

Questions and Answers

All questions sent to the Green Committee will be answered as promptly as possible in a letter to the writer. 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. **Vegetative propagation of bent grasses.**—We are developing an area of our finest creeping bent grass by transferring patches of matted sod from our fairway, which is more than twenty years old. We had no success in getting seed from this sod to grow, but we notice now (September) that the runners are about a foot and one-half long and every blade is divided into a number of sprouting sections, and it has occurred to us that we may successfully reproduce it by the vegetative process. This grass is in mats of various sizes, and we could collect enough perhaps for one green. The texture is as fine as seal fur, and if watered the grass keeps a brilliant light green color from April until December. We have other kinds, of a darker color, which are almost as fine. A solid putting-green of this grass would excel anything else, and cost of maintenance would be cut by one-half. It is our intention to develop a large meadow of it, if possible, for transferring, when mature, to many or all of our greens, except a couple which are solid bent now. We will appreciate your advice as to how to proceed. We are sending you a sample of the grass.—(New York.)

The sample you send is *velvet bent*. The material can be cut in lengths of 2 inches and then scattered over well prepared soil, covered slightly, and then, if kept moist, it will soon make a complete covering. The important thing is to keep the runners continually moist, after they are planted, until the grass is well rooted.

If you have any *creeping bent* which you desire to propagate vegetatively, a patch of 2 square feet (which may be obtained from a single plant) can be cut into 288 pieces 1 inch square, or double that number 1 inch by $\frac{1}{2}$ inch. If these pieces are planted 3 feet apart in rows 6 feet wide you will have 1,700 feet of lineal row. Under conditions at Washington, D. C., nursery rows established in this manner in September will make bands of grass approximately 6 feet wide a year later, made up mostly of runners. One hundred feet of such a row will plant a large putting-green, and, therefore, your 1,700 feet of nursery row should give you enough material to plant 17 putting-greens, or an area of special turf equivalent to an area of 17 putting-greens.

It is really much better to develop your nursery from a single patch of grass, as only by this means can you get an absolutely uniform turf. Patches that appear uniform on the putting-green are not really uniform, as their different behaviors in nursery rows indicate. However, if you pick out patches that are nearly alike, your green should be fairly uniform, at least. We would strongly suggest, however, in your continued work by the vegetative method, that you start with a single patch of grass, picking out the one that you regard as the best, and then develop your nursery rows from this.

2. **Charcoal and sour soil.**—Three of our greens are situated on either side of our skating and curling pond, and while the drainage on each is reasonably

good, yet it is slow in comparison with our other greens. An examination of the soil shows that it is sour. We use considerable charcoal in our kitchen at the clubhouse and there is quite an amount of charcoal dust that accumulates. If we do not use this dust we, of course, have to put it in our stock pile. Can this dust be used to advantage on these three greens of which I speak, or would this be time and material wasted?—(New Jersey.)

We think the first thing you should do in the way of improving your greens is to drain them thoroughly. Whether the soil is acid or not is a relatively small matter as far as the bent grasses are concerned. Excellent bent grass turf can be produced on acid soil, and in fact there is quite a tendency now to fertilize so that the soil of greens will become acid where the bents are used; this is done to discourage weeds. Poorly-drained greens, however, are never satisfactory, and too much attention can not be paid to the drainage. Both under-drainage and surface-drainage are highly important. It is possible that it will be necessary to build your greens up if the water table is near the surface. As for the use of charcoal, we have obtained no results from it from the standpoint of changing the chemical nature of the soil. It does help under certain conditions to improve the texture of the soil, and of course darkens the soil if used in considerable quantities. Charcoal is one of the most inert matters known. It decays exceedingly slowly, and since it has been tested as a soil amendment as far back as modern literature goes it is reasonable to suppose that it would be used very generally if it possessed any considerable value.

3. Converting redtop greens into bent greens.—Our new greens were seeded last fall to redtop. They have all done splendidly and are now in use. Our problem is to get the redtop greens into bent greens, if possible, without taking them out of use. Could we top-dress these greens, then plant bent stolons, and top-dress again, and get a fair proportion of bent through the late fall and winter, or would it be necessary to remove the redtop?—(Ohio.)

We do not believe that redtop greens can be converted into bent greens by the vegetative method of propagating bents, as is described in the BULLETIN. For success with this method it is necessary to prepare the seed bed as for sowing seed, spreading the chopped runners over the surface evenly, and then covering them with a light dressing of compost or soil. We have conducted some experimental work in the converting of redtop greens into bent greens by dibbling in pieces of bent runners or plants at relatively close intervals. The results so far have been very promising. It is, however, a rather expensive method. We think it would take one man a day to do approximately 200 square feet, although an experienced man might do much more than this. It leaves the green a little rough for a few days, but after it has been rolled and cut it is put in a very good condition for play. We are also trying to convert redtop turf into bent turf by reseeding, and although this seems to be a rather slow proposition, we think it can be accomplished in time. The subject of the vegetative propagation of bent grasses has been quite fully discussed on pages 124 to 126 of the 1921 volume of the BULLETIN, and on pages 100 and 248 of the current volume.

