

UNIVERSITY OF GEORGIA - Dr. S. Edward Law, Project Leader

Funds Granted - \$5,000 — Electrostatic Precipitation of Low-Volume Pesticide Sprays Onto Turf.

The overall objective of this project is to increase the efficiency of depositing airborne pesticide droplets onto turf surfaces by the development of appropriate electrostatic principles and technology. Progress, though good, was delayed by the failure of a regional golf equipment company to provide, as previously agreed upon, a truckster vehicle on loan. Several concepts have been developed which hopefully will be applicable to turfgrass spraying. Two requirements must be met: 1) all droplets must be charged to a common polarity, and 2) a sufficiently intense electric field must be established to drive the charged droplets to the grounded turf target.

Major efforts this year have involved: theoretical analysis and conceptual design for guiding subsequent detailed engineering design; evaluation of the existing spray charger for use as a system component in turf spraying; selection and evaluation of alternate "back-up" spray-generation capabilities in order to retain design options; and the design and fabrication of a first generation prototype charged sprayer for turf.

UNIVERSITY OF GEORGIA - Dr. B. P. Verma, Project Leader

Funds Granted - \$1,000 — Development of a Sand Cleaning Machine for Use in Bunkers.

The objective is to produce an attachment for the mechanical rakes presently on the market that could remove gravel 1/4 inches and larger from sand in bunkers. The earlier prototype required a great number of rotating metal parts and therefore a new design was developed using nylon belts at a preset distance which rotate on pulleys. The new design successfully cleans damp or dry sand. Hopefully, manufacturers of mechanical sand rakes will adapt this principle to their machines. It would help greatly in cleaning debris from bunkers, it definitely would be a contribution to labor-savings in golf course maintenance when this problem exists.

GEORGIA COASTAL PLAIN EXPERIMENT STATION - Dr. Glenn W. Burton, Project Leader

Funds Granted - \$4,000 — Bermudagrass Varietal Improvement for Golf Through Selection and Breeding for the South and the Transition Zone.

This project is aimed in the direction of developing winter hardy cultivars of bermudagrass for golf. This past severe winter, much information was gathered on the winterhardiness of a large number of mutants and hybrids. These cultivars

have been well established at the USDA Research Station, Beltsville, Maryland and observed for winter performance over a 5-year period. Dr. Burton and Dr. Gerald Powell, of the U.S. Department of Agriculture at Beltsville, Maryland, have closely cooperated over the last 5 years in observation of winterhardiness of the major bermudagrass cultivars. Dr. Powell's report on winterhardiness is as follows: "Our bermudagrass mutants established for 5 years here were selectively killed. Not all of Tifgreen was killed, but rated 4.75 on a scale of 0-9 for complete kill to little damage. Midiron ranked 8.50 and is our most winter hardy variety. Mutant 951 ranked 7.50 and Mutant 260 ranked 6.25. Tufcote in this test ranked 6.00. A total of 18 mutants ranked higher than Tifgreen. Tifdwarf was far down the list in 156 clones which were evaluated."

At Tifton, 9 of the most promising bermudagrass mutants and their parent clones of Tifgreen, Tifdwarf and Tifway have been moved into the greenhouse for expansion tests in Tifton field plots next year. At this time Dr. Burton judges that the 9 mutants are superior to the parent clones in winterhardiness, although most of them are not greatly different..

UNIVERSITY OF MISSOURI - Dr. John H. Dunn, Project Leader

Funds Granted - \$1,000 — Management of Zoysia and Bermudagrass in a Transition Zone.

Various management practices alone and in combination are being tried on zoysia and bermudagrass. Mowing frequency decidedly affects thatch with closer mowing (3/4 inch) showing a beneficial reduction. Mowing frequency and height had a greater effect on thatch reduction than mechanical thatching. Lower rates of nitrogen also exhibited less thatch than high rates.

Lower rates of nitrogen continue to give good quality zoysia and bermudagrass turf providing proper attention is given to other management procedures. A combination of 2 pounds nitrogen per year, 3/4 inch mowing, and annual dethatching has been the most favorable treatment for quality zoysia. However, casual observation based upon "sponginess" of turf suggests that even 2 pounds of nitrogen may be above optimum except where recovery from injury or replacement of leached nitrogen is needed. An annual application of 3 pounds of nitrogen seems to be sufficient for good quality of the three bermudagrass varieties used in this study. Increased nitrogen may also be needed for bermudagrass where leaching of nitrogen or injury occurs.

NORTH CAROLINA STATE UNIVERSITY - Dr. W. M. Lewis, Project Leader

Funds Granted - \$1,200 — The Influence of Soil and Air Temperatures on Goosegrass (Eleusine indica (L.) Gaertn) Germination with Reference to Timely Herbicide Application for Preemergence Control of Goosegrass.

Objectives: To determine the optimum time to apply preemergence herbicides for