

FROM LEACH'S MAIL-BAG

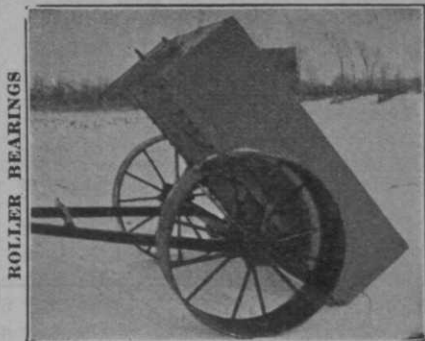
Sir:

"We have a very stiff clay soil on our course which tends to become sticky and slimy after rain or if the ground is watered too much. The fairway soil has been tested and shows no acid reaction. The 18 greens were constructed rather hurriedly two years ago, using the nearest soil available to each green. None of the greens has sub-drainage nor was any sand, manure or other fertilizer worked into the sub-soil at the time of construction. It is not surprising, therefore, that we have poor weedy greens, slippery and sticky after rain and baking hard in the summer time. Last fall I noticed that a hard scab had formed over several of them. Is there anything I can do to eliminate or minimize this condition without removing the sod and reconstructing the green?"

"I read an article lately on problems of fertilizing in which it was stated that applications of sand, either fine or coarse, were apt to be more detrimental than beneficial in a good many cases; that the sand does not wash down into the soil as is generally supposed, and so tend to make this more friable, but remains on the top and is eventually either washed off the green through heavy rains or watering, or else through much tramping on and constant rolling, it is compressed into the top strata of the soil and very often develops into a scab on the surface of the green. It is also claimed that the sharp edges of the sand injure the young shoots or grass by pressing against them. If this is a true explanation why is it that sand is always recommended as an ingredient with top-dressing on soils other than sandy ones, and what material benefit results from the application of sand to the green if it doesn't get any farther than the surface? I have had the idea that through constant use of sand mixed of course with other good top-soil or fertilizer that eventually some of this sand would work its way into the soil and create a more resilient and friable condition, especially on a stiff clay soil like ours.

"Am I all wrong on this, and should I discontinue altogether the use of sand as a top-dressing ingredient? Do you suppose that this scab condition is aggravated by

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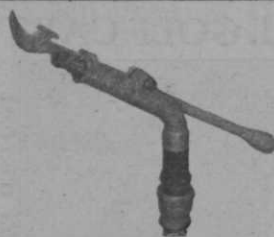
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sand or is it more likely to be caused by some other agency? What would you do as a first aid remedy for this condition when it is not practical at present to completely reconstruct these greens? I have been top-dressing the greens first thing in the spring with a mixture of ammonia sulphate, lead arsenate and compost and following this up with an application of about 150 lbs. of milorganite per green. I top-dress lightly once a month throughout the summer with ammonium sulphate and then repeat the lead arsenate and milorganite in the fall. I get fairly good results from this. Would you suggest any better fertilizers? Since the greens were made from the same soil as the fairways and this showed an alkaline analysis, would it be better to use nitrate of soda instead of ammonium sulphate on the greens? Would the application of peat moss on this type of soil tend to loosen it up any? And if so, would it be advisable to use this material (prepared peat fibre, I think it is called) on the greens.

Greens are seeded to a mixture of chewing fescue, red-top and So. German bent.

J. N., (N. Y.).

Answer

With regard to paragraph 2: a sticky

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clay soil is any soil that contains more than 20 per cent actual clay. It may contain 85 per cent, 60 per cent or 25 per cent clay but it is a sticky clay just the same. The only way to make a friable loam out of a sticky clay is to mix sand with the clay (not throw the sand on top of the clay and leave it there) until the resulting mixture contains less than 20 per cent clay. Such a mixture of sand and clay on drying will not bake or scab hard and on being moistened will not be slimy. In both instances the sand is responsible but only when present in sufficient amounts. It is very difficult to explain to the average layman the physical action of a sand upon a clay and vice versa the action of a clay upon a sand but if you will take varying proportions of sand and clay, moisten same and then bake them you can determine for yourself the truth of the above statement.

With regard to the present condition of your greens, I refer to the baking and scabbing of the soil when dry and the slimy condition when wet, it is enough to say that this surface condition can be slowly corrected by top-dressing with a mixture consisting of five parts sand, one part clay soil and one part well rotted manure or peat moss (granulated). Continued top-

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S. D. CHILDS & CO., Dept. 2

dressing with this mixture, which is itself incapable of baking or being slimy, will gradually cover the present tight slimy and scabby clay top-soil of the green.

The surface condition can be corrected as above but the grass growth will still be unsatisfactory unless the greens have adequate under-drainage. I am strongly of the opinion, judging from what you say about the soil type and the cheap, hurried construction, that there is inadequate under-drainage on these greens. If this is the case adequate drainage must be provided before you can ever expect to have a good stand of grass.

Your fertilizer program seems o. k. except that 30 pounds of milorganite per 1,000 square feet of green per year is enough. Would not change to nitrate of soda.

