

PRINCIPLES OF TURFGRASS RENOVATION
AND REESTABLISHMENT

Dr. James B. Beard
Department of Crop and Soil Sciences
Michigan State University

Occasionally turfs are permitted to deteriorate to the degree that they cannot be improved by routine turfgrass cultural practices. The main factors that most commonly cause severe deterioration of turfs are:

- (a) A predominance of unadapted species.
- (b) Undesirable soil conditions including strong acidity, poor drainage, compaction, or the presence of a severe soil layering problem.
- (c) An excessive thatch accumulation.
- (d) Severe turfgrass thinning caused by diseases, insects, nematodes, or the toxic effects of chemicals.
- (e) Improper cultural practices including mowing, fertilization, and irrigation.

The turf must either be reestablished or renovated if the turfgrass condition resulting from one or more of these factors cannot be corrected by normal cultural practices. The most important consideration prior to reestablishment or renovation is correction of the original cause or causes of deterioration.

Reestablishment

Reestablishment involves (a) complete removal of the sod, (b) deep cultivation of the area and (c) planting following the procedures normally utilized in the initial establishment of a turf. The basic steps in turfgrass establishment following sod removal and deep cultivation are summarized in the following outline:

1. Control persistent, perennial problem weeds.
2. Provide adequate surface and subsurface drainage.
3. Partial or complete soil modification, if needed.
4. Removal of debris and rocks.
5. Deep cultivation.
6. Application of fertilizer and incorporation into the upper 3 to 4 inches of the soil.
7. Final smoothing and tilling of the soil surface prior to planting.

Planting may be by either seeding or sodding. In both cases it is important to select properly adapted species for the conditions, type of use, and quality desired.

Seeding

The seeding method of reestablishment is best accomplished in late summer. Seeding can be by either (a) surface application followed by raking and rolling or else by (b) use of a cultipacker-seeder. Whichever method is used, it is particularly important to properly firm the seedbed by rolling so that good seed-soil contact for favorable moisture relations is ensured during seed germination and seedling growth. It is usually desirable to mulch the area following seeding to provide favorable moisture relations during the establishment period. Otherwise, daily midday watering should be practiced. Mulched seedings do not have to be irrigated as frequently.

Sodding

Sodding can be practiced at most any time of the year providing irrigation is available during transplant rooting. It is desirable for the soil to be moist at the time the sod is transplanted. The area should be rolled immediately following sodding.

Post-planting techniques for both seeding and sodding include deep irrigation followed by regular irrigations as required to avoid surface soil moisture stresses.

Renovation

Renovation is generally necessary where the stand of living, desirable turfgrass species is so poor the area cannot be improved readily through routine fertilization and irrigation but where there is a sufficient stand of desirable species existing so that it is worth saving.

The basic steps in turfgrass renovation are as follows:

- (1) Eradication of undesirable species, if present.
- (2) Thatch removal, if present.
- (3) Cultivation by coring, grooving, slicing, or spiking.
- (4) Fertilization.
- (5) Seeding.

A basic principle in successful renovation is to provide good contact between the soil and the seed. Renovation is best practiced in late summer when the moisture and temperature conditions are favorable for a longer period of time.

Weed Control

The first step in renovation involves the control of undesirable species. Contact kill of the above ground foliage of such aggressive perennial weeds as quackgrass, tall fescue, and bentgrass can be achieved with cacodylic acid, paraquat, or sodium arsenite. Broadleaf weeds are readily controlled with 2, 4-D, or 2, 4, 5-TP. High populations of annual grasses are best controlled by the application of an organic arsenical such as DSMA or MAMA.

Vertical Mowing

Extensive vertical mowing should be accomplished after killing the undesirable vegetation. This functions in removing the dead weedy vegetation and can also be utilized to remove an undesirable thatch layer which may have accumulated at the soil surface.

Cultivation

The next step involves a thorough cultivation of the area utilizing coring, grooving or slicing. These three techniques are usually preferred to spiking since a quantity of loose soil is brought to the surface and the cultivation is to a greater depth. From 2 to 5 repeat passes over the area may be required to achieve the desired degree of cultivation. A vertical mowing or matting of the area after coring will assist in breaking up the soil.

Fertilization

After this the area should be fertilized at the appropriate rate bases on soil tests.

Seeding

The next step is to apply the seed uniformly over the area. Matting, dragging, or raking the area following the seed application will assist in working the seed down into the soil openings created by the cultivation operation. The area is sometimes spiked one final time following seeding. The area should then be thoroughly irrigated to a depth of 6 inches and kept moist throughout the germination and establishment periods.