

GIVE US YOUR 1924 EXPERIENCE WITH BROWN-PATCH.

We are anxious to learn of your 1924 experience with brown-patch, both the large and small kind.

Please write us fully, giving us (1) the date or dates of appearance, (2) severity of attack, (3) measures used to combat, and particularly (4) the results you have gotten from any of the new fungicides.

It is planned to publish a full report on all the brown-patch data for 1924. Your cooperation is wanted in gathering information on which to base our report.

Getting Efficiency Out of Motor Equipment

By W. R. Hurd, 2d, United Shoe Machinery Athletic Association, Beverly, Mass.

We have been very much interested in motor equipment for cutting fairways and rough. We have 3 tractors, equipped with brakes and governors, and 2 fairway cutting units. One tractor is equipped with a bar cutting-attachment, for cutting the rough, and it is doing the work very satisfactorily and cheaply. We have standardized on a certain make of tractor with agencies throughout the country, and can thus always get service and repair parts when needed. Our problem here has never been one of service, so far as knowledge of the operation of gasoline motors is concerned, but rather ability to get spare parts promptly. There are usually plenty of good mechanics who understand gasoline motors as well as overhauling and repairing tractors, who have to work outside in the summer on account of their health, who are only too glad to get this kind of work and are employed as unskilled laborers at the topnotch unskilled labor wage. We believe that the main problem with regard to golf course equipment is always to have a spare unit irrespective of whether you need it or not. When it comes to a fairway cutting machine breaking down at the end of a rainy week, it means a course in very poor condition; and we all know how important Saturday and Sunday play is to the average golfer.

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. RESULTS OF SPIKING TURF.—Our fairways, which are Bermuda, have become baked very hard. Our course is just entering into its second year and has been played over only since last July. It seems to us that the ground should be aerated, and we have tried to do this with several kinds

of harrows, but without any benefit to the fairways. We believe that a spiker is what we need, and will appreciate your advising us what you think of the use of a spiker on our fairways. (Georgia.)

ANSWER.—There has been much said about the spiking of bent and bluegrass turf in the North, and there are still some who think that this method has merit, but in most places, at least where it has been tried under properly checked conditions, it has been abandoned. We believe the condition of fairways can be benefited by top-dressing.

2. COVERING PUTTING GREENS IN WINTER.—Our greens did not winter very well last year, and we have about come to the conclusion to cover them this coming winter. As soon as the greens have frozen up, our plan is to cover them with a half-foot to a foot of good, clean straw, putting a little brush or something on to hold the straw in place. By using straw we thought that as the warm days came in the spring it might be fairly easy to roll off part of the straw, and yet with a sudden turn of cold weather, having straw on them, it would not be such a very long job to get some covering back. We feel that we can harden our grass more easily by using straw than by other materials. Our greens have recently (November) had our so-called "winter dressing" of bone meal and sand and are in rather good shape. We realize that a covering on the greens will not offset poor drainage. We still think, however, that we had some winter-kill where it was impossible for water or ice to stay on the green. Very early last spring we had two or three very warm days—rather record-breakers, which we think started the grass just enough to let it be caught by the very severe cold weather that followed. Now if this grass had had a covering of straw which would have hindered the early start a little, or if it had been protected a little by covering for the cold later, might not some of the grass have been saved? The considerations that induce us to propose the use of straw in place of other materials are that it could be easily put on or taken off a green quickly, it would not force the grass prematurely as manure might, it might be more free from weed seeds, and the straw could be easily cleaned up and would have no odor. What is your advice? (Massachusetts.)

ANSWER.—In Minneapolis they have had experience with endeavoring to protect greens from winter cold by covering them. In the first winter of the trials they thought the results were good; in the second winter of the trials the results were decidedly bad, the greens suffering much more than those left exposed. It is well to remember that where grass is protected by a thin covering of straw or brush it will start growth early in the spring, and if the brush is removed at that time a subsequent freeze may kill some of the grass. This can probably happen under normal conditions; that is, a spell of unusually warm weather followed by a heavy freeze may result in some killing of the grass. This is clearly a possibility and not unlikely occurs, although we have no direct proof except the experiences one year at Minneapolis. If the straw or brush is put on too thickly the grass will be killed by smothering. In the light of our present knowledge, the protection of putting greens by such artificial covering can not be recommended. We think it might be well to watch the greens through the winter, particularly to see that no great snowbanks accumulate on any green, as during the melting of these snowbanks the ground at the base becomes soggy, and then a freeze will do much damage. We are very

positive that the most important thing of all is to have the greens well drained and keep them well drained, even from such incidental things as accumulations of snowbanks.

