

CLEMSON UNIVERSITY - Dr. A. Robert Mazur, Project Leader

Funds Granted - \$3,000 — Investigations of the Influence of Fungicides on Availability of Nitrogen Fertilizer Materials for Putting Green Turf.

Studies have been initiated on both bentgrass and bermudagrass putting greens to determine the efficiency of nitrogen utilization under normal management conditions. Previous studies have implicated several fungicides with suppressing nitrification in soils. Many of these fungicides are widely used on turfgrass areas and with particularly high frequency on golf putting greens. Nitrogen will be monitored in leachates, soil samples and plant tissue. Investigations will be conducted to determine the influence of different fungicides on organisms in putting green soils as well as on the rates of mineralization and denitrification.

CLEMSON UNIVERSITY - Dr. A. Robert Mazur, Project Leader

Funds Granted - \$2,000 — Warm Season-Cool Season Combination Turfgrass Study.

A continuing study - several promising common bermudagrass selections have been made which exhibit open type growth which better lend themselves to over-seeding with cool season grasses. Several new bluegrasses, bentgrasses and tall fescues that show promise under Piedmont conditions are being overseeded to determine which best complement these bermudagrasses.

Various management practices are also being imposed and studied for their impact on combination turf. Varied fertilizer treatments, mowing height, vertical mowing and auxiliary cultural practices are to be imposed. Population shifts will be observed and reported. This combination cool season and warm season concept appears to have promise, particularly in the new era when conservation of resources has come to the forefront. If the system is perfected, dollar savings in golf course management will be realized.

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COLORADO STATE UNIVERSITY - Dr. J. D. Butler, Project Leader

Funds Granted - \$1,000 — To Study Establishment Techniques and Management Criteria for Alkaligrasses As They Relate to Golf Course Management.

Management at 1/4 inch putting height showed good results in spring but with higher summer temperatures alkaligrass did not do as well as the bentgrasses. At 3/8 inch cut in 1976 it performed better than at 1/4 inch in 1977 tests.

Fertilizer studies in 1977 indicated that alkaligrass improved in appearance with increased rates of nitrogen which ranged from 1 to 8 pounds per 1,000 square feet.

Studies also involved the use of tap and sea water to germinate seed of several grasses including Lemmon alkaligrass, Weeping alkaligrass, Merion bluegrass, Seaside bentgrass, Pennfine perennial ryegrass and Dawson red fescue. No germination was obtained with sea water unless it was diluted with 25% or more of fresh tap water.

The use of poorer quality water in the future is a definite prospect on golf courses and these tests make a contribution to our knowledge in that direction. It is possible that alkaligrass and other salt tolerant grasses will be used more for turf purposes in the future.

CORNELL UNIVERSITY - Dr. Richard W. Smiley, Project Leader

Funds Granted - \$2,000 — Influence of Fungicides on Non-Target Organisms.

The objectives of this turfgrass research program are to 1) evaluate the influence of fungicides on numbers of various soil microorganisms, 2) determine if specific microbial groups are antagonistic toward pathogenic species of Fusarium, 3) determine the effects of fungicides on accumulation of thatch, and 4) determine whether the knowledge of fungicidal effects on antagonists of fusaria could be used to develop integrated control programs which offer performance superior to the current target pathogen-oriented chemical control programs.

The appropriate fungicides were applied to the turfgrass plots according to the proposed procedure. Plugs were removed from each treated plot for enumeration of microorganisms three times during the 1977 season.

Two graduate students are identifying numbers and kinds of organisms present at various times of sampling. This may help predict optimal times for fungicide applications for better control of some of our more difficult turfgrass diseases.

UNIVERSITY OF FLORIDA - Dr. A. E. Dudeck, Project Leader

Funds Granted - \$5,000 -- Three Years' Support

First Year of Support — The Effects of Heavy Metals Supplied by Effluent Water on Bermudagrass and St. Augustinegrass.

Field trips were made to inspect golf courses using effluents. Samples were taken of soils and tissues and heavy metal analysis will begin shortly. A laboratory-greenhouse study on Tifway bermudagrass is under way to determine phytotoxic levels of five heavy metals: cadmium, copper, lead, nickel and zinc. A similar test will be made on St. Augustinegrass. A thorough study of the literature has been completed and is being summarized.