

# LAWN RENOVATION & OVERSEEDING

A healthy established lawn is able to out-compete many weeds and withstand a certain amount of pressure from disease and insect attack as well as drought. You can help maintain a healthy lawn by proper overseeding and timing of maintenance practices such as fertilizing, liming, watering, and mowing.

## CALENDAR: CULTURAL PRACTICES AND RELATED ACTIVITIES

This chart summarizes when turf management practices are most effective as to timing of fertilization, mowing, irrigation, liming, soil testing, cultivation, and planting activities. These dates are only guidelines and are NOT intended to indicate absolute start and end dates for all regions of Massachusetts.

Practice	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Comments
Aerification/ Dethaching			-----				-----				Practice during peak shoot growth, terminate 2 wks before low or high temperature stress.
Fertilization			-----				-----		-----		1 time per yr-early fall, 2 times per yr-spring and early fall, 3 times per yr- early fall followed by late fall and spring fertilizer program.
Irrigation					-----						Apply at leaf roll/fold (mild stress), avoid over-watering.
Liming	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	Apply anytime the ground is not frozen, effective with aerification.
Mowing		-----	-----	-----	-----	-----	-----	-----			Continue to mow using the 1/3 rule until shoot growth ceases.
Seeding/ Over-seeding			-----				-----				Early fall plantings are preferred followed by spring, avoid early summer and summer plantings.
Soil testing	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	Sample anytime the ground is not frozen, avoid recently fertilized and limed areas.

## LAWN RENOVATION/OVERSEEDING

Lawns sometimes deteriorate over a period of years to the point where they cannot be nurtured back to an acceptable level of quality by using standard cultural practices such as fertilizing, proper watering, etc. Perhaps the lawn is in poor condition because of unadapted grasses, extensive thatch

accumulation, excessive disease and/or insect damage, or a heavy infestation of difficult-to-control weeds. Under circumstances such as these, renovation of the lawn may be necessary. 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 non-selective herbicide such as glyphosate (Roundup  or Kleenup ) followed by reseeded  carried out if a lawn is composed of at least 50% weedy and undesirable grass species.

## **TIMING**

Renovation during late summer (August 15 - September 15) generally yields the best results. Minimal weed competition as well as cooler temperatures and ample rainfall usually follow late summer renovation, thus providing 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 may be attempted during spring if absolutely necessary. During late spring, however, extensive weed competition coupled with summer drought and heat stress can reduce the probability of success.

## **SEEDING GUIDELINES AND CONSIDERATIONS**

The objective of any seeding is to establish a mature, permanent and high quality turfgrass stand in the shortest period of time possible. To that end, the process may begin with: modification of the subsoil; grading to insure proper surface water drainage; application of topsoil and incorporation of appropriate amendments (based on soil test results) such as fertilizers to correct for soil nutrient deficiencies and liming materials to raise soil pH; selection of recommended turfgrass species, cultivars, and mixtures or blends to be planted; and proper post planting care and cultural practices to encourage rapid establishment and a successful seeding. A number of factors must be considered.

## **SEEDING RATE CONSIDERATIONS**

Proper seeding rate during establishment is critical to achieving the primary objective of any seeding: establishment of a functional turfgrass stand that will develop to maturity as quickly as possible. High quality seed is relatively inexpensive on a cost per acre basis and therefore seeding at less than the recommended rate is not an effective cost saving strategy because it will add more cost in the long term. Seeding at rates that are less than optimum will result in an open turfgrass stand of low shoot density that will encourage weed invasion and increase herbicide use and chemical cost. Seeding at rates in excess of those recommended in Table 1 will result in a stand containing a high number of small, young, immature (juvenile) plants that will be slow to develop into mature and robust adult plants that are more tolerant of environmental stresses such as heat, drought, cold, and wear. Therefore it is important to avoid the temptation of seeding at excessively high rates that can delay or postpone turfgrass stand development. The optimum seeding rate ranges given in Table 1 (by mixture) take into account several factors such as seed size and number, growth habit, and minimum purity and germination differences that exist among species.

Table 1. Recommended turfgrass mixtures (and uses) for Massachusetts.

Use	Species (% by weight)	Rate (lbs/1000 ft <sup>2</sup> )
Athletic fields	100% Kentucky bluegrass*	2 to 3
	80% Kentucky bluegrass* 20% perennial ryegrass*	3 to 4
	100% perennial ryegrass* ( <i>overseeding key wear areas</i> )	6 to 8
	100% tall fescue** ( <i>southern half of New England</i> )	7 to 10
Lawns-sun Med. to high maint.	65 to 75% Kentucky bluegrass* 10 to 20% perennial ryegrass* 15% fine fescue**	3 to 4
Lawns-sun Low maint.	65% fine fescue* 10-20% perennial ryegrass* remainder Kentucky bluegrass	4 to 6
Lawns-shade Well drained	80 to 90% fine fescue* 10 to 20% perennial ryegrass*	4 to 6
	80% shade tolerant K. bluegrass* 20% perennial ryegrass*	3 to 4
Lawns-shade Wet	70% rough bluegrass 30% shade tolerant K. bluegrass*	2 to 3

\*Two to three improved cultivars recommended.