.3. TOP-DRESSING BERMUDA GREENS WITH BARNYARD MANURE.—We have been in the habit of buying barnyard manure every year and letting it stand for two years, and then screening it and mixing it with sand and using it as a top-dressing. We have put this on our Bermuda greens about the first of each year, after closing our regular greens, and have let the greens stand idle until about the 15th of May, when the Bermuda starts to come through. Personally I feel that this is useless and an extra expense as a winter practice. Would it not be better to save this dressing until the Bermuda starts to grow in the spring? I also believe that the manure we are using is not old enough nor well enough rotted. Do you think we would get better results from the use of humus as a top-dressing than from the use of manure? (Tennessee.)

ANSWER.—Well-rotted barnyard manure is excellent for use as a top-dressing even if it is only one year old; it will however continue to get better if permitted to rot for several years. The best method of rotting it is the use of compost beds, as described in *THE BULLETIN*, Vol. I, (1921), page 52. This material can be used as a top-dressing on Bermuda greens any time during the winter or in early spring before the Bermuda begins to grow. If the material is well rotted the best time to use it would be just before the Bermuda begins to grow. If the manure is, however, relatively fresh it would be safe to apply it to the greens at any time during the winter, as it gets washed into the soil, and any straw or other material remaining can be raked off in the spring. As regards humus, if you mean the commercial material, we would advise you to let it alone absolutely. It looks like good stuff but, practically speaking, in most cases is worthless if not harmful.

4. RIDDING COMPOST OF WEED SEEDS BY HEATING OR OTHERWISE.—Our experience with compost as a top-dressing leads us to believe that a large part of our weed trouble is due to weed seeds which are introduced with the compost. In order to rid our compost of these weed seeds it has been suggested to us to bake the compost in a pan over a fire or to treat it with live steam. Is this procedure practicable? Is there not danger of destroying the effectivity of the plant food in the compost when it is thus heated? (Massachusetts.)

ANSWER.—While considerable has been written and said with regard to the killing of weed seeds in soil, no very satisfactory means of accomplishing this purpose have come to our attention. We are experimenting on the treatment of compost with a liquid or gaseous substance which will kill the weed seeds contained but which will not injure the compost. As for the introduction of weeds through the use of compost, we are inclined to think that the danger of this is being exaggerated. It is true that weeds are generally found growing in abundance on compost piles but these weeds for the most part are not such as are likely to be troublesome on putting greens or fairways under continuous mowing. Furthermore, quite carefully conducted experiments indicate that where heat is spontaneously generated in manure piles, practically all the weed seeds contained are killed within a year or less. It is also true that if you could

apply compost absolutely free from live weed seeds, you would still have weed troubles, and many of them, and we are therefore not at all sure that applications of compost are responsible for any considerable percentage of weed troubles. It is practically out of the question to have first-class putting green turf without the use of compost, and we do not think you need fear using any kind of manure or similar organic matter in your compost piles. If you have to use manure which is not thoroughly rotted and contains a good deal of straw or similar vegetable matter, the decomposition of this vegetable matter can be speeded up by the addition of ammonium sulfate at the rate of about 100 pounds of ammonium sulfate to 1 ton of dry organic matter. As manure, however, generally contains a rather high percentage of water, it will require probably several tons of manure to represent a single ton of organic matter which is absolutely dry, varying with the percentage of water the manure contains.

5. FERTILIZERS FOR BERMUDA GRASS; POSSIBLE EFFECT OF LIME ON BERMUDA GRASS.—I notice you advise against the use of lime on golf turf. Does not ammonium sulfate create an acid condition of the soil, and does not Bermuda thrive better in an alkaline or neutral soil? (Louisiana.)

