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Soil Structure and Fertilization

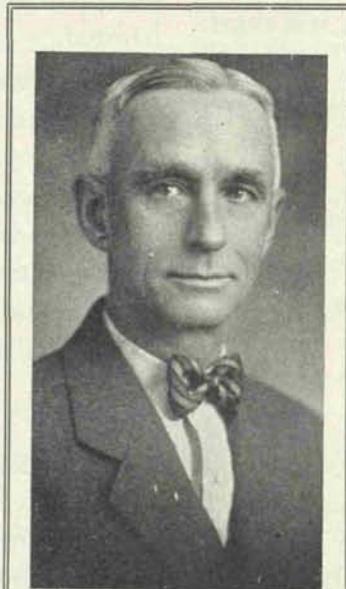
By JAMES A. SMITH

JULY and August are two months in the year that all turf growers would like to have eliminated, and this year most of us would have included June. These months are supposed to be rest periods for practically all plant life. Blue grass in the field has produced its seed, is yellow and will now rest until fall rains bring it on again.

Not so with good turf. It must remain perpetually young. We upset its natural habits by special feedings and handling and make the grass like it. Like the human body, we may force it to extra hours by stimulation but stimulation is a dangerous thing and collapse may follow. Neglect it for a moment and it will start on its vacation. Once started, it is hard to stop. The work you have done in the early part of the season should have prepared it for the extra hours of production you will insist upon.

If you have been compelled to work with a poorly-prepared seed bed you will have rootage so shallow that your moisture supply will be insufficient. If, from your turf during the growing season, you have removed all clippings, you will have lost the mulch which would help conserve moisture.

If you have clipped your turf too close, you have not allowed sufficient leaf surface for the evaporation necessary to bring up new feedings from the rootage. If your feeding scheme has been unbal-



The author is nationally recognized as a keen analyst of soil structures and their reaction to the effect of fertilizers on plant growth and bacterial activity.

anced, with too rapid foliage growth, succulent leaves cannot stand the heated weather. Any of these errors can be easily made and the results may be disastrous.

LOOK FIRST TO THE CONDITION OF YOUR SOIL

IF YOUR turf is unsatisfactory, look first to the physical condition of your soil. If it has a tendency to become packed and takes water slowly, it is incorrectly made and stimulation by feedings of any sort can afford at best, but a temporary relief.

Successful turf culture, really depends upon the care that has been taken in the early operation of seed bed making. Depth of rootage with easy passage of moisture and air and

with good moisture retention, must be prepared for in construction. A good organic matter, thoroughly decayed and fine enough to pass through a 1/10-inch mesh screen, well mixed with the surface soil to a depth of five inches, will give the basis for easy maintenance. This preparation is but rarely made. Either the mixing of earth and organic matter will be slighted or the quality and quantity of organic matter used will be incorrect to properly separate earth particles, allowing reasonable porosity.

This is the major operation in all construction. Improperly carried out, we are exactly in the position a farmer would find himself with shallow

ploughing and without the organic matter crop rotation would give. Good farming operations with farming equipment in seed bed preparation, is your assurance of dependable turf.

If unfavorable conditions exist and you dare not make reconstruction, nature will correct this physical condition if given an opportunity with a little help. If such conditions are found, the following can be suggested as a correction.

HOW TO CORRECT SOIL CONDITIONS

MULCH turf with the finest thoroughly decayed organic matter possible, to a depth of at least one-quarter inch. Hot wind and sun at a temperature of 92 degrees F. will remove eight ounces of water from 72 square inches of exposed soil in eight hours. A light mulch of any coarse material will retard evaporation for nine and one-half hours. A mulch of very fine organic matter will retain eight ounces of water for 34 hours.

All growers have noticed how even a handful of twigs over turf will show a marked mulching effect. The finer the mulch the longer moisture will be retained. A mulch applied at this time of year, if fine enough, will be absorbed in the soil during the winter and gradually physical conditions will improve.

Proper fertilization during the next two months may be of great assistance. A well-balanced fertilizer is unquestionably necessary in the spring. If this has been liberally used at that time, the only requirement should be a slight feeding of nitrates to help keep up a healthy feeding balance. Ammonium sulphate, sanely used, should answer this purpose. Sodium nitrate has found some favor but it is generally conceded by the higher authorities that the use of sodium salts in plant feeding are rarely advisable. The slower acting soya bean meal or cottonseed meal when mixed with topdressings are probably the safer source of nitrogen at this time of year.

After the soil requirements of phosphorus and potash have been made early in the season, the continued use of high-priced complete fertilizers is an extravagance. Additional phosphorus and potash will not be used or needed as there will be a balance of each left from former feedings. The nitrogen content, the very necessary item, has many cheaper sources.

ACID PHOSPHATE HELPS CLAY SOILS

IF GROWING conditions have been unsatisfactory on clay soils or upon soils largely clay, an application of from 300 to 400 pounds of ordinary commercial acid phosphate, applied before freezing in the fall, will uniformly make for better turf.

