A Rub of the Green

The title of this brief article was chosen with the clear intention to deceive, but it was not chosen in the spirit of facetiousness. It was selected in all well-meaning to attract, to cause the reader to stop, look, and read far enough to learn what it is all about. Surely, this is defensible. Now to the point.

Just as "a rub of the green" has lost many a match and broken many a beautiful friendship, so has rubbing the green injured much grass and ruined many a good putting surface. Wear and tear in the ordinary sense, while not always beneficial, are not particularly harmful; but rubbing or scrubbing or otherwise bruising the grass is decidedly harmful to it. Have you ever observed that the turf on the margins of many greens is poor or sometimes, in fact, entirely wanting? The abrupt turning of mowers and rollers is for the most part responsible for this. What should be fine approaches are frequently the poorest parts of the fairway, because the operators of the fairway mowers and rollers use them for turning grounds. A caddie at the flag, a player turning quickly on his heel, may unknowingly cause bruises that will show up ultimately as thin spots or as weeds. If you are the chairman of your club's green committee, or the greenkeeper, or are otherwise responsible for the care of greens, instruct the workmen to do the necessary work on the greens without rubbing the grass to the extent of bruising it. See that they turn the mowers and the rollers so that the turf will not be injured. See to it that the greens are not mowed when there is water on the leaves of the grass, unless cutting them in this condition is really necessary. Wet grass is very easily bruised and injured.

A mere suggestion is all that should be required to put on guard those who are held responsible. There are turf troubles enough without adding others that are relatively easily avoided, as are those that result from rubbing or bruising.

QUESTIONS AND ANSWERS

All questions sent to the Green Committee will be answered in a letter to the writer as promptly as possible. The more interesting of these questions, with concise answers, will appear in this column each month. If your experience leads you to disagree with any answer given in this column, it is your privilege and duty to write to the Green Committee.

While most of the answers are of general application, please bear in mind that each recommendation is intended specifically for the locality designated at the end of the question.

1. Getting Rid of Pearlwort and Chickweed.—We are sending two pieces of turf cut from one of our greens in which you will find weeds which are infesting them. Can you give us any information concerning these weeds and how to get rid of them? (Massachusetts.)

Answer.—The bright green weed with the thick narrow leaves is pearlwort. This is a bad weed and should be fought vigorously by cutting it out clean and replacing with good turf and then destroying the pieces cut out by burning or otherwise. If there is much of this in your greens you are up against a campaign of at least two years, as undoubtedly there are seeds of it scattered throughout all the greens; so even if you cut out every plant, you would still find that there would be a second crop later.

We would advise you also to look over your fairways for this weed, as seed of it is often carried to the greens from the fairways. If you find such patches in the fairways, destroy them with salt or other chemical weed-killers. You will find articles dealing with the treatment of pearlwort on page 69 of Volume I and page 269 of Volume II of THE BULLETIN. The other weed, with the roundish leaves, is mouse-eared chickweed. You will find this treated at the following places in THE BULLETIN: Volume I, pages 126 and 206; Volume II, pages 184 and 269; Volume III, pages 47 and 83.

2. TIME OF DAY AT WHICH TO WATER GREENS.—In the January BULLETIN you recommend the watering of greens in the morning instead of the evening. At what time of the day should the morning watering be stopped? I had always been of the opinion that it was dangerous to water greens in the morning. (New Jersey.)

Answer.—Water your greens whenever they need it, whether morning, noon, or any other time of day. We are unable to find any basis for the idea that watering in the middle of a hot day is injurious. It is certainly much more injurious to let the grass suffer if it needs water. As a matter of convenience, many golf courses water their greens at night. Water your greens when it is convenient. Our recommendation for morning watering, to which you refer, was based on the fact that our experiments indicated that watering in the early morning seemed to assist materially in the control of the brown-patch disease.

3. CONTROLLING CRAB GRASS.—Toward the latter part of summer the crab grass and weeds come into some of our greens and we have a big job weeding them by hand. Can you advise us how to keep the crab grass and weeds out? (Pennsylvania.)

