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GREEN SECTION
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BERMUDAGRASS ENCROACHMENT IN BENT GREENS

Autumn is a good time to repel the Bermudagrass that tends to grow into bentgrass greens during the summer. There are numerous methods which have been used to remove the Bermudagrass and restore bent. One of these may suit your situation better than the others.

1. Take up strips of Bermudagrass sod with a sod cutter. Lay in sod of bentgrass. This method results in a finished and attractive turf around the greens. The disadvantage is that it requires a great deal of sod from the bentgrass nursery.

2. Kill out Bermudagrass and all other vegetation with methyl bromide gas. Rake up mat and reseed. This method works well but re-establishment from seed takes time. Presence of tents around greens is a nuisance while gas treatments are being made. Some superintendents dislike sowing seed around greens which are planted to a vegetative strain of grass.

3. Kill out Bermudagrass and other vegetation by the use of Vapam, a temporary soil sterilant, which may be applied as a drench when mixed with water. Does not require tent. Flow of water on treated area must be confined to the area to be killed. Reseed.

4. Some superintendents have found that Bermudagrass can be kept under control by severe vertical mowing of collars in late summer or early fall (about the time of the first light frost) and overseeding heavily with bentgrass. Some spots of Bermudagrass will survive these treatments but they will not provide any serious difficulty.

While Bermudagrass is troublesome in putting green collars, it should not be maligned too greatly. Be thankful you have a vigorous grass which produces a dense turf under close mowing and the abuse of mowers turning on it. In areas where Bermudagrass is not grown, the putting green collar is one of the most difficult areas to keep.

GRUBS

The summer and fall of 1956 has been marked by unusually severe grub infestations in turf. These infestations have not all been the work of the same type of grub.

The most common grub in the Southwest is the white grub, larva of the June beetle. However, there are something more than thirty species of beetles whose larvae are destructive to turf. Some of these are small (1/4 inch or less) and some may be more than an inch in length when fully grown. Some species complete their life cycle in one year while others require as much as three years.

From the standpoint of protecting turf from injury, it is perhaps not so important to know which species is causing injury, as it is to know how to control its activity. The concept of "grub proofing" soil on which turf is grown was propounded by the Japanese Beetle Laboratory in New Jersey about 30 years ago.

Several materials can be used for "grub proofing." Most of these materials are more effective when soil temperatures are above 50° and when grubs are feeding.

Lead arsenate applied at 10 lbs. per 1000 square feet or 435 lbs. per acre will be effective for five years or more. It is rather slow-acting.

DDT at the rate of 25 lbs. per acre is effective against most species, and is relatively cheap. It appears to last as long as lead arsenate.

Chlordane at the rate of 10 lbs. per acre gives rapid control. When grubs are active it has been found to kill 90 percent of the population within three weeks after application. In calcareous soils, chlordane effectiveness appears to be short-lived. In acid soils, however, it appears to be effective for a period of five years or more.

More recent developments for grub control are dieldrin and aldrin. Either of these materials applied at the rate of 3 lbs. per acre appear to give faster control than chlordane. Dieldrin appears to be particularly effective for long periods even where soils are alkaline.

From these materials, one should find it possible to choose one that will suit the requirements on any turfgrass area. Grub-proofing the soil provides a cheap protection against the possibility of rather serious damage.

PESTICIDE COMPATIBILITY CHART

Golf course superintendents are frequently confronted with the problem of mixing pesticide materials or making separate applications. Some may be mixed with satisfactory results while others undergo chemical reactions which make them harmful to plants. This problem is complicated further by the fact that many different emulsifiers and solvents may be used.

The American Fruit Grower Publishing Company of Willoughby, Ohio has devised a "Compatibility Chart" which is based on the experience of growers. This chart may serve as a very useful guide, though it warns that various emulsifiers and solvents may affect the behavior of any particular material.

You may be able to secure one of these charts from a local pesticide supply dealer. The writer's copy was obtained through the courtesy of the Stauffer Chemical Company.

FUNCTIONS AND CHARACTERISTICS OF SOIL

Soil upon which turf is grown requires more and more of our attention. Few of us can expect to acquire an extensive knowledge of soil chemistry and physics. There should be a few basic concepts, however, which should be retained and used in analyzing soil problems.

There are four things that the soil provides for the plant.

1. It provides support.
2. It provides nutrients.
3. It provides water.
4. It provides air (oxygen in the root zone).

It may be well to note that only one of these four soil functions is concerned with fertility or soil chemistry. Three of the funtions (support, water, and air) are concerned more appropriately with soil physics.

Dr. S. C. Vandecaveye, speaking at the New Mexico Turfgrass Conference, characterized the soil as having many systems in common with animal life. He spoke of the soil's circulatory, respiratory, and digestive systems.

Soil water, occupying a part of the total pore space, behaves as a circulatory system. It dissolves nutrients and brings them in contact with feeder roots in such a way that they may be absorbed by the plant. Nutrients applied as fertilizer on the surface are carried to the root zone by this "circulatory fluid."

Soil air, which in a good soil fills about half the total pore space, corresponds to a respiratory system. Oxygen is made available to the plant roots and is used in the process of respiration. Carbon dioxide, a by-product of the respiration process, is dissipated through the pore spaces of the "respiratory system."

The "digestive system" of the soil comprises the microbiological and chemical activities whereby complex minerals and organic materials are reduced to simple plant nutrients which may be used for the nourishment of the plant.

These systems are vital to a soil, just as they are to a human being. There is one big difference. When one of these systems fails, the soil doesn't cease to exist, but the plants growing in it do.

It is believed that a turfgrass grower can do a great deal to keep these vital "systems" operating properly. An "upset" system can result in a rather weak or even a dead turf.

CONFERENCES

Remember the annual turf conference at Oklahoma A. & M. College and at Texas A. & M. College. They will be held on the same dates this year - December 10, 11 and 12. Be sure to attend one of them.

Oklahoma Turfgrass Conference, Oklahoma A. & M. College
Stillwater, Oklahoma. Dr. Wayne Huffine.

Texas Turfgrass Conference, Texas A. & M. College
College Station, Texas. Dr. Ethan Holt.

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