

# YOU DON'T NEED MANURE IN Making Top-Dressing

## —GREEN CROP METHOD SERVES

By B. R. Leach

**I**N September GOLFDOM, I discussed the preparation of top-dressing material by means of the so-called "soiling" method. The soiling system differs from the customary "compost pile" method in that with the latter system the manure is heaped or piled and allowed to rot whereas by the soiling method it is disked into the top 3 inches of a piece of plowed ground, where it rots much more rapidly. The finished product is more friable, much more readily screened, and the cost of production is much lower than in the case of the compost-pile method.

Aside from the pertinent consideration of ease of preparation and reduced cost as a result of utilizing the soiling method, I now find that it answers a previously annoying problem for many golf clubs located within the city limits, where the town board of health has jurisdiction and can dictate to a club as to what it can and cannot do. It seems that in many of these towns it is illegal to pile or heap up manure for the purpose of composting on the score that such piles of manure exude a particularly low, vulgar, non-intellectual odor, said odor being peculiarly obnoxious to the upturned olfactory appendages of our urban populations, to say nothing of such manure piles being a splendid place for the breeding of flies. Under these city conditions, it is suggested that greenkeepers give the soiling method a trial since there is no law in this country which prevents anyone from disked manure into the land.

### When Manure Is Unavailable

My correspondence with greenkeepers and club officials in various sections of the country indicates that many clubs find it difficult to obtain sufficient quantities of manure for the preparation of top-dressing. In many of these instances, I strongly suspect that the clubs are not always as aggressive as they might be in hunting up local supplies of manure or they are possibly unwilling to pay the price. At any rate, they raise the question as to whether

it is economically possible to substitute some form of organic matter other than manure and still manufacture top-dressing capable of standing the gaff when applied to greens. In answer to these queries, it is enough to say that such a method does exist in the shape of the so-called "green crop" method, a system extensively employed by market gardeners for the purpose of maintaining the organic matter in their soils.

### Green Crop Method

Let us suppose that a club is confronted with the annual problem of manufacturing 100 cu. yds. of top-dressing and no manure with which to accomplish the task. Under these circumstances, the club officials should measure off a quarter of an acre of the rough as far out of the line of play as possible and utilize this piece of ground as the base of operations for the preparation of the above quantity of top-dressing by the green crop method.

The method consists essentially in growing crops of such plants as rye, oats, buckwheat, soy beans, or cowpeas upon this piece of land and plowing them under, whereupon the plant tissue rots and builds up the organic matter of the soil to a high level and comparable to the increase in organic matter resulting from the application of animal manure. In order to correct any preconceived idea that this method is cheaper than buying manure, it is enough to say you will spend for labor, seed, and commercial fertilizer an amount of money equal to the cost of the manure omitted. Under the circumstances, the method is advised only where manure is *really* unavailable.

The time to begin operations is to a great extent immaterial. If you wish to begin in the fall, start by plowing the ground to a depth of 6 inches; apply 750 lbs. of 16 per cent acid phosphate, and disk in thoroughly to a depth of 3 inches. Now seed the piece to rye at the rate of 4 bu. per acre. This is best done by September 15, but can be done as late as

November 1 in the vicinity of Philadelphia, and later or earlier than this date, depending whether you are north or south of that city. If you cannot begin operations in the fall, it is O. K. to plant a crop of oats *early* in the spring, and proceed as with the rye. Nothing further remains to be done until early spring, at which time apply 250 lbs. of ammonium sulphate per acre. This chemical is best applied just before or during a rain, as a result of which it will put punch into the rye and make it grow like the proverbial weed. As soon as the rye gives the first indication of heading, that is, as soon as you see the heads of grain beginning to push out from the ends of the stalks, it is time to plow under the crop. If left standing beyond this stage, the stalk tends to become woody in texture and is much slower in rotting when plowed under.

### Plowing Green Crop Under

Plowing under a crop of rye standing knee high or higher is frankly no job for a novice. It seems as though the beginner at this job just naturally gets the plow and himself all snarled up in the rye, and when the job is done it looks as though Coxey's army had camped there overnight. As a matter of fact, plowing under a crop of rye or any other green crop is easy if you just use a little horse sense and a medium-heavy log chain. Tie one end of the chain up near the forward end of the plow beam or on the end of the singletree and hook the other end of the chain on the doohickus which extends from the plow beam to the moldboard. The chain should be loose and so adjusted that when the plow is in motion, with the moldboard underground, the chain bows out and travels along with the plow, but on top of the ground. The chain should be so adjusted that this bow is traveling in a line 3 or 4 inches in back of the plow point. Properly adjusted, the chain drags down the rye just ahead of the point where the moldboard is turning the furrow and holds down the long stalks of rye until the furrow is turned at that point, the dragging down of the rye and the turning of the furrow being, of course, in unison and continuous. With the chain properly adjusted, the plow will cover 99.8 per cent of the rye and leave only an occasional tip peeping out from under the furrow. Having plowed under the rye, it is now advisable to disk-harrow thoroughly, both ways across the field, thereby packing down the turned-under rye and rendering

the surface in loose and friable condition.

The turned-under rye immediately begins to rot, and in five or six weeks an examination of the soil will show that it has almost entirely disintegrated. During this period, it is well to disk every ten days in order to keep down the weed growth and conserve the soil moisture.