4. Addition of sodium nitrate or ammonium sulfate to the compost pile.—On page 36 of the February number of the BULLETIN you describe a method of composting straw by the addition of sodium nitrate or ammonium sulfate. What quantity of these chemicals would you advise adding to the compost pile?—(Massachusetts.)

In the article you refer to it will be noted that 100 pounds of sodium nitrate or ammonium sulfate is added to one ton of straw. A ton of straw, however, would be considerably more in bulk than a ton of manure or of sod. We should think that for ordinary manure just as it comes from the stable 25 pounds of either of these chemicals would be sufficient for one ton. If ammonium sulfate is used, it is well to add about equal parts of pulverized limestone, as the reaction does not take place under acid condition, but only under neutral or alkaline conditions. We might add that this method of making compost with large amounts of straw or similar material has been used with success by several golf clubs in the United States.

5. Removal of crab-grass infested turf to prevent recurrence of crab-grass on replanted greens.—Where greens infested with crab-grass are replanted either with seed or by the vegetative method, is it any protection against future growth of crab grass to remove the turf before plowing?—(Pennsylvania.)

There will probably be no appreciable effect on crab grass by removing the turf before plowing.

6. Digger wasps.—We are enclosing a specimen of insect that has been infesting our greens and fairways for the past week. Early in the morning some greens are literally covered by them, and the casts they have made are many on every square foot. We are fearful of destruction by the product of the eggs, which we presume are deposited. Will you kindly identify the bug and advise us about getting rid of the pest?—(Virginia.)

The insects in question are specimens of a beneficial digger wasp known to science as *Scolia dubia* Say. This insect is known to be the principal parasite of the grubs of the green June-beetles which are so troublesome on golf links throughout the eastern part of the United States. You need have no fear, therefore, of any unfavorable results of the present great abundance of this wasp, as it probably means a great reduction in the number of green June-beetle grubs during the next year or two. It would be well worth while to put up with any temporary inconvenience by the presence of these wasps rather than to undertake their destruction.

7. Digger wasps.—We have been troubled lately with holes on our course, with heaps of earth—in some places as large as 6 to 9 inches—worked up behind them. They appear in the rough and in some places in the fairway, where they are very numerous. We are at a loss to know the exact cause. Last summer we had a similar attack. We are sending to you a species of a large fly which we found coming out of one of the holes. Kindly identify this specimen for us, and advise us with regard to the matter.

This insect proves to be a species of digger wasp known to science as *Chlorion (Ammobia) pennsylvanicum* Linn. Agriculturally speaking, this is a beneficial insect, as it provisions its nest with grasshoppers and crickets, although we realize that its presence on the links may become a serious annoyance. It ought to be possible, however, easily to discourage its efforts by the application of an infusion of tobacco stems or a little kerosene emulsion or a similar offensive substance to the soil in the areas affected by these wasps.

8. Bermuda grass (wire grass) as an asset and as dangerous weed.—What is your opinion on the availability for fairways of a kind of wire grass abundant on the island which spreads like Bermuda grass—(Maryland.)

This so-called wire grass is the common Bermuda grass of the south. While it makes a very tough turf and grows freely during hot weather, it

turns brown with the first heavy frost in the fall and is unsightly all the rest of the winter and spring. It does not start growing until the hot weather comes in the late spring. There is quite a lot of this on your land and you will not be able to keep it out of all of your fairways. The heavy crop of cowpeas this summer will tend to reduce the stand of wire grass, but we do not think this will eradicate it all by any means. It is one of the most difficult grasses we know of to get rid of when it gets into the soil. We would not encourage the growth of it any more than possible, and would use considerable care in keeping it away from the putting-greens. It is a serious weed pest on putting-greens in your latitude, due to the coarse stems, which will deflect the ball in putting unless kept covered with top-dressing, as they do in the south, where they can not have anything but Bermuda greens.

9. Objections to red fescue as a fairway grass.—We have about decided to seed our fairways to fescue, for the reason that the seed which was supposed to have been planted in the putting-greens several years ago and which had been blown out by a heavy wind and lodged on the faces of some of the traps guarding the greens, had germinated, and a very healthy plant resulted. We have examined these plants and found that they sent the roots down quite deep into the gravel faces of the traps. The seed had had practically no water, and, of course, no attention, but still had grown under most adverse circumstances. We naturally felt if fescue would do that in gravel with no attention it would thrive very much better on the fairways with some fertilization and intensive irrigation. Have you any recommendations to make with regard to this procedure?—(Colorado.)

