

1986 Summary Report to
United States Golf Association

J. M. Duich and Eric K. Nelson
Penn State University

I. Creeping Bentgrass

a. PENNLINKS creeping bentgrass (experimental designation PSU-126) was released and named by the Pennsylvania Agricultural Experiment Station Seed Committee on November 3, 1986. Application was made for Plant Variety Protection. Varietal features are upright growth habit, finer leaves than current varieties, minimal segregation after 8 years, seasonal turf quality and overall performance in a 17 state plus Canada evaluation. Limited quantities of seed are now commercially available.

b. Breeder Seed of Penneagle and Pennlinks were produced in 1986.

c. Approximately 500 creeping bent plants surviving Smiley's Cornell screening for two races each of Phialopora graminicola and Leptosphaeria korrae were nursery established for 1987 seed increase for further screening.

d. Other experimental nursery plantings included northern and southern Penncross reselections, close-cut bent segregates under 2/32 and 3/32 cutting height for 5 years from Penncross and Penneagle, 100 French and Italian golf course selections made by Howard Kaerwer, Hawaiian and U.S. golf course selections, and early flowering selections.

e. Seed was selected from 2nd generation salt tolerant lines for tolerance and turf testing.

f. Following Roundup renovation, Penncross, Penneagle, Pennlinks and Seaside bents were established into a Poa annua infested area. Triplex mowing was initiated with a clipping removal variable with chemical controls and growth regulators to be imposed in 1987.

II. Colonial Bentgrass

a. Selection for rhizomatous colonial bents continued on a large scale utilizing the selfing and open pollinated approach with approximately 30,000 plants in various generations including new selections.

Approximately 450 plants were field selfed (1 to 4 generations of inbreeding) in 1986 and are in process of greenhouse screening along with their open pollinated counterparts. Over 2300 inbred progeny with emerged rhizomes were field planted for advanced inbreeding and selection in 1987.

Seeds of 277 open pollinated lines (1st to 3rd generation of sib families) was harvested for turf evaluation trials to be initiated in 1987.

Efforts to increase rhizomatous plant reproduction through seed propagation is proving to be a most difficult task after six years effort working with several hundred thousand plants. However, utilizing increased efficiency techniques we plan to continue our efforts to fruition.

III. Tissue Culture

a. This project was initiated with a worldwide computer reference search. Literature review has been in progress for several months.

b. Our primary objective remains to be the development of haploid plants through microspore culture followed by colchicine chromosome doubling. To meet this objective several secondary objectives are necessary; 1 study pollen development as it correlates with macroscopic inflorescence morphology, 2 development of sterilization technique for panicle treatment prior to culture, 3 induced greenhouse flowering, 4 testing pollen culture techniques already established for small grains and grasses, and 5 chromosome doubling of haploid plants.