VIRGINIA POLYTECHNIC INSTITUTE - Dr. Richard E. Schmidt, Project Leader

Funds Granted - $1,500 — Factors Influencing Winter Survival of Bermudagrass Cultivars Grown in the Transition Region.

Various known bermudagrasses, and one unnamed experimental, were subjected to extreme heat and cold treatments to determine their ability to survive, to recover and to resist wear. This study showed that Midiron and the unnamed experimental bermudagrass selection withstood the low temperatures better than Tifdwarf, Tifgreen, Tifway and Tufcote. Studies at VPI indicated that Tifgreen was more winter hardy than Tufcote. Beltsville tests rated Tufcote above Tifgreen. The unnamed experimental bermudagrass gives promise of doing well on tees and fairways in areas where bermudagrass is adapted.

WASHINGTON STATE UNIVERSITY - Dr. Roy L. Goss, Project Leader

Funds Granted - $1,500 — The Effect of Variable Rates of Sulfur on Bluegrass, Fescues and Ryegrasses

Plots 10' x 10' of Highlight chewings fescue, Bonnieblue Kentucky bluegrass and Manhattan perennial ryegrass were established in August, 1977 to determine the effects of 0, 75 and 150 lb of sulfur per acre per year on their growth and development. Sulfur has produced significant results in previous bentgrass studies with regard to control of Ophiobolus patch disease, reduction in Fusarium patch disease, reduction in Poa annua invasion, and we need to know this information in regard to bluegrasses, ryegrasses and fescues. Plots will be treated with different rates of sulfur and nitrogen. Poa annua encroachment also will be part of the study.

UNIVERSITY OF ILLINOIS - Dr. L. Arthur Spomer, Project Leader

Funds Granted - $1,000 — Water Stress and Strain Resistance of Selected Turfgrass Species.

Work on this project has been primarily concerned with developing standard techniques for screening turfgrass plants for water stress and strain resistance relative to expansion growth and dry matter growth. Since the apparatus and techniques required for this work are not commercially available, most of the project effort has been directed toward developing these necessary tools.

Progress to date includes the following:

1. Methods and apparatus for characterizing plant water status have been developed (not previously available for turfgrass work).

2. Methods for characterizing turfgrass permanent wilting point.

3. Methods and apparatus for measuring turfgrass whole plant, shoot, and root photosynthesis and respiration rates.

Current and future work is concerned with the following:

1. Characterizing the optimum soil physical environment relative to turfgrass root growth and water absorption.

2. Develop field and laboratory (greenhouse) methods to characterize turfgrass water use (how much required) and primary factors affecting it.

UNIVERSITY OF RHODE ISLAND - Dr. C. Richard Skogley, Project Leader

Funds Granted - $1,350 — Bentgrass Selection and Breeding and Greens Topdressing Trials.

General support for the bentgrass selection and breeding project is a continuing phase of work under Dr. Skogley. Many selections have proved to be excellent vegetative types but to date none show promise of reproducing sexually, thereby limiting their use.

Topdressing trials were also initiated in 1976 to evaluate various sand, soil and organic ratios. Data must be gathered over several years in such a project for meaningful results.

TEXAS A&M UNIVERSITY - Dr. James B. Beard, Project Leader

Funds Granted - $4,500 — Investigations Concerning the Causes and Prevention of Turfgrass Wear.

Objectives. To evaluate the comparative wear tolerances of 17 perennial ryegrass cultivars, 8 fine leafed fescue cultivars, and 2 rough bluegrass cultivars plus 13 polystands that have been overseeded onto a dormant bermudagrass putting green turf.

Results. The comparative wear tolerances of 17 perennial ryegrass (Lolium perenne L.) cultivars after 500 revolutions of the wear simulator were reported. Most of the improved turf-type cultivars released in the last several years performed quite similarly in terms of wear tolerance, particularly sled wear. Ranking slightly better (from most to least) were Caravelle, Birdie, and Manhattan perennial ryegrasses. In contrast S-321, Syn. D-1, Pelo, and NK-100 ranked low in terms of tolerance to sled wear.

The minimum differentials in wear tolerance among the improved perennial ryegrass cultivars are quite striking, especially in comparison to the results obtained among the 8 fine leafed fescues. Golfrood, Kensington, and Dawson chewings fescue cultivars ranked relatively high in tolerance to sled wear, while