While red fescue will grow on poor soil and under conditions too dry for the successful growing of bluegrass, we do not favor it on fairways, because of its almost universal tufted habit of growth. There are some red fescue plants which will spread and make a desirable spot of turf, but it has been our experience that this kind of seed is rare. The usual result is a lot of little tufts 2 or 3 inches in diameter with bare depressed spots among them. For that reason we much prefer bluegrass and redtop.

10. Ridding a putting-green of redtop.—We sent you recently a box containing samples of grass which were taken from our putting-greens. Last spring we sowed 50 per cent Chewings fescue, 25 per cent redtop, and 25 per cent bluegrass. Owing to a late start in seeding and a very early hot spring (we had really no spring) no results were obtained. We tried protecting the green with hay, but all to no avail. Late in July we uncovered the greens and they at once started to grow very thickly with redtop. We thought it was the fescue delayed in germinating and left it, but it proved to be disastrous; for we had a bad time trying to get rid of it. There were hardly any signs of bluegrass, but the redtop was good in spots. Last fall we sowed straight redtop and got a good growth and it has stood the winter well. Now we are going to sow straight bluegrass and this fall bent or red fescue, whichever is in the market and is considered good seed. We are just cutting out the redtop with knives, for that seems to be the only way. Kindly advise us with reference to this matter.—(Minnesota.)

The grass you sent is redtop. It always behaves as it has with you in this instance. It is very fine when in the seedling stage, but after about six months of growth it begins to turn coarse and then becomes unsatisfactory for putting-green purposes. If you have quite a quantity of the red fescue scattered through the turf it may eventually crowd out the redtop, and if so you will have a red fescue green eventually. You probably understand that the Chewings fescue is a strain of red fescue grown in New Zealand.

11. Bluegrass and white clover as a northern putting-green turf.—Until we read your article on page 208 of the July number of the *BULLETIN*, we were not aware that you advised a mixture of bluegrass and white clover to be sown to produce a putting-green turf. In fact, we thought you advised against those grasses if fancy redtop could be had in preference. Of course, we understand that the bent or fescues are much the best, but we refer now to the cheap, easily-maintained green you describe. We notice that you do not mention redtop at all in this article. Can you give me any information with reference to this?—(Kentucky.)

The reason bluegrass and white clover for a cheaply maintained, permanent putting-green are recommended is because these plants are long-lived, while redtop, under putting-green conditions, is a short-lived grass. There is no objection to using the redtop seed for short-lived greens, but it must be seeded nearly every year, and besides this it is subject to brown-patch. These are the reasons which make us believe that for permanent greens the bluegrass-white-clover mixture is the best for low-cost cheaply-maintained greens.

12. Eradication of yarrow from putting-greens.—One of our greens was seeded to the bent grasses. The stand of grass obtained was very good, but it was also very full of weeds. Most of these have been eradicated, with the exception of the yarrow, of which there is an unusual amount. We have been after it constantly, but from the nature of its growth it gives us a great deal of trouble. The roots branch or creep out and put up new plants very rapidly, and weeding them out causes considerable damage to the green. Can you make any suggestion to help us in this matter?—(Ohio.)

We regret to say that we have no definite data on this subject. Yarrow has been regarded by many as making very satisfactory putting-green turf. In fact, its use on putting-greens has been advocated by some. We presume it is partly because of the favorable opinion regarding it that little work has been done in the way of its eradication. A few years ago we studied its habits somewhat and found, as you have, that it has an exceedingly vigorous root system. We do not think it possible to eradicate yarrow by means of herbicides or other common methods of treatment.

13. Use of mucks and peats.—We are mailing sample of soil, under separate cover, of which please give analysis of fertilizing qualities and advise if same contains toxins injurious to grass.—(Missouri.)

The sample of soil you sent is evidently a good muck. We do not make analyses of soils or mucks, as such analyses do not give any information commensurate to their cost. The mucks and peats are all very much alike in their value as fertilizers, and the only thing one has to guard against is whether or not they are toxic. This condition depends very largely upon the character of the underlying rock or soil. If you will take a box full of this substance and plant it to grass seed you can tell very quickly whether or not it contains any toxins. If the grass grows vigorously it is all right. If shortly after it germinates it turns yellow and dies it is to be avoided. In general we consider mucks and peats valuable mostly for use in connection with compost piles. They may also be employed for plowing under either in connection with clay or sandy soils, but we do not regard them as valuable for top-dressing if used alone. For this latter purpose they should be mixed with or incorporated in the compost pile.