

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.

Southern green June-beetle not affected by top-dressings of sand.—I notice that in Question 8, on page 263, of the December BULLETIN, the suggestion is made that greens regularly top-dressed with sand are immune to the ravages of the Southern green June-beetle. The editors invite clubs to contribute their experience on this point. I wish to say that a number of the old greens at Pine Valley were built on sand and have little else in their composition, and the grub of this beetle seems to like them first rate. Also, at Pine Valley in the rough, which is nothing but sand, there are thousands of places where these grubs are working, and from this it would seem that top-dressing with sand would in no way affect them.—Alan D. Wilson, Philadelphia, Pa.

1. Grass mixtures for tees; hard fescue; meadow fescue; yarrow.—In regard to the grass mixture for tees, you advise 4 pounds of Kentucky bluegrass to 1 of redtop. The ——— Company's formula is 60 per cent Chewings fescue, 10 per cent hard fescue, and 30 per cent redtop; the ——— Company's formula is 30 per cent meadow fescue, 40 per cent Kentucky bluegrass, 28 per cent Chewings fescue, and 2 per cent yarrow.—(New Jersey.)

There is no particular objection to either of these mixtures nor is there any particular merit in either of them, and each will cost far more than the bluegrass-redtop mixture and not give any better results. Chewings fescue is rather expensive and usually low in germination. There is no hard fescue seed on the market; everything sold under that name is sheep's fescue, which is a damnable grass to put on a tee. Meadow fescue is a good grass for meadows and pastures in the Northern States, but has no particular merit on fairways or tees. We do not see any particular advantage in the yarrow. A general rule which may be advantageously followed in order to ascertain what will make satisfactory turf for your tees and fairways is to note what kind of grass commonly makes up the lawns and pastures of your immediate region. That is the grass for you to use. It does not make any difference in a bluegrass region what seed you sow, as you are going to get bluegrass. In a Rhode Island bent region you can sow anything you please, but the end results are going to be Rhode Island bent. We therefore have recommended the two grasses which are most generally satisfactory in your region, namely, bluegrass and redtop, the redtop being comparatively short lived but the bluegrass long lived.

2. Ground oyster shells in grub extermination; undesirability of lime.—I am enclosing a letter from the ——— Company urging us to use their ground oyster shells to rid our turf of grubs, through the counteracting of the soil acidity which will result from applications of the ground shells. Your advice will be appreciated.—(Pennsylvania.)

Ground oyster shells are comparable, agriculturally, to ground limestone, the two being of equal value. Where it is wise to use lime agriculturally, there is no question as to the merits of ground oyster shells. We

would add, however, that there is absolutely no evidence, and we think practically no likelihood, that the use of ground oyster shells, or any other form of lime, would have the least effect on grubs. In regard to the general use of lime on golf courses, our present judgment, based on our experiments and much experience, is that for the grasses desired on golf courses the use of lime is practically money thrown away.

3. Compost as a putting-green top-dressing; preparation of the compost; hydrated lime, burnt lime, and peat in the compost.—We plan to use the following compost as a top-dressing for putting greens: 6 inches of peat mixed with lime, 2 inches of sand, 12 inches of barnyard manure; repeat and top the pile with 4 inches of natural top-soil; turn after 2 months, and thereafter every 4 to 6 weeks. Our soil, generally speaking, is heavy clay. Peat, sand and loam were used in making the top soil for the putting-greens.

Can you suggest any improvement on the above, relative to our conditions?

What quantity of lime should be used? An article in the March BULLETIN entitled "The Use and Abuse of Lime" advocates using about 10 per cent with peat; another, in the April BULLETIN (page 55), commenting on formula No. 2, suggests 25 pounds of lime to a ton of peat.

Our peat or muck is taken from the top soil of cultivated land. If, by testing it in a shallow box, grass seed should grow and thrive in this muck, would it still be advisable to mix it with lime in the compost pile?

If lime is used, should it be mixed in with the peat before composting, or could it be applied as a layer directly on top of the peat?

The suggestion is made not to allow the lime to come in contact with the manure. Under our formula the pile is to be broken down and turned after a 2 months' period, which would bring lime and manure in contact. Would this produce an ill result?

Is hydrated lime the proper form for this purpose?—(Indiana.)

The compost you plan to use as a top-dressing for putting-greens appears to be satisfactory.

We suggest that you limit the amount of lime added to the peat to 25 pounds of lime per ton (about a cubic yard) of peat. We are becoming more and more convinced that much of the weed trouble on golf courses is due to the injudicious use of lime. We are not ready to condemn the use of lime entirely, but we know that there has been much more lime used than is good for growing fine turf.

If grass grows in your test-box of muck, without any sign of turning yellow or killing, we do not believe that lime would be of any advantage whatever to the compost pile.

The lime could be used in either manner just as satisfactorily, except that it would require more labor to mix it with the peat.

