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Tom Mascaro's Guide to Turfgrass Renovation

RENOVATION is a term used by turfgrass managers to describe a process or program of renewal of a turfgrass area. Generally speaking, renovation can be classified into three categories. These categories simply represent degrees of intensity of renovation.

1. *Complete renovation* is performed when a turfgrass area has deteriorated so badly that the existing vegetation is not worth saving.

2. *Fall renovation* helps turfgrass that needs rejuvenation after a season's intensive use. Such areas still have reasonably good turf but need to be renovated to insure continued growth.

3. The third form of renovation is really *management*. This type of renovation is set up on a continuing basis, keeping up with the problems as they occur.

Before we get into a discussion of these three forms, we should analyze why renovation is necessary at all.

Turfgrass areas are subjected to many forces which are contrary to normal grass growth. Usually, turfgrass plots deteriorate because of the lack of a complete maintenance program. Everything must be in balance. Adverse weather, disease, and overuse are also factors which contribute to turfgrass deterioration. One of the major factors adversely affecting turf is soil compaction. We pound and compact the soil with heavy mowing equipment. We ride over it and we stomp the soil with our feet. We use the areas when the ground is wet, and we puddle the soil. These compacting forces destroy soil structure, reducing it to a solid mass. Roots cannot grow in a soil unless there are spaces for them to move through. Water cannot penetrate a compacted soil. Fertilizer remains on the surface and is washed away.

When soils are compacted under turfgrass areas, the root system becomes shallow, and the plants become weak.

Weeds gradually take over. Many weeds are by nature more aggressive than turfgrasses and

can grow in a compacted soil. However, even weeds cannot grow when soil becomes severely compacted. When weeds are present, they should be looked upon as indication that something is basically wrong. Getting rid of the weeds is not a solution to the problem, unless the cause itself is corrected.

Generally speaking, there are five basic reasons why a turfgrass area deteriorates and is invaded by weeds. They are: 1. *the soil*; 2. *the grass*; 3. *the nutrition*; 4. *the water*; 5. *the management program itself*.

The soil must be open and porous. The grass should be the right one for the climatic area and use. The nutrition should be adequate to support the crop. The water should be adequate to sustain plant requirements, neither too much nor too little. The management program should be properly planned to maintain the turf at all times.

Any one or a combination of these factors that are not right will weaken a stand of turfgrasses. Therefore, before renovation is begun, turf managers must seek out the basic causes of deterioration. Only after this has been done should a program of renovation be initiated.

Complete Renovation

When a turfgrass stand is in extremely poor condition and what little turf that is there is not worth saving, then a complete renovation program should be considered. Sodium arsenite or an equivalent material is applied about one week prior to aerification. Usual rate of sodium arsenite is about 35 pounds per acre. This material will kill the existing vegetation. A week later, the aerator, equipped with 1-inch open spoons, is set at full depth, and the area is aerified at least 10 times. Each time the plot should be aerified from a different direction. Aerification will loosen the soil 3 to 4 inches deep. After aerification, the required amount of fertilizer (and lime if needed) is applied. This is followed by dragging with a heavy flexible-

tine harrow or a large section of chain-link fence. This operation will crumble the soil cores brought up by the aerator and thoroughly mix the fertilizer with the soil. This is followed by seeding or sprigging. The area is lightly rolled and, where possible, kept moist until the grass is established. Since sodium arsenite is a contact killer and primarily destroys the living vegetation, it might also be desirable to use a preemergence chemical for crabgrass or other local weeds that may be a problem. County agricultural agents may be consulted for specific information and recommendations.

Fall Renovation

Fall renovation is performed in the early fall. It is practical to renew or rejuvenate turfgrass plantings that have been abused but are still in reasonably good shape.

If weeds are present, specific chemicals should be used to eradicate them. This is then followed with thorough aerification, three to six times over the area. Fertilizer is applied, and the area is dragged to pulverize the soil cores.

Fall renovation is a general practice on many turfgrass tracts. Since roots grow best in the fall and early spring, loosened soil and fertilizer are necessary to encourage plenty of root growth during this period.

Renovation as a Part Of Management Programs

This is more management than renovation, but falls within the general concept of renovation. One way to describe this type of renovation is to say that we keep up with turfgrass problems as they occur.

Instead of renovating once a year, the turfgrass areas are managed on a continuing basis. Soil compaction is eliminated as it forms. Fertilizer is applied as the plants require it. Weed control materials are applied when weeds first appear. Each of these operations is carried out in a modified way so that turfgrass is never materially disturbed. A management program such as

this is highly desirable. With good planning, these procedures can be worked into a regular routine. True, these operations require more manpower, but when carefully analyzed, we usually find that we have spread this manpower requirement throughout the growing season, rather than requiring a concentrated effort at one time.

Regardless of the type of renovation you choose, always remember to check the five points we discussed earlier in this article. When renovation is necessary, you can be sure that something went wrong. Was the soil compacted or not properly drained? Was it the right grass for your region and use? Was nutrition adequate for the grass? Was the area continually overwatered? Was the turf managed properly, with correct mowing height and frequency of cut?

Too Much Grass?

If the management program is successful, then you must be prepared for another problem.

This problem is *too much* grass. Well-managed turfgrass can produce an excessive amount of top growth which develops into what is commonly called thatch. This material consists of clippings, dead leaves of grass plants, and stems. As this material accumulates on the surface of the ground and under the living grass blades, it forms a thatch layer. This layer can effectively prevent water from penetrating to the soil; it filters

out fertilizer and harbors disease organisms. When thatch accumulates, it must be removed or decomposed. A regular program of aerification will bring up soil cores, which when crumbled act as a top dressing. When this soil is in intimate contact with accumulated thatch, it helps it to decompose. Vertical mowers are also used to remove thatch physically. These machines, unlike conventional mowers, cut vertically into the turf, rapidly removing the dead material.

On turfgrass plots where renovation is needed, vertical mowing is necessary if excess thatch is present. For complete renovation, the dead turf, after chemical treatment, is completely removed by this process, which in turn is followed with aerification.

For fall renovation, the vertical blades are set two to three inches apart to remove some of the accumulated thatch. Vertical mowing in a management program is effected periodically, while grass is actively growing, to control thatch as it forms.

Modern chemicals and equipment have made renovation a great deal easier than it was in the past. This operation can now be done with reasonable assurance of success. Modern turfgrass management, obviously, is a science. Anyone charged with this responsibility should become familiar with each new technique in order to produce top quality turf.

Turf renovation through use of aerators, vertical mowers, etc., while once largely limited to golf courses, has now become a common practice in other fine turf areas, including lawns maintained by contract by private service firms. In this article, author Mascaro discusses the general principles of this process. His observations will be invaluable to the novice, and helpful as a review to the expert. Mr. Mascaro is president of West Point Products.