Answer.—The only practicable means of controlling crab grass is hand-weeding. We would advise you to start weeding your crab grass just as soon as it is big enough to pluck and not wait for the plants to get large. In weeding crab grass from greens it is a good idea to soak the greens thoroughly a few hours before the weeding is done, as the roots will then pull out much more easily.

4. ANT EXTERMINATION ON PUTTING GREENS.—What is the best remedy for ants on putting greens and fairways? (New Jersey.)

Answer.—We know of no better method of exterminating ants on putting greens than the carbon disulfid method, which involves squirting about a teaspoonful of carbon disulfid into each nest. This can be done easily by means of a spring bottom oiler, or, as one of our correspondents writes, with a rubber bulb syringe having a rubber nozzle. He suggests that a rubber syringe is a very effective instrument for injecting carbon disulfid into each ant-nest. One of the clubs finds the method more effective if the nests are covered with wet burlap or some other cloth after the carbon disulfid is injected. The process is a tedious one, and unless the operator is careful he will damage the grass with the carbon disulfid. However, if the liquid is injected directly into the nests and does not come in contact with the grass it will do no damage. We are experimenting on methods of eradicating ants and hope soon to have a more satisfactory method than the one here mentioned. Poison baits have been tried with only a fair degree of success. Some of the poison baits contain borax, and this is very bad for the soil; therefore such baits should be used very sparingly.

5. MAKING AND USE OF COMPOST; USE OF SODIUM NITRATE, AMMONIUM SULFATE, AND LIME.—We have had no real compost materials to work with. Our present pile is ample but is less than two years old. When we made this pile the first of last year, we neglected putting in sand; black muck and manure with dirt were the materials used. We, of course, had plenty of lime in the mixture. Now we have on hand a supply of sodium nitrate and ammonium sulfate. Our greens need plant food. Their subsoil is sandy. Would you advise mixing the sodium nitrate into the compost while we turn the same over in our mixing machine, and then screen well and top-dress with it? Would you advise mixing our ammonium sulfate with sand and dirt and dressing the greens with that? Is it advisable to use both the sodium nitrate and ammonium sulfate at this time of the year (April)? If so, should they be applied in half portions only to prevent burning of the grass? I enclose a circular which cautions against the use of ammonium sulfate after May. Is this correct for us? I had in mind that the sodium nitrate would help the manure to decay faster; it is not two years old but must be used. (Indiana.)

Answer.—We would consider compost materials one year old suitable for top-dressing. The coarse material that screens out should go back into the compost pile for further decay. We believe it would pay to get some sharp sand, if possible, and mix about one-third sand with two-thirds of your screened compost when you apply it as a top-dressing to the greens. Sodium nitrate and ammonium sulfate are both quick-acting, nitrogenous fertilizers. There is nothing gained by mixing the two together. Either one, or both together, will burn grass if applied too heavily. An application of these at the rate of not more than 3 pounds per 1,000 square feet of green will not cause burning if evenly distributed. It would be all right to mix either the sodium nitrate or ammonium sulfate with screened compost and sand; furthermore, this would insure an even distribution. We follow that plan when we are putting on top-dressing. When applying either of these materials alone we generally mix them with about five times their weight of sand, and scatter the mixture over the grass. There is much more labor involved in dissolving these chemicals in water and applying the solution to the greens than there is in applying them dry. There is, however, no reason why they should not be applied in solution if one desires to do so. We get the greatest benefit from the use of these quick-acting fertilizers when applied early in the spring. We fertilize our grass, however, every month during the summer; but in midsummer it is safer to reduce the rate of application about one-half—that is, 1½ to 2 pounds per 1,000 square feet. There is greater danger of burning in hot weather than in early spring. Any minor burning is quickly overcome by the beneficial effects produced, so that even if the grass does turn yellow soon after the fertilizer is applied there is no danger of permanent injury. We prefer ammonium sulfate to sodium nitrate for the reason that the former discourages the growth of crab grass, white clover, and a number of weeds, while sodium nitrate does not. We have better turf from ammonium sulfate than from sodium nitrate. After applying either ammonium sulfate or sodium nitrate, water the greens thoroughly.