\*\* One or more improved cultivars recommended.

Any factors that contribute to high seedling mortality (death rate) would be expected to reduce the numbers of plants that will survive to maturity in a turfgrass stand. Actual field germination and survival may range from 50 to 95 %. Under ideal field conditions for germination 95% survival can be expected, with good field conditions a 70 % survival rate may be expected. Therefore if seedling survival rates are expected to be low because of poor conditions for germination, higher seeding rates will be required to compensate. Seeding rates in Table 1 are given as ranges to allow for such conditions. For example, if seedbed preparation and post planting care are expected to be near ideal then lower rates can be used. If good or less than ideal conditions are expected then the high end of the seeding rate range is recommended.

If poor conditions for germination and seedling survival are expected then seeding rates should be adjusted above those rates given in Table 1; as a general rule increasing the seeding rate by 50 % to compensate for poor conditions.

Factors or conditions that contribute to poor germination and seedling survival include:

1. Poor drainage (excessive, poor),
2. Acidic soil pH,
3. Phosphorus and potassium nutrient deficiencies,
4. Soil compaction,
5. Inadequate or excessive soil firming,
6. Excessive tilling,
7. Rocks and debris at soil surface,

8. Poor seed soil contact or coverage,
9. Inadequate or excessive mulch,
10. Steep grades (slope) that contribute to soil erosion,
11. Poor seeding time,
12. Poor post planting care.

**Generally, the better the conditions for seeding (soil type, seedbed, time of year) the less seed will be required!** The late summer and early fall period is the preferred period for turfgrass establishment because of the warm soils that promote rapid germination and turfgrass development, the long favorable period for growth (2 to 3 months) that is expected before the onset of stress (winter), and is a period of reduced weed competition.

## RENOVATION PROCEDURE

The following procedure is designed for renovation of large areas of turf and/or entire lawns. If only a few small spots require reseeding, steps 2 and 3 may be omitted.

1. Correct whatever factors caused the lawn to deteriorate to the point of needing renovation. Recontour the lawn if necessary, improve drainage, eliminate excessive shade, etc. Renovation will only yield temporary improvement unless the original cause of poor quality is remedied.
2. Control all weeds present. Most broadleaf weeds can be selectively eliminated by using commonly available herbicides. It is not safe to re-seed immediately into areas treated with broadleaf herbicides unless directed by the herbicide label. 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 which spread via rhizomes (underground creeping stems) or stolons (above ground runners) cannot be controlled by digging. Spreading perennial grasses such as quackgrass and bentgrass should be controlled using a non-selective herbicide such as glyphosate (Roundup™ or Kleenup™)

3. 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 and control. Wait 5 to 7 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. Specific information concerning rate of application, weeds controlled, waiting period before reseeding, etc. is stated on the label.
4. Mow the entire area as low as possible (1/2" - 3/4"), and remove all debris. If there is an appreciable accumulation of thatch (more than 1/3"), remove it at this time using a dethatcher (sometimes called a power rake or vertical mower). A dethatcher is a power driven machine similar to a lawn mower except that it has 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. All loose debris created by this operation should be removed. However, it is recommended not to remove more than 50 percent of the dead debris during dethatching because the remaining debris serves as mulch, which protects against soil erosion and seed displacement.

5. 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. Cultivation by using a dethatcher set to penetrate the soil to a depth of about 1/4" will expose enough soil to provide a good seedbed for establishment. On small areas, a garden rake can be used to loosen the soil to the proper depth.
6. Fertilize and lime (if necessary). Incorporate the materials into the soil at this time. Proper soil fertility and pH are essential for successful renovation. Application rates of these materials should be based on soil test results. Obtain a soil test 3 to 4 weeks prior to renovation, if possible. If soil test recommendations are unavailable, approximately 2 lbs. each of phosphorus and potassium per 1000 sq. feet and approximately 1 lb. of nitrogen per 1000 sq. feet should be worked into the soil to promote seedling growth. "Starter" fertilizers, which contain substantial phosphorus, can be purchased for this purpose.
7. Seed. Following cultivation and fertilizer application, the lawn is ready to be seeded. 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. Seed should be applied uniformly over the area to be renovated. In order to insure uniform coverage, apply the seed in two directions made at right angles to each other. Enough seed should be applied to provide 15 to 25 seeds per square inch.
8. Rake lightly following seeding. Use a leaf rake, a steel mat or door mat to work the seed into the soil to a depth of about 1/4". The area should then be rolled to insure good seed-to-soil contact. If the area being renovated is on a slope, application of weed-free mulch may be necessary to prevent erosion.

**Post-planting care:**

9. Water lightly and frequently. Watering two to three times per day may be necessary to keep the seed bed damp during the period of germination and establishment. The duration of germination and establishment will vary among grass species but will probably range from three to four weeks, 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 if a partial lawn renovation is used.
10. Apply a balanced fertilizer. Apply 1/2 to 1 lb. of nitrogen per 1000 sq. feet when seedlings are about 2" high. This will enhance growth and hasten the recovery of the lawn to the quality you desire.

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