The small amount of lime we recommend would probably result in no loss of fertilizing elements from the manure. It is true that lime mixed with manure causes the loss of nitrogen, which is liberated in the form of ammonia, but there is little danger of this in a compost pile, as the ammonia is absorbed about as fast as it is made. As to the time of turning the compost pile, this depends altogether on whether fermentation is rapid or not. If the pile begins to heat up (which can be determined by feeling it with the hand, or by its beginning to "steam"), it should be turned over immediately, as there is a considerable loss of nitrogen from fermenting manure. Another method of keeping the heat down is to turn on the hose and wet the pile thoroughly to cool it off.

Either hydrated lime or ground limestone is suitable for mixing with the peat. Burnt lime could be used if allowed to slack before mixing.

4. **Putting-greens and tees: reseeding; remodelling; grasses for.**—Our greens were well designed for surface drainage and there is little evidence to indicate that the underdrainage is not all right. The soil is a rather stiff clay loam and produces fair farm crops. The greens were built with thin top-soil and no particular treatment given to the sub-soil. Mushroom soil has been added for the last two years. At the present time (December) the greens are in only fair condition. All but one green consist mostly of redtop with some bluegrass, bent and fescue. One green built like the others was sowed with almost pure bent, and it is really a fine green, showing that bent will do well in this soil.

The difficulty of obtaining good bent seed and its present cost prohibit a heavy sowing of this seed. With, say, 600 pounds of bent divided between spring and autumn sowing, with approximately the same amount sowed each year, do you believe it can be established in a few years so that it will crowd out most of the other grasses?—(Pennsylvania.)

We have rarely seen any results follow the putting of additional seed on a green. If you do it, we would advise using relatively small amounts to each green; and fall seedings are preferable to spring seedings. Where there is already a reasonably good stand of grass on the green, fertilizing by top-dressing or otherwise will usually stimulate the grass sufficiently so that it will cover all thin or vacant places. Grass seedlings have very little chance in competing with established grass.

What seed would you advise for sowing new tees?

The problem of tees is a difficult one, particularly where crab-grass is bad. We would think, however, that a mixture of bluegrass and redtop would be as satisfactory as anything under your conditions. If your tees are bare now, the best plan would be to sod them in the spring, as in seeding a tee the grass gets little chance of becoming really established under teeing conditions.

One green will have to be remodelled. Would you advise lifting the turf and building up the green as early in spring as possible?

In remodeling a green, we certainly would advise lifting the turf, building the green in the form you want it, and then relaying the turf. You will find two articles on this subject in *THE BULLETIN*, pages 33 to 36 and 132 to 136, of 1921. After your turf is relaid, it should be lightly rolled and then top-dressed. At the time you remake your green every effort should be made to get the top 6 inches of soil on the green an ideal loam.

We expect to seed a green this spring for clock-golf and practice putting. Would you advise red fescue or redtop, or a mixture of the two? We want to use all the bent seed we can for the regular greens.

We would advise the use of bent if you can possibly secure it. If you cannot get bent use straight fescue. You ought to get good results from straight fescue, but not when the fescue is mixed with other grasses. Redtop is decidedly inferior to either bent or fescue.

5. **Preparing for an experimental grass garden; grasses for putting-greens and fairways.**—We are preparing a plot 100 by 150 feet for the purpose of trying out a few of the various grasses in order to find those most suited for our course, and would be pleased to get your suggestions in detail, also a supply of seed of absolutely pure strain. The piece of ground we are using is in the center of the rough between two fairways. The soil is a good dark loam with a sand and gravel subsoil. We figure on plowing under a carload of manure, about 25 tons, and letting it lie for the winter, working it up as soon as the frost is out of the ground next spring. We thought of laying out 36 plots 8 feet square

for various seeds, and on the other 100 by 125 propagating vegetatively creeping bent if we could get the stolons next spring.—(New York.)

We shall be glad to send you vegetative material to plant your vegetative garden in early spring, of the area 100 by 125 feet. In regard to seeds for your 36 small plots 8 feet square, let us know what you want and we will endeavor to supply as many as possible and advise you where to get the others. We would suggest in a general way, however, that for putting-green purposes you are practically limited to redtop, German bent, Rhode Island bent, and Chewings fescue; and for fairway purposes to bluegrass, redtop, white clover, meadow fescue, and of course any of the putting-green grasses. There are various other grasses which might be of interest to you to test in these small plots just to see how good or how bad they are. Let us know your desires more in detail.

6. Grasses for gravelly places; sheep's fescue as a fairway grass.—Would sheep's fescue be good on some gravelly patches we have on our fairway? It has done wonderfully in the rough where the top-soil has been skinned off.—(New York.)