Let us give you one caution. Use lime very sparingly on your course. A little of it mixed in a compost pile hastens the decaying of manure, but further than that it is worse than useless on a fine turf.

6. FERTILIZERS FOR PUTTING GREENS; WOOD ASH AS A FERTILIZER.—I have long heard of the value of wood ash as a fertilizer, but as it is very

scarce here in Indiana I have had no experience with it. Can you give me some idea of its strength and action? Can it be used in a top-dressing with sand for a clay soil, and if so what proportion should be used? Is there any chemical reason why the ash and bone meal could not be used together with sand? How quickly should the grass respond to treatment in this manner? Is there a change in the texture of the clay after it absorbs the wood ash? (Indiana.)

Answer.—Ashes carry quite a high percentage of potash and some phosphoric acid. They are especially desirable for growing crops of clover. For that reason they should not be used on a golf course. We must get away from the fertilizer recommendations for farms if we are to get first-class turf. The growing of big forage crops and the growing of fine turf are two separate and distinct things. The best fertilizer which we have found for putting greens is ammonium sulfate, used at the rate of not more than 3 pounds per 1,000 square feet in the spring and fall and 1½ pounds in summer. In addition to this fertilizer the grass needs top-dressing with compost. While there are all sorts of ways of making compost, we prefer one consisting of one-third sand, one-third manure, and one-third clay loam. This, when screened, gives a top-dressing which does not run together and bake, and one which has a very beneficial effect on the grass.

7. Controlling White Grubs.—On the high ground of our seventh and eighth holes there are three or four acres of fairway heavily infested with grubs like the enclosed samples. Large patches of turf here and there throughout are entirely ruined and what is left is hardly worth preserving. Unfortunately, previous administrations have mistaken the results for supposed damage by crows. We are not sure of the nature of this grub but assume that the sodium cyanide treatment is what is required. These grubs are certainly very tough. We first soaked these samples in strong alcohol and afterwards in gasoline, but neither solution appeared to kill them. What method of treatment would you advise for controlling these grubs? (New York.)

Answer.—These insects are what are known as common white grubs. In recent work with the Japanese beetle, which works very much like the other white grubs, the best remedy has been found to be an emulsion of carbon disulfid. There is an article on this subject in the October (1923) issue of The Bulletin. We think you had better try both the sodium cyanide treatment described on pages 176 and 231 of the 1921 volume and page 34 of the 1922 volume of The Bulletin, and the carbon disulfid emulsion treatment. The work of the Japanese beetle investigators indicates that the emulsion is the better treatment to employ. We think you had better try to kill the grubs with one or the other remedy.

8. Getting Rid of Earthworms; Cinder Layers in Greens.—Will a 2-inch layer of charcoal at a depth of 4 inches beneath the surface of a green discourage or eliminate earthworms? (New York.)

Answer.—We do not think a 2-inch layer of charcoal in the green would at all worry the earthworms, but we do think it would make it extremely difficult for you to grow good turf. All of our results with artificial layers have been bad, and we advise strongly against them. Properly used, the corrosive sublimate method of eradicating earthworms is perfectly satisfactory. If care is not used you may burn the grass more or less. The method of applying corrosive sublimate is described on page

92 of the March, 1923, BULLETIN. Mowrah meal, a commercial commodity, is more expensive than corrosive sublimate, but is very efficacious. When used at the rate of 15 pounds to 1,000 square feet, and well watered in, mowrah meal will not burn the grass.

