

Top-Dressing Preparation by the "Soiling Method"

By B. R. LEACH

IN JULY GOLFDOM I discussed the compost pile system of preparing top-dressing material and raised some questions regarding the theoretical and practical wisdom of employing the system in view of the nature of the product, indicating at the same time that while greenkeepers still largely clung to the composting system florists and nurserymen were breaking away from the compost pile and turning to a simpler and easier method of preparing rich soil. In this article I propose to discuss the preparation of top-dressing material by what might be termed the "soiling method," this procedure involving the use of a small piece of ground. For the purpose of simplicity of description may be well divided into two phases namely, (1) A description of the *soiling* method as practised when adequate amounts of animal manure are available; (2) A discussion of the method when animal manure is unavailable.

Top-Dressing Volume

However, before entering into a discussion of the *soiling* system let us calculate the amount of top-dressing material needed for an average 18 hole golf course during a season. On the basis of 5,000 square feet of turf per green we would require enough top-dressing material for 90,000 square feet of turf or roughly two acres. Let us further assume that a total of one inch of top-dressing is applied to the turf during the course of a season as a result of the thin top-dressing applied at intervals of three or four weeks throughout the growing season. As a matter of fact this arbitrary figure of one inch of top-dressing is no doubt rather high for northern courses and probably *somewhat* high even for courses in the latitude of New York. South of New York it is probable that the turf receives more top-dressings during the longer growing season and the calculation of one inch total top-dressing is more nearly correct. In any event the greenkeeper should know just about how many cubic yards of top-dressing he applies during the course of an ordinary season and from this

estimate the area required for the soiling method can be readily calculated, as follows: a cubic yard of soil is equivalent to an area of 108 square feet 3 inches deep. So that, on this basis if you practice the soiling method on a quarter of an acre of ground you can skim off the top three inches at the end of the operation and secure a hundred cubic yards of top-dressing material. In the same way a half an acre so treated will produce 200 cubic yards of top-dressing material, etc., etc.

Having decided upon the total number of cubic yards of top-dressing material required and the area of ground necessary to produce this amount of material, the next step consists in the selection of the scene of operations. The piece of ground selected may consist of a strip of the rough as far out of the range of play as possible or a piece of ground entirely apart from the golf course.

Soiling System With Abundant Manure

Under these fortuitous conditions operations can begin at any time from early spring up to possibly July 1st. The first step consists in plowing the area of ground selected to a depth of 5 or 6 inches. I would not plow too deep, especially if the ground has been in sod for several years since the soil below this depth is very apt to be poor. The next step consists in spreading the manure on the plowed ground at the rate of 40 tons per acre or 10 tons on an area 50 feet by 200 feet. Now disk in the manure thoroughly to a depth of three inches, running the disk harrow both ways across the ground and finish up with a spring tooth or smoothing harrow.

The above initial soil preparation is all that is necessary if your soil type is of the medium loam variety and of neutral or alkaline nature. If, however, your soil is a clay type, inclined toward tightness and stickiness, or of a loam type deficient in lime I would most certainly apply ground lime stone at the rate of a ton per acre, working it in to a depth of 3 inches, a

week before or a week after the application of the manure. There is nothing to equal lime as a means of rendering sticky clay soils into a friable condition and as a matter of fact it increases the bacterial action and consequent nitrification in almost all soils.

In addition to the above general directions I might add one or two more of a general nature, but which nevertheless will return big dividends in this process of manufacturing top-dressing material by the soiling method. In a general way these added suggestions have to do with the question of soil texture. Let us say for instance that the soil type of this plot selected is sandy in nature, with a poor water-holding capacity. Under these conditions it will pay, if possible, to obtain a quantity of good clay loam top soil and cover the plot to a depth of one-half inch with the clay, disking it in to a depth of 3 inches. Under these conditions, by the addition of the clay soil to the sand you automatically change the soil type from a sandy loam to a *medium* loam which is always the most desirable soil type for the growth of fine turf.

If on the other hand you are cursed with a sticky clay soil plot for your soiling operations it will pay, if at all possible, to apply sand, as much sand as possible up to a depth of 2 inches and disk this in to a depth of 3 inches whereby you again automatically change the soil type from a stiff clay to a medium loam. It requires a lot of sand for this operation and many golf clubs will feel unable to stand the expense. In any event apply as much sand as you can afford. It all helps.

Phosphorus Deficiency

So much for the question of soil texture. One other point with regard to preliminary soil preparation and I am done. I refer to the question of soil fertility. In general almost all soils are deficient in phosphorus and the amount of this element added to the plot as a result of the application of the manure is not generally sufficient to overcome this deficiency. Under the circumstances I would most certainly apply 500 to 750 pounds of 16 per cent acid phosphate per acre to the soiling plot, disking it in thoroughly and if you are located in New England I would also apply 200 pounds of sulfate of potash. Most clay soils contain sufficient potash so that if your soil is of a clay type it will in all probability not need the potash.

In the above discussion I have attempted

to give in a general way the main points of soil preparation for the soiling method of top-dressing manufacture. Remember that you can always obtain added information from your county agricultural agent or experiment station.

