

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 answers 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. "Sour soil" and "acid soil."—In a circular from a fertilizer dealer is this statement: "When nitrogen is absorbed by plant life the other elements—hydrogen, oxygen, and sulfur—combine with lime in the earth to form calcium sulfate. This is a neutral product that has practically no effect either on the soil or plant life. Sour soil will not permit this chemical reaction and therefore will not respond to the application of ammonium sulfate. Land lime should be applied to sour soil, after which sulfate may be used to good advantage." My understanding is that sour soil is soil that shows an acid condition, and from the BULLETIN I learn that acid soil is the most favorable for the growing of grasses, and that certainly lime should not be added. I would be glad to have an explanation of these apparently conflicting ideas. (Wisconsin.)

ANSWER.—There are a good many misstatements in the paragraph you quote but there is only one which needs any clarification in the point you bring up. In the first place let us state that the term "sour soil" is used in two distinct senses: (1) that now generally used by soil scientists, which makes the term identical with soil acidity, and (2) that probably more commonly used descriptive of the condition of poorly drained soil. "Acid soil" is desirable for many plants, including many grasses. In fact, there are many plants which will grow only in "acid" soil and will disappear if lime or any other alkali is added. Furthermore, there are plenty of plants which will grow in soggy or "sour" soil, although such soil is decidedly bad for bent grass, as well as for most grasses and plants. To attempt to make a general statement to apply to all kinds of plants, as apparently is the attempt in the paragraph you quote, is entirely misleading. Neither ammonium sulfate nor any other fertilizer can be used to advantage on a waterlogged soil in connection with the growing of any of the common turf grasses, and the only remedy is improved drainage.

2. Controlling pearlwort.—We are sending you a specimen of moss which has come into our putting greens wherever we have sown Colonial bent seed. The seedsmen from whom we purchased the bent seed claim that it was impossible for the moss to be introduced to our greens through the medium of the seed, as moss is not propagated by seeds but by spores. Notwithstanding this, the evidence seems to be clear to us that the moss was introduced into our greens through the medium of the seed. We should like to have your opinion in the matter, and also recommendations for getting rid of the moss. These mossy places will grow to the size of a golf hole in a couple of weeks. We must admit that a putting green of

nothing but this moss would be pretty good, but mixed with the bent it spoils the looks. (Massachusetts.)

ANSWER.—The specimen you send is not moss, but pearlwort, about which many notes have appeared in the BULLETIN from time to time. This plant is abundant along the Atlantic coast and the Pacific coast, and it was possibly established at various places around your golf course before the course was built. It prefers moist, sandy soil near the seashore, yet grows well enough inland. It might be well for you to make a careful examination of the land about your greens to see if the plant is growing anywhere in abundance, as if that is the case the seed would at once be transferred to your greens. If you find the plant in the rough or outside the limits of the course, it can easily be destroyed by the use of weed poisons, particularly sodium arsenite, as described in the article on page 169 of the July, 1924, BULLETIN. If you do not fight the plant from the start you can make up your mind that it is going to be with you permanently. In our judgment, this is the worst weed you can get into your putting greens. To remove it from your putting greens it should be cut out and destroyed, and replaced with pieces of sod. It is a good idea to have the keenest-eyed man you have go over the course and sprinkle a little ammonium sulfate on every patch of pearlwort he finds. This will burn the foliage of the plant so that the man who follows him can readily find the patches of pearlwort and cut them out.

3. **Cutting seedling fairway turf.**—We are seeding new fairways this spring on an addition of 9 holes to our course, which however will not be opened for play until next year. We should like your advice as to the wisdom of letting the grass grow during the coming season, permitting it to go to seed and thus produce a heavier turf by next year. The fairways are being seeded to Kentucky bluegrass and redtop. (Iowa.)

ANSWER.—We would advise you to begin mowing your grass after it becomes $1\frac{1}{2}$ or not to exceed 2 inches high, and to keep on mowing it. Do not let it grow tall. Your turf will thicken only under frequent mowing, and will become thin if you attempt to allow the grass to go to seed.

4. **Response of bluegrass and redtop to ammonium sulfate.**—In your article on page 50 of the BULLETIN, Vol. V, No. 3, March, 1925, an account is given of the excellent results obtained from the use of ammonium sulfate and ammonium phosphate on bent grass. Our greens are of bluegrass and redtop. Have any experiments been conducted to determine the effect of these acid-reacting fertilizers on bluegrass and redtop? (North Dakota.)

ANSWER.—We have found ammonium sulfate very beneficial to bluegrass and redtop. We have not tried ammonium phosphate on these two grasses but are of the opinion that it would be equally beneficial.

5. **Utilization of stable manure; its effect in producing grubs.**—We have an abundance of stable manure, but very little of it has been placed on the fairways. I believe that this has been wrong, and that this manure should have been generously used on our fairways. We now have our manure spreader working every suitable day, and shall continue this program to the extent that play will permit. Please correct us if we are wrong in this. In certain places grubs are giving us trouble on our fairways, and we are afraid they will extend their activities to the greens. Do you think the use of a disking machine would be practicable in destroying the grubs in

these infested places? We should of course follow the disking with a roller. (Kansas.)

