

SOIL'S PART

By O. J. NOER

IN CAUSING AND CORRECTING

SICK TURF*

IN the matter of turf, golfers are getting more exacting each day. In July and August, when the heaviest golfing traffic occurs, the grass is least able to withstand the strain to which it is subjected. The conditions and troubles of the past season vividly brought home this fact. The heaviest damage was done in the southern sector reaching from Washington to St. Louis but the north was by no means unaffected, as volumes of testimony indicate. In my observation this was the worst season ever experienced; my findings have been confirmed by veterans who say it was the worst they ever have experienced.

A correct diagnosis of any turf disease is the first essential. Often this is exceedingly difficult. One case that came to my attention during the past year was that of where shade was confidently diagnosed as the cause for a poor green but when it was pointed out that part of the green (not actual putting surface) was unaffected by the disease, further investigation revealed that the grass on the green had been sown on a one-inch layer of humus superimposed upon a five-inch layer of beach sand. When the green was disced and reseeded, a healthy growth was obtained. Lack of plant food and not acidity also was revealed as the diagnosis of another condition that came to my attention where five tons of limestone to the acre had been prescribed but fortunately not applied.

In one case an abundance of weeds on a green was thought to be due to the large content of lime in that top-dressing, but in reality the weed infestation was actually the result of numerous weed seeds in the top-dressing mixture. The simple solution in this case was the elimination of these weed seeds in the top-dressing.

If the variety of grass is suitable then the matter of soil is naturally the controlling factor. A green is not only a place to grow grass, it must hold approach shots,

withstand heavy traffic and preserve uniform putting texture, not only on the particular green mentioned, but in comparison with all other greens on your courses.

Soil Functions

Soil is not just so much dirt; humus content is its distinguishing feature, because its organic matter is essential for bacterial activity. Due to the presence of micro-organisms the soil is constantly changing and plant food is released as the bacteria utilizes the organic matter. Soil supplies the plant with the water and oxygen required by the roots. These apparently constitute the functions of the soil. It is important to understand the characteristics of ideal soil, the most important characteristics being texture and structure. These indirectly affect all other soil processes. Texture is the size of the soil grains. Structure is the grouping of the individual particles.

Drainage

Proper drainage is essential to proper soil condition. Adequate drainage means the removal of excess moisture which restricts air supply and depresses desirable bacterial activity. A further essential in soil is the presence of organic matter to supply energy to the bacteria. The next point to be considered is the matter of soil reaction, which is the degree of acidity. Aside from any effect it may have on turf growth we know that acidity retards the activity of the bacteria which release plant food. Acid soils usually are somewhat more compact and tend to revert to a puddled condition.

Plant Food

Soil never contains enough plant food to supply soil demands for an entire season so it is necessary to make conditions suitable for the constant release of this feeding from insoluble reserves.

The sorrows of 1928 showed the importance of a correct physical condition of soil due to this year's excessive rainfall. Sandy loam soil is the ideal soil and a light soil is preferable to a heavy one.

*Digest of address at N. A. G. A. convention.

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Sandy soils are generally to be condemned because of their low plant food content and their low water-holding capacities. On greens both of these faults may be regulated easily.

Excess water not only induces weak growth of turf but affects bacterial activity. There are two types of bacterial activity, depending on the presence or absence of oxygen. In water-logged soil where oxygen is excluded undesirable bacterial develop and are responsible for undesirable fermentation.

From the standpoint of fertilization nitrogen feeding is most important. The startling results produced by nitrogen are always evidenced by dark green color and rapid growth which is always associated with weak tissue. These results often are desirable for a quick come-back of ailing turf. While it takes courage to withhold nitrogen it should be done during hot weather. The detrimental over-feeding of nitrogen can not be wholly overcome by the use of phosphorus or potash.

We can predict with fair accuracy, despite the usual difficulties of prediction, that the combination of plenty of nitrogen, abundant water and relatively high temperatures will conduce to weak turf. This was the reason for the misery of 1928. We may be able to avoid some of the troubles by producing sturdy turf before the advent of the hot weather. This calls for correcting the drainage of heavy soils and avoiding fine textured top-dressing material. It is necessary to water carefully, keeping rather to the dry side. It probably will be necessary to overhaul the practice in nitrogen feeding. In the past the color and the amount of growth have been watched to determine the need of nitrogen, but sturdiness actually is more important.

Club Magazine Results Ease Officers' Jobs

THE golf club should issue a magazine of some sort. It can range from a little two-page mimeographed sheet to a more or less pretentious paper. The big thing is to have a magazine.

Your club, no matter how small, is a complex institution. New policies and rules must be put into effect almost daily; announcements must be made; golf matches are played; births, marriages, and deaths occur; somebody shoots a hole-in-