Sheep's fescue is not very desirable on the fairway unless mixed with some creeping grass that will fill in the interspaces. The tufted habit of sheep's fescue makes it certain that it will give you cuppylies, which are undesirable. Both sheep's fescue and red or Chewings fescue grow very well on gravelly soil, and we would suggest you mix seed of the two and plant on the gravelly spots of your fairway. It would do no harm also to mix in a little redtop, as this frequently does very well on gravelly soil. We feel sure that with this mixture you will have satisfactory turf on the gravelly parts of your fairway. If the areas are not too large, it would be well also to top-dress such areas with a quarter or a half inch of soil.

7. Improving drainage.—How can we make the fine grasses grow on the low parts of our putting-greens, which are quite undulating and have not good surface drainage and are easily flooded? The water seems to leach out of the soil everything that is of value, so that only the coarse grasses will grow. We covered those parts with mushroom manure this fall. What better could we have done?—(Illinois.)

We do not think you will ever be able to grow good grass on the greens you speak of while they are in their present condition. The only thing to do with such greens is to build them up so that both surface drainage and underdrainage are good. All greens in low soggy ground should be built up so that the back of the green is 3 to 5 feet above the moist surface and the green slopes down to the front, which should be at least a foot above the surface of the moist soil. Many putting-green troubles are due to insufficient drainage, and the remedy is to provide better drainage even if it means entirely new construction.

8. Waipu brown-top.—I received a sample of seed from New Zealand called "Waipu brown-top," which I understand is a species of bent. I would be pleased to know if it is of sufficient value for putting-greens.—(Kentucky.)

"Waipu brown-top" is a new name to us, but the seed is that of *Agrostis tenuis*, harvested in New England under the name of Rhode Island bent and in New Zealand under the name of Colonial bent. It is an excellent grass for putting-greens, scarcely inferior to the South German mixed bent.

9. Reseeding putting-greens and fairways.—We seeded our new fairways and greens at * * * in August and the first part of September. In the

fairways we used 60 per cent of New Zealand fescue and 40 per cent of redtop. There are many bare spots now (December) or sparsely germinated spots through these fairways. On the greens we used Rhode Island bent; they likewise do not show good germination. As this work was done under the direction of Mr. * * *, we have asked him what was the cause of the poor germination, and he states that as both seed had been tested and proved satisfactory the poor results were due to lack of rain. He advises that early in the spring we should clean up the sparsely grown areas and reseed them. We ask for your advice as to whether we should use again the Rhode Island bent for the greens and the above proportion of fescue and redtop for the fairways, or should we use some other seed?—(Rhode Island.)

We would advise you to reseed the bare spots and the thin places just as early as frost is out of the ground in the spring. It might be well to rake the spots lightly, but it will suffice if you simply seed on the surface and then cover with a light top-dressing. This last method would certainly be preferable on the putting-greens. We would advise you to use exactly the same grasses as you used previously.

10. **German bent vs. Rhode Island bent.**—Please tell me the difference between German bent and Rhode Island bent. Would you advise us to buy Rhode Island bent in preference to German bent, or vice versa?—(Minnesota.)

Rhode Island bent is all *Agrostis tenuis*. German bent usually consists of 50 to 60 per cent *Agrostis tenuis*, 10 to 25 per cent velvet bent (*Agrostis canina*), and a very small percentage of creeping or carpet bent (*Agrostis stolonifera*). The Rhode Island bent seed harvested in this country is good in quality, but not well cleaned. However, there are no troublesome weeds in the trash mixed with the seed. Other things being equal, we should somewhat prefer the German bent.

11. **Grasses for northern putting-greens; bents and redtop.**—We have everything ready and are about to change two of our putting-greens. We find that we can not get any South German bent anywhere, but can get some Rhode Island bent. The only thing we can see to do is to sow the greens early next spring to Rhode Island bent and redtop in the proportion of two parts of the former to three parts of the latter, with the idea of raking the greens thoroughly and sowing South German bent as soon as we can buy it.—(Maryland.)

Under the circumstances we think the wisest thing for you to do would be to seed your putting-greens to straight Rhode Island bent. Redtop is not so bad as a temporary expedient, and particularly in view of the fact that it will not remain in your putting-greens longer than two years.

12. **Alkaline soils and bent grasses.**—Would it be advisable to sow bent grasses in soil of an alkaline nature provided I can convert its chemical nature to an acid condition through the use of ammonium sulphate applied to the soil when being prepared and with subsequent applications from time to time? We are to build a course in Montana, where most of the soil is very alkaline, which naturally is adapted to bluegrass and redtop.—(Montana.)

The bent grasses have a wide range of tolerance from acid conditions to alkaline conditions, and we have little doubt that they will succeed on your soils, if bluegrass and redtop succeed. We think it would be wise for you to use ammonium sulphate as your fertilizer, as this would tend to reduce the alkalinity, while the use of nitrate of soda would tend to increase it. It takes a very long time to change even a neutral soil to an acid soil with the use of fertilizers, and of course it would take much longer to change an alkaline soil.