentucky bluegrass varieties and will perform best under higher input conditions. A fine fescue variety such as Pennlawn (up to 25%) may also be included.

### **Category 4: Moderate to High Input, Shady Location**

- Inputs as in Category 3.

Grass Mix: Seed with a mixture of approximately 50% fine fescue grasses (varieties such as Pennlawn or Jamestown) and 50% improved Kentucky bluegrass. Some shade tolerant bluegrass varieties for this situation include Eclipse, Glade, and Touchdown.

## **STEPS FOR SUCCESSFUL LAWN RENOVATION**

Nine steps to renovating your lawn, along with various options for accomplishing each, are summarized on page 3.

## **Site Preparation**

Weeds can be removed manually or killed using an herbicide. It is especially important to kill perennial weeds before seeding. If weeds are primarily broadleaved, the area can be treated with a broadleaf herbicide. It is then best to wait 2-4 weeks before seeding. If large patches of grassy weeds such as quackgrass are present, a nonselective herbicide such as glyphosate (Roundup, Kleen-up, or others) can be used. This will kill most green vegetation it contacts, so be careful to apply only to those areas and plants you want killed. Be sure to follow label directions on how long to wait before seeding.

Avoid using weed killers that persist in the soil, such as soil sterilants. Select herbicides approved for use on lawns, and then follow the label directions explicitly. Once weeds have been destroyed and have begun to dry (usually about 5 to 14 days following application of a nonselective herbicide), renovation can proceed.

While early fall is the best time of year to renovate your lawn, there may be little moisture in the soil then, particularly if the summer was dry. Prior to seeding, a thorough soaking (to a depth of 6-8 inches) to replenish soil moisture will make soil preparation easier. It will also help insure that young grass seedlings have sufficient water.

If needed, thatch can be removed manually with a garden rake (a terribly laborious process!), with a vertical mower (sometimes referred to as a power rake), or with a sod cutter. Where thatch is excessive, removal with a sod cutter is recommended.

A vertical mower can be used over the entire lawn whether or not there is some grass remaining, and can also be used for preparing the seedbed. The tines should be set to nick the soil surface to a depth of approximately  $\frac{1}{8}$ - $\frac{1}{2}$  inch. Following vertical mowing, rake large clumps of debris from the site.

Alternatives to vertical mowing for soil preparation include vigorous hand raking (usually only practical on small sites) or extensive aerifying. Aerifiers (machines that poke holes in the ground and remove a small core of soil) are available at rental agencies. If you choose this method of soil preparation, aerify the lawn completely 3-5 times. With each aerifier pass, operate the machine in a different direction. Aerifier cores can be allowed to partially dry and then be broken up using a rake or vertical mower before seeding.

While more expensive, aerification followed by vertical mowing is recommended to prepare the seedbed. The important principle in seedbed preparation is to achieve good seed-soil contact. This will improve water supply to seeds and emerging seedlings during germination and establishment.

Just prior to seeding, about  $\frac{1}{2}$  pound of nitrogen per 1000 square feet in a complete fertilizer should be applied. It may be lightly raked into the surface where the soil is bare and loose. This is approximately one-half the recommended label rate for most lawn fertilizers. Fertilization will encourage establishment and growth. If extra phosphorous and potassium are needed (as determined by a soil test) they are best applied following aerification and should be watered in prior to final seedbed preparation. See "Fertilizing Lawns," University of Minnesota Extension Service publication AG-FO-3338 for more information about the different types of fertilizers and how to determine proper rates.

