

Fitzpatrick) and dollar spot (Sclerotinia homoeocarpa) F. T. Bennett) will be used as selection pressures to isolate genotypes with resistance to these pathogen. Later sexual incorporation of these genotypes into present germplasm will be made to broaden the current germplasm base.

PENNSYLVANIA STATE UNIVERSITY - Dr. J. M. Duich & E. K. Nelson Principal  
Investigators

Bentgrass Breeding

1984 Grant - \$4000 (ongoing)

All bentgrass breeding projects were continued during 1984 but major weather constraints were encountered in early August during the maturity and harvest period. Rain totaling 6.15 inches from August 1-14 caused lodging, vegetative growth and seed shattering and researchers a major problem.

In creeping bentgrasses, the initial harvest of 14 salt tolerant creeping bent types was very poor with five lines failing to flower. Seed from the experimental PSU-126 has been distributed to 126 cooperators in 30 states, Canada and South Africa. Forty acres were established in Oregon for additional commercial growing experience. Pending field testing results, a release of PSU-126 is projected in 1986.

Colonial bentgrasses are continuing to be selected for rhizomatous growth habit into the first to third open pollinated generation, and into the second self-pollinated generation. In the greenhouse, approximately 28,000 plants were grown from seed for five months. They were screened for deep and shallow rhizomes and for plant vigor

The majority of 1984 screening was involved with first and second generation self-pollinated material totaling 18,663 progeny. These results confirm that rhizomatous bent parental selections are very heterozygous for the rhizome character and no clue is in evidence as to the number of genes, other than multiple-genic, responsible for rhizomes. The problem is compounded by the majority of material, 97 of 102 parents examined, being hexaploid: 42 chromosomes. No literature has ever been published regarding genetic control of rhizomes in grasses.

Approximately 8500 greenhouse selected rhizomatous progeny were field space-planted in June, 1984 for further selecting. Eric Nelson is tentatively planning on continuing research toward a Ph.D. utilizing tissue culture to produce haploid plants. This technique could conceivably cut down years of selection work to produce near homozygous types of colonial bentgrass.