ANSWER.—We would advise you to use your manure rather sparingly as regards spreading it on the fairways. It is all right to scatter it over the fairways in the winter, and to use some of it in your compost piles; but do not use it in excess just because you have it. The use of too much manure will increase your grub troubles greatly. The grubs you have however are those which appear only periodically, and the chances are you will not see them during the coming season. There are methods of destroying them, but the process is expensive, and we doubt if it would be worth while going to the expense if it is your fairways only which are infested.

6. **Removing crab grass and checking its introduction.**—Crab grass is giving us considerable trouble in our greens. What treatment do you recommend? (Ontario.)

ANSWER.—Unfortunately we know of no very easy method of ridding greens of crab grass. Much can be done toward checking its introduction into the turf of greens if the greens are constructed so that they are not overwashed by rains falling on the fairway or rough, as much crab grass seed is carried to greens, by heavy rains, from nearby infested turf. To remove crab grass successfully, the plants should be pulled out by hand before they get a chance to grow large, and indeed upon their first appearance. One man, woman, or child can pull more crab grass in a day at this stage than three can pull after the plants have reached the branching stage. The greens should first be watered fairly well, as the plants can be pulled out much more easily if the soil is not hard. Constant attention is necessary during the entire season also, as the seeds, which are constantly being carried to greens, germinate quickly, and the plants mature in a short time and produce abundant seed. A single plant allowed to go to seed will infest a large area.

7. **General treatment in the upkeep of greens.**—Our general practice is a heavy topdressing of the greens twice a year and the use of temporary greens at such times. Is it possible to get as good results with more frequent but lighter topdressings, say once a month, so that the greens are continually in play? (California.)

ANSWER.—The best general practice is the use of topdressings of compost whenever they seem desirable, and in addition now and then the application of ammonium sulfate. The frequency of these applications depends on the quality of the turf, and that should be your guide. There is no objection to topdressing lightly every month or every week. Ammonium sulfate, in light doses—2 to 3 pounds to 1,000 square feet—can likewise be used as frequently as desired. One must use his own judgment. After the turf is getting into the highest type of condition, the application of topdressing and fertilizer should be frequent enough to maintain the turf in such a condition.

8. **Rough-stalked bluegrass in bent greens.**—I am sending you a specimen of a grass which has invaded our bent greens and which is objectionable on account of its coarseness. What is the grass and how can we get rid of it? (New York.)

ANSWER.—Your specimen is rough-stalked bluegrass, or bird grass (*Poa trivialis*). The best thing to do with it is to cut it out if you want to get rid of it. Otherwise it will persist, especially if the greens are kept moist, as they should be. It thrives in shade; and if your greens in which it occurs are shaded you may find, however, that it will make a fairly good turf. We have had several reports from clubs recently that this grass is in their bent greens, and we are inclined to think that it got there as an impurity in German mixed bent seed.

9. Use of deep well, cold water on putting greens.—Our water is pumped from a deep well and is quite cold. Should steps be taken to modify the temperature of this water before sprinkling it on our greens? (Minnesota.)

ANSWER.—We believe it will do no harm to apply your water to your greens just as it comes from the well. Our opinion is based on observations, however, as we do not know of any experiments which have been conducted with this problem.

10. Effect of white clover on Kentucky bluegrass stands.—Our bluegrass, which formerly seemed to be growing fairly well and gave prospect of improving, can hardly be seen now in some spots for the white clover. Is there any danger of this bluegrass being entirely choked out by the white clover? Evidently our heavy growth of white clover is due largely to the excessively wet and cold spring. (Virginia.)

ANSWER.—We think you need have no fear of the Kentucky bluegrass being crowded out by the white clover. Sometimes the latter becomes very abundant and apparently crowds out Kentucky bluegrass, especially in small areas, but invariably recedes and is later replaced by the bluegrass.

11. Calcium cyanamid as a worm eradicator.—Calcium cyanamid is a powerful insecticide. Has it been tested out in killing earthworms? (Ohio.)

ANSWER.—Calcium cyanamid burns grass so badly that its use as a worm killer would be undesirable purely on that account. Furthermore very few of the cyanamid compounds will penetrate any distance in the soil.

12.—Planting creeping bent greens from clippings.—Can we use creeping bent clippings as successfully as we can stolons in planting a new green? How important is it to keep the surface soil always thoroughly wet during the early stages of growth? (Colorado.)

ANSWER.—Creeping bent clippings can be used as successfully as stolons from a creeping bent nursery in planting a new green provided the clippings contain nodes, or joints, and are not simply pieces of grass blades, as is likely to be the case with most clippings. This means that the grass must be fairly long when it is clipped, otherwise the clippings will consist merely of leaves. On the other hand, it is usually unwise to allow creeping bent greens to grow long enough to make it possible to cut clippings with nodes. Therefore, as a common practice we advise the growing of a nursery for vegetative material of creeping bent. It is important to keep the surface of a green moist during the early stages of growth of bent planted vegetatively. This does not mean that the soil should be soaked, but that it should be kept at least slightly moist, so that the stolons will not dry out before they root.