

Warm Season Renovation

Renovating rather than reestablishing a turfgrass stand can save time and money when done correctly.

by Dr. Charles H. Peacock

Renovation is improvement of a turfgrass stand without complete reestablishment.

Reestablishment refers to complete destruction of the old stand, thorough site preparation, and replanting.

The decision of whether to renovate or reestablish is usually based on turfgrass species and how much desirable turf cover is present. Virtually any turf can be renovated regardless of its condition, provided time, effort, and expense are not a consideration.

Economic practicality takes precedence when cost for proper renovation exceeds that of reestablishment. If there is less than 60 percent cover of the desired turfgrass, reestablishment should be considered.

Factors which cause turfgrass deterioration to the point it may need renovation may include one or more of the following:

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1. Poor management by improper cultural practices which thin and weaken turf. Among these practices are using unadapted species or cultivars; using improper mowing height or frequency; and not following state Cooperative Extension Service recommendations for proper fertilization, irrigation, and pest controls. This is commonly the major problem where turf maintenance is practiced by inexperienced personnel.

2. Excessive thatch accumulation which has occurred since turf establishment.

3. Predominance of unadapted or undesirable species. These may have been unknowingly planted or introduced.

4. Undesirable physical soil conditions such as compaction, rock layers, buried foreign matter, presence of a severe layering problem from dissimilar soil textures, or poor drainage which was not corrected at the time of establishment.

5. Chemical soil conditions such as

acidity or salinity which may have developed over time.

6. Excessive shade and root invasion from trees or shrubs which compete with turfgrass.

7. Severe damage by diseases, insects, nematodes, or the toxic effect of chemicals including pesticides and fertilizers. It is important that the causes of turf deterioration be determined. Without correction of these factors, no renovation procedure will be effective and 100 percent successful. This will result in a failure of the renovated turf to perform as expected.

Assessment of Turf

A careful examination of the turf to be renovated is the single most important step in deciding if renovation or reestablishment is required.

Items to check include turf quality in terms of density, color, and weed infestation; thatch thickness; depth and density of the root system; and soil conditions.

Turf quality is important in deter-



Examination of a cross section of the turf before and after vertical mowing shows how much thatch and above ground vegetative material has been removed by this procedure.

Vertical mowing bahiagrass with too narrow a blade spacing will severely thin the turf and limit recovery.

mining degree of renovation to attempt. Turf that is excessively springy or spongy but has fairly good color and density and minimal weed contamination is healthier and can be more severely renovated than turf that has deteriorated to the point it has become thin and weed-infested.

Thatch thickness and root density will determine how extensively turf can be vertically mowed during renovation.

The first step should be an examination of the root system by grabbing a handful of turf and trying to pull it out of the ground. Sparse or shallow-rooted turf is easily pulled out of the soil. Vertical mowing poorly rooted turf in a weakened condition is not advised.

The mechanical slicing action may

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loosen and strip turf from soil in patches.

Carefully shake or wash soil and/or organic matter from the sample to expose roots and their density. There are no quantitative guidelines for root system evaluation relative to vertical mowing, but successful renovation becomes more difficult as root system depth and density decreases.

A majority of the root system should extend a minimum of six or more inches in the soil. A healthy root system will include a large number of fibrous white roots in the sample.

Thatch thickness should be examined from a cross section of the turf profile which can be removed using a garden spade. Thatch layers greater than one inch are excessive and should be removed. This examination should provide a rough quantitative estimate of how much thatch can be removed during vertical mowing and still leave adequate green vegetation for regrowth afterward.

Steps in Renovation

If undesirable weeds or grass species are a problem, a decision must be made whether to use a selective or non-selective herbicide for weed control.

Presence of a large population of weedy perennial grasses usually dictates spot treatment with a non-selective herbicide. Glyphosate (Roundup) is translocated to the

TABLE 1.
Recommended vertical mower blade spacings for warm season grasses.

GRASS TYPE	INCHES
Bahiagrass	2.0 - 3.0
Bermudagrass	1.0 - 2.0
Centipedegrass	2.0 - 3.0
St. Augustinegrass	3.0
Zoysiagrass	1.0 - 2.0

growing points and is more effective than contact materials. Check current Cooperative Extension Service recommendations on weed control if selective treatment is desired.