ANSWER.—There is some evidence that lime is beneficial rather than otherwise to Bermuda grass, which is not the case with bent and fescue turf. Nevertheless, Bermuda grass will stand a considerable degree of acidity. We are not in a position to say just what the reaction of the soil should be to get the best Bermuda turf—that is, whether it should be alkaline, neutral, or acid; but the indications are that its reaction to this fertilizer is not particularly delicate. It would be very interesting if next spring you could take a portion of one of your putting greens and treat it with lime and then note whether any beneficial results follow. In general we are afraid of lime, because regardless of its other effects it certainly nearly always encourages weeds, which are expensive things to handle on putting greens. In the light of our present knowledge we would advise you to stick to ammonium sulfate; it is a splendid fertilizer, and we doubt if it would produce an acid condition deleterious to Bermuda grass, and it certainly will discourage a lot of weeds.

6. GRASSES FOR FLORIDA LOCATIONS NEAR SALT WATER.—We are building a golf course near salt water and should like to know what grass you consider best suited for such conditions. (Florida.)

ANSWER.—For your fairways Bermuda grass, which will stand considerable salt water, will probably be the best grass to use. If, however, you should have difficulty with it, we suggest you try Joe Jointer grass, also called Seminole grass, which is a native grass common in low places in your location; it looks much like Bermuda grass, but its runners are more fleshy. For your putting greens use Bermuda grass. There are many strains of Bermuda grass, but the Arizona seed contains a considerable percentage of the finest strain of Bermuda grass of which we know, and which we call Atlanta Bermuda grass. You could be sure to obtain a pure turf of Atlanta Bermuda grass by starting a nursery of it with runners.

7. PLAYING ON PERMANENT GREENS DURING WINTER.—What is your opinion of using permanent greens during the early winter months? I

have always been of the opinion that temporary greens should be used at that time. During the month of December, when we have a fair amount of play, we get quite a few warm days, and I have always thought that playing on those days is very harmful to the greens. (Michigan.)

ANSWER.—Our conclusion, based on long observation, is that it does not injure the greens at all to play on them in the winter, provided care be taken not to play on them when the ground is frozen or when it is soggy from alternate freezing and thawing. The clubs here at Washington play on their putting greens all winter except when the ground is under the condition we have mentioned.

8. SEEDING AND FERTILIZING NEW PUTTING GREENS IN THE NORTH.—Which is the best and most suitable grass seed to purchase for this section of the country for seeding a new putting green? How much seed is needed for a green of 4,000 square feet? Which is the best fertilizer, and how much would be needed for the above green? (New York.)

ANSWER.—Undoubtedly the best seed for your purposes is South German mixed bent seed. On well-prepared ground, bent seed should be sown at the rate of 3 to 5 pounds per 1,000 square feet of surface. The best time to do this is about the first of September. The fertilizing of putting greens can be entirely controlled from the top, and this is the best plan to pursue. In the original preparation of the soil a small amount of barnyard manure should be used, which is the best of all fertilizers for the purpose. After the grass is established it may be top-dressed occasionally with good compost; this is necessary not only to keep the grass in proper vigor but also to smooth out inequalities of the surface. Apart from compost the only fertilizer you should use is ammonium sulfate, the use of which has been fully discussed in THE BULLETIN.

9. COMPARATIVE RESISTANCE TO BROWN-PATCH OF CREEPING BENT PRODUCED FROM SEED AND THAT PRODUCED FROM STOLONS.—Some of the finest greens that I have seen recently were planted a couple of years ago by the vegetative method, and yet in spite of this we have received advice from other golf clubs that we had better sow our new greens with seed than plant them from stolons, the point being made that the greens planted from stolons will be subject to brown-patch. Which kind of green is more subject to the disease, the seed or the vegetative green? (Connecticut.)

ANSWER.—Creeping bent greens planted with stolons are no more liable to injury from brown-patch than are creeping bent greens produced from seed. In fact, some strains of creeping bent are found to be more resistant to brown-patch than are other strains, and when stolons of these more resistant strains are used in planting a green less injury from brown-patch may be expected than if the greens are seeded.

10. USE OF POULTRY MANURE IN COMPOST.—There is a large quantity of poultry manure available to us. Do you consider this material good for making compost for top-dressing greens? (Illinois.)

ANSWER.—We have obtained very good results with poultry manure. If you are going to make a quick compost with it we would advise you to use it in the proportion of 10 pounds of finely-ground poultry manure to 100 pounds of good top soil, and to apply it after the two have been thoroughly mixed.