

particularly true of the plants grown at hay height.

These observations are interesting, but it must be remembered when interpreting them that the investigators were comparing grass grown as hay with that cut once a week to one-half inch during the early part of the season. It would be interesting to learn if there is any difference noticeable in the water requirements of bluegrass cut at 2 inches as compared with  $\frac{3}{4}$  inch.

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#### FUNGUS CAUSING SNOWMOLD

At Pennsylvania State College last year an attack of snowmold was observed on Colonial bent which has been considered resistant to the snowmold caused by *Fusarium nivale*. The affected grass, therefore, was studied critically by C. C. Wernham, who found the causal fungus to be *Typhula itoana*, which had been described earlier by Miss Remsberg in Minnesota as causing snowmold "on turf and lawn grasses in the eastern United States." He reported his observations in a recent issue of *Phytopathology*. The same treatments apparently are effective in the control of the two organisms. Wernham refers to the disease symptoms caused by *Typhula* as "Eastern Snowmold" to distinguish it from the snowmold caused by *Fusarium*

*nivale*. He does not present any evidence, however, which would seem to justify his broad conclusion that "the work of Remsberg and the writer indicate that snowmold in the eastern part of the United States is caused by *Typhula itoana* rather than *Fusarium nivale*."

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#### HOW DEEP SHOULD GRASS SEED BE PLANTED?

This subject has been studied in the past and in 1939 R. P. Murphy and A. C. Arny in Minnesota have published a report of their researches in the *Journal of the American Society of Agronomy*. They planted seed in five soil types, varying in texture from a loamy fine sand to a silty clay loam. Several species of legume and grass seed were sown in each soil type, one set in a greenhouse and one in the open. Among these species was Kentucky bluegrass, which was sown on the surface and at depths of  $\frac{1}{2}$ , 1, 2, and 3 inches. In every case but one more plants of this species were established, both in greenhouse and in field plantings, when seed was sown on the surface than when placed at a depth of  $\frac{1}{2}$  inch, though on the average there was little difference in the result from these two planting depths when seed was planted in the field. At 1 inch few plants were established

and at greater depths none came through.

While surface seedings may be successful on pulverized soil the Green Section has found that they do not succeed on established turf. In that case the surface is not loose and open, and rolling has no effect in covering the seed as it does on loose open soil. Experience on the Arlington turf gardens has taught us that when seedings are made on established turf without further treatment the seed is often washed off the small bare areas and into the surrounding grass clumps.

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#### BERMUDA GRASS TURF FROM SEED

In connection with the problem of establishing meadows and pastures of Bermuda grass in Arkansas, the factors involved in the establishment of this grass from seed were studied in nursery strips at the Arkansas Agricultural Experiment Station by E. L. Nielsen. For three successive years from 1938 to 1940, inclusive, he seeded well-prepared and leveled soil at the rate of 5 pounds to the acre at weekly intervals over the 14-week period from the last week in March to July 1, at 0-,  $\frac{1}{8}$ -,  $\frac{1}{4}$ -,  $\frac{3}{8}$ -, and  $\frac{1}{2}$ -inch depths. The aim was two-fold—to determine the most favorable depth of planting and the climatic conditions necessary for the

development of the best stand of grass. Hulled commercial Bermuda grass seed harvested in Arizona with an average purity of 93.9 percent and 86.6 percent germination was used for all the experimental seedings.

From the data presented in the Arkansas Agricultural Experiment Station Bulletin No. 409, Nielsen concludes that "seeding should not be made before a mean daily temperature of 65° F. is attained. Lack of sufficient moisture or low temperatures retarded seedling emergence and stolon development. Heavy rains retarded seedling emergence regardless of prevailing temperatures. Relatively high mean temperatures and sufficient available moisture favored rapid stolon development." Results also indicated that seed should not be covered to a depth of more than one-half inch.

Data were also accumulated indicating the importance of such factors as weed competition and winter injury on the establishment of Bermuda grass turf from seed. Isolated plants were rather easily killed as a result of the heaving of the soil in the winter, either following seeding or sodding. In areas where a definite sod had been established, however, there was little winter injury.

All of these plantings were made