Advance planning is necessary for this procedure since this may delay other steps. Removing weeds will reduce competition within the turf stand and allow for faster recovery from the renovation procedure.

To Remove thatch and dead vegetation, locate and flag any irrigation heads, electrical outlets, and other obstructions which may be damaged by equipment.

Adjust cutting height as low as compatible for the mower based on the grass being renovated. Because they are strongly stoloniferous and rhizomatous, poorly rooted bermudagrass and zoysiagrass may have much of the above ground vegetation and thatch removed by mowing (or scalping) at a low height of cut. This is not effective for thatch removal, but may precede vertical mowing in the renovation process.

Scalping of centipedegrass and St. Augustinegrass is not advised since it may remove most of the stolons from which regrowth must occur.

Bahiagrass is rhizomatous, but density is lower, and it may be severely injured by scalping. A grass catcher, vacuum or sweeper should be used to remove clippings during or after mowing prior to vertical mowing.

For vertical mowing use a blade spacing recommended from Table 1. Selection of a blade spacing closer than these suggestions may result in removal of too much vegetative material thus damaging grass beyond its recuperative potential.

Set the depth of cut so that as much thatch as possible is removed. If possi-

ble, set the blade depth to just penetrate the soil thereby cultivating and topdressing at the same time as dethatching.

If turf rooting and density permit, vertical mow a second time at right angles to the first direction. The decision to vertical mow a second time will depend on how severe the first procedure was for removal of green vegetation.

Thatch and debris brought to the turf surface must be vacuumed or raked and completely removed. A final mowing will smooth the turf surface.

Topdressing

Topdressing can be applied to level renovated areas.

Topdressing materials should be

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similar to the native soil and light applications are desired. Never bury turf with topsoil since this may smother and kill turf or create undesirable layering in the turf profile.

Cultivation

If severe compaction at the soil surface or a layering problem is present in the upper two inches in the soil profile, cultivation should be considered. This will improve aeration and water penetration and reduce surface layering problems.

Core cultivation or aeration is preferred although grooving and slicing may also be used. From two to five repeat cultivations may be necessary.

If core cultivation is done, vertical mowing or dragging of the area with a steel dragmat may be necessary to break up cores and scatter soil over the surface. Core cultivation does not remove excessive thatch and should complement, not substitute for, vertical mowing.

In areas which are severely thinned during the renovation procedure or if they were bare areas prior to renovation, seeding or vegetative planting should be done as the next step.

Sprigs removed during vertical mowing are an excellent source of vegetative material provided they are not contaminated with perennial weeds or other undesirable grass species.

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Post Renovation Care

Renovation is a temporary setback to actively growing turf because it reduces the turf's ability to synthesize plant food due to removal of green grass blades.

Recovery is more rapid if turf is properly fertilized immediately following renovation. The soil should have been tested for pH, phosphorous (P), and potassium (K) levels prior to the renovation procedure.

**It is extremely
important during the
period immediately
following the
renovation procedure
that new rooting
occur.**

Correction of pH is suggested at this time or the lime spread and worked into the soil profile during cultivation, if performed. In lieu of a soil test a 16-4-8 fertilizer with micro-nutrients is suggested at a rate which will provide 1.0 lb. of soluble nitrogen per 1000 sq. ft. Dead organic matter exposed in renovated areas dries quickly and becomes hydrophobic.

This further stresses renovated turf which is weakened and less able to withstand water stress. Thus, renovated turf should be treated as a new installation and should be lightly irrigated twice daily until the turf develops a deep root system which is capable of surviving with less frequent, but deeper watering.

Other normal maintenance practices including mowing and control of insects and disease should be resumed immediately following renovation. Weed control can be a serious problem since renovation may expose soil and bring weed seed to the surface.

Use of a preemergence herbicide for weed control is not suggested since many of the preemergence materials inhibit root formation.

It is extremely important during the period immediately following the renovation procedure that new rooting occur. Weeds are better handled postemergent after the first mowing.

Consult the local Cooperative Extension Service office for details on the best choice of weed control materials for your area.

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