## BASIC STEPS FOR RENOVATING A LAWN

Step	Options	Comments
1. Soil Test		Contact your County Extension Office for information.
2. Weed Control	Physically Pull Broadleaf Herbicide Nonselective Herbicide (glyphosate)	For large or spreading weeds; won't kill all weeds. If weeds are primarily nongrasses. Kills most green vegetation; requires 5-14 days.
3. Soil Moisture Replenishment	If needed (especially in fall)	Soak soil to a depth of 6-8 inches; then allow the surface to dry until steps 4 and beyond can be done (may require 1-2 days).
4. Thatch Removal	Vigorous hand raking Vertical Mower Sod Cutter	Not practical for extreme thatch problem or large areas. Can be rented or hired; can also be used to prepare seedbed (see below). Recommended for extreme thatch problem; can be rented or hired.
5. Soil Preparation	Vigorous hand raking Aerification Vertical Mowing	For small sites with little vegetation remaining. 3-5 passes with commercial aerifier; especially recommended if soil is compacted. Tines should nick surface to a depth of 1/8-1/2 inch.
6. Fertilize	Nitrogen (N) Phosphorus (P) Potassium (K)	1/2 pound of N, P, and K per 1000 square feet; additional P and K as determined by a soil test.
7. Seeding	Hand Rotary Spreader Drop Spreader Slit Seeder	Divide seed lot in half or quarters and seed in 2 or 4 directions. For small sites (less than 8 feet across); mix 1 part seed with 4 parts sawdust or a product like Milorganite. Preferred method if mixed with sawdust or Milorganite. Seed in 2 directions or overlap 1/2 way. Equipment can be rented but requires skill; generally best done by a professional. Go over site 2-4 times.
8. Irrigate		Lightly to provide good seed- soil contact; then, water lightly twice daily to rewet soil surface (if surface remains moist, may require watering only once or not at all). Don't allow soil to become soggy.
9. Mow		When 3 1/2 inches -4 inches tall, mow to 2 1/2 inches with sharp mower; as lawn thickens, gradually lower mowing height until desired grass height is reached.

## Lawn Establishment

Following soil preparation, you are ready to seed. The primary objective is to distribute the seed uniformly over the area to be planted. This can be achieved on very small sites (less than 8 feet across) by hand. When using this method, it is a good idea to mix about 1 part seed with 4 parts of sawdust or a material like Milorganite to promote uniform seed distribution.

For seeding larger areas, a rotary or drop spreader can be used (also useful in applying granular fertilizers), or the seed can be planted using a slit seeder. A slit seeder cuts shallow furrows in the existing turf and drops seed in these furrows. It requires some skill to operate properly, and is generally best done by a professional.

Regardless of the method you choose, the best way to achieve uniform distribution of seed is to divide the amount of seed required to cover the area in half or quarters, and apply seed in several different directions (such as north-south followed by east-west). In areas where no vegetation remains, rake lightly to help work the seed barely into the soil. If all seeds are buried, most of it will be planted too deep—leave about 10 percent of the seed showing on the surface.

Where approximately 50 percent live grass remains in the lawn, overseeding with 1-2 pounds/1000 square feet of Kentucky bluegrass or 2-3 pounds/1000 square feet of a mixture of grasses (described earlier) should provide enough grass seedlings to fill in and cover the lawn surface. Where no grass exists or where the soil has been tilled and is essentially bare, the rates for seeding should be about 2-3 pounds/1000 square feet for Kentucky bluegrass or 3-4 pounds/1000 square feet for a grass mixture. Large departures from these values may result in delayed lawn establishment. Too much seed can result in competition between seedlings and slow establishment, while not enough can delay filling in of the lawn area.

After seeding, water the soil lightly. Excessive watering can wash seeds away or wash soil over them, and can in-

crease the risk of fungal attack. If soil moisture is sufficient (step 3, page 3), it may only be necessary to water the seedbed once or twice daily for a few minutes each time to prevent drying out. Note that seeds are not killed by moderate soil drying: seedlings are.

Once seedlings have emerged, watering duration should gradually be increased. Watering frequency may be decreased as the lawn becomes established.

Mowing should first take place when grass blades are 3-4 inches tall. Mow them to a height of 2½ inches with a sharp mower. As the lawn thickens the mowing height can be reduced gradually to the desired height.

Traffic and play on a newly renovated lawn should be avoided for the first several weeks after seedlings emerge.

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**Remember**—A dense, healthy lawn reduces noise levels, cools the environment, filters dust and pollen out of the air, and is one of the safest playing surfaces available. A successful renovation will increase these benefits to you as well as contribute to aesthetically pleasing surroundings.

Other lawn publications from the Minnesota Extension Service include:

*Thatch Control in Lawns and Turf* (AG-FS-1123)

*Controlling Lawn and Turf Insects* (AG-F0-1008)

*Patch Diseases of Lawns* (AG-FS-3034)

*Preventing Pollution Problems from Lawn and Garden Fertilizers* (AG-FS-2923)

*Lawn Clipping Management* (AG-F0-3915)

Contact your local county extension office on how to obtain these.

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