Restricted - Not for Publication

December 1, 1986

USGA/GCSAA TURFGRASS RESEARCH PROGRAM

1986 SUMMARY OF RESEARCH

COLORADO STATE UNIVERSITY - Dr. Robert L. Cuany
Principal Investigator

Development of Dryland Western Turfgrass Cultivars

1986 Grant - $20,000 [second year of support]

Colorado State University, with principal support from the United States Golf Association, has continued research and selective breeding efforts in the development of new cultivars with improved turf performance of four western grass species. The species being evaluated and improved are alkaligrass [Puccinellia spp.], blue grama [Bouteloua gracilis], fairway wheatgrass [Agropyron cristatum] and inland saltgrass [Distichlis stricta]. Changing economic conditions and increasing demands upon limited water supplies make a strong demand upon breeders to supply special purpose grass cultivars for golf courses, parks, lawns and other turf applications. The species under study possess some unique and promising characters that will allow the breeding project to develop new cultivars for minimum maintenance turf on such problem areas as salt affected, poorly drained or droughty soils.

Alkaligrass, a species highly tolerant of salt and waterlogged soils, has been evaluated this year in a nursery of approximately 900 individual plants from six western states and five foreign countries. Two turf seeding test plots also serve to evaluate seeding rates and the performance of various sources in a turf maintenance situation. Seed production of these plants was good, and in 1987 we should select elite parent plants for production of the first generation improved plants.

Blue grama is the dominant drought tolerant grass in many of the western grasslands, and an improved turf type cultivar should do well on the alkaline western soils with a minimum of care. Collections from three western states have been evaluated, and in 1986 twenty-seven superior plants were selected from the nurseries and moved to an isolated block which will produce seed in 1987 for the first generation of the population of improved plants.

Fairway wheatgrass is another drought tolerant grass commonly found in wild stands in the West. It evolved in Eurasia but has proven to

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.