9. IMPROVING THE ROUGH ON POOR, GRAVELLY SOIL.—Our soil is gravelly and, like all abandoned farms of the mountain areas, is poor and sour, and a great deal of it is devoid of vegetation. When conditions are made favorable, bluegrass will grow luxuriantly in this section; hence we are not worrying about the fairways. On the greens we will use either a bent or a fescue grass. What we are worrying about is the rough. Part of the field has had redtop seeded the last few years and has a fairly good stand, which we could let go for the rough, but the part with practically no vegetation is what is troublesome to us. Of course we don't want to spend much money for fertilizing the rough, and we are wondering whether or not you have anything you would prefer to seed for the rough other than redtop, which we know will make some growth. What would you think of having the rough consist of poverty grass—"nigger wool" we call it? It grows luxuriantly in the mountains of Pennsylvania. From the standpoint of being easily taken care of and making an everlasting sod it would meet those requirements perfectly; but perhaps you may know of something better for the rough. (Pennsylvania.)

Answer.—It occurs to us that a little fertilizer together with some sheep's fescue seed will give you a rough that should be entirely satisfactory. Sheep's fescue is one of the best grasses that we know of for the rough, but of course it must have reasonably good conditions for the germination of its seed. It grows remarkably well on poor soils, which leads us to think that you will not have a great deal of difficulty even under the conditions you describe. Would it not be possible to give the bare soil which it is desired to convert into rough a light application of manure and sow it with a mixture of sheep's fescue and redtop in the proportion of 3 pounds of the former to 1 pound of the latter, at the rate of 75 to 100 pounds to the acre? Poverty grass makes a good rough but there is no seed of it available.

10. YARROW IN PUTTING GREENS.—The latter part of August we sowed a fine quality of creeping bent seed, without any mixture, and on many of the greens we now find an excessive amount of yarrow. The yarrow was without doubt in the bent seed, because the seed sown in the mounds and approaches shows no yarrow whatever. The seedsmen tell us that the yarrow will do no harm. In view of the fact that we wanted and paid for bent seed, we do not desire the yarrow. They tell me to do nothing with it. Our theory is to weed it now (September), as the yarrow can be easily extracted, and the patches left can be reseeded now rather than in the spring. If it is done in the spring we will not have the stand of grass that we would have if it were done at the present time. It is an important matter, because we expect to use these greens in July. Of course, weeding now will ruin some of the plants, but reseeding will take care of that; whereas if we prolong weeding until spring we will be so much behind. The greens have not yet been cut, and the yarrow plants can easily be weeded. Although the greens need cutting, two days of rain has prevented that work. Should we weed this yarrow now or leave it until the spring? (New York.)

Answer.—There is commonly more or less yarrow seed in South German mixed bent, and a little yarrow appears in practically every

putting green sown with this seed. Most of the seedsmen regard yarrow as desirable rather than undesirable. We see no objection to it and doubt seriously the advisability of your going to the trouble of weeding out what has appeared. Of course, in seeding a green you never secure absolute uniformity in color and texture, and what little yarrow will be in your greens we do not think will ever cause you a moment of sorrow if you leave it all there. Our advice would be to let the yarrow alone, or, if you are going to weed it, to do so immediately.

11. Effect on Soil of Continuous Use of Ammonium Sulfate.—We have been advised to make three applications of ammonium sulfate to our greens. Is there not danger when using ammoninm sulfate constantly of changing the condition of the humus content naturally in the soil and available as plant food, from an active to an inactive condition? (Illinois.)

Answer.—We have never observed bad effects from the long use of ammonium sulfate as a fertilizer for turf grasses, notwithstanding it has been shown in the growing of truck crops that the continued use of chemical fertilizers without anything else results in a toxic condition of the soil. Where, however, ammonium sulfate is used in conjunction with top-dressing, such a condition apparently never arises. We are of the opinion therefore that if your applications of ammonium sulfate are accompanied with top-dressings you will obtain only beneficial results from its continued use.

12. Potash Marl and Poultry Manure as Fertilizers.—What is your opinion as to the fertilizing value of potash marl and poultry manure? Last spring I used pulverized poultry manure on our greens with good results. (New York.)

