

NOT FOR PUBLICATION

Breeding and Evaluation of Kentucky Bluegrass,
Tall Fescue, and Perennial Ryegrass for Golf Turf Use

C. Reed Funk, William K. Dickson, Ronald Bara,
Jennifer M. Johnson-Cicalese, and Suichang Sun

Soils and Crops Department
New Jersey Agricultural Experiment Station
Cook College
Rutgers University
October 1986

1. Turfgrass germplasm collected from old turfs in New Jersey, Utah, and Wyoming, were added to over 50,000 turfgrass entries being evaluated in turf trials at Adelphia and North Brunswick. This is part of our program to develop better turfgrasses with increased pest resistance, improved stress tolerance and lower maintenance requirements.
2. The first certified seed crops were harvested from Liberty Kentucky bluegrass, Arid tall fescue, Rebel II tall fescue, Cimmaron tall fescue, Flyer strong creeping red fescue, and Aspen Kentucky bluegrass. Fields have been established to produce future foundation or certified crops of SR4000 perennial ryegrass, SR4100 perennial ryegrass, Destiny Kentucky bluegrass, Trenton Kentucky bluegrass, Mesa tall fescue, Dawn Kentucky bluegrass, Bronco Kentucky bluegrass, Tribute tall fescue, and SR3000 hard fescue. Germplasm obtained from the New Jersey Agricultural Experiment Station was used in the development of these varieties.

3. Nearly 5,000 new turf evaluation plots of Kentucky bluegrass, tall fescue, perennial ryegrass, Chewings fescue, strong creeping red fescue, hard fescue, and blue fescue were established in addition to five acres of spaced-plant nurseries.
4. We are continuing research on the effects of endophytic fungi on turf performance and pest resistance in perennial ryegrass, tall fescue, hard fescue, Chewings fescue, strong creeping red fescue and blue fescue. Germplasm collections are being screened for ⁿNew sources of potentially useful endophytes in other turfgrass species.
5. We are participating in a program to assess the feasibility of developing composite cultivars of Kentucky bluegrass with a broad genetic base. This should enhance adaptation to a wide range of environmental and management variables and perhaps improve seed production.
6. Increasing emphasis is being placed on the development of lower growing cultivars of tall fescue, perennial ryegrass, creeping bentgrass, hard fescue, Chewings fescue, strong creeping red fescue, and Kentucky bluegrass.

7. Jennifer M. Johnson-Cicalese has initiated a thesis research project on the role of billbugs on turfgrass performance. She found that at least four species of billbugs are commonly found on turfgrasses in central New Jersey.

Breeding and Evaluation of Kentucky Bluegrass, Tall Fescue, and Perennial Ryegrass
For Golf

C. Reed Funk, William K. Dickson, Ronald Bara, Jennifer M. Johnson-Cicalese, and
Suichang Sun

Executive Summary

The New Jersey Agricultural Experiment Station of Rutgers University continues to devote considerable resources to the Turfgrass Breeding Project adding to the support that we are receiving from the United States Golf Association and other sources. This support enables us to make significant improvements in stress tolerance, turf performance, and pest resistance in Kentucky bluegrass, perennial ryegrass, tall fescue, and fine fescues. In addition, we are training a number of students in the fields of turfgrass science and plant breeding. We are also making contributions to basic research.