Since your greens were seeded to a mixture of Chewings fescue, red-top and german mixed bent and the first two mentioned are short-lived grasses it might be wise to do some additional seeding this fall in an endeavor to thicken up that turf.

B. R. L.

Another Expert Answers

New clubs are frequently faced with the problems which confront this perplexed greenkeeper. It is the result of failure

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to provide soil of suitable physical condition during construction.

While the easiest and most satisfactory plan of improvement would be to renovate the soil in the greens, it is rarely possible to secure permission of the playing membership. Improvement during play can be effected, but is a slow process. The general scheme must provide adequate drainage, and gradually build a surface soil of proper physical condition by top-dressing.

The soil apparently is heavy, approaching a clay in physical condition. Such soils prevent rapid removal of excess water by percolation downward, become sticky when saturated with water, and on drying out develop very hard surfaces. Sometimes heavy watering is resorted to during the summer to secure surfaces which will hold a ball. From the standpoint of turf growth such treatment is often disastrous.

From the standpoint of drainage both surface and sub-drainage require attention. Surplus water is removed more quickly by surface run-off, than by downward percolation through heavy soil. After insuring good surface drainage tile should be installed to hasten removal of the excess water absorbed by the soil. In heavy soil

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the lines should be fairly close together and not too deep (from 2 to 2½ feet). After laying the tile the trench should be back-filled with pea gravel or a good grade of coarse cinders to within about a foot of the surface. If you have not had experience installing tile, it is well to consult somebody experienced in this work.

There is every reason for using sand in the top-dressing mixture, but it is not wise to apply large quantities of pure sand. From the standpoint of physical condition the top-dressing mixture should resemble a sandy loam. Evidently compost is not obtainable. If sufficient land is available good soil can be made by plowing an area, applying manure and discing at frequent intervals during the summer to kill weeds. Where manure is not to be had green manure crops can be grown and plowed under. There is no objection to using peat moss, soil and sand, but excessive amounts of peat moss should be avoided. When used in excess its tremendous water holding capacity may lead to trouble. As a maximum probably 20 per cent should be the limit. Fine grained sand should also be avoided for it tends to cake and will not produce much effect in modifying the texture of the heavy soil. It may be necessary to use 40 to 50 per cent sand, 30 to 40 per cent soil and 10 to 20 per cent peat moss. The final mixture on drying after a thorough wetting should crumble without much difficulty.

The description of the "scab" condition is not sufficient to tell definitely what it is due to. If of green color it is due to growth of algae. These develop when turf is thin and soil is damp. The condition will disappear when the green becomes covered with a good sod.

The fertilizer program should be satisfactory, especially if manure compost is included as an ingredient of the top-dressing mixture. If this is not the case it may be safer to substitute a fertilizer containing generous amounts of phosphorus and potash, for the sulphate of ammonia once in the spring and again in the fall. The necessity for this can only be determined by actual trial.

"Expert A."

The Club Budget

BUDGETARY control is often criticized because it is not understood. Some say a business should operate in the most economical way irrespective of a budget and that a budget permits inefficiency be-

cause the allowance made does not necessarily represent the least possible operating expense.

Such statements merely show lack of experience in budgeting. The real purpose of budgeting is teamwork rather than relative economy for it brings together those men in an organization responsible for expenditure to the common purpose of obtaining the greatest value out of every dollar spent. With a definite anticipated income to divide up into operating expense and capital expenditures the budget proportions expenditures fairly among the responsible departmental managers and keeps their costs within certain bounds, thus giving equality of opportunity to each. The absence of a budget creates a grab bag method of expenditure that encourages departmental managers to antagonism and discard.

The tie-in to central control and economical procedure caused by budgeting puts expenditures squarely up to each chairman to carry on his part of the work in a spirit of fairness to others and the results of his operations indicate whether or not he is managing successfully according to a standard (the budget) cost of operations.—From the "Brassie," Brentwood (Cal.) C. C.

UNIVERSAL'S COMPOST MIXER

Cleveland, O.—Universal Sand Equipment Co., 1833 Columbus Rd., now is making a drive for golf club business with a compost mixer that has been successfully employed in course work for more than a year. Features of the machine are: rugged construction, impeller assembly of heavy cast steel with blades that are reversible and can be easily changed, and an adjustable chute. Screens of different mesh and 12 extra impeller blades are supplied with each machine. The impeller blades operate at 1,200 R.P.M.

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The new Planet Jr. No. 235 fertilizer distributor has fully demonstrated its value in spreading evenly, accurately and in the necessary volume to suit all varying requirements, says S. L. Allen & Co., in a recent bulletin. The Planet, Jr., makers add: The materials to be spread are fed from the bushel capacity hopper through an oscillating bottom that is constantly agitated by a rod and lugs on the two-foot drive wheel. The flowing materials are diverted through a series of six tubular spouts onto a rotating spreader which distributes the materials in a broad smooth even band that can be increased up to 36 inches in width.