

Before closing, let me tell you a Scotch story apropos of this gathering. A Scotch golf professional, after being six years in America, went home to visit his folks at St. Andrews. One Saturday evening his father, along with his pal, John, were strolling down the street, and in the course of conversation John said, "Aye, mon, they tell me Willie is hame." "Yes, Willie is hame, right enough," replied Willie's father. "I suppose he'll know a lot noo after being a' that time in America," John remarked. "Well, I don't know sae much about that," answered the old gentleman; "but one thing I do know. He knew something before he went to America, but he's guessing a' the time noo."

Now the Green Section is going to prevent your guessing.

Back Numbers of The Bulletin

These are available as follows:

Vol. I (1921). Reprint, in paper covers; price, \$2.25.

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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. CHANGING BLUEGRASS GREENS TO BENT GREENS.—We have very good bluegrass greens but desire to change some of them to creeping bent. How can this best be done without putting the greens out of play? (Kansas.)

ANSWER.—We know of no way in which this can be done immediately. The change can eventually be accomplished, however, through a period of several seasons, by seeding the greens each fall with bent. The bent seedlings will of course make slower headway in old turf than they would if started in a clean seed bed, and for this reason the change from bluegrass to bent is a slow process. We started an experiment last fall to obtain the same results as you desire, by chopping up creeping bent stolons, spreading these stolons on several greens, top-dressing with about $\frac{3}{8}$ -inch of compost, and keeping the greens watered every day for two or three weeks. The indications at the present time (June 1) are especially favorable for success. The old turf upon which the bent clip-

pings were scattered last fall gives promise of becoming good bent turf soon.

2. FREQUENCY OF WATERING THE CREEPING BENT NURSERY.—On page 57 of the March, 1924, BULLETIN, in discussing the watering of the creeping bent nursery, you state you seldom give the newly planted nursery more than a single initial watering. On page 59, in discussing the treatment of the newly planted green, you state it should be kept continually moist. I am wondering if these statements are just what you intended to make, and if there would be any harm done in keeping the nursery plantings moist at all times. (Iowa.)

ANSWER.—Whether in nurseries or in greens, the stolons should be kept moist until thoroughly rooted and growing. The need for watering can be determined by the appearance of the soil. We are inclined to think that there will be little likelihood of overwatering, as it is very important indeed that both nursery rows and greens be kept moist.

3. MOWING GREENS NEWLY PLANTED WITH CREEPING BENT RUNNERS.—Our green which we recently planted with creeping bent runners is coming along nicely and the grass is of the most beautiful texture and color that I have ever seen. Would you advise us to cut this grass as closely and as often as a green in play? (Indiana.)

ANSWER.—We would advise you to keep your creeping bent in the new green cut nearly as closely as if the green were in play. The best way to make good creeping bent turf is to keep it cut down closely. If you do not do this you will have a springy mat of runners and roots on the surface and it will be difficult to get the turf in a really good putting green condition even though it is top-dressed liberally and frequently later. Don't be afraid to cut creeping bent closely; that is what it needs to convert it into good turf.

4. UNSUITABILITY OF STRAIGHT COMPOST AS A TURF BED.—Our soil is a sticky clay, varying in places to hard-pan, and said to be unfit for the growing of turf. If we water our greens sufficiently during hot weather to keep them soft, they become waterlogged and slimy and the grass thins out rapidly, and if we water them lightly they become so hard that a pitched ball will not hold. It is our desire to replant the greens to creeping bent, using for the purpose creeping bent sod, and to some extent stolons, from a bent nursery which we have established. Before replanting the greens, we intend this fall to remove their present turf, and replace the clayey top soil with an 8-inch layer of sandy loam on top of which 2 inches of compost will be spread. The new turf beds on the greens will be allowed to settle during the winter, and early in the spring will be leveled and sodded, or where we have not sufficient sod for a green we will plant the green this fall with stolons. Your opinion of our plans will be appreciated. (Minnesota.)

ANSWER.—Creeping bent does better on natural soil than on straight compost. We would therefore suggest that instead of using separate layers of the sandy loam and compost, you mix the two, using thus a single layer, and mixing in also a little clay. On our own experimental plots the soil is a very poor quality of heavy clay, and yet we find that creeping bent does better on this heavy clay than it does on straight compost. Straight compost is excellent as a top-dressing, but will not in itself produce good turf. We would suggest also that you exercise care to see that the clay foundation of your greens contains no pockets when the top soil is applied.

5. CONTROLLING DALLIS GRASS.—We were troubled a great deal last season with Dallis grass. How would you advise us to get rid of it? (Tennessee.)

ANSWER.—The only way you can get it out of your putting greens is by hand-weeding, and you will find it easy to remove by that method. As regards the fairways, it is sometimes a question whether the expense of removing it is justifiable. The grass is certainly not desirable on the fairways, and if there is not too much of it on your course or in the immediate neighborhood we believe it would pay you to weed it out at once so as to prevent its reseeding. If, however, the whole neighborhood is covered with Dallis grass, this would mean a continuous fight, as it probably would be impossible to prevent seed from the neighborhood getting into your fairways.

