

### Winter Brown-Patch in the South

Bermuda grass, the common putting green grass in the South during the spring, summer, and fall, fortunately seems to be immune to the brown-patch disease. It is different, however, with temporary winter greens of ryegrass and redtop. These latter two grasses are very susceptible to brown-patch in the North during the warm portions of the year, and have also been known to suffer severely in the South during winter when used as temporary turf for putting greens. Frequently on greens of this character the turf will turn brown in patches over night, and is very apt to be killed.

A large amount of experimental work in the control of brown-patch was carried on in the summer of 1925 near Washington, D. C., and the results of the experiments have been published in the BULLETIN, and summarized in the articles on pages 219 and 272 of the 1925 volume. Clubs having temporary greens of ryegrass or redtop should familiarize themselves with the control methods which have been found to be the most efficacious in our experimental work, and should be equipped to combat the disease at the first sign of its appearance.

In the control of brown-patch, too much emphasis can not be laid on the necessity for providing adequate drainage, both surface drainage and under-drainage. Perfect drainage does not necessarily mean immunity to brown-patch, but where the drainage is poor the ravages of the disease are sure to be much worse than where good drainage is provided.

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### A Method of Grub-Proofing Turf

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There can be no doubt that any method which would insure the growing and maintaining of the turf of greens and fairways free from attacks and injury by grubs and earthworms would prove to be a decided advancement over the present methods of golf course maintenance. That such an insurance against turf insect depredation is possible is indicated by the results of the past four years' experimental work conducted at our laboratory, with the object of producing grub-proof turf. While the experimental work is far from complete the information obtained to date is herein presented.

Grubs in turf arise from eggs deposited therein by beetles and certain other types of insects. These eggs hatch, and the grubs feed on the roots of the grass, causing injury, often to such an extent that the turf is entirely ruined. The grub of the Japanese beetle is an example of this type of pest, while there are many native species of grubs found in various parts of the country of similar nature and habits.

Earthworms are objectionable in turf, especially on greens, not because they feed on the roots of grass but because they are constantly bringing up small accumulations of soil, commonly spoken of as worm-casts, which litter the surface of the green and ruin it from the standpoint of appearance and play.

The present-day methods of controlling the above pests in turf