Answer.—In our experiments we have found potash marl undesirable for use on putting greens. Poultry manure is a good fertilizer for greens; it is most advantageously used mixed in compost.

13. Size of Mesh for Compost Screen.—What is the proper mesh for a compost screen? (Kentucky.)

Answer.—We believe you will find ¼-inch mesh about the smallest you can employ satisfactorily. Material will feed through ⅛-inch mesh very slowly. Of course much depends on the type of material you are screening. For instance, if you were screening sand and wanted to get out small pebbles, you might use ⅛-inch mesh advantageously; but for ordinary compost we believe you will find ¼-inch mesh entirely satisfactory.

14. Combining Ammonium Sulfate, as a Fertilizer, With Corrosive Sublimate, as a Worm killer.—Would it be advisable for us to add ammonium sulfate to our mixture of corrosive sublimate and ammonium chloride? What we have in mind is the saving in time which would result by mixing and applying our fertilizer and our worm killer in a single operation. (Pennsylvania.)

Answer.—Our chemist advises that he does not know whether your chemicals would be effective when mixed as you propose, or not. It is a matter which can be determined only by experiment. His opinion, however, is that the addition of ammonium sulfate to the corrosive sublimate would make the latter less effective in killing earthworms.

15. Getting Rid of Chickweed.—Will sodium arsenate kill mouse-ear chickweed? (Ohio.)

Answer.—Sodium arsenate will kill all vegetation. So it must be used with care when applied to chickweed. Some greenkeepers are having excellent results by applying ammonium sulfate strong enough to burn the chickweed, but not seriously to injure the grass that is growing with it. It will take some experimenting and careful work to find just the right amount to use. It can be put on in solution with a sprinkling pot, or applied dry. Mouse-ear chickweed is a common pest, and the seed is likely to be everywhere. Usually in compost piles that have stood for a year the weed seeds are all destroyed.

16. Creeping Bent for Turf Tennis Courts.—Has creeping bent been used satisfactorily for turf tennis courts? (Indiana.)

Answer.—Some of the New England courts are turfed either with creeping bent or velvet bent, or both mixed. This turf, however, has been derived from seed. We know of no tennis court which has been developed by the vegetative method, but there is no reason why this should not be entirely satisfactory.

17. Discouraging the Growth of Clover.—Can you give us any information as to how to proceed and what to use to discourage the growth of clover on greens and fairways? (Maine.)

Answer.—The best means is the constant use of ammonium sulfate as a fertilizer and the avoidance of the use of lime and phosphates. The continued use of ammonium sulfate gives the soil an acid reaction, which is unfavorable to the growth of clover and to many of the weeds on golf courses.

18. Use of Stagnant Water Containing Weed Seeds, for Watering Greens.—For watering our greens we use stagnant water from an old river bottom the sides of which are overgrown with chickweed, plantain, dandelions, daisies, and other weeds, which appear in our greens toward the end of summer. Can you suggest a remedy for ridding the water of these weed seeds? (Massachusetts.)

Answer.—There are various kinds of filters on the market which will help to clear the water of weed seeds. Aside from this, we do not believe there can be any objection to using stagnant water on your greens.

19. Smoothing Up Approaches.—The sod around our greens is so rough that a pitch approach shot usually gives a bad kick. Would you advise rolling the approaches in order to smooth out the rough places? (Virginia.)

Answer.—Some rolling on the approaches to the green will no doubt make them smoother, but the most satisfactory treatment is to top-dress with good sandy loam. This can be spread from the back of a cart or wagon rather easily. It is easier to fill up depressions than to roll out the high points.

20. Making Ammonium Sulfate.—We have been informed that we can make our ammonium sulfate ourselves. Can you inform us as to how it is made? (New Jersey.)

Answer.—The commercial supply of ammonium sulfate is obtained as a by-product largely from smelting furnaces. It would be far more costly for you to attempt to make the material than to buy it.