Turfgrass research review

By Dr. James B. Beard

Turf Disease Research; 1965-66. T. E. Freeman. Proceedings of the University of Florida Turf-Grass Management Conference. 14:159-161. 1966 (from the Department of Plant Pathology, University of Florida, Gainesville, Florida, 32603)

During the winter of 1965-66, several fungicides were evaluated for effectiveness in controlling *Pythium (Pythium aphanidermatum)* on ryegrass. The fungicide treatments were applied at seeding on October 27 and again on November 9 and 16. A severe outbreak of *Pythium* occured in November. The following fungicides gave good *Pythium* control on ryegrass when used in a preventative spray program: Dexon, Dupont 1095 (an experimental), Fore, Memmi, Panogen Turf Fungicide, and Terriclor Super X.

Rust on zoysia was reported to be a continuing problem in Gainesville, Florida, although not as severe as in 1965. Field tests of rust control on bermudagrass show that Daconil 2787, Fore, Memmi, thiram, and zineb all gave effective control. The control achieved with zineb was most outstanding.

In another test, *Rhizoctonia* brown patch was effectively controlled on St. Augustinegrass with Fore (6 oz. per 1,000 square feet), Daconil 2787 (6 oz.) and Memmi (1.5 oz.) It was reported that isolates of *Rhizoctonia* from St. Augustinegrass and ryegrass did not differ in pathogenicity on the two grasses.

The Vegetative Establishment of Four Major Turfgrasses and the Response of Stolonized 'Meyer' Zoysiagrass (*Zoysia japonica* var. Meyer) to mowing Height, Nitrogen Fertilization and Light Intensity.
J.E. Gary, Jr. Master of Science Thesis from Mississippi State University pp. 1-50. 1967. (from the Department of Agronomy, Mississippi State University, State College, Miss. 39762.)

The establishment rate of Tiflawn bermudagrass, Meyer zoysia, St. Augustinegrass and centipedegrass were compared using three techniques: (1) stolonizing at the rate of two square yards of shredded sod per 1,000 square feet, (2) sprigging on 12-inch centers; and (3) plugging on 12-inch centers using two-inch diameter plugs.

Sprigging and plugging resulted in the highest percent livability for all grasses. However, stolonizing produced a faster rate of spread and a more complete ground cover. Bermudagrass had the fastest rate of spread followed in order by St. Augustinegrass, centipedegrass and zoysia.

Factors affecting the establishment rate of Meyer zoysia were also investigated at light intensities of (a) full; (b) 50 per cent shade; and (c) 75 per cent shade. Seventy-five per cent shade was very detrimental to the establishment rate of zoysia, especially at a mowing height of one-half inch. Full sunlight resulted in the most rapid rate of establishment.

Mowing at one-half or one inch did not affect the ground cover obtained under full sunlight. Under 50 and 75 per cent shade the one-inch mowing height produced a faster rate of spread than the one-half inch cut.

Comment—Under 75 per cent shade the one inch mowing height was superior to the one-half inch cut due to the greater leaf area available for light absorption. The higher light capturing potential will increase the amount of carbohydrates produced by the photosynthetic mechanism. The increased carbohydrate level is, in turn, utilized in a more rapid establishment rate.

Some Interrelationships Between Fertility Levels and Ophiobolus Patch Disease in Turfgrasses.
1967. R. L. Goss* and C. J. Gould. Agronomy Journal. 59(2):149-151 (Department of Agronomy, Western Washington Research and Extension Center, Puyallup, Washington).

The influence of various levels of nitrogen, phosphorous, and potassium on the development and severity of *Ophiobolus* patch (*Ophiobolus graminis Sacc.)* was investigated. The study was initiated in 1959 on Astoria colonial bentgrass cut at one-quarter inch. Potassium had suppressing effect on the amount of disease.

As the potassium fertilization rate was increased from 0 to 3.3 to 6.6 pounds per 1,000 square feet per year, the amount of *Ophiobolus* patch decreased, regardless of the phosphorous level. Similarly, as the phosphorous fertilization rate was raised) to 1.8 pounds per 1,000 square feet per year the incidence of *Ophiobolus* patch decreased.

The effect of three nitrogen fertilization levels (6, 12, and 20 pounds of N per 1,000 square feet) was more complicated.

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Early in the investigation the disease incidence increased with the nitrogen fertilization rate. As the turf matured, the *Ophiobolus* incidence was much more severe at 12 pounds of nitrogen that at the 6 or 20 pound rates. It was suggested that the stimulation of new root growth at the highest rate of nitrogen fertilization may have overshadowed the adverse effect of increased susceptability of individual roots to infection, thus providing an escape mechanism.

Comments—Ophiobolus patch is a turfgrass disease which, to date, has been confined primarily to the Pacific northwest region. As illustrated by this paper, the seriousness of a disease on a turf can be manipulated by the fertilization practices.

However, fertilization must not be the primary basis for disease control. The basic objective of fertilization is to provide for the proper nutritive requirements of the turfgrass plant in order to maintain the desired health, vigor and level of growth. If in achieving these objectives, some degree of disease control is obtained, so much the better.

Fertilization practices should not be altered with the objective of achieving a reduction in disease incidence if there is also a loss of turf quality and health. Diseases are best controlled by the proper use of fungicides.

A side note to this study was that the high levels of urea used in this investigation critically lowered the soil pH level.

Other papers of interest.

Evaluation of Mulching Methods for Erosion Control on Newly Prepared and Seeded Highway Backslopes.

A. P. Barnett, E. G. Diseker, and E. C. Richardson. *Agronomy Journal.* 59(1):883-85. 1967. (Southern Branch Soil and Water Conservation Research Division, ARS-USDA, Watkinsville, Georgia).

Water Requirements as a Function of Clipping Height and Frequency.

J. R. Watson. California Turfgrass Culture. 17(1):1-3. 1967. (Agronomy Division, Toro Manufacturing Co., 8111 Lyndale Ave. South, Minneapolis, Minn. 55420).

Variations in the Total, Nonprotein and amide Nitrogen Fractions of *Agrostis palustris* Huds. Leaves in Relation to Certain Environmental Factors.

J. B. Beard and W. H. Daniel. Crop Science. 7 (2):111-115. 1967. (Department of Agronomy, Purdue University, Lafayette, Indiana 47907).

Water in the Right Amount in the Right Place at the Right Time for Turf.

E. C. Roberts. Massachusetts Turfgrass Conference Proceedings. pp. A-31-39. 1967. (Department of Ornamental Horticulture, University of Florida, Gainesville, Florida 32603). □