

intend to continue using seed, to get Penncross Creping Bent seed and sow this at the rate of one pound to 1,000 sq. ft. This is plenty of seed and, even though the price is high, \$10-\$12 per lb., you will find it economical in the long run.

If you decide to go to stolons, I suggest Pennlu creeping bent which is available from several nurseries not far from you. This is a vigorous creping bent that produces an excellent putting surface. But being vigorous it tends to become matted and will require more frequent and vigorous brushing, raking and combing to keep the putting surface free of fluffiness.

I am not quite sure. from your description, where the 3-ins. of topsoil fits into the picture. The 3-ins. of topsoil ought to be incorporated into your entire depth of prepared soil which, as you say is a 1-1-1 mixture. The trend today in the building of greens is to increase coarse sand content to provide more perfect internal drainage and to develop a deeper root system. I suggest that you increase the proportion of coarse sand to at least 2 parts so that you will have a 2 part sand, 1 part humus and 1 part topsoil.

Naturally, one of the most important factors in the development of a putting green where you are using a good bentgrass like Penncross or Pennlu stolons is fertilization. By amply fertilizing the seed bed before planting you will develop a putting surface much more rapidly and one that will beat out the weeds before they have a chance to get started. I particularly suggest the use of a complete fertilizer containing Urea-form. It will give you a more long-lasting effect and bring the grass to maturity without need for additional surface applications of fertilizer on young, tender developing turf.

## Where Was The Mistake

Q. Our soil mixture for the putting green is two parts peat, 2 parts black dirt and one part fine sand. This mixture is 8 ins. thick over a gravel base. Drainage is good. On Apr., 26, 1956 we used 12-12-12 fertilizer at 50 lbs. per 1,000. Watered thoroughly. On Apr. 29 we planted C-19 stolons at 10 bu. per 1,000. Rolled stolons and spread topdressing about 1% in. to 3/16 in. deep. Topdressing was 1 part peat, 1 part black dirt, 2 parts fine sand. Watered green often the first two weeks, after which we watered every night about sundown.

A natural organic was used every two ter three weeks at 20 lbs per 1,000 and topdressing applied after each application of fertilizer. Grass grew well until the first of July, then slowed up. By early Aug. the green was very poor. Aug. 13 the green was sprayed with fungicide and a repeat spray seven days later. We also started removing the dew early in the morning. The green soon showed signs of improvement and by mid-Sept. was doing satisfactorily. As we intend to plant nine greens soon, the question arises: what mistakes dide we make? Was the green diseased - if so, what caused it? With the slow seepage of water through the fine sand, did we water too much? We would appreciate your expert advice as to what caused our trouble. (Minn.)

A. In the planting of your new greens, I make these suggestions for changes. First the soil mixture 8-10 ins. deep over a gravel base would be better if it were composed of 35° parts coarse sand, 1 part black dirt and 1 part peat. This will give you much improved drainage through the soil into the gravel base. It will give better aeration and actually the green will not have to be watered any more often. In fact, it may not have to be watered nearly as often.

I find no fault with the 12-12-12 in the seedbed – the rate is all right, and the stolons vou used are all right, I sometimes feel that 10 bu. to 1,000 is a little too heavy, but I won't quarrel about that. Your topdressing should be precisely the same as the soil in the green. There should be no change here.

I believe your major difficulty was caused -

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(1) by the slow percolation of water through the fine sandy material; (2) the disease was caused by overwatering and (3) the influence of perhaps too much of the natural organic fertilizer that was applied a little too freuently during the hot part of the season. By all means make one application of a natural organic and then follow it in three weeks with an application of Urea-form fertilizer at 10 lbs. to 1,000 sq. ft. This should carry you quite well through the heat of the summer. If the growth should happen to slow down, another application of natural organic could give it a boost and then, in early Sept. another application of Urea-form fertilizer at 10 lbs. per 1,000 sq. ft. This should pretty well cover you for the entire growing season.

The treatment with fungicides is definitely recommended whenever disease appears on the green. The excess peat in the soil holding the moisture could have a lot to do with encouraging disease. I greatly prefer a soil that is more on the sandy side, using coarse sand instead of fine, so that the water drains through freely, thereby developing a deep root system and a more healthy turf.

If you would care to send me a small sample of ingredients you plan to use in making up your new mixture. I will be glad to examine the materials and give you a reply. A cupful of each, packed in polyethylene, packaged and mailed to Box 177, College Park, Md., will reach me without delay. You might send it parcel post, special handling.

## Metropolitan Golf Association **Publishes Caddie Manual**

Metropolitan Golf Assn., 40 E. 38th st., New York 16, N. Y., which published a caddie manual for club committees in 1956, has come up with a sequel, "A

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## Advantages Cited

In the foreword, MGA points out some of the advantages of caddying. The booklet advises the youngsters of types of caddies to avoid and discusses the game's etiquette. Another chapter brings the boys up-to-date on playing rules with which they should be familiar and a glossary of golfing terms also is included. There is a section describing the use of various clubs and another telling of the care and handling of players. Other chapters instruct the caddies in first aid, tell them how to go about carrying for players who use golf cars and give some tips on what to do during an electrical storm.

Tom Paprocki, Associated Press artist, illustrated the Metropolitan booklet.