It will be fairly apparent to the thinking greenkeeper that there is a *method* behind all this apparent madness of plowing, disking, manuring, fertilizing, etc. As a matter of fact you are putting into that top 3 inches of soil everything which is necessary for the production of first class top-dressing material. All that now remains to be done is to give nature a chance to work up the raw materials in the upper 3 inches into such a condition that the resulting product is ready to be applied to the greens. This means that the lime will gradually loosen up the soil and render it friable, the manure will decay until it is incorporated with the soil and the resulting soil mass is rich as cream, readily run through a screen and capable of being applied to the greens with a minimum of manual labor.

Disking Weekly

In order to expedite the rotting of the manure in the upper 3 inches of the soil it is advisable to run a disk over the ground about once a week. This operation opens up the soil thereby giving the soil bacteria every opportunity to attack the manure and reduce it to a well rotted condition and furthermore the disking operation keeps the weed growth in check.

How long a period of time will be necessary for the rotting of the manure in the top 3 inches of soil will depend upon the temperature of the soil and moisture conditions, which again depends upon rainfall, but as a general rule 6 to 8 weeks is usually sufficient. The surest way to tell whether the soil is in condition for top-dressing purposes is to dig out a handful here and there over the plot and examine it for yourself. If the soil mass breaks up readily when rubbed in the hands and the small lumps of manure disintegrate when run through a sieve the soil is ready for top-dressing purposes.

Don't Strip Too Deep

Now you will note in all the above discussion that I have discussed only the top 3 inches of the soil. I have done this deliberately because it is not advisable to take off more than the top 3 inches for top-dressing purposes. When you take 3 inches of top soil off a piece of land you still have 3 inches left which contains a

sufficiency of soil bacteria and other organisms. You can now plow the soil to a depth of 6 inches and repeat the top-dressing manufacturing process all over again. If, however, you take off six inches of top soil at one operation you strip the land of practically all its soil bacteria and life and it is one hell of a job to do anything with it from that time on. Now, inasmuch as there is unfortunately a certain percentage of human hogs among the polyglot population of this grand and glorious country it follows that some few will take 6 inches of soil and leave nothing. I sincerely trust that such individuals will receive their proper share of hellfire in the hereafter. The vast majority will however confine their operations to stripping off the top 3 inches and otherwise act as reasonable human beings.

Should Have Soil Shed

I need hardly add that all soil operations such as plowing, disking, stripping of the soil, etc., should be done when the soil is in a friable, workable condition. This is especially important when you are taking off the top-soil preparatory to running it through a sieve for application to the green. Wet, sticky soil is very hard to handle. For this reason every golf club should have a suitable soil shed where soil can be stored and the screening and preparation carried out during periods of rainy weather, and where the finished product can be stored and maintained in shape for immediate application to the turf. A suitable soil shed will effect greater savings in the cost of top-dressing golf greens than any other single investment on a golf course.

From a cost angle the preparation of top-dressing material by the soiling method is infinitely cheaper and quicker than by the compost pile system. In the first place all the labor of preparing a plot of ground by the soiling method can be conducted by machine, including the plowing, disking, spreading of manure, etc., and I am not at all sure that it would be such a tremendous job to fashion a rig for scooping up the top 3 inches of soil. Composting, on the other hand, is practically all hand work, and decidedly hard work as any one who has forked over a compost pile is fully aware.

The speed of decomposition of the manure in the upper 3 inches of the soil is much greater than the same manure in a compost pile, at least 4 to 1. Furthermore, the decomposition product in the case of

the soiling method is much more desirable because the decomposing action has taken place in an atmosphere abounding in oxygen with the result that decomposition is natural, complete and the ultimate product is free from toxins.

So much for the preparation of top-dressing material under those propitious conditions embodying a plentiful supply of manure. The same general system can be followed for the preparation of top-dressing when animal manure is scarce or entirely unavailable and I propose to discuss the soiling method involving the plowing under of green crops in lieu of manure in a future article. The green crop method is sound, simple and cheap but not quite as rapid in action as is the case when manure is available.

Hold Mid-Summer Meeting at Arlington

(Continued from page 24)

as far with a given putt impetus on stolon bent as it did on other types of turf.

An extensive series of fertilizer test-plats lay alongside of the grass variety plats described above. The visitors were invited to gaze as long and ardently on these as they desired but it was noticeable that the Green Section technical staff did not go into any great length in discussing them or the results obtained to date. In fact the history of the ultimatums on fertilizers for turf reminds me of what Josh Billings said about the three stages of man, namely that an eighteen year old boy knows it all, at 25 he knows a hell of a lot less and at 35 he gets into the habit of going around to see his old man when he wants to get the low-down on anything in particular.

Next in order was the extensive area of plats devoted to experiments on control of brown-patch and other diseases. Monteith has been in tough luck this year in that there hasn't been nearly enough brown-patch infection at the station to make good experimental conditions. Never mind Doc, there's another year coming.

Make Inspection Tour.

Shortly after noon the visitors began to drift back to Washington for luncheon and in the afternoon various groups embarked on visits to the leading golf clubs around Washington. The writer in company with three tried and trusted friends paid an extended visit to the Columbia C. C., one of