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

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1. Promising turfgrass germplasm and associated endophytes were collected from old turfs in Argentina, Oregon, Wyoming, Utah, and New Jersey. Herbarium studies showed that a number of Poa and Festuca species native to South America contain endophytes.

2. Over 5,000 new turfgrass evaluation plots and over 6 acres of spaced-plant nurseries were established in 1994.

3. Germplasm developed at the New Jersey Agricultural Experiment Station contributed to a number of new turfgrass cultivars including Prizm, Advantage, and Tophat perennial ryegrasses, Houndog V and Jaguar III tall fescues, Winterplay rough bluegrass, Brittany Chewings fescue, and Preakness Kentucky bluegrass. Other turfgrasses being evaluated for commercial use include Laser II rough bluegrass, Azure blue fescue, Treazure Chewings fescue, Nordic hard fescue, and GEN 91 tall fescue.

4. Considerable winter kill was observed on closely mowed, highly fertilized perennial ryegrasses, tall fescues, and annual bluegrasses subjected to between two and one-half to three months of continued ice cover. Nearby plantings of Kentucky bluegrasses, fine fescues, and bentgrasses showed little or no damage except for some pink and grey snow mold. Adjacent plantings of tall fescues maintained at a higher cut and lower fertility showed little damage from ice sheet cover. Selection of attractive plants surviving prolonged ice cover was made. Turf trials have been seeded to progenies of the most promising selections. Ice sheet damage on perennial ryegrasses and tall fescues illustrate the need to obtain new sources of germplasm.

5. Considerable progress continues to be made in developing populations of tall fescues, perennial ryegrasses, Chewings fescues, strong creeping red fescues, and rough bluegrasses with a darker green color, a lower growth profile, more tillers, greater density, and a slower rate of leaf elongation. Many of these characteristics are also noted in ecotypes collected from far northern latitudes. They are also observed when local ecotypes are growing under short daylengths and cool temperatures of late fall and early winter. Many of these lower growing populations are also showing other short daylength effects such as prolonged winter dormancy. Increased efforts are being made to identify and utilize lower growing plants which are independent of daylength effects.

6. Kentucky bluegrass cultivars and selections are being screened for resistance to a race of stripe smut which is highly virulent on many widely used cultivars including Baron, Victa, Marquis, Merit, Gnome, Kelly, and Viva.

7. Intraspecific and interspecific hybridization programs are being expanded in Poa.

Progress Report

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C. Reed Funk, David Huff, James Murphy, Richard Ilnicki, Bruce Clarke, Lisa Lee, James White, William K. Dickson, Ronald Bara, Dirk Smith, Suichang Sun, Karen Plumley, Randy Prostak, Pedro Perdomo, Michael Ventola, Joseph Clark, Margaret Secks, Beth Baikan, Stacy Bonos, and Barbara Smith

New Jersey Agricultural Experiment Station

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