



Better Turf for Better Golf

# TURF MANAGEMENT

from the USGA Green Section

## *Returfing Greens at the Country Club of Waterbury*

By CHARLES BASKIN, JR.

Assistant Superintendent, Country Club of Waterbury, Waterbury, Connecticut

(Ed. note: For many years now the Country Club of Waterbury has been in search of perfection in putting green turf and because the members at the club place full confidence in Superintendent Charles Baskin, Sr., whose son has written this account of their returfing program, they have left the matter of changing over greens entirely to him. The Senior Mr. Baskin is now in his 34th year at this club. He first came to work there as foreman in the reconstruction of the course in 1927. Like many accomplished superintendents, he has devoted most of his working life to one golf club in search of golf turf perfection).

The Country Club of Waterbury is located in the rolling hills of Waterbury, Connecticut, and though built at the turn of the century, it has withstood the test of golf time. Even though greens at our course have always been considered quite good year in and year out, my father has never been truly satisfied that they were the very best turf possible that he could produce for this area. He therefore sold the club on a three year program of converting all 18 of the present greens, which are a mixture of Washington creeping bentgrass and *Poa annua*, to the Toronto (C-15) strain of creeping bentgrass. The program began in 1958 when 37,000 sq. ft. of nursery sod was grown for the conversion of six greens in 1959. Each year to date this amount of sod has been grown. Twelve greens have been fully converted and the remaining six are scheduled to be converted this year.

Our program can be described in four phases:

### 1. Growing sod in the nursery.

We first modified our nursery soil with sand and organic matter in sufficient quantity to make the top inch as nearly as possible like that which we desire to have on the putting green. This phase of the program was begun in midsummer and the soil was worked over in order to thoroughly mix the soil amendments into the nursery soil. By Labor Day the



1. Cutting of sod in 37,000 sq. ft. nursery.

area was ready for stolonizing and the entire 37,000 sq. ft. nursery was planted to Toronto C-15 creeping bentgrass at the rate of eight bushels per 1,000 sq. ft.

## 2. Preparation of the green for sodding.

The first step in this phase is to remove the old sod from the green, taking the sod deep enough to remove all thatch and mat completely. This was a precautionary measure against the infestation of the new strain with weeds and impurities in the way of grasses from the old green turf.

If subsurface drainage in the old green is poor, then tile lines should be installed in the subgrade. The shaping of the green to the desired contour is the next step, making certain that there will be at least a uniform 8 inches of settled topsoil throughout the entire surface of the green. At this time, after cultivation first, we added sand and organic matter. If physical conditioners are added at this time, a far more thorough mixture is possible than one attempted if the conditioners were added before first cultivating. If added before cultivation, we found that layering of the soil resulted, and it was then impossible to uniformly mix the conditioners into the topsoil. Cultivation of the soil mixture in several different directions is then required. This should be done until the top eight inches are uniformly mixed. Raking out the bumps and shaping of the green is done during cultivation.

The soil is then raked out to the desired contour and a light rolling, preferably with a large diameter hand roller, is the next step, followed by another raking. These steps should be repeated

over and over several times followed by the use of a heavier roller passing over the soil four to six times. Between rollings the soil should be raked to a depth of two inches. During raking always bring the soil to the desired contour. The use of grade stakes and a surveyor's level at this stage are most valuable for the proper surface drainage.

At this time the lime and fertilizer required as determined by prior chemical analysis should be added prior to the final three or four rakings.

## 3. The sodding process.

Sodding a putting green is a task that calls for special skill and knowhow. Each and every strip of sod must be carefully fitted into the new jig saw green puzzle just as carefully and in the precise order that each piece was removed from the nursery. The joints must be tightly butressed against one another in a staggered pattern. The sod is cut between 1 to 1¼ inches thick. If cut thinner we found that the turf stretched too much during handling, and as a result was more difficult to lay and smooth. This enables quick rooting of the sod and it will true the surface more quickly too. The more care in placing the sod the less difficulty will be experienced when the green is in play.

We find it best not to allow heavy equipment on the green; this includes trucks carrying the sod (figure 3), all tractors, and carriers. Varying the travel pattern of the men carrying the sod over the green is helpful in reducing compaction. All soil should be lightly raked just prior to the placement of sod.

When laying sod if the day is warm,



2. Laying the sod—note light raking by Mr. Baskin before sod is laid.



3. Matching the sod and tightening the joints. Note truck stops on apron.

the placed sod must be syringed several times so that it does not wilt. We found it worked out better in sodding if we cut only that amount that we could handle daily. If bad weather was forecast we "played it close to our vest," and cut only enough sod that could be laid from hour to hour.

#### 4. Early maintenance of newly sodded green.

As soon as the sodding job is completed, the green should be rolled several times with a large diameter hand roller



4. A view of No. 14 green ten days after the resodding operation.

prior to use of a heavy roller. The latter has a tendency to push or slide rather than level the sod. After the green has been rolled 4 or 5 times with the heavier roller, it is ready to be topdressed. Then it is ready for mowing. Care in mowing the first few weeks is essential to keep from scalping. Care should also be taken to mow frequently so as not to allow the turf to "grow rank."

#### TOTAL COSTS FOR RESODDING 6 GREENS

Nursery—labor	
To establish rows of stolons \$	130.00
To stolonize 37,000 sq. ft. ....	1,100.00
To mow .....	460.00
To spray—fungicide program .....	80.00
To fertilize .....	50.00
To irrigate .....	100.00
To topdress .....	190.00
<b>Total</b> .....	<b>\$2,110.00</b>
Nursery—materials	
Fertilizer .....	\$ 350.00
Fungicide .....	120.00
Topsoil .....	550.00
<b>Total</b> .....	<b>\$1,020.00</b>
Labor required to condition soil on greens and to transplant sod at \$2.00 per hour .....	
	\$2,580.00
<b>Totals</b> .....	<b>\$5,710.00</b>

## Rhizoctonia Solani in Relation to Maintenance of Golf Courses

By R. J. LUKENS and E. M. STODDARD

Department of Plant Pathology, Connecticut Agricultural Experiment Station, New Haven, Connecticut

**R**hizoctonia solani (Kuhn) is a difficult fungus to deal with in golf courses. Brown patch is the most common symptom of its presence. Because of the headaches it causes the golf course superintendent, we will discuss the habits of the fungus as they apply to the development of better ways to cope with it.

This fungus causes damping off and root diseases of many plant species. Although its name has been changed several times during the past 230 years, it has been known as *Rhizoctonia solani* (Kuhn) for the past 100 years. The vegetative form is pathogenic to grass in golf greens and elsewhere. The fruiting form of this fungus is found rarely and goes by the name of *Corticium* or *Pellicularia filamentosa*.

*Rhizoctonia solani* causes brown patch disease when the fungus kills leaves and crowns of bentgrass under warm, humid conditions. Piper and Coe (7) first described this disease when they saw it on

golf greens in Philadelphia. They noted the typical smoke ring symptom, and discovered sclerotia (black compact masses of old fungal hyphae) formed on old diseased plants. These sclerotia started new fungal growth when the weather was warm and moist. The new growth from the sclerotia started another round of brown patch. The disease appeared to be most severe on wet greens suffering from poor soil drainage. These observations were later confirmed and extended by Monteith (5) and Dickinson (2).

Piper and Coe (7) suggested that brown patch began from sclerotia, from which they produced brown patch artificially. They showed that the artificially produced disease had the same temperature and moisture requirements as the disease in the field. With such convincing evidence pointing to sclerotia as the source of disease, the question of other sources was neglected.

Are there other possible sources of