

USGA/GCSAA TURFGRASS RESEARCH PROGRAM

1985 SUMMARY OF RESEARCH

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COLORADO STATE UNIVERSITY - Dr. Jack D. Butler, A0  
Principal Investigator

Development of Dryland Western  
Turfgrass Cultivars 10

1985 Grant - \$10,000 (first year  
of support)

Western grasses grow successfully in arid regions on poor soil without the addition of water and fertilizer. Some of these grasses are adaptable to turf use. Changing economic conditions and water shortages have made it desirable to improve promising species to produce low maintenance turfgrasses for golf courses, parks, and lawns. The species which are receiving research attention at Colorado State University are alkaligrass (Puccinellia spp.), inland saltgrass (Distichlis stricta), blue grama (Bouteloua gracilis), and fairway wheatgrass (Agropyron cristatum). 13

Field evaluation of these species is being conducted in spaced-plant nurseries composed of individuals representing the genetic diversity of up to eight western states and five foreign countries. Individual plants are being evaluated on their important characteristics in a selective breeding program for improved turf performance. In all, 198 accessions are now being evaluated for performance in turf plots under low maintenance conditions. Elite individual plants will be selected, cloned and moved to replicated isolated cross pollination plots to produce the next generation of improved progenies. This cycle of field evaluation of individuals followed by production of an advanced generation from selected parents will be continued until significant improvement is achieved. At that time, improved varieties will be released for turf use.

CORNELL UNIVERSITY - Dr. Richard W. Smiley,  
Principal Investigator

Resistance of Bentgrass to Phialophora  
and Leptosphaeria Diseases

1985 Grant - \$7,000 (First year of support. Dr. Smiley moved to Oregon State University as of November 1, 1985. This project is now on "hold".)

Seedlots of 42 bentgrasses are being screened for resistance to two isolates for each of two newly recognized root-infecting fungi; Phialophora graminicola and Leptosphaeria korrae. These fungi cause summer patch and necrotic ring spot diseases, respectively. The resistance studies are conducted for an 8-week period in controlled-environment chambers. Percentages of plants which survive the test will be reported in early winter. Surviving plants from selected seedlots will be returned to the plant breeder from whom the seed was supplied; this may assist in development of selections with high levels of resistance. Methodology was also developed to conduct similar screening studies on vegetatively propagated bentgrasses. This research revealed the potential for further complexities to exist in the etiology of take-all patch of bentgrasses, which have been thought to be caused only by Gaeumannomyces graminis var. avenae. In New York, it is now also known that P. graminicola causes a hot weather form of take-all patch on bentgrasses, and this possibility was confirmed during the development of methods for this project, sponsored by the USGA Green Section. These new finds have relevance to the likelihood that certain disease management strategies will or will not be effective during summer. The project was terminated prematurely because the principal investigator moved to another position.

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

Bermudagrass Breeding -  
Vegetative

1985 Grant - \$5000 (ongoing  
since 1956)

Dr. Burton is one of the preeminent plant breeders in the world. He reports that Tifgreen II bermudagrass, released by him in 1983, has had good reception throughout the Southeast. One golf course in South Florida reported that Tifgreen II developed many more seed heads than Tifgreen and this is not desirable. However, there have been no similar reports from other southern golf courses to-date. During the severe winter of 1984/1985, Tifgreen II greens survived temperatures as low as 0° F. and 6° F. although some winter kill did occur where low temperatures persisted. Additional reports are sought.

Work is under way in developing a bermudagrass resistant to the fall armyworm. Dr. Burton is working cooperatively with a USDA entomologist in screening for resistance with the intention of developing a bermudagrass which will not require insecticide protection from this pest.

Important breeding for greater winter hardiness of bermudagrass continues. Contacts in South Africa, developed by Dr. James R. Watson, a member of the USGA Turfgrass