Watering practices have changed within the past few years and turf has been greatly benefited by the change. Good growers today water heavy and at rather infrequent intervals. Deep watering makes for deep feeding rootage and much healthier turf is grown as a result. Shallow sprinkling to a depth of one inch, soon brings the rootage to that level and in extreme hot weather it is seldom that the turf can be saved. Not only is the soil moisture rapidly lost, but plant feedings in the top inch are quickly exhausted.

Where possible, fire hose with spray nozzle is the efficient sprinkling method for fairways and other large blue grass areas which have not been top-dressed. Two men can apply 225 gallons of water per minute in this manner without damage to the turf. Simple and efficient systems are planned for this method of watering where creeks or ponds afford available water.

BEGIN MOWING IN THE SPRING

WE SHOULD begin mowing in the spring as soon as the grass first shows growth. From that time on to the beginning of hot weather, regular mowing, frequent enough to make short clippings, should be a habit. All grass stools rapidly in the early spring if mown close.

Clippings are an asset as a mulch if cut short enough to work through the turf onto the surface of the ground. Leaving short clippings on a putting green once a week, is a great aid to maintenance. These clippings accumulating slowly under topdressings will provide next year's humus to many greens that would otherwise have no addition of this sort. Moisture retention will be increased and best of all, a better home for our nitrobacteria will have been created.

Turf on slopes thrives poorly because of the wash of clippings into depressions during heavy rainfall. Two low clay knolls in a corn field from which litter has washed, shows a splendid example of this loss. The depression between the knolls into which the litter was washed, is dark and accumulated humus

and shows marked contrast in fertility with the area from which the accumulation was taken. Each fall, barren slopes should have large quantities of good organic matter disced in until turf develops sufficiently to stop the wash.

SOIL ACIDITY IS RARELY FOUND

SOIL acidity is rarely found in original fertile soils which have not received acid treatment. It may be found in the presence of decaying vegetation, but when found otherwise can usually be attributed to the aluminum content in clays. Acid phosphate, commercial, rather than lime additions, is the quicker corrective. An alkaline base such as lime or magnesium is absolutely necessary in all soils to aid in soluble nitrate production but their need is rare, unless acidulation of greens has used up the soils' lime or magnesium content.

The investment now shown in athletic fields, parks, campus grounds and polo fields, reaches staggering figures and as with the golf course, good turf is their greatest asset. Fortunately most of such areas have been planted to blue grass or mixtures with that seed as a base and their upkeep should be quite economical. A great many have not been con-

structed along lines best indicated for turf production, but their maintenance program should be a comparatively simple one.

A topdressing or mulch of at least one-quarter inch of good organic material, to be taken up by the soil in the winter is imperative.

Acid phosphate should be applied for suspected aluminum content in the soil.

A light feeding of either soya bean meal or cottonseed meal should be incorporated in the organic topdressing.

Watering should be heavy and not more often than two or three times a week.

Turf should be mown often and close up to June first, after that date heat and dry weather may necessitate longer turf for necessary evaporation.

We have had volumes of splendid literature on turf production offered in the past ten years, and all of it has been practically sane. With so much information, I am beginning to think that our turf producers, like some of our really good golfers, have become confused with so much advice. Let's slow up on our back swing, keep our eye on the ball and with a little more concentration, see if we cannot make the game an easier and more enjoyable one.

Golf In Sweden

Rapid growth of the world's best outdoor pastime has brought golf clubs into prominence in Scandinavia. Turf problems are important.

By PROFESSOR SVEN BRISMAN

IN SWEDEN, golf has not only a recent, but comparatively rapid growth. The late sunshine, due to the northern latitude, makes it possible to play the game after business hours and now royalty, as well as business men, are devoted to it.

The first known golfer in Sweden was Edward Sager, Master of the King's Horse, who in 1886 laid out a small private course near his country place for his guests to play on. Next to that an English clergyman in Gothenburg, the Rev. A. V. Despard, began to play with some of his friends in 1891 on a very primitive course outside the city.

A real course was laid out near Gothenburg in 1894 by Viktor Setterberg, but no regular club was formed until 1902, when the Gothenburg Golf

Club came into existence; two years afterward this club got its present course at Hovas. Golf thus got its first secure foothold in Sweden.

In 1904 a second club was started, the Stockholm Golf Club. A couple of years afterwards these two clubs were joined by a third; and a fourth, the Falsterbo Golf Club, was founded 1909. Then, however, the development of golf in Sweden came practically to a standstill for a long time.

This history of golf in our country has been no case of "veni, vidi, vici." On the contrary, the game was for a long time barely kept alive by four small clubs. It was played in splendid isolation, by a mere handful of pioneers. It is otherwise, now. I wonder whether there has been in any country such