be well adapted to our continent since its importation in the 19th Century. The grass does not normally spread by rhizomes [underground horizontal shoots] as in such turf species as Kentucky bluegrass. We have evaluated 650 plants from Turkey, Iran and this country that do show a certain amount of rhizome growth. Based upon that characteristic and other selection criteria, 78 individuals were selected in 1986 to act as parents in an isolated block to produce the first improved turf type plants in 1987.

Inland saltgrass is a species that spreads vigorously by rhizomes to form dense stands that will tolerate salty, waterlogged or droughty soils. Collections from eight western states have been evaluated as space-planted individuals and in a turf planting. Selections will be made in 1987 from the nursery in order to produce the first advanced generation from the most promising and adaptable material.

UNIVERSITY OF GEORGIA - Dr. Glenn W. Burton
Principal Investigator

Bermudagrass Breeding - Vegetative

1986 Grant - $5000 [ongoing since 1956]

USGA support of Dr. Burton's work, since 1956, has been one of the most successful turfgrass research breeding projects in the history of agriculture! His improved bermudagrass varieties include Tifgreen [Tifton 328], Tifgreen II, Tifway [Tifton 419] and Tifdwarf to name but a few. His emphasis now is to try to increase winter hardiness of the Tif-turf bermudagrass hybrids that have been so well received on warm-season-grass golf courses throughout the world.

Efforts to obtain new germplasm from winter hardy bermudagrasses in South Africa continues to be frustrating. Such material is obviously present in South Africa, but Dr. Burton and co-worker Dr. Hanna have been unable to procure any of it through long distance communications although valiant efforts have been made. Eventually, someone may have to specifically travel to South Africa for this purpose.

Some plants from crosses between the winter hardy Berlin bermudagrass and the most winter hardy C. transvaalensis from New Jersey trials have been developed and planted for observations during the summer of 1986. These plants will now be placed under putting green conditions and a screening procedure is planned for further winter hardiness tests. The Country Club of Blairsville, Georgia is an ideal mountain location where temperatures below 0 with little snow cover can usually be expected.

A number of better quality mutants selected from Midiron bermudagrass several years ago have been maintained at Blairsville in 1985 and 1986 at two different cutting heights. They all survived the past mild winter there when temperatures were not low enough to sufficiently stress or destroy any of them.

Efforts to produce an armyworm-resistant bermudagrass continue but without earth shaking progress. Dr. Bob Lynch, USDA entomologist, found a slight resistance to armyworms in one selection out of 500 plants collected mainly from South Africa, but there has been little progress in transferring this resistance to the triploid hybrids.

Last summer a California landscape contractor contacted Dr. Burton regarding the establishment of bermuda turf in a large housing development. The specifications called for use of a bermudagrass that would shed no pollen. Of course, common bermudagrass pollen is one of the worst for people suffering from asthma and hay fever. However, Dr. Burton's Tif-turf bermudagrass hybrids are sterile, produce no pollen and therefore perfectly safe for use as the turfgrass cover on such projects. Again, the spin-off of research for better golf course turfs has benefitted all mankind.

UNIVERSITY OF GEORGIA - Dr. Robert N. Carrow
Principal Investigator

Influence of Soil Moisture Level
on Turfgrass Water Use and Growth

1986 Grant - $10,000 [first year of support]

One means of conserving water on turfgrasses is to reduce irrigation frequency; thereby, allowing the turfgrass to undergo a greater degree of drought stress before irrigation. By evaluating turfgrass performance under non-limiting to moderate moisture stress conditions, minimum water use requirements for a given level of turfgrass quality can be formulated. Also, the measurement of physiological and morphological plant responses will provide insight into drought avoidance and tolerance mechanisms for the three warm season grass species in this study.

During 1986, twenty-seven research units were installed under field conditions. Each unit had individually controlled irrigation capability. Moisture sensing probes were installed at three soil depths to monitor water extraction relative to rooting patterns. The three grasses [Tifway bermudagrass, Meyer zoysiagrass, and common centipedegrass] were established with each species irrigated under a range of soil moisture from non-limiting [soil = -0.40 b] to moderate stress [soil = -9.0 b]. Detailed measurements of water use and growth parameters were initiated several times starting in mid-July. However, the TDR unit used to determine soil water content did not function properly and was returned to the manufacturer for upgrading. Intensive data collection is scheduled by 1987 and 1988 growing seasons. All scientific equipment to be provided by the University of Georgia in this joint project has been obtained and a graduate research assistant has been assigned to the project.