6. PERENNIAL RYE-GRASS IN PUTTING GREENS.—I am sending you a sample of grass which is appearing in many small spots on our greens. It is very coarse and much lighter in color than the bent grass, and is thus unsightly. What is it and how can we get rid of it? (West Virginia.)

ANSWER.—The sample you send is perennial rye-grass. It is not an aggressive grass, as it does not spread by runners or produce seed under close cutting, but it is persistent, in that it has a tendency to remain in turf a long time under close cutting. We would suggest that you have the plants removed by hand without delay. Perennial rye-grass is very common in the northeastern part of the United States and appears in cultivated turf almost everywhere in that general region.

7. CHARACTERISTICS OF THE FUNGUS CAUSING BROWN-PATCH.—Kindly furnish me a means of identifying the brown-patch fungus and advise if this appears at all times above the surface of the ground or whether it originates beneath the surface. Both little and large brown-patch constitute one of our greatest difficulties in this locality and I am contemplating several experiments with regard to their control. Is the cobwebby growth above the surface of the grass the fungus itself, or the result of the fungus? (Missouri.)

ANSWER.—Your questions are answered in a general way in the article on page 87 of the April, 1924, BULLETIN. Only the fungus which causes the large brown-patch has been identified. It seems probable, however, that the fungus which causes the small brown-patch is closely related to the one which causes the large brown-patch, inasmuch as both of these fungi have much the same habit of growth. The fungus which causes the large brown-patch is one which inhabits the soil, retaining its existence there through small corky resting-bodies. These start to grow or germinate in hot weather, and then produce the cobwebby growth, or mycelium, which is responsible for the browning of the grass. The mycelium grows on the leaves of the grass, but the resting-bodies, or sclerotia, live on the surface of the soil or in the soil. The large brown-patch fungus does not attack the roots of the grass, nor are the roots of the grass killed immediately when the leaves of the grass are attacked. The roots, however, soon die, as the result of the browning of the leaves unless restorative measures are taken. The difficulty in treating this fungus is due to the fact that the resting-bodies are so tough or corky that they are not easily penetrated by fungicides. If they were easily killed, one or two applications of a good fungicide, such as Bordeaux mixture, would doubtless be all that would be necessary as a preventive measure at the

beginning of the season. Answering your specific question, the cobwebby growth is a part of the fungus, just as the leaves of a plant are a part of the plant. In fact, it is the main visible part of the plant. The resting-bodies are in reality the seed; and the cobwebby growth, or mycelium, is the plant that results when the seed germinates. We have thought that if some agitating factor could be introduced which would prevent the continuous development of the mycelium in late night or early morning, progress would be made toward the solution of the brown-patch problem. In our experiments in which we have tried brushing the greens early and watering them very early, we have met with considerable success. We are now going to try an air-blast on suspicious nights. It is our opinion that any mechanical device which would interfere with the development of the mycelium, or cobwebby growth, without injuring the turf, would produce good results.

8. WIREWORMS IN TURF.—We are sending you a tin box containing worms which we have found on our greens and which seem to be destroying the grass. Our superintendent calls them wireworms. What is the proper method of getting rid of them? (Michigan.)

ANSWER.—Wireworms are the young of the common click-beetle or skipping-jack with which you probably were familiar in your boyhood days. It is difficult to recommend methods of control for wireworms in turf, because practically all of the effective remedies involve cultivation of the soil, and of course it is not possible to employ such remedies in the case of golf greens. We have, however, never known of any case where wireworms were really seriously injurious to turf. They are normally dwellers in sod, and while they undoubtedly destroy some of the roots of the grass the effects of their feeding do not usually become visible and it is only when such crops as corn, potatoes, or sometimes wheat are introduced that the insects become serious factors. We are inclined to believe, therefore, that unless you feel positive that you can attribute some serious injury to your grass to these insects, their presence may be disregarded. It is almost impossible to poison wireworms except by applying mineral poisons to such an extent as to be fatal to all vegetation.

9. SOD CUTTERS.—We want to get a sod cutter for taking up little pieces of sod here and there to put on our putting greens, and are wondering whether a rectangular or a round cutter would be better. (Massachusetts.)

ANSWER.—For your purpose we should think a sod cutter of the nature of a hole cutter would be best. We understand that sod cutters of this kind are made considerably larger than the ordinary hole cutter, as well as appreciably smaller. Hole cutters of assorted sizes are certainly very useful. We would suggest that you take the matter up with the following dealers. * * *

10. LATE PLANTING OF STOLONS.—How late can stolons be safely planted in Ohio, central Michigan, and central New York? (Ohio.)

ANSWER.—The best time to plant stolons in Ohio, central Michigan, and central New York is between August 15 and September 15. Here at Washington we have planted them as late as Thanksgiving day and they have survived but have not made any growth in the fall. In central Michigan and central New York they probably could be planted as late as the first of November and survive, but they would make little growth during the fall. It is highly desirable to plant them early so as to get the vigorous fall growth so characteristic of creeping bent.