When the rye has decomposed in the soil, it is time to put in a summer green crop, and here again the crop to employ is governed largely by your location. In the vicinity of Philadelphia and south, the best all round bet is a crop of cowpeas, while north of Philadelphia you could plant buckwheat. If I were located in the South or far West, I would be governed by local custom or obtain the information from the state experiment station. A week before planting the cowpeas I would disk in 600 lbs. of good high-grade commercial fertilizer or the same amount of milorganite.

### Skimming Off the Soil

Nothing further remains to be done until it is time to plow under the crop you have grown, and the time of plowing will be governed by the date on which you plan to begin using the top 3 inches of the field for top-dressing purposes. The crop, if there has been a fair amount of rainfall, will have made a heavy growth by the latter part of August, and if you plow it under at that time, the crop will have rotted nicely and you can begin to skim off the upper 3 inches by the first of October for immediate use or for storing in piles for use in the spring. If you don't need the soil until spring, you can let the crop grow until the middle of September and then plow it under.

In skimming off the soil, do not take more than 3 inches. Thus you leave sufficient top soil so that the field can be seeded to grass or used over again for the growing of green crops for another 3-inch skimming the following year. But if you take 6 inches of top soil at one operation, you render the field barren and sterile. You take everything and leave nothing for future plant growth.

In the foregoing, I have discussed in a general way the theory and practice of enriching soil by plowing under the green crops which the soil itself produces, aided by the intelligent application of labor and fertilizer. Some individuals will say that green crops will not enrich soil to the same degree as will applications of manure, but such a contention is not logical when

you stop to consider that the effect of a turned-under green crop upon the soil is direct, whereas the application of manure resulting from the feeding of this same crop to an animal amounts indirectly to virtually the same thing. In both instances, you are applying or turning under a crop.

### Dense Growth Essential

In growing these green crops, there are one or two points which must be carefully considered if the maximum results are to be obtained. In the first place, do not be niggardly with the seed. A farmer planting rye for a crop of grain would sow only a bushel to the acre, but when you are planting rye for a green crop, it is much better to plant not less than three bushels per acre, and preferably, four bushels. There are two reasons for this apparently heavy seeding. First, when four bushels of seed are planted, the rye comes up thick and makes a shorter, but denser, growth, so that when plowing time comes you have the maximum amount of plant tissue to turn under. Secondly, this thick stand of rye takes possession of the soil and chokes out practically all weed growth.

The problem of choking out the weed growth is not very difficult with a green crop in the spring, but it is of the utmost importance in growing a summer green crop, such as cowpeas or buckwheat. At this period of the year, heavy growing weeds, such as pigweed and crab grass, are rampant, and unless you secure a heavy and uniform stand of cowpeas or buckwheat, the weeds will obtain a secure foothold and ripen their seeds, which is precisely the very thing you do not want. Therefore, plant three bushels of cowpeas per acre as against the usual bushel and a half of ordinary farm practice, or, if you are growing buckwheat, follow the same general plan of sowing twice as much seed as would be planted for a crop of grain.

In the same way, in growing green crops, it is necessary to fertilize much more heavily than would be the case if you were growing these crops for grain. Too much fertilizer will reduce the grain crop by throwing all the growth into the stalk, whereas, for our purpose, it is the stalk and leaf growth that we want; we are not interested in the grain. Therefore, in green-crop growing, sock on all the fertilizer you dare without burning up the crop. This fertilizer goes into the leaf and stalk of the plant, which, on rotting, fills

the soil with organic matter high in available plant food so that this soil, when skimmed off and applied to your greens, is exactly right for the growth of the fine turf grasses.

It is amazing, the amount of organic matter that is added to the soil when a properly grown green crop is turned under. Most people, when they look at a crop of rye or cowpeas being turned under, see only the crop above ground, and, of course, that part of the crop is obvious and not to be sneezed at. But not one person in 5,000 ever stops to think of the *root growth* that the crop has made. If you wish to obtain an adequate idea of the amount of organic matter added to the soil by the root growth of a green manure crop, take a spade into a field of rye ready to turn under; carefully dig up a chunk of the soil, and gently shake the soil from the roots. The amount of root exposed is truly amazing, and all the more so when you consider that every square inch of the soil to plow depth over the entire field is clogged with this same root growth.

In conclusion, it may be said that the easiest way to produce top-dressing material for greens consists in disking manure into a piece of ground, allowing the manure to rot, and then skimming off the top three inches. If manure is unobtainable, the same result can be obtained by the more extended process of turning under properly grown green crops—nature's own manure.

### P. G. A. Irons Out Tourney

All is serene now with the P. G. A. plans for the annual championship which is to be held at Hillcrest C. C., Los Angeles, December 2-7. Picture magnate Joe Schenck is underwriting the championship expense after the misunderstanding at La Cumbra, Santa Barbara, put the pros face to face with a crisis. Darsie L. Darsie, coast golf writer, is tournament director. The executive committee handling the tournament is composed of Willie Hunter, Lewis Scott and J. A. Patterson for the pros and W. W. Campbell, president of the southern California amateur body, Leo Barnett of the Hillcrest C. C. and E. R. Hearst, past president of the California C. C.

Five hundred of the prominent residents of Los Angeles are to serve on various committees. It is planned to sell at least 1,000 tickets at \$5 apiece for the entire play, prior to the qualifying round.